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Sumitomo Drive Technologies

PARAMAX® 9000 Series

Industrial Gearbox

Specifications, dimensions, and other items are subject to change without prior notice.

 Sumitomo Heavy Industries, Ltd.

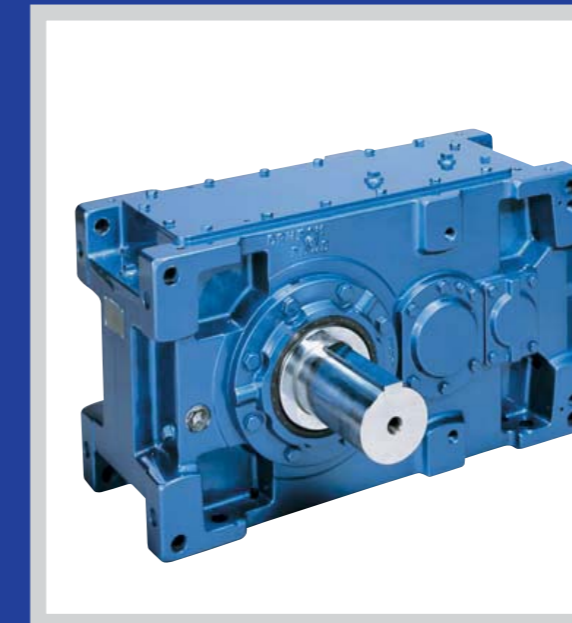
Power Transmission & Controls Group

Headquarter ThinkPark Tower, 1-1 Osaki 2-chome, Shinagawa-ku, Tokyo 141-6025, Japan

No.G2020E-2

EA03 Printed 2018.09

Sumitomo Drive Technologies



PARAMAX®
9000 Series
Industrial Gearbox

 Sumitomo Heavy Industries, Ltd.

No.G2020E-2

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Features

JUST FIT SIZE

26 sizes variation for most accurate economical selection.

Prepared full range 26 sizes variation.
 Fitness size selection available for every requested torque.
 Customer's wide design availability with most accurate economical selection.

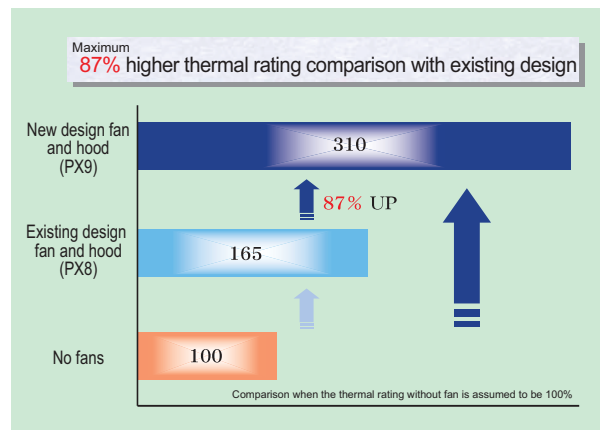
Size	Output Torque	Size	Output Torque	Size	Output Torque
9015	2.6	9065	31.4	9110	174
9025	4.2	9070	38.2	9115	207
9030	6.4	9075	47.8	9118	260
9035	8.5	9080	58.5	9121	301
9040	10.1	9085	73.1	9126	351
9045	13.2	9090	85.9	9128	420
9050	15.3	9095	101	9131	473
9055	19.9	9100	122	9136	552
9060	24.4	9105	144		

【kNm】

LARGER THERMAL CAPACITY

Advanced thermal capacity by new designed fan cooling system. (Option)

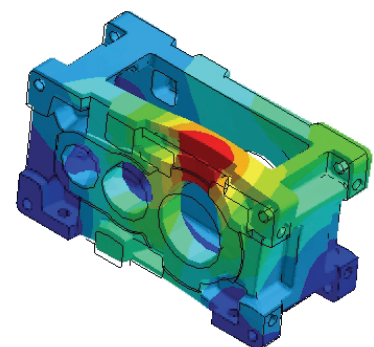
New designed fan and conducted air cowling gain larger thermal capacity.
 This system benefits for severe situation like continuous operation, even if compact size.



LOW NOISE

Low noise resulting from optimized gear tooth profile modification and rigid housing design.

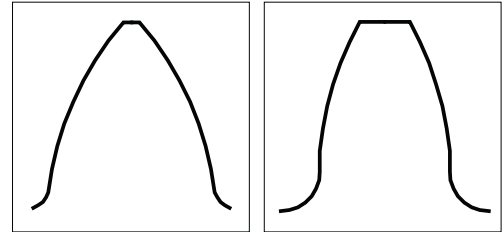
FEM analysis used to maximize housing strength and rigidity, so maintaining correct gear alignment and bearing loading.



FEM Analysis

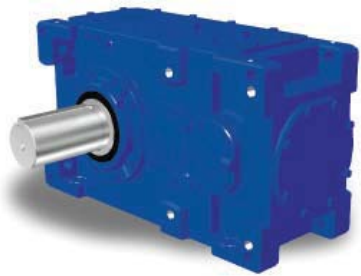
HIGH TOOTH STRENGTH 25 deg Pressure angle

In comparison with ordinary pressure angle (20 deg), 25 deg pressure angle permits a tooth form with thicker dedendum. This translates into higher tooth strength rating, an essential feature for shock load applications.

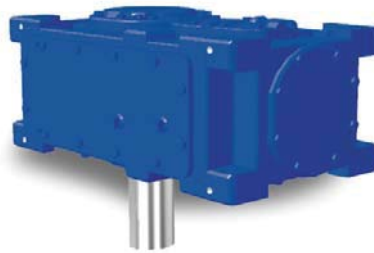


25 deg Pressure Angle 20 deg Pressure Angle

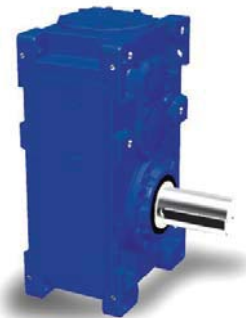
UNIVERSAL HOUSING Horizontal, vertical or upright mounting - All use the same housing.



Horizontal mounting



Vertical mounting



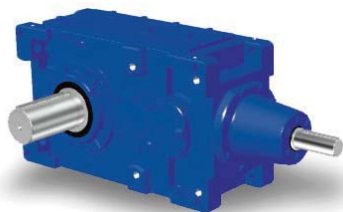
Upright mounting

AVAILABLE COMBINATION

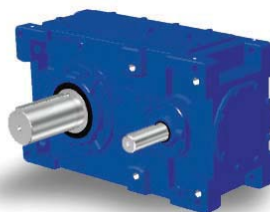
Reducer

		Ratio																					
		6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71
Size	9015	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
	9025	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				
	9030	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9035			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9040	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9045			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9050	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9055			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9060	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9065			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9070	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9075			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9080	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9085			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9090	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9095			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9105			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9110	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9115			●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
9118													●		●	●	●	●	●	●	●	●	
9121															●	●	●	●	●	●	●	●	
9126															●	●	●	●	●	●	●	●	
9128															●	●	●	●	●	●	●	●	
9131													●	●	●	●	●	●	●	●	●	●	
9136													●	●	●	●	●	●	●	●	●	●	

		Ratio																
		80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500
Size	9015																	
	9025																	
	9030	●	●	●	●	●	●	●	●	●	●							
	9035	●	●	●	●	●	●	●	●	●	●	●						
	9040	●	●	●	●	●	●	●	●	●	●	●						
	9045	●	●	●	●	●	●	●	●	●	●	●	●					
	9050	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	9055	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	9060	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9065	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9070	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9075	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9080	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9085	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9090	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9095	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9100	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9105	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9110	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	9115	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
9118	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
9121	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
9126	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
9128	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
9131	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
9136	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	



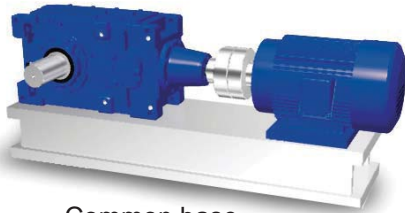
Reducer: Right Angle



Reducer: Parallel

INTRODUCTION OF APPLICATION

With Motor



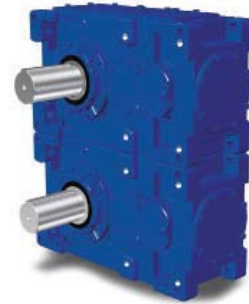
Common base



Drive unit right angle

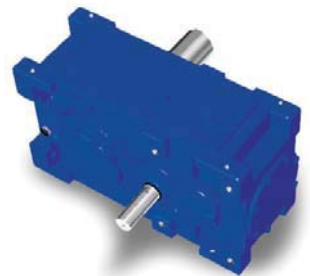


Drive unit parallel



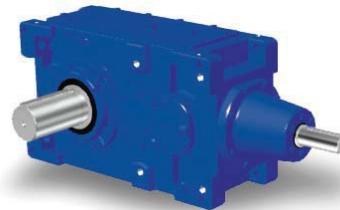
Double Stack

Single stage



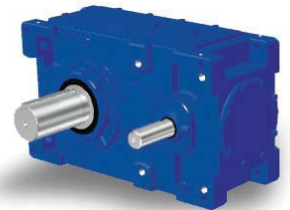
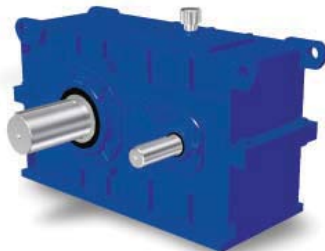
Top mount

Reducer



Right angle

Steel housing



Parallel

Mounting

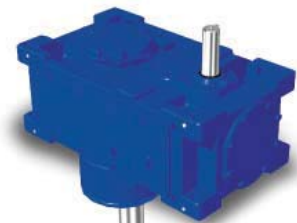


Upright mount



Upright wall mount

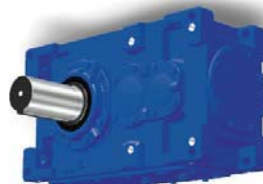
Special slow speed shaft



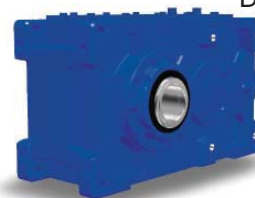
Drop bearing housing



Vertical mount



Ceiling mount



Hollow shaft

Introduction of Applied Product

M Series

- Output Torque
1.0~76.5kNm



Drive Units

- Output Torque
0.9~75.2kNm



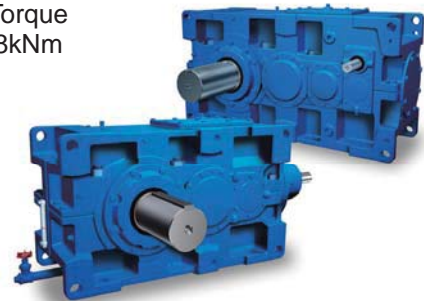
SCC Series

- Output Torque
6.7~207kNm



SGD Series

- Output Torque
1.7~278kNm



SEB Series

- Output Torque
1.3~36.3kNm



SAF Series

- Output Torque
1.5~39.2kNm
- Catalogue
No.H0156E



SFC Series

- Output Torque
10~44kNm
- Catalogue
No.G2201E



HEDCON

<Standard>

- Output Torque
0.8~77.4kNm
- Catalogue
No.W0101E



<precision type>

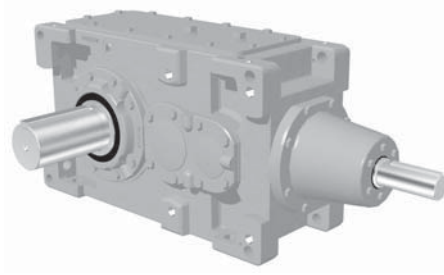
- Output Torque
0.8~20kNm



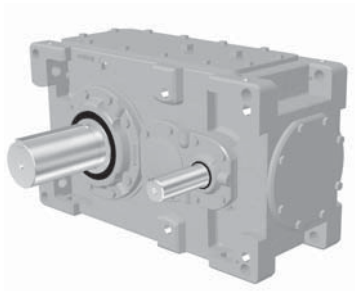
HEDCON with Cyclo

- Output Torque
2.8~20kNm





<Reducer: Right Angle Shaft Horizontal Mounting>



<Reducer: Parallel Shaft-Horizontal Mounting>

B

Reducer

Standard Specifications	...	B- 2
Construction Drawing	...	B- 3
Nomenclature	...	B- 4
Selection Flowchart and Formula for Selection	...	B- 6
Service Factor	...	B- 8
Right Angle Shaft	...	B- 11
Parallel Shaft	...	B-101

Reducer Standard Specifications

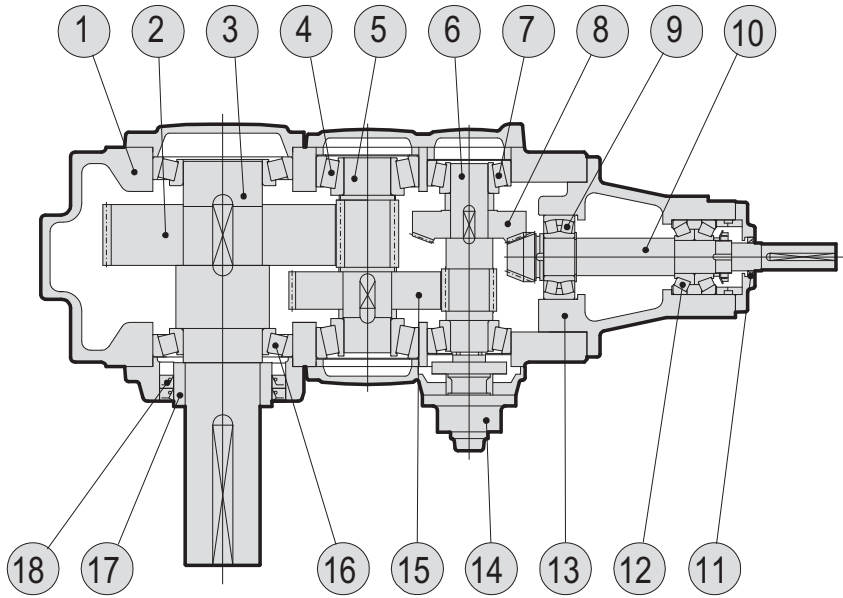
Item		Standard Specification		
		Mounting	High Speed Shaft Speed	
Reducer	Lubrication Method	Horizontal Shaft	750 ~ 1800r/min	Oil bath lubrication In case of high speed shaft speed is less than 750r/min, electric pump lubrication may be used. Consult SUMITOMO for details.
		Vertical Shaft	400 ~ 1800r/min	Pump lubrication (Two different pump lubrication systems are available; shaft connected pump lubrication and electric pump lubrication. For details, refer to the outline dimension drawing.)
		Upright Shaft	750 ~ 1800r/min	Oil bath lubrication Grease lubrication for right angle input shaft.
	Lubricant	Refer to the page C-2.		
	Gear Type	Involute external gear		
Ambient Conditions	Installation Location	Indoor (Minimal dust and humidity)		
	Ambient Temperature	- 10°C ~ 40°C A cooling fan may be required depending on the usage (Note)		
	Ambient Humidity	Under 85%		
	Elevation	Under 1,000 meters		
	Atmosphere	Well ventilated location, free of corrosive gases, explosive gases, vapors and dust.		
Installation	Horizontal installation Refer to the page C-2			
Method of Coupling with Driven Machine	Coupling, gears, chain sprocket or belt.			
Painting	Surface preparation: Shot blasting after washing before machining Inside painting: UNI GROUND PTC primer is sprayed once Outside painting: For primer coating, UNI GROUND PTC primer is sprayed once. For final coating, NEORON #2000 is sprayed once. Painting color: Donau Blue (equivalent Munsell color: 6.5PB 3.6/8.2), Refer to the page C-3.			

Note : In general, a heating or cooling system is necessary when ambient temperature is lower than -10°C or higher than 50°C.

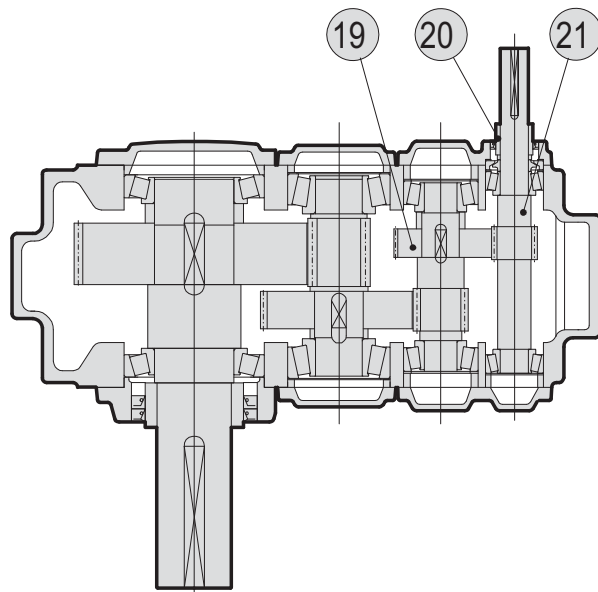
e.g. High temperature gas or liquid passes through the hollow shaft.

Consult us when substances lower than -10°C or higher than 50°C will be in contact with PARAMAX DRIVES.

Reducer Construction Drawing



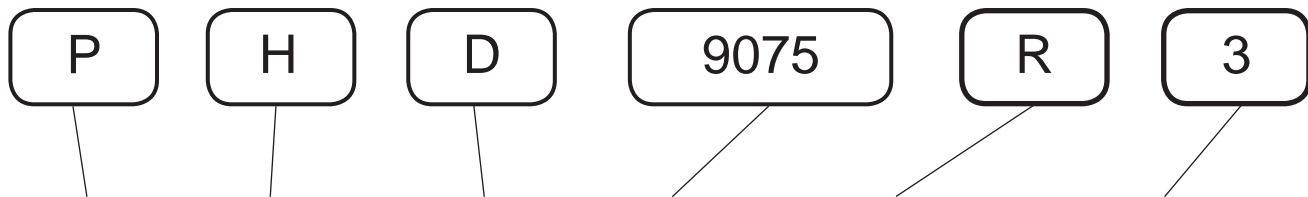
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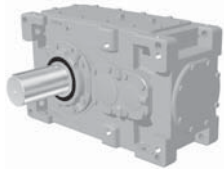
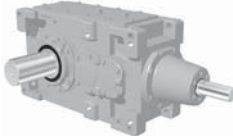
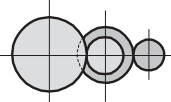
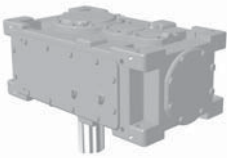
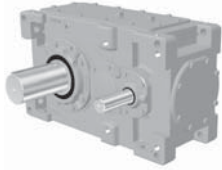
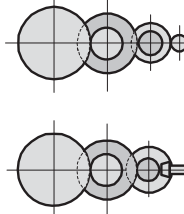
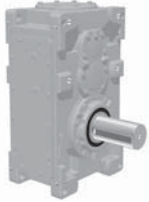
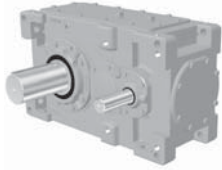
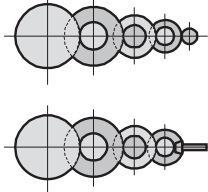


<Reducer: Parallel Shaft Triple Reduction>

Ref.No.	Part Name	Ref.No.	Part Name	Ref.No.	Part Name	Ref.No.	Part Name
1	Housing	7	Taper roller bearing	13	Bearing housing	19	Helical gear
2	Helical gear	8	Bevel gear	14	Oil pump	20	Collar
3	Slow speed shaft	9	Spherical roller bearing	15	Helical gear	21	Helical pinion shaft
4	Taper roller bearing	10	Bevel pinion shaft	16	Taper roller bearing		
5	Helical pinion shaft	11	Oil seal	17	Collar		
6	Helical pinion shaft	12	Taper roller bearing	18	Oil seal		

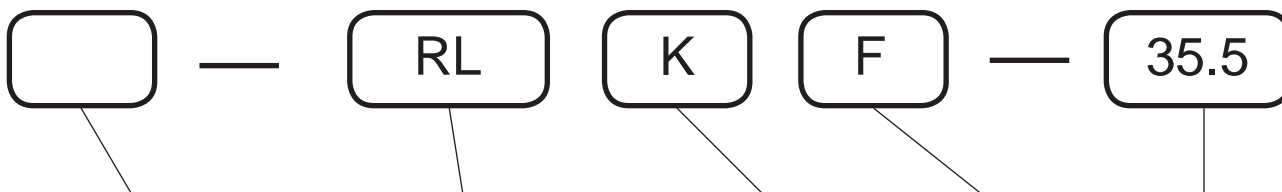
Reducer Nomenclature

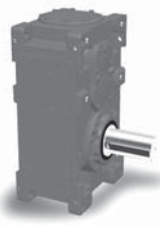
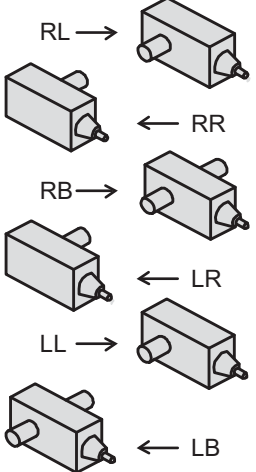
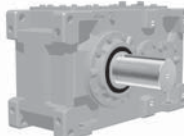
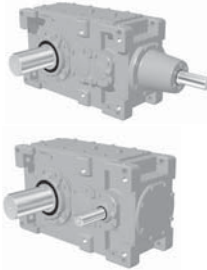
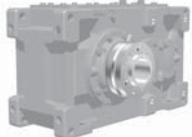
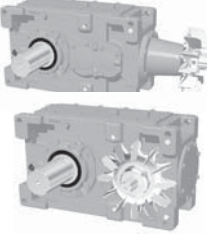

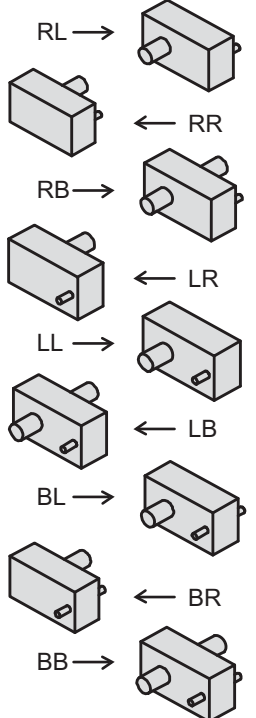
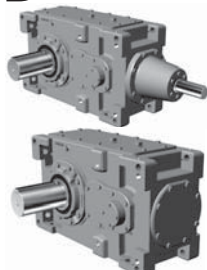
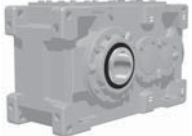
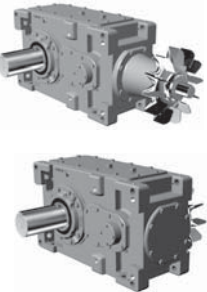


Series	Mounting	Housing	Size	Torque kNm	Shaft Position	Number of Gear Stages
P Paramax	H  Horizontal	A Monoblock	9015	2.6	R  Right Angle	2  Double Reduction
			9025	4.2		
			9030	6.4		
			9035	8.5		
			9040	10.1		
			9045	13.2		
			9050	15.3		
	V  Vertical	D Split	9060	24.4	P  Parallel	3  Triple Reduction
			9065	31.4		
			9070	38.2		
			9075	47.8		
			9080	58.5		
			9085	73.1		
			9090	85.9		
			9095	101		
			9100	122		
			9105	144		
	W  Upright	D Split	9110	174	P  Parallel	4  Quadruple Reduction
			9115	207		
			9118	260		
			9121	301		
			9126	351		
			9128	420		
			9131	473		
9136	552					

1. For shaft arrangement, refer to the dimension sheets.
2. Consult us for reduction ratios smaller than 6.3.

Reducer Nomenclature



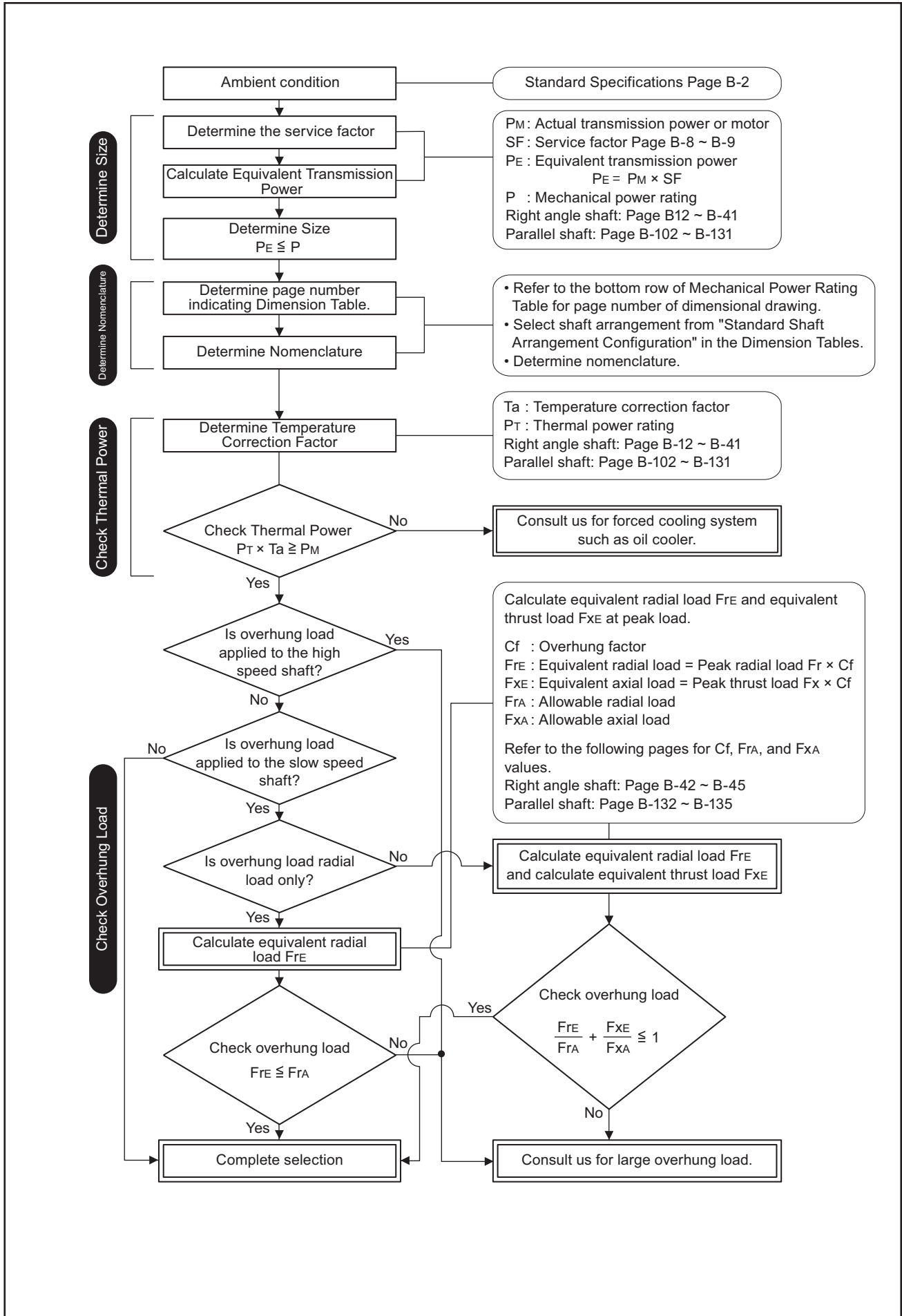
Mounting for Upright	Shaft Arrangement	Slow Speed Shaft	Option	Nominal Ratio		
(Blank) 		(Blank)  Solid Shaft	(Blank)  Without option	Right Angle Shaft 6.3 56 7.1 63 8 71 9 80 10 90 11.2 100 12.5 112 14 125 16 140 18 160 20 180 22.4 200 25 224 28 250 31.5 280 35.5 315 40 355 45 400 50 450		
		T  Hollow Shaft (Shrink Disk Type)	F  With fan	W  Wall Mount (Upright Mounting)		B  With backstop
K  Hollow Shaft (Key Type)	FB  With fan & backstop	50 450 50 500				

Reducer Selection

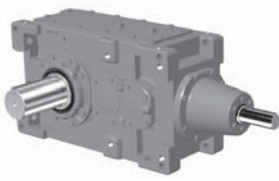
Speed Reducer

Selection Tables

Dimension Tables



Reducer Selection Example

○ : Conditions ■ : Selected item		
○ Ambient condition	: Indoor, Ambient temperature 40°C	B-2 Standard Specifications
■ Check ambient condition	→ OK	
○ Motor power	: 55 kW	
○ High speed shaft speed	: 1500 r/min	
○ Shaft and mounting positions	: Right Angle Shaft · Horizontal Mounting	
Load Condition		
○ Type of load, Operating hours	: Uniform load · 14 hours/day	B-8 Service Factor
■ Determine service factor	→ SF = 1.25	
■ Calculate equivalent transmission power	→ PE = 55 × 1.25 = 68.75 kW	
○ Slow speed shaft speed	: 85 r/min	
■ Reduction ratio	→ 1500/85 = 17.6	B-4 ~ B-5 Nomenclature
Select nominal reduction ratio	→ 17.6 → 18	
■ Determine size	→ Size 9035, Nominal Reduction Ratio 18 Mechanical power rating P = 72 kW PE ≤ P → OK	B-18 Selection Tables
■ Check dimension		B-50 *1 Dimension Tables
■ Check shaft arrangement	→ RL	Standard shaft arrangement configuration in Dimension Tables
■ Check nomenclature	→ PHA9035R2-RLF-18	Nomenclature in Dimension Tables
○ Ambient temperature	: 40°C	B-18 Selection Tables
■ Temperature correction factor without fan Ta	→ Ta = 0.70	B-18 Selection Tables
■ Thermal rating without fan PT	→ PT = 48kW → PT × Ta = 33.6 < 55 = PM → OUT	Standard Specifications
■ Temperature correction factor with fan Ta	→ Ta = 0.73	B-18 Selection Tables
■ Thermal rating with fan PT	→ PT = 120kW → PT × Ta = 87.6 > 55 = PM → OK → With fan	
Check overhung load		
○ Overhung load to high speed shaft	: No load	B-42 Allowable External Load
○ Overhung member	: Sprocket (Single row)	
■ Overhang factor Cf	→ Cf = 1.0	
○ Radial load position and direction	: Center of solid shaft, Downward	
○ Peak radial load Fr	: 10.6 kN	
○ Peak thrust load Fx	: 0 kN	
■ Equivalent radial load FrE	→ FrE = 10.6 × 1.0 = 10.6	B-42 Allowable External Load
■ Allowable radial load	→ 29.4 kN	
	10.6 ≤ 29.4	→ OK
■ Complete selection		
Selected model	→ PHA9035R2-RLF-18	
		*1 Page number of the relevant Dimension Table is indicated in the Selection Table.

Reducer Service Factor SF

Service Factor SF

Driven Machine	Operating Hours (hours/day)		
	3 hrs	10 hrs	24 hrs
CRANES			
Classification of Crane	Hoisting	Traverse Motion	Travel Motion
Group I	1.00	1.50	1.25
Group II	1.25	1.50	1.00
Group III	1.50	1.75	1.25
Group IV	1.75	2.00	1.50
The crane classification is based on JIS B8821-1976 "Calculation standard for the structure of crane."			
CONVEYORS (General purpose)			
Uniformly load or fed		1.00	1.00
Heavy load			1.25
Not uniformly fed		1.00	1.25
Reciprocating or shaker		1.50	1.75
ELEVATORS			
Elevators		1.50	1.50
Escalators		1.25	1.25
METAL MILLS			
Draw bench carriage and main drive		1.50	1.50
Runout table			
Non reversing			
Group drives		1.50	1.50
Individual drivers		2.00	2.00
Reversing		2.00	2.00
Slab pushers		1.50	1.50
Shears		2.00	2.00
Wire drawing		1.25	1.25
Wire winding machine		1.25	1.50
METAL STRIP PROCESSING MACHINERY			
Bridles		1.50	1.50
Coilers & uncoilers		1.00	1.25
Edge trimmers		1.00	1.25
Flatteners		1.25	1.25
Loopers (Accumulators)		1.50	1.50
Pinch rolls		1.25	1.25
Scrap choppers		2.00	2.00
Shears		2.00	2.00
Slitters		1.00	1.25
MILL, ROTARY TYPE			
Ball and rod		2.00	2.00
Cement Kilns		2.00	2.00
Kilns (Except cement kilns)		1.50	1.50
Dryers and coolers		1.50	1.50
SEWAGE DISPOSAL EQUIPMENT			
Aerators		2.00	2.00
Bar screens		1.25	1.25
Chemical feeders		1.25	1.25
Dewatering screens		1.50	1.50
Scum breakers		1.50	1.50
Slow or rapid mixers		1.50	1.50
Sludge collectors		1.25	1.25
Thickeners		1.50	1.50
Vacuum filters		1.50	1.50
EXTRUDERS			
Plastics		1.25	1.25
Rubber		1.50	1.50
FEEDERS			
Apron		1.00	1.25
Belt		1.00	1.25
Disk		1.00	1.25
Reciprocating		1.50	1.75
Screw		1.00	1.25

Driven Machine	Operating Hours (hours/day)		
	3 hrs	10 hrs	24 hrs
RUBBER INDUSTRY			
Mixers	1.75	1.75	2.00
Mixing mill -2 smooth rolls	1.50	1.50	1.75
Batch drop mill -2 smooth rolls	1.50	1.50	1.50
Cracker warmer			
-2 roll: 1 corrugated roll	1.75	1.75	1.75
Cracker -2 corrugated rolls	2.00	2.00	2.00
Holding, feed and blend mill			
-2 rolls	1.25	1.25	1.25
Refiner -2 rolls	1.50	1.50	1.50
Calenders	1.50	1.50	1.50
PAPER MILL			
All types incl. Paper making machine	2.00	2.00	2.00
AGITATORS AND MIXERS			
Pure liquids	1.00	1.00	1.25
Liquids and solids	1.00	1.25	1.50
Liquids variable density	1.00	1.25	1.50
MIXERS			
Concrete	1.25	1.25	1.50
CRUSHER			
Stone or ore	2.50	2.50	2.50
BLOWERS			
Centrifugal	1.00	1.00	1.25
Lobe	1.00	1.25	1.50
Vane	1.00	1.25	1.50
COMPRESSORS			
Centrifugal	1.00	1.00	1.25
Lobe	1.00	1.25	1.50
Reciprocating: multi cylinder	1.50	1.50	1.75
Reciprocating: single cylinder	1.75	1.75	2.00
FANS			
Centrifugal	1.00	1.00	1.25
Cooling towers	※	※	※
Forced draft	1.25	1.25	1.25
Suction draft	1.50	1.50	1.50
Industrial and mine	1.50	1.50	1.50
PUMPS			
Centrifugal	1.00	1.00	1.25
Screw pump	1.25	1.25	1.50
Gear pump	1.25	1.25	1.50
DREDGES			
Cable reels	1.25	1.25	1.50
Conveyors	1.25	1.25	1.50
Cutter head drive	2.00	2.00	2.00
Pumps	2.00	2.00	2.00
Screen drives	1.75	1.75	2.00
Stackers	1.25	1.25	1.50
Winches	1.25	1.25	1.50
GENERATORS AND EXCITERS			
	1.00	1.00	1.25
HAMMER MILLS			
	1.75	1.75	2.00
SUGAR INDUSTRY			
Beet slicer	2.00	2.00	2.00
Cane knives	1.50	1.50	1.50
Crushers	1.50	1.50	1.50
Mills (Slow speed end)	1.75	1.75	1.75

Notes:

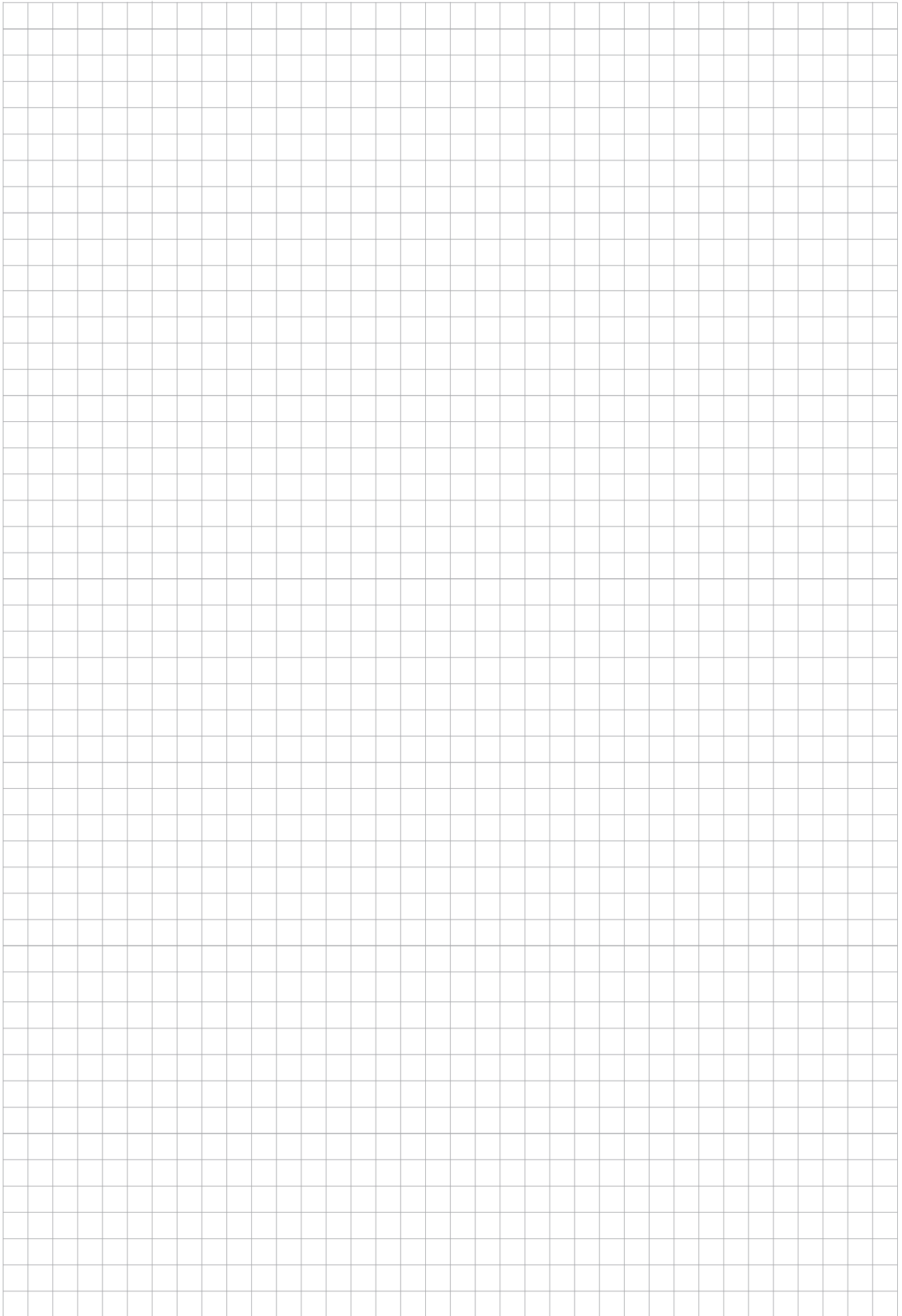
- (1) Values in the above table are based on AGMA standards and SUMITOMO's experience.
- (2) Values in the above table apply for electric motors as prime movers - if prime mover is a multi cylinder combustion engine, 0.25 has to be added to the SF.
- (3) Consult us for special duty or when special safety specifications are needed.
- (4) ※ : For SF, consult us.

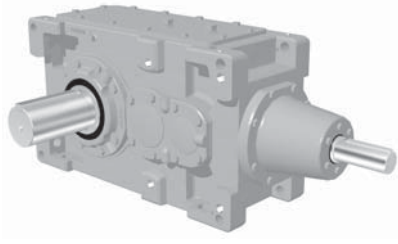
Reducer Service Factor SF

Refer to the following for driven machines not shown on the left page.

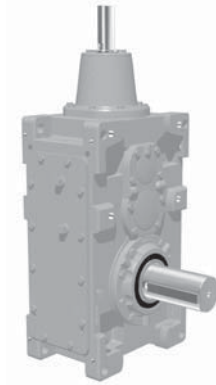
Prime Mover	Operating Hours	Type of Load		
		Uniform Load U	Moderate Shock Load M	Heavy Shock Load H
Electric Motor	3 hours/day	1.00	1.00	1.50
	10 hours/day	1.00	1.25	1.75
	24 hours/day	1.25	1.50	2.00
Internal Combustion Engine (multi cylinder)	3 hours/day	1.00	1.25	1.75
	10 hours/day	1.25	1.50	2.00
	24 hours/day	1.50	1.75	2.25

Note: Consult us when the operating hours are less than 3 hours/day or when an internal combustion engine (single cylinder) is used.

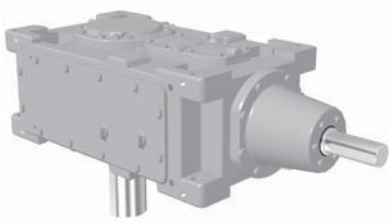




<Reducer: Right Angle Shaft-Horizontal Mounting>



<Reducer: Right Angle Shaft Upright Mounting>



<Reducer: Right Angle Shaft Vertical Mounting>

B

Reducer: Right Angle

Selection Tables	··· B- 12
Allowable Loads	··· B- 42
Dimension Sheets	··· B- 46

SELECTION Right Angle Shaft Double Reduction Nominal Reduction Ratio 6.3 ▶ 8

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
6.3	Exact Reduction Ratio		6.265	6.049	6.539		6.405		6.384		6.188		6.188		6.286	
	1800	286	74	98	152		236		334		568		798		1020 [®]	
	1500	238	62	81	127		197		279		475		667		857	
	1200	190	49	65	102		158		224		381		535		688	
	1000	159	41	54	85		132		187		318		447		575	
	900	143	37	49	76		119		168		287		403		518	
750	119	31	41	64		99		141		240		337		433		
7.1	Exact Reduction Ratio		7.246	6.903	7.049		7.309		7.268		7.210		6.933		6.933	
	1800	254	62	98	152		228		334		559		798		1020 [®]	
	1500	211	52	81	127		191		279		469		667		857	
	1200	169	42	65	102		153		224		377		535		688	
	1000	141	35	54	85		128		187		316		447		575	
	900	127	31	49	76		116		168		285		403		518	
750	106	26.5	41	64		97		141		238		337		433		
8	Exact Reduction Ratio		7.889	8.056	8.118	8.150	7.778	8.144	8.125		7.875	7.759	8.082		8.190	
	1800	225	57	76	140	152	217	236	340		544	568	810		1150 [®]	
	1500	188	47	63	117	127	181	197	285		467	475	705		1010	
	1200	150	38	51	94	102	145	158	229		374	381	568		834	
	1000	125	31	42	78	85	120	132	191		312	318	476		699	
	900	113	28.6	38	71	76	108	119	173		280	287	429		630	
750	94	23.8	31	59	64	90	99	144		234	240	359		528		
Dimension Tables	Horizontal		B-46	B-46	B-46	B-46	B-46	B-46	B-46		B-48	B-48	B-48		B-48	
	Vertical		B-72	B-72	B-72	B-72	B-72	B-72	B-72		B-74	B-74	B-74		B-74	
	Upright		B-88	B-88	B-88	B-88	B-88	B-88	B-88		B-90	B-90	B-90		B-90	

THERMAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
Double Reduction Horizontal Type	1800	-	30	39	46	61	73	88	79		108	134	138		160	
		1	75	105	124	171	217	261	233		332	414	372		561	
	1500	-	31	40	49	64	77	92	86		118	146	154		183	
		1	68	95	117	160	203	243	224		326	402	369		574	
	1200	-	31	40	50	66	79	95	90		126	154	165		200	
		1	60	84	106	145	184	223	208		307	376	351		557	
6.3	1000	-	30	39	50	65	78	95	91		128	156	169		207	
		1	52	73	94	128	163	198	186		276	337	319		511	
	900	-	29	39	50	65	78	94	91		128	156	169		209	
		1	48	69	89	121	154	187	178		265	323	306		493	
	8	-	28	37	48	63	76	92	89		127	154	169		209	
		1	42	60	79	107	137	167	159		239	290	278		449	
Double Reduction Vertical Type	1800	-	30	39	46	61	73	88	79		108	134	138		160	
		1	75	105	124	171	217	261	233		332	414	372		561	
	1500	-	31	40	49	64	77	92	86		118	146	154		183	
		1	68	95	117	160	203	243	224		326	402	369		574	
	1200	-	31	40	50	66	79	95	90		126	154	165		200	
		1	60	84	106	145	184	223	208		307	376	351		557	
6.3	1000	-	30	39	50	65	78	95	91		128	156	169		207	
		1	52	73	94	128	163	198	186		276	337	319		511	
	900	-	29	39	50	65	78	94	91		128	156	169		209	
		1	48	69	89	121	154	187	178		265	323	306		493	
	8	-	28	37	48	63	76	92	89		127	154	169		209	
		1	42	60	79	107	137	167	159		239	290	278		449	
Double Reduction Upright Type	1800	-	24	31	37	49	58	70	64		86	107	110		128	
		1	60	84	99	137	174	209	186		266	331	297		449	
	1500	-	25	32	39	51	61	74	69		95	117	123		146	
		1	54	76	93	128	162	195	179		260	321	295		459	
	1200	-	24	32	40	52	63	76	72		100	123	132		160	
		1	48	67	85	116	147	178	166		245	301	281		446	
6.3	1000	-	24	31	40	52	63	76	73		102	125	135		166	
		1	41	58	75	102	130	158	149		221	270	255		408	
	900	-	23	31	40	52	62	75	72		102	125	136		167	
		1	39	55	71	97	124	150	142		212	258	245		395	
	8	-	23	30	39	50	61	74	71		101	123	135		167	
		1	34	48	63	86	110	133	128		191	232	222		360	

SELECTION Right Angle Shaft Double Reduction Nominal Reduction Ratio 6.3 ▶ 8

Size of Reducer										L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
											Exact Reduction Ratio		
											286	1800	6.3
											238	1500	
											190	1200	
											159	1000	
											143	900	
											119	750	
											Exact Reduction Ratio		
											254	1800	7.1
											211	1500	
											169	1200	
											141	1000	
											127	900	
											106	750	
											Exact Reduction Ratio		
											225	1800	8
											188	1500	
											150	1200	
											125	1000	
											113	900	
											94	750	
											Horizontal Vertical Upright	Dimension Tables	

Notes

1. For ※ marked values, the forced oil lubrication is required at continuous operation.

2. Consult us when the high speed shaft speed is over 1800r/min.

3. When the high speed shaft speed is not shown in the table, find it by the interpolation method.

4. When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$

5. Shown in the table are the ratings for the slow speed shaft.

6. Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer										Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
											-	1800	Double Reduction Horizontal Type
											-	1500	
											1	1200	
											-	1000	
											1	900	
											-	750	6.3
											-		8
											-	1800	Double Reduction Vertical Type
											-	1500	
											1	1200	
											-	1000	
											1	900	
											-	750	6.3
											-		8
											-	1800	Double Reduction Upright Type
											-	1500	
											1	1200	
											-	1000	
											1	900	
											-	750	6.3
											-		8

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

1. Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)

2. The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.

3. When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Double Reduction Nominal Reduction Ratio 9 ▶ 11.2

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer														
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
9	Exact Reduction Ratio		9.125	9.192	8.750	8.861	8.875	9.265	9.250	8.938	9.176	8.874	9.056	8.597	9.034		
	1800	200	49	76	126	152	188	236	280	334	443	568	704	798	1070*		
	1500	167	41	63	105	127	158	197	234	279	371	475	590	667	897		
	1200	133	33	51	85	102	127	158	188	224	298	381	474	535	722		
	1000	111	28.0	42	71	85	106	132	158	187	250	318	397	447	605		
	900	100	25.3	38	64	76	95	119	142	168	225	287	358	403	546		
750	83	21.1	31	53	64	80	99	119	141	188	240	300	337	457			
10	Exact Reduction Ratio		10.040	9.899	10.303	10.118	10.171	9.889	10.000	10.125	9.995	9.875	10.125	10.007	9.882	9.982	
	1800	180	43	72	111	143	161	217	278	351	434	546	677	810	1000*	1150*	
	1500	150	36	60	92	119	134	181	232	297	362	469	567	713	863	1010	
	1200	120	29.1	48	74	95	107	145	187	237	289	375	456	577	695	867	
	1000	100	24.3	40	62	79	89	120	156	198	241	313	382	482	582	736	
	900	90	21.9	36	55	71	80	108	141	178	217	281	344	435	525	663	
750	75	18.2	30	46	59	67	90	118	148	181	234	288	363	439	553		
11.2	Exact Reduction Ratio		11.614	11.295	11.106	11.000	11.606	11.250	11.385	11.375	11.647	11.294	11.345	11.229	10.900	10.961	
	1800	161	39	63	100	133	145	198	229	293	351	462	565	747	892*	1120*	
	1500	134	33	52	83	111	121	166	191	245	294	387	473	626	748	938	
	1200	107	26.5	42	67	89	97	133	154	197	236	311	381	504	602	756	
	1000	89	22.1	35	56	75	81	111	129	165	198	260	319	421	504	633	
	900	80	19.9	31	50	67	73	100	116	149	178	235	287	380	454	571	
750	67	16.7	26.6	42	56	61	84	97	124	149	196	240	318	380	478		
Dimension Tables	Horizontal		B-46	B-46	B-46	B-46	B-46	B-46	B-46	B-46	B-48	B-48	B-48	B-48	B-48	B-48	
	Vertical		B-72	B-72	B-72	B-72	B-72	B-72	B-72	B-72	B-74	B-74	B-74	B-74	B-74	B-74	
	Upright		B-88	B-88	B-88	B-88	B-88	B-88	B-88	B-88	B-90	B-90	B-90	B-90	B-90	B-90	

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer														
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
Dimension Selection Tables	Double Reduction Horizontal Type	1800	-	27	36	44	56	69	82	78	99	109	130	142	173	164	203	
			1	67	96	118	156	205	244	227	290	337	402	382	467	577	715	
		1500	-	27	36	46	58	71	85	82	105	116	141	153	188	183	226	
			1	59	86	109	144	187	225	214	274	319	388	368	452	575	708	
		1200	-	26	36	46	59	71	86	84	108	120	147	160	198	195	242	
			1	52	76	98	129	166	202	195	250	292	359	341	422	543	673	
	g	1000	-	26	35	46	58	70	85	84	108	120	148	161	200	199	248	
			1	44	66	85	113	145	177	173	222	260	320	305	379	491	610	
		900	-	25	34	45	57	69	84	84	108	119	148	161	200	200	249	
			1	41	62	81	107	137	167	164	211	247	306	291	363	471	586	
		11.2	750	-	24	33	44	56	66	82	82	105	117	146	158	198	198	247
				1	36	54	71	95	120	149	146	188	221	275	261	326	425	531
Dimension Selection Tables	Double Reduction Vertical Type	1800	-	27	36	44	56	69	82	78	99	109	130	142	173	164	203	
			1	67	96	118	156	205	244	227	290	337	402	382	467	577	715	
		1500	-	27	36	46	58	71	85	82	105	116	141	153	188	183	226	
			1	59	86	109	144	187	225	214	274	319	388	368	452	575	708	
		1200	-	26	36	46	59	71	86	84	108	120	147	160	198	195	242	
			1	52	76	98	129	166	202	195	250	292	359	341	422	543	673	
	g	1000	-	26	35	46	58	70	85	84	108	120	148	161	200	199	248	
			1	44	66	85	113	145	177	173	222	260	320	305	379	491	610	
		900	-	25	34	45	57	69	84	84	108	119	148	161	200	200	249	
			1	41	62	81	107	137	167	164	211	247	306	291	363	471	586	
		11.2	750	-	24	33	44	56	66	82	82	105	117	146	158	198	198	247
				1	36	54	71	95	120	149	146	188	221	275	261	326	425	531
Dimension Selection Tables	Double Reduction Upright Type	1800	-	22	29	35	45	55	66	62	79	87	104	113	138	131	163	
			1	53	76	95	125	164	195	182	232	270	321	306	373	461	572	
		1500	-	22	29	37	46	57	68	66	84	93	113	123	151	147	181	
			1	47	69	87	115	150	180	171	219	255	310	295	362	460	567	
		1200	-	21	29	37	47	57	69	68	86	96	118	128	158	156	194	
			1	41	61	78	104	133	161	156	200	234	287	273	338	434	538	
	g	1000	-	20	28	36	46	56	68	67	87	96	118	129	160	159	198	
			1	35	52	68	91	116	141	138	178	208	256	244	303	392	488	
		900	-	20	28	36	46	55	67	67	86	96	118	129	160	160	199	
			1	33	49	64	86	109	134	131	169	198	245	233	290	377	469	
		11.2	750	-	19	26	35	45	53	66	65	84	94	117	127	158	158	198
				1	29	43	57	76	96	119	117	151	176	220	209	261	340	425

SELECTION Right Angle Shaft Double Reduction Nominal Reduction Ratio 9 ▶ 11.2

Size of Reducer										L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
9.000	9.000	9.000	8.947	Exact Reduction Ratio									9
1550*	1880*	2800*	200 1800										
1350*	1660*	2460*	167 1500										
1120*	1420*	2110*	133 1200										
964*	1250*	1850*	111 1000										
882*	1160*	1720*	100 900										
756*	998*	1500*	83 750									10	
9.765	9.765	10.235	Exact Reduction Ratio										
1460*	1880*	2800*	180 1800										
1280*	1660*	2460*	150 1500										
1060*	1420*	2060*	120 1200										
911*	1250*	1770*	100 1000										
834*	1160*	1620*	90 900									11.2	
716*	998*	1390*	75 750										
11.382	11.382	11.302	Exact Reduction Ratio										
1230*	1570*	2430*	161 1800										
1050*	1380*	2140*	134 1500										
877*	1180*	1780*	107 1200										
752*	1040*	1520*	89 1000									Horizontal Vertical Upright	
688*	971*	1390*	80 900										
590*	833*	1200*	67 750										
B-50	B-50	B-50	Dimension Tables										

Notes

- For * marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer										Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
490											-	1800	Double Reduction Horizontal Type
200											-	1500	
538	560	570									1	1200	
220	270										-	1000	
525	599	590									1	900	
210	280	320									-	750	
444	551	600									1		9 ▼ 11.2
210	270	330									-		
425	508	593									1		
190	250	320									-		
350	429	523									1		

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

											-	1800	Double Reduction Vertical Type
											-	1500	
											1	1200	
											-	1000	
											1	900	
											-	750	

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

											-	1800	Double Reduction Upright Type
											-	1500	
											1	1200	
											-	1000	
											1	900	
											-	750	

SELECTION Right Angle Shaft Double Reduction Nominal Reduction Ratio 12.5 ▶ 16

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
12.5	Exact Reduction Ratio		12.162	12.020	12.545	12.842	12.727	12.932	12.188	12.462	12.469	12.534	12.797	12.536	12.923	12.044
	1800	144	36	58	89	111	122	161	225	284	322	435	512	700	732*	1000*
	1500	120	30	48	74	93	102	134	188	237	269	362	428	598	612	863
	1200	96	24.2	39	59	74	82	107	150	189	216	290	343	482	491	715
	1000	80	20.1	32	49	62	68	89	125	158	180	242	286	403	410	600
	900	72	18.1	29.3	44	55	61	80	112	142	162	217	258	364	369	540
750	60	15.1	24.4	37	46	51	67	94	118	136	181	215	304	308	450	
14	Exact Reduction Ratio		14.068	13.716	13.523	13.962	14.523	14.712	13.875	14.000	14.529	14.335	14.338	14.067	14.253	13.225
	1800	129	32	51	82	105	116	152	188	239	283	366	450	600	688*	933*
	1500	107	27.3	43	69	88	97	126	158	200	237	306	377	502	576	782
	1200	86	21.9	34	55	71	78	101	127	161	190	246	303	404	463	629
	1000	71	18.3	28.7	46	59	65	84	106	134	159	206	253	338	388	527
	900	64	16.5	25.8	41	53	58	76	95	121	143	186	228	305	350	475
750	54	13.8	21.5	34	44	49	63	80	101	120	155	191	255	292	398	
16	Exact Reduction Ratio		15.778	15.988	16.235	15.636	15.556	16.182	15.881	15.188	15.392	15.635	15.750	15.844	16.000	15.750
	1800	113	27.1	42	67	89	96	122	169	226	261	322	373	512	545*	732*
	1500	94	22.6	35	56	74	80	102	141	188	218	269	311	428	455	612
	1200	75	18.1	28.5	45	59	64	82	113	150	175	216	250	343	365	491
	1000	63	15.1	23.7	37	49	54	68	94	125	146	180	208	286	305	410
	900	56	13.5	21.4	33	44	48	61	84	113	131	162	188	258	275	369
750	47	11.3	17.8	28.2	37	40	51	70	94	109	136	157	215	229	308	
Dimension Tables	Horizontal		B-46	B-46	B-46	B-46	B-46	B-46	B-46	B-46	B-48	B-48	B-48	B-48	B-48	B-48
	Vertical		B-72	B-72	B-72	B-72	B-72	B-72	B-72	B-72	B-74	B-74	B-74	B-74	B-74	B-74
	Upright		B-88	B-88	B-88	B-88	B-88	B-88	B-88	B-88	B-90	B-90	B-90	B-90	B-90	B-90

THERMAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
Double Reduction Horizontal Type	1800	-	23	33	41	54	63	79	73	96	101	130	137	175	172	208
		1	57	88	110	150	187	235	214	282	312	402	369	472	607	731
	1500	-	23	33	41	55	63	79	74	98	103	133	140	180	178	224
		1	50	77	98	137	166	209	192	256	283	366	336	433	558	702
	1200	-	22	31	40	55	61	78	73	98	103	134	140	181	180	230
		1	42	66	85	121	144	183	169	227	250	327	298	387	500	641
1000	-	21	30	39	54	59	76	71	96	101	132	138	179	178	229	
	1	36	56	73	105	123	158	146	198	218	286	260	339	438	565	
12.5	900	-	20	29	38	53	58	74	70	95	99	130	136	177	176	227
		1	33	52	68	99	115	147	137	186	205	269	245	321	414	535
16	750	-	19	28	36	51	55	71	67	92	95	126	131	172	171	221
		1	28	45	59	86	100	129	120	164	180	237	216	284	367	475
Double Reduction Vertical Type	1800	-	23	33	41	54	63	79	73	96	101	130	137	175	172	208
		1	57	88	110	150	187	235	214	282	312	402	369	472	607	731
	1500	-	23	33	41	55	63	79	74	98	103	133	140	180	178	224
		1	50	77	98	137	166	209	192	256	283	366	336	433	558	702
	1200	-	22	31	40	55	61	78	73	98	103	134	140	181	180	230
		1	42	66	85	121	144	183	169	227	250	327	298	387	500	641
1000	-	21	30	39	54	59	76	71	96	101	132	138	179	178	229	
	1	36	56	73	105	123	158	146	198	218	286	260	339	438	565	
12.5	900	-	20	29	38	53	58	74	70	95	99	130	136	177	176	227
		1	33	52	68	99	115	147	137	186	205	269	245	321	414	535
16	750	-	19	28	36	51	55	71	67	92	95	126	131	172	171	221
		1	28	45	59	86	100	129	120	164	180	237	216	284	367	475
Double Reduction Upright Type	1800	-	18	26	33	43	50	63	58	77	81	104	109	140	138	166
		1	46	70	88	120	150	188	171	225	250	321	295	378	485	585
	1500	-	18	26	33	44	50	63	59	79	82	106	112	144	142	179
		1	40	62	79	109	133	167	154	205	227	293	269	346	446	562
	1200	-	17	25	32	44	49	62	58	79	82	107	112	145	144	184
		1	34	53	68	97	115	146	135	182	200	262	239	310	400	513
1000	-	17	24	31	43	47	61	57	77	80	106	110	144	142	183	
	1	29	45	58	84	99	126	117	158	174	228	208	271	350	452	
12.5	900	-	16	23	30	42	46	59	56	76	79	104	108	142	141	182
		1	27	42	55	79	92	118	110	149	164	215	196	257	331	428
16	750	-	15	22	29	40	44	57	54	73	76	101	105	138	137	177
		1	23	36	47	69	80	103	96	131	144	190	173	227	293	380

SELECTION Right Angle Shaft Double Reduction Nominal Reduction Ratio 12.5 ▶ 16

Size of Reducer									L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136		
12.349	12.349	12.349	12.929								Exact Reduction Ratio	
1180*	1570*	2310*								144	1800	12.5
1010*	1380*	1980*								120	1500	
840*	1180*	1640*								96	1200	12.5
721*	1040*	1410*								80	1000	
660*	971*	1290*								72	900	12.5
566*	830*	1110*								60	750	
14.143	14.344	14.260								Exact Reduction Ratio		
993*	1280*	1980*								129	1800	14
852*	1130*	1700*								107	1500	
706*	966*	1410*								86	1200	14
605*	850*	1210*								71	1000	
554*	790*	1110*								64	900	14
475*	678*	952*								54	750	
15.345	15.562	16.312								Exact Reduction Ratio		
953*	1280*	1840*								113	1800	16
817*	1130*	1580*								94	1500	
678*	966*	1310*								75	1200	16
581*	850*	1120*								63	1000	
532*	790*	1020*								56	900	16
456*	662*	883*								47	750	
B-50	B-50	B-50								Horizontal Vertical Upright	Dimension Tables	

Notes

- For * marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer									Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio		
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
490											-	1800	Double Reduction Horizontal Type
200											-	1500	
538	560	570									1	1200	12.5
220	270										-	1000	
525	599	590									1	900	16
210	280	320									-	750	
444	551	600									1	900	16
210	270	330									-	750	
425	508	593									1	900	16
190	250	320									-	750	
350	429	523									1	750	16

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

											-	1800	Double Reduction Vertical Type
											-	1500	
											1	1200	12.5
											-	1000	
											1	900	16
											-	750	

											-	1800	Double Reduction Upright Type
											-	1500	
											1	1200	12.5
											-	1000	
											1	900	16
											-	750	

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Double Reduction Nominal Reduction Ratio 18 ▶ 22.4

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer														
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
18	Exact Reduction Ratio		18.250	18.243	17.500	17.000	17.750	18.409	18.080	17.063	17.936	17.882	17.647	17.779	17.647	17.294	
	1800	100	25.3	37	64	86	95	117	145	197	230	295	368	478	545*	719*	
	1500	83	21.1	31	53	72	79	98	122	165	193	247	308	400	455	602	
	1200	67	17.0	25.1	43	57	63	78	98	132	155	198	247	321	365	484	
	1000	56	14.2	20.9	36	48	53	65	81	111	129	166	207	269	305	405	
	900	50	12.8	18.9	32	43	47	58	73	100	116	149	186	242	275	366	
750	42	10.7	15.7	27.1	36	39	49	61	83	97	125	156	203	229	306		
20	Exact Reduction Ratio		20.235			19.778			19.790			19.301			19.500		19.500
	1800	90	*	67	*	96	*	170	*	261	*	373	*	545*			
	1500	75	*	56	*	80	*	141	*	218	*	311	*	455			
	1200	60	*	45	*	64	*	113	*	175	*	250	*	365			
	1000	50	*	37	*	54	*	94	*	146	*	208	*	305			
	900	45	*	33	*	48	*	85	*	131	*	188	*	275			
750	38	*	28.2	*	40	*	70	*	109	*	157	*	229				
22.4	Exact Reduction Ratio		22.000			22.500			22.233			22.075			21.882		21.412
	1800	80	*	65	*	95	*	152	*	240	*	373	*	545*			
	1500	67	*	54	*	79	*	127	*	201	*	311	*	455			
	1200	54	*	43	*	63	*	102	*	161	*	250	*	365			
	1000	45	*	36	*	53	*	85	*	135	*	208	*	305			
	900	40	*	32	*	47	*	77	*	121	*	188	*	275			
750	33	*	27.4	*	39	*	64	*	101	*	157	*	229				
Dimension Tables	Horizontal		B-46	B-46	B-46	B-46	B-46	B-46	B-46	B-46	B-48	B-48	B-48	B-48	B-48	B-48	
	Vertical		B-72	B-72	B-72	B-72	B-72	B-72	B-72	B-72	B-74	B-74	B-74	B-74	B-74	B-74	
	Upright		B-88	B-88	B-88	B-88	B-88	B-88	B-88	B-88	B-90	B-90	B-90	B-90	B-90	B-90	

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer													
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
Double Reduction Horizontal Type	1800	-	1	22	32	40	49	56	69	73	89	103	119	139	165	175	209
				55	85	108	136	165	205	213	259	317	368	375	445	617	736
	1500	-	1	22	31	40	48	55	69	74	89	104	120	142	167	181	213
				48	74	96	120	146	182	192	231	287	330	341	401	567	668
	1200	-	1	21	30	39	47	54	67	73	87	104	119	142	165	183	213
				41	64	83	103	127	157	169	201	254	290	303	353	507	593
1000	-	1	20	29	38	45	53	64	71	84	102	116	140	162	181	210	
			35	54	71	88	110	133	146	173	220	251	264	306	445	517	
900	-	1	19	28	37	44	52	63	70	83	100	114	138	159	178	207	
			32	50	67	82	103	125	137	162	207	236	249	288	421	487	
750	-	1	18	27	35	42	50	60	67	79	97	109	133	154	173	200	
			27	43	58	71	90	109	120	141	182	205	219	253	372	430	
Double Reduction Vertical Type	1800	-	1	22	32	40	49	53	69	73	89	103	119	139	165	175	209
				55	85	108	136	157	205	213	259	317	368	375	445	617	736
	1500	-	1	22	31	40	48	53	69	74	89	104	120	142	167	181	213
				48	74	96	120	141	182	192	231	287	330	341	401	567	668
	1200	-	1	21	30	39	47	53	67	73	87	104	119	142	165	183	213
				41	64	83	103	124	157	169	201	254	290	303	353	507	593
1000	-	1	20	29	38	45	52	64	71	84	102	116	140	162	181	210	
			35	54	71	88	107	133	146	173	220	251	264	306	445	517	
900	-	1	19	28	37	44	51	63	70	83	100	114	138	159	178	207	
			32	50	67	82	101	125	137	162	207	236	249	288	421	487	
750	-	1	18	27	35	42	49	60	67	79	97	109	133	154	173	200	
			27	43	58	71	88	109	120	141	182	205	219	253	372	430	
Double Reduction Upright Type	1800	-	1	18	25	32	39	44	55	58	71	82	95	111	132	140	167
				44	68	87	109	132	164	171	207	254	294	300	356	494	589
	1500	-	1	17	25	32	39	44	55	59	71	84	96	114	133	145	171
				38	60	77	96	117	146	154	185	230	264	273	321	453	535
	1200	-	1	17	24	32	37	43	54	58	70	83	95	114	132	146	170
				33	51	67	82	102	126	135	161	203	232	242	282	406	474
1000	-	1	16	23	30	36	42	51	57	68	82	93	112	130	144	168	
			28	43	57	70	88	106	116	138	176	201	211	245	356	413	
900	-	1	15	23	30	35	41	50	56	66	80	91	110	127	143	165	
			26	40	53	66	82	100	109	130	166	189	199	230	336	390	
750	-	1	15	21	28	33	40	48	54	63	77	87	107	123	139	160	
			22	35	46	57	72	87	96	113	146	164	176	202	298	344	

SELECTION Right Angle Shaft Double Reduction Nominal Reduction Ratio 18 ▶ 22.4

Size of Reducer									L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
17.625	18.000	17.895			Exact Reduction Ratio						
803*	1040*	1590*			100	1800	18				
689*	918*	1370*			83	1500					
571*	785*	1130*			67	1200					
490*	691*	975*			56	1000					
448*	642*	892*			50	900					
384*	551*	765*			42	750					
19.123	19.529	20.471			Exact Reduction Ratio						
771*	1040*	1480*			90	1800	20				
662*	918*	1270*			75	1500					
548*	785*	1050*			60	1200					
470*	691*	905*			50	1000					
431*	634*	829*			45	900					
369*	530*	711*			38	750					
Exact Reduction Ratio											
*	*	*			80	1800	22.4				
*	*	*			67	1500					
*	*	*			54	1200					
*	*	*			45	1000					
*	*	*			40	900					
*	*	*			33	750					
B-50	B-50	B-50			Horizontal Vertical Upright		Dimension Tables				

*Marked models are triple reduction units. Refer to B-20 and B-21.

Notes
1. For * marked values, the forced oil lubrication is required at continuous operation.
2. Consult us when the high speed shaft speed is over 1800r/min.
3. When the high speed shaft speed is not shown in the table, find it by the interpolation method.
4. When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula. $PN = P_{750} \times \frac{N}{750}$
5. Shown in the table are the ratings for the slow speed shaft.
6. Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer									Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio		
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
490											-	1800	Double Reduction Horizontal Type
200											-	1500	
538	560	570									1	1200	
220	270	320									-	1000	
525	599	600									1	900	
210	280	330									-	750	
444	551	593									1	1800	18 ▼ 22.4
210	270	320									-	1500	
425	508	593									1	1200	
190	250	320									-	1000	
350	429	523									1	900	
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

											-	1800	Double Reduction Vertical Type
											-	1500	
											1	1200	
											-	1000	
											1	900	
											-	750	

Notes
1. Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
2. The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
3. When the high speed shaft speed is not shown in the table, find it by interpolation method.

											-	1800	Double Reduction Upright Type
											-	1500	
											1	1200	
											-	1000	
											1	900	
											-	750	

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 20 ▶ 25

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
20	Exact Reduction Ratio		20.091		19.620		19.790		19.181		19.950		20.206		20.548	
	1800	90	61	*	81	*	124	*	194	*	295	*	516	*	735	
	1500	75	51	*	67	*	103	*	162	*	246	*	431	*	616	
	1200	60	41	*	54	*	83	*	130	*	198	*	346	*	495	
	1000	50	34	*	45	*	69	*	108	*	165	*	289	*	413	
	900	45	31	*	40	*	62	*	97	*	149	*	261	*	373	
750	38	26.1	*	34	*	52	*	81	*	124	*	218	*	311		
22.4	Exact Reduction Ratio		21.656		22.388		22.530		22.351		22.353		22.286		22.353	
	1800	80	55	*	81	*	124	*	194	*	295	*	476	*	696	
	1500	67	46	*	67	*	103	*	162	*	246	*	398	*	582	
	1200	54	37	*	54	*	83	*	130	*	198	*	320	*	468	
	1000	45	31	*	45	*	69	*	108	*	165	*	268	*	391	
	900	40	28.1	*	40	*	62	*	97	*	149	*	241	*	353	
750	33	23.5	*	34	*	52	*	81	*	124	*	202	*	295		
25	Exact Reduction Ratio		25.137	25.041	24.444	25.935		24.662	25.137	24.938		24.630	24.626	25.685		
	1800	72	49	64	80	117	124	193	295	453	516	625				
	1500	60	41	54	67	98	103	162	246	379	431	528				
	1200	48	33	43	53	78	83	130	198	304	346	424				
	1000	40	27.8	36	45	65	69	108	165	254	289	355				
	900	36	25.0	32	40	59	62	97	149	229	261	320				
750	30	20.9	27.3	33	49	52	81	124	192	218	267					
Dimension Tables	Horizontal		B-52	B-52	B-52	B-52	B-52	B-54	B-54	B-54	B-54	B-54	B-56			
	Vertical		B-76	B-76	B-76	B-76	B-76	B-78	B-78	B-78	B-78	B-78	B-80			
	Upright		B-92	B-92	B-92	B-92	B-92	B-94	B-94	B-94	B-94	B-94				

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer											
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075
Triple Reduction Horizontal Type	1800	-	1	34	43	53	61	77	84	113	138	172	213		
				65	86	93	141	178	177	214	368	459	510		
	1500	-	1	34	43	53	61	77	85	115	144	178	220		
				58	77	83	126	159	160	195	340	421	468		
	1200	-	1	33	43	52	60	76	85	115	146	180	222		
				51	67	72	111	139	141	173	307	377	419		
1000	-	1	33	42	50	59	74	83	114	145	178	220			
			44	58	62	96	120	122	151	271	332	369			
20	900	-	1	32	41	49	58	73	82	112	144	176	218		
				42	54	58	90	113	115	143	257	314	350		
25	750	-	1	31	39	47	56	70	79	109	141	172	213		
				36	47	50	79	99	102	126	229	279	311		
Triple Reduction Vertical Type	1800	-	1	31	41	51	57	73	79	105	126	159	181		
				61	81	89	133	169	166	200	336	422	433		
	1500	-	1	32	42	51	59	74	81	109	135	168	195		
				55	74	80	121	153	152	185	319	397	416		
	1200	-	1	32	41	51	59	74	82	111	140	172	205		
				49	65	70	107	135	136	167	293	362	386		
1000	-	1	32	41	49	58	72	81	111	141	173	207			
			43	56	60	93	117	119	147	262	321	346			
20	900	-	1	31	40	48	57	71	80	110	140	172	207		
				40	53	57	88	110	113	139	250	306	331		
25	750	-	1	30	38	46	55	69	78	107	138	169	205		
				36	47	50	78	97	100	124	224	273	298		
Triple Reduction Upright Type	1800	-	1	34	43	55	61	77	84	113	138	172			
				65	86	96	141	178	177	214	368	459			
	1500	-	1	34	43	55	61	77	85	115	144	178			
				58	77	85	126	159	160	195	340	421			
	1200	-	1	33	43	54	60	76	85	115	146	180			
				51	67	74	111	139	141	173	307	377			
1000	-	1	33	42	52	59	74	83	114	145	178				
			44	58	64	96	120	122	151	271	332				
20	900	-	1	32	41	51	58	73	82	112	144	176			
				42	54	60	90	113	115	143	257	314			
25	750	-	1	31	39	49	56	70	79	109	141	172			
				36	47	52	79	99	102	126	229	279			

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 20 ▶ 25

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio			
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136						
20.504		19.608									Exact Reduction Ratio					
*	992*	*	1520*	*									90	1800	20	
*	829	*	1270	*									75	1500		
*	666	*	1020	*									60	1200		
*	556	*	856	*									50	1000		
*	501	*	772	*									45	900		
*	419	*	645	*									38	750		
22.800		22.004		22.444		22.499		22.222			Exact Reduction Ratio					
735	992*	992*	1360*	1520*									80	1800	22.4	
616	829	829	1160	1270									67	1500		
495	666	666	936	1020									54	1200		
413	556	556	783	856									45	1000		
373	501	501	706	772									40	900		
311	419	419	591	645									33	750		
24.737		25.271		24.351		24.166		25.421		24.837		Exact Reduction Ratio				
714	912*	992*	1270*	1360*	1520*							72	1800	25		
613	763	829	1090	1170	1270							60	1500			
495	613	666	910	970	1020							48	1200			
413	513	556	771	827	856							40	1000			
373	462	501	696	746	772							36	900			
311	386	419	582	624	645							30	750			
B-56	B-56	B-56	B-56	B-56	B-58								Horizontal Vertical Upright		Dimension Tables	

*marked models are double reduction units. Refer to B-18 and B-19.

Notes	
1.	For ※ marked values, the forced oil lubrication is required at continuous operation.
2.	Consult us when the high speed shaft speed is over 1800r/min.
3.	When the high speed shaft speed is not shown in the table, find it by the interpolation method.
4.	When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula. $PN = P_{750} \times \frac{N}{750}$
5.	Shown in the table are the ratings for the slow speed shaft.
6.	Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio		
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136					
239	273	306	348	385	426								-	1800	Triple Reduction Horizontal Type
572	767	860	933	1031	703								1	1500	
246	282	317	366	402	443								-	1200	
524	705	792	874	958	730								1	1000	
249	286	321	375	410	450								-	900	
469	634	711	794	869	743								1	750	
247	284	319	375	410	449								-	1800	Triple Reduction Vertical Type
413	558	627	703	769	741								1	1500	
244	281	316	373	408	446								-	1200	
391	530	595	669	732	736								1	1000	
239	275	309	366	400	437								-	900	
348	472	530	599	654	722								1	750	
203	230	258	280	316								-	1800	Triple Reduction Upright Type	
485	646	724	750	847								1	1500		
219	249	280	315	350								-	1200		
466	624	700	751	834								1	1000		
229	262	294	340	373								-	900		
433	582	653	719	791								1	750		
232	266	299	349	382								-	1800	20	
388	524	588	655	717								1	1500		
232	266	299	351	384								-	1200		
371	502	563	630	689								1	1000		
229	264	296	350	382								-	900		
334	453	508	571	625								1	750		
											-	1800	20		
											-	1500			
											-	1200			
											-	1000			
											-	900			
											-	750			

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes	
1.	Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
2.	The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
3.	When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 28 ▶ 35.5

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer												
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080
28	Exact Reduction Ratio		27.096	27.225	27.893	28.379	29.526	27.706	29.291	27.509	27.941	27.718	27.165	27.041	27.941
	1800	65	44	58	65	81	96	124	152	194	251	295	392	498	559
	1500	54	37	49	55	67	80	103	127	162	210	246	328	417	468
	1200	43	29.9	39	44	54	64	83	102	130	168	198	263	335	376
	1000	36	25.0	33	36	45	54	69	85	108	141	165	220	280	314
	900	32	22.5	29.7	33	40	48	62	77	97	127	149	198	252	283
750	27	18.8	24.8	28	34	40	52	64	81	106	124	166	211	237	
31.5	Exact Reduction Ratio		32.455	31.331	31.694	31.079	31.969	32.319	30.157	31.521	31.129	30.875	32.280	30.017	32.063
	1800	57	32	51	57	81	92	124	140	194	225	295	331	473	508
	1500	48	26.9	43	48	67	79	103	117	162	190	246	280	399	425
	1200	38	21.5	34	38	54	64	83	94	130	152	198	224	321	341
	1000	32	18.0	29.1	32	45	53	69	78	108	127	165	187	268	285
	900	29	16.2	26.2	29	40	48	62	70	97	114	149	169	242	257
750	24	13.5	21.9	24.1	34	40	52	59	81	95	124	141	202	215	
35.5	Exact Reduction Ratio		34.983	34.063	36.165	35.357	36.395	36.309	35.140	36.050	34.879	34.647	35.603	32.960	34.879
	1800	51	32	47	51	69	78	100	127	159	202	266	301	410	450
	1500	42	26.9	39	42	57	65	84	106	133	169	223	251	343	376
	1200	34	21.5	31	34	46	52	67	85	106	135	179	202	276	302
	1000	28	18.0	26.4	29	38	44	56	71	89	113	149	169	230	253
	900	25	16.2	23.8	25.7	34	39	50	64	80	102	134	152	208	228
750	21	13.5	19.9	21.5	29.2	33	42	53	67	85	112	127	173	190	
Dimension Tables	Horizontal		B-52	B-52	B-52	B-52	B-52	B-52	B-54	B-54	B-54	B-54	B-54	B-54	B-56
	Vertical		B-76	B-76	B-76	B-76	B-76	B-76	B-76	B-78	B-78	B-78	B-78	B-78	B-80
	Upright		B-92	B-92	B-92	B-92	B-92	B-92	B-92	B-94	B-94	B-94	B-94	B-94	B-94

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer												
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080
Triple Reduction Horizontal Type	1800	-	1	31	40	49	59	58	74	81	99	109	136	137	168	210
				59	79	85	103	135	171	172	209	208	259	364	447	502
	1500	-	1	30	40	48	58	58	73	81	100	110	138	139	172	212
				52	71	75	90	120	152	153	188	186	233	328	408	452
	1200	-	1	29	39	46	57	57	72	80	98	108	136	138	173	211
				44	61	64	79	104	132	133	163	162	205	289	364	398
28	1000	-	1	28	38	44	55	55	70	78	96	106	134	135	172	207
				38	53	54	67	89	114	115	142	140	178	251	319	346
35.5	900	-	1	27	37	43	54	53	69	76	94	104	132	133	170	204
				35	50	51	63	83	106	108	133	132	168	236	302	327
750	-	1	26	36	41	51	51	66	73	91	100	128	128	165	198	
			30	43	44	54	54	72	93	94	117	116	148	208	268	288
Triple Reduction Vertical Type	1800	-	1	30	38	47	56	56	70	77	94	103	128	128	156	180
				57	75	82	98	129	163	162	198	196	244	341	415	430
	1500	-	1	29	38	47	56	56	71	78	96	105	132	132	163	194
				50	68	72	87	115	146	147	180	178	222	313	386	412
	1200	-	1	28	38	45	55	55	70	78	95	105	132	133	167	198
				43	60	62	76	101	128	129	158	157	198	279	351	373
28	1000	-	1	27	37	44	54	54	69	76	94	103	131	131	167	197
				37	52	54	66	87	111	112	139	137	174	244	310	330
35.5	900	-	1	27	37	43	53	52	67	75	92	102	129	130	165	196
				34	49	50	62	81	105	105	130	129	164	231	295	313
750	-	1	25	35	41	51	50	65	72	89	98	126	126	162	191	
			30	43	43	54	54	71	92	92	115	114	146	204	263	279
Triple Reduction Upright Type	1800	-	1	31	40	51	59	58	74	81	99	109	136	137	168	
				59	79	90	103	135	171	172	209	208	259	364	447	
	1500	-	1	30	40	50	58	58	73	81	100	110	138	139	172	
				52	71	78	90	120	152	153	188	186	233	328	408	
	1200	-	1	29	39	49	57	57	72	80	98	108	136	138	173	
				44	61	67	79	104	132	133	163	162	205	289	364	
28	1000	-	1	28	38	47	55	55	70	78	96	106	134	135	172	
				38	53	57	67	89	114	115	142	140	178	251	319	
35.5	900	-	1	27	37	45	54	53	69	76	94	104	132	133	170	
				35	50	53	63	83	106	108	133	132	168	236	302	
750	-	1	26	36	43	51	51	66	73	91	100	128	128	165		
			30	43	46	54	54	72	93	94	117	116	148	208	268	

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 28 ▶ 35.5

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
28.500	27.119	27.662	27.730	27.389		28.500	28.500		27.737	27.737	Exact Reduction Ratio		
625	812*	970*	1130*	1280*		1930*	2060*		3110*	3260*	65	1800	28
536	679	825	949	1090		1610*	1770*		2600*	2800*	54	1500	
444	546	663	763	910		1300	1460		2090*	2320*	43	1200	
379	456	554	638	781		1080	1250		1750	1990	36	1000	
341	411	500	575	715		982	1140		1580	1820	32	900	
285	344	418	481	612		821	955		1320	1560	27	750	
30.922	32.716	30.012	31.413	31.331	31.500	30.922	30.922		31.729	31.729	Exact Reduction Ratio		
589	708*	877*	988*	1140*	1380*	1780*	1920*		2730*	2910*	57	1800	31.5
498	592	734	823	978	1150	1490*	1640*		2280*	2500*	48	1500	
400	476	590	658	806	923	1200	1360		1840*	2070*	38	1200	
335	398	493	548	674	769	1000	1160		1530	1770	32	1000	
302	359	445	494	608	692	906	1050		1380	1620	29	900	
252	300	372	411	508	576	758	882		1160	1360	24	750	
35.576	35.108	35.811	36.045	35.601	36.176	36.000	36.000	36.500	35.036	35.036	Exact Reduction Ratio		
522	630*	766*	878*	988*	1330*	1530*	1690*	2110*	2480*	2680*	51	1800	35.5
448	527	640	734	823	1110	1280*	1450*	1760*	2070*	2300*	42	1500	
364	424	514	590	658	895	1030	1200	1420*	1670*	1910*	34	1200	
304	354	430	493	548	748	866	1000	1180	1390	1630	28	1000	
274	319	388	445	494	675	780	908	1070	1260	1480	25	900	
229	267	324	372	411	564	652	759	895	1050	1240	21	750	
B-56	B-56	B-56	B-56	B-56	B-58	B-58	B-58	B-60	B-60	B-60	Horizontal Vertical Upright	Dimension Tables	

Notes

- For * marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
229	272	298	340	376	417	500	500	455	537	537	-	1800	Triple Reduction Horizontal Type
547	764	839	912	1007	688	824	824	751	886	886	1	1500	
230	275	303	348	389	428	529	529	488	586	586	-	1200	
490	688	758	830	929	706	872	872	805	966	966	1	1000	
228	274	300	348	390	431	546	546	509	619	619	-	900	
430	607	666	736	825	712	901	901	841	1021	1021	1	750	
223	269	294	343	383	428	543	543	516	630	630	-		28 ▼ 35.5
373	529	579	643	719	706	895	895	851	1040	1040	1	900	
220	265	290	338	378	424	538	538	516	629	629	-		
352	499	546	607	679	700	888	888	851	1038	1038	1	750	
213	257	281	329	367	415	526	526	511	622	622	-		
310	441	481	538	600	684	868	868	843	1026	1026	1		
200	232	255	280	315							-	1800	Triple Reduction Vertical Type
477	651	717	750	844							1	1500	
212	251	274	310	343							-	1200	
450	627	685	738	819							1	1000	
215	256	282	324	363							-	900	
405	569	627	686	768							1	750	
213	256	281	325	365							-		
357	503	552	609	684							1		
211	254	278	323	362							-		
338	478	524	580	651							1		
206	248	272	317	355							-		
300	426	466	519	581							1		

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

-	1800	Triple Reduction Upright Type
-	1500	
-	1200	
-	1000	
-	900	
-	750	28 ▼ 35.5

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 40 ▶ 50

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
40	Exact Reduction Ratio		40.607	40.451	39.487	40.296	41.895	39.838	39.520	37.815	38.912	38.541	39.346	39.341	40.078	
	1800	45	30	32	50	57	73	92	124	140	194	225	286	331	408	
	1500	38	25.8	26.9	41	48	61	79	103	117	162	190	239	280	341	
	1200	30	20.7	21.5	33	38	49	65	83	94	130	152	192	224	274	
	1000	25	17.3	18.0	28.0	32	40	56	69	78	109	127	160	187	229	
	900	23	15.6	16.2	25.3	28.9	36	51	62	70	98	114	144	169	206	
750	19	13.0	13.5	21.1	24.1	30	42	52	59	82	95	121	141	172		
45	Exact Reduction Ratio		43.770	43.979	45.058	45.843	47.695	44.756	46.051	43.250	43.599	43.250	43.397	43.198	43.599	
	1800	40	27.8	32	41	53	60	82	97	133	162	214	248	315	362	
	1500	33	23.2	26.9	34	44	50	68	81	111	135	179	207	263	302	
	1200	27	18.6	21.5	28	35	40	55	65	89	108	144	166	211	243	
	1000	22	15.6	18.0	23.0	30	33	46	54	74	91	120	139	176	203	
	900	20	14.0	16.2	20.7	27.0	30	41	49	67	82	108	125	159	183	
750	17	11.7	13.5	17.3	22.6	25.3	34	41	56	68	90	104	133	152		
50	Exact Reduction Ratio		51.141	50.611	50.205		51.869	52.207	50.273	49.557	49.500	48.176	48.889	47.953	50.984	
	1800	36	19.3	32	51		59	78	97	130	153	199	231	295	322	
	1500	30	16.1	26.9	42		49	65	81	110	128	170	193	252	269	
	1200	24	12.9	21.5	34		39	52	65	88	102	137	155	202	216	
	1000	20	10.8	18.0	28.6		33	43	54	73	86	115	129	169	180	
	900	18	9.7	16.2	25.7		39.9	39	49	66	77	103	116	152	162	
750	15	8.1	13.5	21.4		24.9	32	41	55	64	86	97	127	136		
Dimension Tables	Horizontal		B-52	B-52	B-52	B-52	B-52	B-52	B-52	B-54	B-54	B-54	B-54	B-54	B-54	B-56
	Vertical		B-76	B-76	B-76	B-76	B-76	B-76	B-76	B-78	B-78	B-78	B-78	B-78	B-78	B-80
	Upright		B-92	B-92	B-92	B-92	B-92	B-92	B-92	B-92	B-92	B-92	B-92	B-92	B-92	

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer												
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080
Triple Reduction Horizontal Type	1800	-	1	26	37	44	54	53	67	74	91	102	126	129	159	196
				51	73	76	94	123	155	155	192	194	240	342	422	468
	1500	-	1	26	36	42	53	52	66	73	90	101	125	128	159	195
				44	63	66	83	108	136	136	169	171	212	304	376	415
	1200	-	1	24	34	40	51	50	64	70	87	98	122	126	156	191
				37	54	55	70	92	117	117	145	147	184	264	328	360
40	1000	-	1	23	33	38	49	48	61	68	85	95	119	122	152	186
				31	46	46	60	78	100	100	126	126	158	227	283	310
50	900	-	1	22	32	37	48	47	60	66	83	93	117	120	149	182
				29	42	43	57	73	93	93	117	118	148	213	266	291
750	-	1	21	30	34	45	45	57	63	79	89	112	115	144	175	
			1	24	36	37	48	63	81	81	102	103	130	186	233	255
Triple Reduction Vertical Type	1800	-	1	26	36	43	53	51	64	71	87	98	121	123	151	179
				49	71	74	93	119	149	149	184	186	229	326	401	427
	1500	-	1	25	35	41	52	51	64	70	87	98	121	124	153	182
				43	62	64	81	105	132	132	163	165	205	293	362	387
	1200	-	1	24	34	39	50	49	62	69	85	96	119	122	152	182
				36	53	54	69	90	114	115	142	144	179	257	319	343
40	1000	-	1	23	32	37	48	48	60	67	83	93	117	120	149	179
				30	45	46	59	77	98	98	123	124	155	223	277	299
50	900	-	1	22	31	36	47	46	59	65	81	91	115	117	147	176
				28	42	42	55	72	92	92	115	116	146	209	261	282
750	-	1	20	30	34	45	44	56	62	78	87	110	113	142	170	
			1	24	36	36	48	62	80	80	100	101	128	184	230	248
Triple Reduction Upright Type	1800	-	1	26	37	47	54	53	67	74	91	102	126	129	159	
				51	73	83	95	123	155	155	192	194	240	342	422	
	1500	-	1	26	36	47	53	52	66	73	90	101	125	128	159	
				44	63	72	83	108	136	136	169	171	212	304	376	
	1200	-	1	24	34	45	51	50	64	70	87	98	122	126	156	
				37	54	62	71	92	117	117	145	147	184	264	328	
40	1000	-	1	23	33	43	49	48	61	68	85	95	119	122	152	
				31	46	53	60	78	100	100	126	126	158	227	283	
50	900	-	1	22	32	42	48	47	60	66	83	93	117	120	149	
				29	42	49	56	73	93	93	117	118	148	213	266	
750	-	1	21	30	40	45	45	57	63	79	89	112	115	144		
			1	24	36	42	48	63	81	81	102	103	130	186	233	

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 40 ▶ 50

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
38.599	40.322	38.853	38.716	40.726	38.824	39.059	39.059	39.601	40.079	40.079	Exact Reduction Ratio		
479	577*	682*	861*	917*	1240*	1420*	1570*	1940*	2170*	2390*	45	1800	40
401	483	570	723	775	1030	1180*	1350*	1630*	1820*	2050*	38	1500	
322	388	458	581	623	835	955	1110	1310*	1460*	1700*	30	1200	
269	324	383	486	521	698	799	930	1090	1220	1440	25	1000	
242	292	345	438	469	630	720	839	988	1100	1300	23	900	
202	244	288	366	392	526	602	701	826	923	1080	19	750	
44.471	43.271	44.136	44.425	43.878	45.882	45.529	45.529	46.162	44.206	44.206	Exact Reduction Ratio		
430	514*	624*	715*	861*	1050*	1220*	1390*	1670*	1970*	2200*	40	1800	45
364	429	522	598	739	882	1020*	1190*	1400*	1650*	1890*	33	1500	
292	345	419	480	610	709	822	957	1120*	1330*	1560*	27	1200	
244	288	350	402	508	593	687	800	943	1110	1310	22	1000	
220	260	315	362	457	534	620	721	850	1000	1180	20	900	
184	217	264	302	381	446	518	603	710	838	988	17	750	
48.249	50.875	47.886	48.680	50.194	49.040	49.398	49.398	50.084	50.569	50.569	Exact Reduction Ratio		
385	459*	555*	691*	755*	988*	1120*	1290*	1540*	1730*	1970*	36	1800	50
322	384	464	578	632	827	945*	1090*	1290*	1450*	1690*	30	1500	
258	308	373	464	507	664	759	883	1040*	1160*	1370*	24	1200	
216	257	312	388	424	555	634	738	870	974	1140	20	1000	
194	232	281	349	382	500	572	666	785	878	1030	18	900	
162	194	234	292	319	416	478	556	656	734	866	15	750	
B-56	B-56	B-56	B-56	B-56	B-58	B-58	B-58	B-60	B-60	B-60	Horizontal Vertical Upright	Dimension Tables	

Notes

- For * marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
219	258	285	330	362	399	524	524	450	552	552	-	1800	Triple Reduction Horizontal Type
524	724	801	885	969	658	864	864	743	911	911	1	1500	
220	257	287	335	365	401	529	529	481	586	586	-	1200	
468	642	717	798	870	662	872	872	793	966	966	1	1000	
217	252	283	330	362	397	525	525	490	593	593	-	900	40 ▼ 50
410	558	629	700	767	655	866	866	809	978	978	1	750	
213	245	277	323	356	389	516	516	490	590	590	-		
356	482	545	606	667	642	852	852	808	973	973	1		
209	240	273	317	351	383	509	509	487	585	585	-		
335	453	514	570	630	633	840	840	803	965	965	1		
202	232	264	306	340	372	495	495	478	573	573	-		
295	397	453	501	556	613	817	817	788	945	945	1		
197	233	256	291	322							-	1800	Triple Reduction Vertical Type
471	656	720	779	862							1	1500	
203	239	265	305	335							-	1200	
432	599	661	727	799							1	1000	
205	239	268	312	341							-	900	40 ▼ 50
387	531	594	661	721							1	750	
203	236	265	310	340							-		
340	463	522	581	637							1		
201	232	263	306	337							-		
322	438	495	550	605							1		
196	225	256	298	330							-		
286	386	439	487	539							1		
											-	1800	Triple Reduction Upright Type
											-	1500	
											-	1200	
											-	1000	
											-	900	40 ▼ 50
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 56 ▶ 71

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer												
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080
56	Exact Reduction Ratio		55.125	55.025	56.987	57.115	59.051	58.652	58.582	56.678	55.462	54.062	53.922	52.655	55.462
	1800	32	19.3	29.4	31	43	48	62	77	102	128	172	200	259	285
	1500	27	16.1	24.6	26.1	36	40	52	64	85	107	144	167	216	238
	1200	21	12.9	19.7	20.9	28.9	32	42	51	68	85	115	134	174	191
	1000	18	10.8	16.5	17.5	24.1	27.3	35	43	57	71	96	112	145	160
	900	16	9.7	14.8	15.7	21.7	24.6	31	38	51	64	87	101	131	144
63	Exact Reduction Ratio		63.986		62.222		64.640	64.637	63.984	63.041	63.000	61.286	62.222	59.583	64.889
	1800	29	19.3		31		47	63	75	97	111	156	172	238	254
	1500	24	16.1		26.1		39	52	63	81	92	132	143	202	212
	1200	19	12.9		20.9		31	42	50	65	74	106	115	162	170
	1000	16	10.8		17.5		26.6	35	42	54	62	88	96	135	142
	900	14	9.7		15.7		24.0	31	38	49	55	80	86	122	128
71	Exact Reduction Ratio		68.971	69.300	71.000	72.237	73.590	72.617	74.559	72.101	70.588	68.773	68.627	65.425	70.588
	1800	25	17.7	19.3	26	31	39	50	60	80	101	135	158	209	225
	1500	21	14.8	16.1	21.9	26.1	32	42	50	67	84	113	132	175	188
	1200	17	11.9	12.9	17.5	20.9	26.3	34	40	53	67	91	105	140	151
	1000	14	9.9	10.8	14.6	17.5	21.9	28.5	34	45	56	76	88	117	126
	900	13	8.9	9.7	13.2	15.7	19.7	25.6	30	40	50	68	79	105	113
Dimension Tables	Horizontal		B-52	B-52	B-52	B-52	B-52	B-52	B-54	B-54	B-54	B-54	B-54	B-54	B-56
	Vertical		B-76	B-76	B-76	B-76	B-76	B-76	B-78	B-78	B-78	B-78	B-78	B-78	B-80
	Upright		B-92	B-92	B-92	B-92	B-92	B-92	B-94	B-94	B-94	B-94	B-94	B-94	

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer												
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080
Triple Reduction Horizontal Type	1800	-	1	25	31	41	48	49	64	68	86	93	121	118	153	182
				48	62	71	84	114	148	143	181	177	230	314	408	436
	1500	-	1	24	30	39	46	48	62	66	84	91	119	116	152	180
				41	53	61	72	98	129	124	158	154	202	276	359	382
	1200	-	1	23	28	37	44	46	60	63	81	88	115	113	148	174
				35	44	51	61	83	109	106	135	132	173	237	310	328
56	1000	-	1	22	27	35	41	43	57	61	78	84	111	109	143	168
				29	37	43	50	70	93	89	115	112	148	202	266	281
71	900	-	1	21	26	34	40	42	56	59	76	82	109	106	140	164
				27	34	40	47	65	86	83	107	104	138	189	249	262
71	750	-	1	19	24	32	37	40	53	56	72	78	103	101	134	156
				23	29	34	39	56	74	72	93	90	120	164	217	228
Triple Reduction Vertical Type	1800	-	1	24	30	40	47	47	62	65	83	90	117	113	147	169
				47	60	69	82	110	143	138	175	171	222	301	391	405
	1500	-	1	24	29	38	45	46	61	64	82	89	116	113	147	170
				40	52	60	70	96	125	121	154	150	196	267	348	361
	1200	-	1	22	28	37	43	45	59	62	80	86	113	110	144	167
				34	43	50	59	82	107	103	133	129	170	232	303	315
56	1000	-	1	21	26	35	41	43	56	60	77	83	109	107	140	162
				29	36	43	50	69	91	88	114	110	146	199	261	272
71	900	-	1	21	25	34	39	42	55	58	75	81	107	104	138	159
				27	34	39	46	65	85	82	106	103	136	186	245	255
71	750	-	1	19	24	32	37	39	52	55	72	77	102	100	132	153
				23	29	34	39	55	74	71	93	89	119	162	215	223
Triple Reduction Upright Type	1800	-	1	25	31	43	48	49	64	68	86	93	121	118	153	
				48	62	74	84	114	148	143	181	177	230	314	408	
	1500	-	1	24	30	41	46	48	62	66	84	91	119	116	152	
				41	53	64	72	98	129	124	158	154	202	276	359	
	1200	-	1	23	28	39	44	46	60	63	81	88	115	113	148	
				35	44	54	61	83	109	106	135	132	173	237	310	
56	1000	-	1	22	27	37	41	43	57	61	78	84	111	109	143	
				29	37	45	50	70	93	89	115	112	148	202	266	
71	900	-	1	21	26	36	40	42	56	59	76	82	109	106	140	
				27	34	42	47	65	86	83	107	104	138	189	249	
71	750	-	1	19	24	33	37	40	53	56	72	78	103	101	134	
				23	29	36	39	56	74	72	93	90	120	164	217	

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 56 ▶ 71

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
56.571	54.596	55.688	55.858	55.170	57.957	56.571	56.571	58.172	55.474	55.474	Exact Reduction Ratio		
344	409*	497*	571*	706*	839*	989*	1150*	1330*	1580*	1820*	32	1800	56
287	342	415	478	588	702	827*	962*	1110*	1320*	1560*	27	1500	
231	274	333	383	470	563	664	773	899*	1060*	1250*	21	1200	
193	229	278	320	392	471	555	646	751	889	1040	18	1000	
173	206	251	289	353	424	500	582	677	802	946	16	900	
145	172	209	241	294	354	418	487	566	670	790	13	750	
61.378	63.843	60419	61.300	63.112	61.661	61.378	61.378	63.115	63.459	63.459	Exact Reduction Ratio		
304	367*	442*	548*	603*	763*	913*	1060*	1230*	1380*	1620*	29	1800	63
254	307	369	456	504	638	763*	888*	1030*	1160*	1360*	24	1500	
204	246	296	365	405	512	613	713	829*	932*	1100*	19	1200	
170	206	248	304	338	427	512	596	693	779	919	16	1000	
153	185	223	274	305	384	462	537	625	702	828	14	900	
128	155	186	228	255	320	386	449	522	587	692	12	750	
72.000	68.512	69.882	70.339	69.474	72.872	70.500	70.500	73.000			Exact Reduction Ratio		
271	327*	397*	456*	548*	660*	797*	927*	1070*	*	*	25	1800	71
226	273	332	381	456	550	666*	775*	895*	*	*	21	1500	
182	219	266	305	365	440	535	622	719*	*	*	17	1200	
152	183	222	255	304	367	447	520	601	*	*	14	1000	
137	165	200	230	274	330	403	469	541	*	*	13	900	
114	138	167	192	228	275	336	391	452	*	*	11	750	
B-56	B-56	B-56	B-56	B-56	B-58	B-58	B-58	B-60	B-60	B-60	Horizontal Vertical Upright Dimension Tables		

* marked models are quadruple reduction units. Refer to B-30 and B-31.

Notes
1. For ✕ marked values, the forced oil lubrication is required at continuous operation.
2. Consult us when the high speed shaft speed is over 1800r/min.
3. When the high speed shaft speed is not shown in the table, find it by the interpolation method.
4. When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula. $PN = P_{750} \times \frac{N}{750}$
5. Shown in the table are the ratings for the slow speed shaft.
6. Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
197	243	267	306	344	387	489	489	454	554	554	-	1800	Triple Reduction Horizontal Type
472	683	750	821	921	639	806	806	748	914	914	1	1500	
194	240	263	303	339	385	483	483	457	562	562	-	1500	
412	600	657	723	810	634	797	797	754	928	928	1	1200	
187	233	255	296	330	376	470	470	452	561	561	1	1200	
353	517	565	626	698	621	776	776	746	925	925	1	1000	56
180	225	246	287	319	366	456	456	443	553	553	-	1000	
302	443	483	537	599	604	752	752	731	912	912	1	900	71
176	220	240	281	313	359	447	447	437	546	546	-	900	
282	415	452	504	561	593	737	737	720	900	900	1	750	
168	211	230	269	300	346	430	430	423	530	530	-	750	
245	361	394	440	490	571	709	709	697	875	875	1	750	

184	225	249	283	319							-	1800	Triple Reduction Vertical Type
441	633	699	757	855							1	1800	
184	226	249	285	321							-	1500	
391	566	623	680	765							1	1200	
180	223	245	283	317							-	1000	
340	495	543	598	670							1	1000	
175	218	238	277	309							-	900	56
293	429	469	519	580							1	900	
172	214	234	272	304							-	750	71
275	403	440	489	546							1	750	
164	206	225	263	293							-	750	
240	353	386	430	479							1	750	

											-	1800	Triple Reduction Upright Type
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes
1. Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
2. The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
3. When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 80 ▶ 90

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer																							
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090									
80	Exact Reduction Ratio		79.751			79.111			80.552			80.234			78.000			75.833			77.090					
	1800	23	19.3			*	31			*	51			*	75			*	111			*	172			206
	1500	19	16.1			*	26.1			*	42			*	63			*	92			*	143			172
	1200	15	12.9			*	20.9			*	34			*	50			*	74			*	115			138
	1000	13	10.8			*	17.5			*	28.5			*	42			*	62			*	96			115
	900	11	9.7			*	15.7			*	25.7			*	38			*	55			*	86			104
750	9.4	8.1			*	13.1			*	21.4			*	31			*	46			*	72			87	
90	Exact Reduction Ratio		86.706			90.000			90.496			91.765			87.529			83.268								
	1800	20	18.8			*	27.5			*	41			*	63			*	107			*	165			*
	1500	17	15.7			*	23.0			*	34			*	53			*	89			*	138			*
	1200	13	12.6			*	18.4			*	27.4			*	42			*	71			*	110			*
	1000	11	10.5			*	15.4			*	22.9			*	35			*	59			*	92			*
	900	10	9.4			*	13.8			*	20.6			*	32			*	54			*	83			*
750	8.3	7.9			*	11.6			*	17.2			*	26.7			*	45			*	69			*	
Dimension Tables	Horizontal		B-52			B-52			B-52			B-54			B-54			B-54			B-56					
	Vertical		B-76			B-76			B-76			B-78			B-78			B-78			B-78			B-80		
	Upright		B-92			B-92			B-92			B-94			B-94			B-94			B-94					

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer																				
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090						
Selection Tables	Triple Reduction Horizontal Type	1800	-	30			46			59			79			110			140			185		
		1500	-	59			81			136			167			210			372			443		
		1200	-	29			44			57			77			108			137			183		
	80	1200	1	51			69			117			145			182			325			388		
		1000	-	27			42			54			73			103			132			177		
		1000	1	42			58			99			122			155			278			334		
Dimension Tables	80	1000	-	25			39			51			70			99			127			171		
		900	-	35			48			83			103			131			237			285		
		900	1	24			38			50			68			96			124			167		
	90	900	-	33			45			77			96			122			221			267		
		750	-	23			36			47			64			91			118			159		
		750	1	28			38			66			82			105			191			232		
Selection Tables	Triple Reduction Vertical Type	1800	-	29			45			57			76			107			135			173		
		1500	-	58			79			132			160			203			359			412		
		1200	-	28			43			56			75			105			134			173		
	80	1200	1	50			67			115			141			178			316			367		
		1000	-	27			41			53			72			101			130			170		
		1000	1	42			57			97			120			152			272			320		
Dimension Tables	80	1000	-	25			39			51			69			97			125			165		
		900	-	35			48			82			102			129			233			276		
		900	1	24			38			49			67			95			122			162		
	90	900	-	32			45			76			95			121			218			259		
		750	-	23			35			46			63			90			117			156		
		750	1	27			37			66			81			104			189			227		
Selection Tables	Triple Reduction Upright Type	1800	-	30			46			59			79			110			140			185		
		1500	-	59			81			136			167			210			372			443		
		1200	-	29			44			57			77			108			137			183		
	80	1200	1	51			69			117			145			182			325			388		
		1000	-	27			42			54			73			103			132			177		
		1000	1	42			58			99			122			155			278			334		
Dimension Tables	80	1000	-	25			39			51			70			99			127			171		
		900	-	35			48			83			103			131			237			285		
		900	1	24			38			50			68			96			124			167		
	90	900	-	33			45			77			96			122			221			267		
		750	-	23			36			47			64			91			118			159		
		750	1	28			38			66			82			105			191			232		

SELECTION Right Angle Shaft Triple Reduction Nominal Reduction Ratio 80 ▶ 90

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio				
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136							
78.118	77.451	75.820	83.128	79.474	77.647	76.490	76.490	79.203			Exact Reduction Ratio						
240	290*	353*	386*	481*	587*	735*	856*	988*	*	*	23	1800	80				
200	242	295	323	402	490	615*	716*	826*	*	*	19	1500					
160	194	237	259	323	393	493	574	663*	*	*	15	1200					
134	162	198	216	269	328	412	480	554	*	*	13	1000					
121	146	178	195	243	296	372	432	499	*	*	11	900					
101	122	149	163	203	247	310	361	417	*	*	9.4	750					
85.313											85.712		93.924	91.765	Exact Reduction Ratio		
220	*	313*	*	408*	512*	*	*	*	*	*	20	1800	90				
183	*	262	*	341	427	*	*	*	*	*	17	1500					
147	*	210	*	273	341	*	*	*	*	*	13	1200					
123	*	175	*	228	284	*	*	*	*	*	11	1000					
111	*	158	*	206	256	*	*	*	*	*	10	900					
92	*	132	*	172	213	*	*	*	*	*	8.3	750					
B-56	B-56	B-56	B-56	B-56	B-58	B-58	B-58	B-60			Horizontal Vertical Upright	Dimension Tables					
B-80	B-80	B-80	B-80	B-80													

* marked models are quadruple reduction units. Refer to B-30 and B-31.

Notes

- For ✖ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
197	245	263	304	330	363	487	487	447			-	1800	Triple Reduction Horizontal Type
471	689	738	814	885	599	803	803	737			1	1500	
194	242	259	300	326	357	481	481	450			1	1200	
412	605	647	717	778	590	793	793	742			1	1000	80
187	235	251	293	317	346	468	468	445			-	900	
353	521	556	619	671	571	772	772	734			1	750	90
180	227	242	284	307	335	454	454	436			-		
301	447	476	532	575	553	749	749	719			1		
176	222	237	278	300	328	445	445	429			-		
282	418	445	499	539	540	734	734	708			1		
168	213	226	267	288	314	427	427	416			-		
244	364	388	436	470	517	705	705	686			1		

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

184	228	245	281	308							-	1800	Triple Reduction Vertical Type
440	640	689	753	825							1	1500	
184	229	245	283	309							1	1200	
391	572	613	675	737							1	1000	80
180	225	241	280	304							-	900	
340	500	535	593	644							1	750	90
175	220	235	274	297							-		
292	433	462	515	558							1		
171	216	230	270	292							-		
274	407	433	484	524							1		
164	208	221	261	282							-		
239	357	380	426	460							1		

											-	1800	Triple Reduction Upright Type
											-	1500	
											-	1200	
											-	1000	80
											-	900	
											-	750	90

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 71 ▶ 90

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer														
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
71	Exact Reduction Ratio																
	1800	25		*	*	*	*	*	*	*	*	*	*	*	*	*	*
	1500	21		*	*	*	*	*	*	*	*	*	*	*	*	*	*
	1200	17		*	*	*	*	*	*	*	*	*	*	*	*	*	*
	1000	14		*	*	*	*	*	*	*	*	*	*	*	*	*	*
	900	13		*	*	*	*	*	*	*	*	*	*	*	*	*	*
750	11		*	*	*	*	*	*	*	*	*	*	*	*	*	*	
80	Exact Reduction Ratio						77.989		79.341				78.120		79.124		
	1800	23				*	26	*	30	*		*	80	*	127	*	*
	1500	19				*	21	*	25.3	*		*	66	*	106	*	*
	1200	15				*	17	*	20.3	*		*	53	*	84	*	*
	1000	13				*	14	*	16.9	*		*	44	*	70	*	*
	900	11				*	13	*	15.2	*		*	40	*	63	*	*
750	9.4				*	11	*	12.7	*		*	33	*	53	*	*	
90	Exact Reduction Ratio						88.991		90.326		91.330		87.529		87.269		90.353
	1800	20				*	21.0	*	30	*	45	*	80	*	124	*	176
	1500	17				*	17.5	*	25.3	*	37	*	66	*	104	*	147
	1200	13				*	14.0	*	20.3	*	30	*	53	*	83	*	118
	1000	11				*	11.7	*	16.9	*	25.0	*	44	*	69	*	98
	900	10				*	10.5	*	15.2	*	22.5	*	40	*	62	*	89
750	8.3				*	8.8	*	12.7	*	18.8	*	33	*	52	*	74	
Dimension Tables	Horizontal							B-62		B-62		B-64		B-64		B-64	B-66
	Vertical							B-82		B-82		B-84		B-84		B-84	B-86
	Upright							B-96		B-96		B-98		B-98		B-98	

THERMAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer														
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
Quadruple Reduction Horizontal Type	1800	-					40		50		70		94		119		157
	1500	-					40		49		69		93		118		157
	1200	-					39		47		66		90		115		155
	1000	-					38		45		63		87		112		151
	900	-					37		44		62		85		109		149
	750	-					36		42		59		82		105		143
Quadruple Reduction Vertical Type	1800	-					44		54		75		103		130		175
	1500	-					43		52		73		99		127		171
	1200	-					41		49		69		95		121		165
	1000	-					40		47		66		91		116		159
	900	-					39		45		64		88		113		155
	750	-					37		43		60		84		108		148
Quadruple Reduction Upright Type	1800	-					43		50		70		94		118		
	1500	-					43		49		68		93		117		
	1200	-					42		47		66		90		115		
	1000	-					41		45		63		87		111		
	900	-					40		44		62		85		109		
	750	-					38		41		59		81		105		

Speed Reducer Selection Tables Dimension Tables

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 71 ▶ 90

Size of Reducer										L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
										68.889	68.889	Exact Reduction Ratio	
*	*	*	*	*	*	*	*	*	*	*	1280	1510	71
*	*	*	*	*	*	*	*	*	*	*	1070	1260	
*	*	*	*	*	*	*	*	*	*	*	860	1010	71
*	*	*	*	*	*	*	*	*	*	*	718	848	
*	*	*	*	*	*	*	*	*	*	*	648	764	71
*	*	*	*	*	*	*	*	*	*	*	541	638	
										78.568	78.568	Exact Reduction Ratio	
*	*	*	*	*	*	*	*	*	*	*	1120	1320	80
*	*	*	*	*	*	*	*	*	*	*	941	1110	
*	*	*	*	*	*	*	*	*	*	*	755	891	80
*	*	*	*	*	*	*	*	*	*	*	631	745	
*	*	*	*	*	*	*	*	*	*	*	569	671	80
*	*	*	*	*	*	*	*	*	*	*	475	560	
										88.676	89.695	Exact Reduction Ratio	
*	254	*	379	*	*	615	715	862	1010	1190	20	1800	90
*	212	*	316	*	*	514	598	720	848	1000	17	1500	
*	170	*	254	*	*	412	480	578	680	803	13	1200	90
*	142	*	212	*	*	344	401	483	568	670	11	1000	
*	128	*	191	*	*	310	361	435	512	604	10	900	90
*	106	*	159	*	*	259	301	363	428	505	8.3	750	
										B-66	B-66	Horizontal Vertical Upright	Dimension Tables
										B-86	B-86		

* marked models are triple reduction units. Refer to B-28 ~ B-29.

Notes

- For ✕ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.
$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer										Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
202		259				359	359	386	472	472	-	1800	Quadruple Reduction Horizontal Type
204		259				361	361	395	484	484	-	1500	
202		255				356	356	397	488	488	-	1200	71
199		250				349	349	394	484	484	-	1000	
196		246				344	344	390	480	480	-	900	90
190		237				334	334	381	469	469	-	750	
228		288									-	1800	Quadruple Reduction Vertical Type
224		281									-	1500	
216		271									-	1200	71
209		262									-	1000	
205		256									-	900	90
197		245									-	750	
										-	1800	Quadruple Reduction Upright Type	
										-	1500		
										-	1200	71	
										-	1000		
										-	900	90	
										-	750		

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 100 ▶ 125

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer														
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
100	Exact Reduction Ratio						99.259	99.158	103.97	98.871	102.71		97.650	96.720	96.444	96.432	103.82
	1800	18					20.1	26.0	29.8	30	45		78	80	118	127	160
	1500	15					16.8	21.7	24.9	25.3	37		65	66	99	106	133
	1200	12					13.5	17.4	19.9	20.3	30		52	53	79	84	107
	1000	10					11.2	14.5	16.6	16.9	25.0		43	44	66	70	89
	900	9.0					10.1	13.0	15.0	15.2	22.5		39	40	59	63	80
750	7.5					8.4	10.8	12.5	12.7	18.8		33	33	49	53	67	
112	Exact Reduction Ratio						113.26	112.81	118.37	111.08	119.69	112.41	109.41	108.54	106.37	105.89	112.94
	1800	16					16.5	22.0	24.5	30	38	45	65	80	102	127	141
	1500	13					13.8	18.4	20.4	25.3	31	37	54	66	85	106	118
	1200	11					11.0	14.7	16.4	20.3	25.5	30	43	53	68	84	95
	1000	8.9					9.2	12.3	13.7	16.9	21.3	25.0	36	44	57	70	79
	900	8.0					8.3	11.1	12.3	15.2	19.2	22.5	33	40	51	63	71
750	6.7					6.9	9.2	10.3	12.7	16.0	18.8	27.5	33	43	53	59	
125	Exact Reduction Ratio						122.72	126.20	130.09	129.57	127.97	128.80	127.97	120.90	126.39	117.54	129.78
	1800	14					16.3	20.4	23.9	30	38	45	60	80	90	124	128
	1500	12					13.6	17.0	19.9	25.3	32	37	50	66	75	104	107
	1200	9.6					10.6	13.6	16.0	20.3	26.0	30	40	53	60	83	86
	1000	8.0					9.1	11.4	13.3	16.9	21.7	25.0	33	44	50	69	71
	900	7.2					8.2	10.2	12.0	15.2	19.6	22.5	30	40	45	62	64
750	6.0					6.8	8.5	10.0	12.7	16.3	18.8	25.2	33	38	52	53	
Dimension Tables	Horizontal						B-62	B-62	B-62	B-62	B-64	B-64	B-64	B-64	B-64	B-64	B-66
	Vertical						B-82	B-82	B-82	B-82	B-84	B-84	B-84	B-84	B-84	B-84	B-86
	Upright						B-96	B-96	B-96	B-96	B-98	B-98	B-98	B-98	B-98	B-98	

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer														
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
Selection Tables	Quadruple Reduction Horizontal Type	1800	-					39	45	46	57	64	78	87	107	110	135	147
		1500	-					38	44	45	55	63	76	86	105	109	133	147
		1200	-					36	42	43	53	60	72	83	102	106	129	144
		1000	-					35	40	41	50	58	69	80	98	103	125	140
		900	-					34	39	40	49	56	68	78	96	100	122	138
		750	-					32	37	38	46	54	64	74	91	96	117	133
Dimension Tables	Quadruple Reduction Vertical Type	1800	-					41	48	49	60	69	82	94	115	120	146	162
		1500	-					40	46	47	58	66	79	91	111	116	142	158
		1200	-					38	44	45	55	63	75	86	106	111	135	152
		1000	-					36	42	43	52	60	71	83	101	107	130	147
		900	-					35	40	41	50	58	69	80	98	104	126	143
		750	-					33	38	39	47	55	65	76	93	99	120	137
Dimension Tables	Quadruple Reduction Upright Type	1800	-					41	45	46	56	64	78	87	107	110	135	
		1500	-					40	44	45	55	63	76	85	105	109	133	
		1200	-					38	42	43	53	60	72	83	101	106	129	
		1000	-					37	40	41	50	58	69	80	98	103	125	
		900	-					36	39	40	49	56	68	78	95	100	122	
		750	-					34	37	38	46	54	64	74	91	96	117	

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 100 ▶ 125

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
99.991	101.85	98.135	97.789	101.65	98.060	99.600	99.600	98.756	99.948	99.948	Exact Reduction Ratio		
188	232	274	348	401	500	567	660	796*	889*	1040*	18	1800	100
157	194	229	290	335	418	474	552	665	742	876	15	1500	
126	155	184	233	269	335	380	443	534	596	703	12	1200	
105	129	153	194	224	280	318	370	446	498	587	10	1000	
94	117	138	175	202	252	286	333	402	448	529	9.0	900	
79	97	115	146	169	210	239	278	335	374	442	7.5	750	
115.20	109.29	111.48	112.21	110.83	113.61	115.20	115.20	112.18	110.36	110.36	Exact Reduction Ratio		
170	206	251	287	368	433	492	572	702*	806*	951*	16	1800	112
142	172	209	240	308	362	411	478	586	673	794	13	1500	
114	138	168	192	247	290	329	383	470	540	637	11	1200	
95	115	140	161	206	242	275	320	393	451*	532*	8.9	1000	
86	104	126	145	186	218	248	288	354	406	480	8.0	900	
71	86	105	121	155	181	207	241	295	339	400	6.7	750	
124.99	124.14	120.95	119.20	126.78	123.87	124.99	124.99	121.72	126.25	126.25	Exact Reduction Ratio		
151	191	223	286	304	397	454	528	648*	706*	833*	14	1800	125
126	159	186	239	253	332	349	441	541	590	696	12	1500	
101	127	149	191	203	266	304	354	434	473	558	9.6	1200	
84	106	124	160	170	222	254	295	362	395	466	8.0	1000	
76	96	112	144	153	200	229	266	327	356	420	7.0	900	
63	80	94	120	127	167	191	222	273	297	350	6.0	750	
B-66	B-66	B-66	B-66	B-66	B-68	B-68	B-68	B-70	B-70	B-70	Horizontal Vertical Upright	Dimension Tables	

Notes

- For * marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
164	189	211	252	275	302	355	355	374	470	470	-	1800	Quadruple Reduction Horizontal Type 100 ▼ 125
163	190	212	250	273	300	355	355	380	470	470	-	1500	
160	188	209	245	268	293	350	350	380	464	464	-	1200	
156	184	205	239	261	285	342	342	375	454	454	-	1000	
153	181	202	235	256	280	337	337	371	447	447	-	900	
148	176	195	227	247	270	326	326	362	433	433	-	750	
180	211	236	275	300							-	1800	Quadruple Reduction Vertical Type 100 ▼ 125
176	207	230	268	293							-	1500	
169	200	223	258	282							-	1200	
163	193	215	249	272							-	1000	
159	189	210	243	265							-	900	
152	181	202	233	254							-	750	
											-	1800	Quadruple Reduction Upright Type 100 ▼ 125
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 140 ▶ 180

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer														
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
140	Exact Reduction Ratio						140.03	143.57	148.10	145.56	149.12	147.31	143.38	135.67	139.40	129.07	141.18
	1800	13					13.4	17.3	19.6	25.6	30	39	50	69	78	107	113
	1500	11					11.2	14.5	16.4	21.4	25.6	33	41	58	65	89	95
	1200	8.6					8.9	11.6	13.1	17.1	20.5	26.6	33	46	52	71	76
	1000	7.1					7.5	9.7	10.9	14.3	17.1	22.2	28.0	38	43	59	63
	900	6.4					6.7	8.7	9.9	12.9	15.4	20.0	25.2	35	39	54	57
	750	5.4					5.6	7.3	8.2	10.7	12.9	16.7	21.0	29.2	32	45	47
160	Exact Reduction Ratio						156.02	158.68	162.11	156.75	160.47		158.44	158.25	154.04	163.15	
	1800	11					16.5	17.1	25.5	25.7	40		63	68	95	102	
	1500	9.4					13.8	14.3	21.3	21.4	34		53	57	79	85	
	1200	7.5					11.0	11.4	17.1	17.1	27.2		42	46	64	68	
	1000	6.3					9.2	9.5	14.2	14.3	22.7		35	38	53	57	
	900	5.6					8.3	8.6	12.8	12.8	20.4		31	34	48	51	
	750	4.7					6.9	7.1	10.7	10.7	17.0		26.6	28.7	40	43	
180	Exact Reduction Ratio						177.50	180.65	182.13	182.66	183.53	171.41	177.79	174.54	169.14	177.48	
	1800	10					14.0	16.1	20.5	25.1	32	39	53	62	82	90	
	1500	8.3					11.7	13.4	17.1	20.9	26.7	33	44	52	68	75	
	1200	6.7					9.4	10.8	13.7	16.8	21.4	26.6	35	42	54	60	
	1000	5.6					7.8	9.0	11.4	14.0	17.8	22.1	29.7	35	45	50	
	900	5.0					7.1	8.1	10.3	12.6	16.1	19.9	26.7	31	41	45	
	750	4.2					5.9	6.7	8.6	10.5	13.4	16.6	22.3	26.4	34	38	
Dimension Tables	Horizontal						B-62	B-62	B-62	B-62	B-64	B-64	B-64	B-64	B-64	B-64	B-66
	Vertical						B-82	B-82	B-82	B-82	B-84	B-84	B-84	B-84	B-84	B-84	B-86
	Upright						B-96	B-96	B-96	B-96	B-98	B-98	B-98	B-98	B-98	B-98	

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer														
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
Selection Tables	Quadruple Reduction Horizontal Type	1800	-					38	42	40	55	59	75	81	102	101	130	144
		1500	-					37	41	38	53	56	73	78	100	98	127	140
		1200	-					35	39	36	51	53	70	73	97	93	123	135
	140	1000	-					34	38	34	48	50	67	70	93	89	119	129
		900	-					33	37	32	47	48	65	67	91	86	117	126
	180	750	-					31	35	30	45	45	62	63	86	81	111	120
	Dimension Tables	Quadruple Reduction Vertical Type	1800	-					40	45	42	58	61	79	84	109	107	139
1500			-					39	43	39	55	58	76	81	105	102	135	147
1200			-					37	41	37	52	54	72	75	100	96	129	139
140		1000	-					35	39	34	50	51	68	71	96	91	123	133
		900	-					34	38	33	48	49	66	69	93	88	120	129
180		750	-					32	36	30	45	46	63	64	88	82	114	122
Selection Tables		Quadruple Reduction Upright Type	1800	-					39	42	40	54	59	75	81	102	101	129
	1500		-					38	41	38	53	56	73	78	100	98	127	
	1200		-					37	39	36	51	53	70	73	96	93	123	
	140	1000	-					35	38	33	48	50	67	70	93	89	119	
		900	-					34	37	32	47	48	65	67	91	86	116	
	180	750	-					33	35	30	44	45	62	63	86	81	111	

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 140 ▶ 180

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
144.00	133.22	135.88	136.77	135.09	146.39	142.31	142.31	145.23	136.02	136.02	Exact Reduction Ratio		
137	170	206	236	303	337	399	464	544*	656*	774*	13	1800	140
114	141	172	197	253	281	333	388	454	548	646	11	1500	
91	113	138	158	203	226	267	311	364	439	518	8.6	1200	
76	95	115	132	169	188	223	260	304	367	433	7.1	1000	
69	85	104	119	152	170	201	234	274	330	390	6.4	900	
57	71	86	99	127	142	168	195	229	276	325	5.4	750	
156.24	158.28	147.43	153.67	154.53	150.98	154.40	154.40	157.57	155.60	155.60	Exact Reduction Ratio		
121	150	183	222	250	327	368	429	502*	574*	678*	11	1800	160
101	125	153	186	208	273	307	358	419	480	566	9.4	1500	
81	100	123	149	167	219	246	287	336	385	454	7.5	1200	
67	84	102	124	139	183	206	240	281	321	379	6.3	1000	
61	75	92	112	126	165	185	216	253	289	341	5.6	900	
50	63	77	93	105	137	155	180	211	241	285	4.7	750	
181.03	169.85	173.25	181.61	174.16	178.43	177.88	177.88	179.00	171.03	171.03	Exact Reduction Ratio		
109	133	162	189	236	277	320	373	443*	523*	617*	10	1800	180
91	111	135	157	197	231	267	311	370	437	515	8.3	1500	
73	89	108	126	158	185	214	249	296	350	413	6.7	1200	
61	74	90	105	131	155	179	208	247	292	345	5.6	1000	
55	67	81	95	118	139	161	187	223	263	311	5.0	900	
45	56	68	79	99	116	134	156	186	220	259	4.2	750	
B-66	B-66	B-66	B-66	B-66	B-68	B-68	B-68	B-70	B-70	B-70	Horizontal Vertical Upright	Dimension Tables	

Notes

- For ✖ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
155	188	205	242	265	291	339	339	372	457	457	-	1800	Quadruple Reduction Horizontal Type 140 ▼ 180
151	184	201	237	258	288	334	334	369	456	456	-	1500	
145	178	194	228	248	281	325	325	361	444	444	-	1200	
139	171	186	219	238	273	316	316	352	431	431	-	1000	
135	167	182	213	232	268	309	309	346	422	422	-	900	
129	160	174	204	221	258	298	298	334	406	406	-	750	
164	200	218	256	279							-	1800	Quadruple Reduction Vertical Type 140 ▼ 180
158	194	211	247	269							-	1500	
150	184	200	235	255							-	1200	
143	176	192	224	244							-	1000	
138	172	186	218	237							-	900	
131	163	177	207	225							-	750	
											-	1800	Quadruple Reduction Upright Type 140 ▼ 180
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 200 ▶ 250

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer														
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
200	Exact Reduction Ratio								207.95	197.74	205.42	196.56	191.23		192.89	192.86	207.64
	1800	9.0							15.0	17.1	24.3	25.7	39		59	68	80
	1500	7.5							12.5	14.3	20.3	21.4	33		49	57	67
	1200	6.0							10.0	11.4	16.3	17.1	26.6		39	46	53
	1000	5.0							8.4	9.5	13.6	14.3	22.1		33	38	45
	900	4.5							7.5	8.6	12.2	12.8	19.9		30	34	40
750	3.8							6.3	7.1	10.2	10.7	16.6		25.0	28.7	33	
224	Exact Reduction Ratio								236.74	222.15	239.37	224.81	214.26	212.55	212.75	211.77	225.88
	1800	8.0							12.3	16.8	19.2	25.7	33	39	51	65	71
	1500	6.7							10.3	14.0	16.0	21.4	28.1	33	43	54	59
	1200	5.4							8.2	11.3	12.8	17.1	22.5	26.6	34	44	47
	1000	4.5							6.9	9.4	10.7	14.3	18.8	22.1	28.8	36	39
	900	4.0							6.2	8.5	9.6	12.9	16.9	19.9	25.9	33	35
750	3.3							5.2	7.1	8.0	10.7	14.1	16.6	21.6	27.6	30	
250	Exact Reduction Ratio								260.18	259.14	255.94	257.59	250.61	236.76	252.78	235.08	259.56
	1800	7.2							12.0	16.0	19.6	25.5	30	39	45	62	64
	1500	6.0							10.0	13.4	16.3	21.2	25.8	33	38	52	53
	1200	4.8							8.0	10.7	13.1	17.0	20.6	26.6	30	42	43
	1000	4.0							6.7	8.9	10.9	14.1	17.2	22.2	25.5	35	36
	900	3.6							6.0	8.0	9.8	12.7	15.5	19.9	22.9	31	32
750	3.0							5.0	6.7	8.2	10.6	12.9	16.6	19.1	26.4	27.1	
Dimension Tables	Horizontal								B-62	B-62	B-64	B-64	B-64	B-64	B-64	B-64	B-66
	Vertical								B-82	B-82	B-84	B-84	B-84	B-84	B-84	B-84	B-86
	Upright								B-96	B-96	B-98	B-98	B-98	B-98	B-98	B-98	B-98

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer														
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
Selection Tables	Quadruple Reduction Horizontal Type	1800	-							37	45	54	65	74	91	94	114	128
		1500	-							35	43	52	62	71	87	91	110	124
		1200	-							33	40	48	58	67	82	86	104	118
	200	1000	-							31	38	46	55	64	78	82	99	112
		▼ 900	-							30	36	44	53	62	75	79	96	109
		750	-							28	34	41	49	58	71	75	90	103
Dimension Tables	Quadruple Reduction Vertical Type	1800	-							38	47	56	67	77	94	98	119	134
		1500	-							36	44	53	63	74	90	94	114	129
		1200	-							34	41	50	59	69	84	88	107	121
	200	1000	-							31	38	47	55	65	79	84	101	115
		▼ 900	-							30	37	45	53	63	76	81	98	111
		750	-							28	34	42	50	59	72	76	92	105
Upright Type	Quadruple Reduction Upright Type	1800	-							37	45	54	65	74	91	94	114	
		1500	-							35	43	52	62	71	87	91	110	
		1200	-							33	40	48	58	67	82	86	104	
	200	1000	-							31	38	46	55	64	78	82	99	
		▼ 900	-							30	36	44	53	62	75	79	96	
		750	-							28	34	41	49	58	71	75	90	

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 200 ▶ 250

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
196.41	203.69	187.97	195.58	205.82	190.95	193.00	193.00	194.21	195.65	195.65	Exact Reduction Ratio		
96	117	144	172	200	259	295	344	408*	458*	540*	9.0	1800	200
80	97	120	143	167	216	246	287	341	382	451	7.5	1500	
64	78	96	115	133	173	198	230	273	307	362	6.0	1200	
53	65	80	96	111	145	165	192	228	256	302	5.0	1000	
48	58	72	86	100	130	148	173	205	230	272	4.5	900	
40	49	60	72	84	109	124	144	171	192	227	3.8	750	
230.40	218.59	222.96	224.42	221.65	230.04	226.29	226.29	229.95	215.37	215.37	Exact Reduction Ratio		
86	104	126	145	172	215	252	294	345*	417*	491*	8.0	1800	224
71	86	105	121	143	180	211	245	288	348	410	6.7	1500	
57	69	84	97	115	144	169	196	231	279	329	5.4	1200	
48	58	70	81	96	120	141	164	193	233	274	4.5	1000	
43	52	63	73	86	108	127	148	174	209	247	4.0	900	
36	43	53	60	72	90	106	123	145	175	206	3.3	750	
249.98	248.28	241.90	238.39	253.56	237.26	245.51	245.51	249.49	246.37	246.37	Exact Reduction Ratio		
76	96	112	144	153	209	233	271	319*	365*	430*	7.2	1800	250
63	80	94	120	127	174	194	226	266	304	359	6.0	1500	
50	64	75	96	102	140	156	181	213	244	288	4.8	1200	
42	53	62	80	85	117	130	151	178	203	240	4.0	1000	
38	48	56	72	77	105	117	136	160	183	216	3.6	900	
31	40	47	60	64	87	97	113	134	153	180	3.0	750	
B-66	B-66	B-66	B-66	B-66	B-68	B-68	B-68	B-70	B-70	B-70	Horizontal Vertical Upright	Dimension Tables	

Notes

- For * marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
142	167	186	217	237	273	325	325	352	426	426	-	1800	Quadruple Reduction Horizontal Type 200 ▼ 250
137	162	180	210	229	265	317	317	344	417	417	-	1500	
131	155	173	200	218	254	306	306	331	402	402	-	1200	
125	149	165	191	208	244	294	294	318	388	388	-	1000	
121	145	161	186	203	238	287	287	310	379	379	-	900	
114	137	152	176	192	226	275	275	296	362	362	-	750	
149	176	196	226	247							-	1800	Quadruple Reduction Vertical Type 200 ▼ 250
143	169	188	217	237							-	1500	
134	160	178	205	224							-	1200	
128	153	169	195	213							-	1000	
123	148	164	189	206							-	900	
116	140	155	179	195							-	750	
											-	1800	Quadruple Reduction Upright Type 200 ▼ 250
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 280 ▶ 355

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer															
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	
280	Exact Reduction Ratio									296.20	291.13	298.24	294.61	280.79	265.69	278.80	258.13	282.35
	1800	6.4								9.9	12.9	15.4	20.0	25.7	35	39	54	57
	1500	5.4								8.2	10.7	12.9	16.7	21.5	29.8	32	45	47
	1200	4.3								6.6	8.6	10.3	13.4	17.2	23.9	26.4	36	38
	1000	3.6								5.5	7.2	8.6	11.1	14.4	19.9	22.0	30	31
	900	3.2								4.9	6.5	7.7	10.0	12.9	17.9	19.8	27.1	28.8
750	2.7								4.1	5.4	6.4	8.4	10.8	15.0	16.5	22.6	24.0	
315	Exact Reduction Ratio									315.95	324.22	332.51	320.94	322.08	310.27	318.63	308.07	308.36
	1800	5.7								9.2	12.8	13.8	20.4	22.5	32	34	48	52
	1500	4.8								7.7	10.7	11.5	17.0	18.7	27.2	28.9	40	43
	1200	3.8								6.2	8.6	9.2	13.6	15.0	21.8	23.1	32	35
	1000	3.2								5.2	7.1	7.7	11.4	12.5	18.2	19.3	26.8	29.3
	900	2.9								4.6	6.4	6.9	10.2	11.3	16.4	17.4	24.2	26.3
750	2.4								3.9	5.4	5.8	8.5	9.4	13.6	14.5	20.2	22.0	
355	Exact Reduction Ratio									367.08	364.25	369.46	367.06	343.56	348.18	355.25	338.28	353.71
	1800	5.1								8.0	10.3	12.5	16.1	21.1	27.3	31	41	45
	1500	4.2								6.6	8.6	10.4	13.4	17.6	22.8	25.9	34	38
	1200	3.4								5.3	6.9	8.3	10.7	14.1	18.3	20.7	27.6	30
	1000	2.8								4.4	5.7	6.9	9.0	11.7	15.2	17.3	23.0	25.5
	900	2.5								4.0	5.2	6.2	8.1	10.6	13.7	15.6	20.7	23.0
750	2.1								3.3	4.3	5.2	6.7	8.8	11.4	13.0	17.3	19.2	
Dimension Tables	Horizontal									B-62	B-62	B-64	B-64	B-64	B-64	B-64	B-64	B-66
	Vertical									B-82	B-82	B-84	B-84	B-84	B-84	B-84	B-84	B-86
	Upright									B-96	B-96	B-98	B-98	B-98	B-98	B-98	B-98	B-98

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer														
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090
Quadruple Reduction Horizontal Type	1800	-								37	43	54	62	75	87	94	109	127
	1500	-								35	41	52	59	72	83	91	105	123
	1200	-								33	39	49	56	68	78	86	100	117
	1000	-								31	36	46	52	64	74	82	94	112
	900	-								30	35	44	50	62	72	80	91	109
	750	-								28	32	42	47	58	67	75	86	103
Quadruple Reduction Vertical Type	1800	-								38	45	56	64	78	90	99	114	133
	1500	-								36	42	54	61	74	85	95	109	128
	1200	-								34	39	50	57	70	80	89	102	121
	1000	-								31	37	47	53	66	75	84	96	114
	900	-								30	35	45	51	63	73	81	93	111
	750	-								28	33	42	48	59	68	76	87	104
Quadruple Reduction Upright Type	1800	-								37	43	54	62	75	87	94	109	
	1500	-								35	41	52	59	72	83	91	105	
	1200	-								33	39	49	56	68	78	86	99	
	1000	-								31	36	46	52	64	74	82	94	
	900	-								30	35	44	50	62	71	80	91	
	750	-								28	32	42	47	58	67	75	86	

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 280 ▶ 355

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
288.00	266.44	271.77	273.54	270.18	280.39	288.00	288.00	283.41	291.16	291.16	Exact Reduction Ratio		
69	85	104	119	152	177	199	231	281*	309*	365*	6.4	1800	280
57	71	86	99	127	148	166	193	234	258	304	5.4	1500	
46	57	69	79	102	118	133	155	188	207	244	4.3	1200	280
38	47	58	66	85	99	111	129	157	172	203	3.6	1000	
34	43	52	60	76	89	100	116	141	155	183	3.2	900	280
28.9	35	43	50	64	74	83	97	118	129	153	2.7	750	
312.47	301.20	294.86	323.28	309.07	320.45	312.47	312.47	307.49			Exact Reduction Ratio		
61	75	92	101	126	155	183	213	259*			5.7	1800	315
50	63	77	84	105	129	153	178	216			4.8	1500	
40	50	61	67	84	104	122	142	173			3.8	1200	315
34	42	51	56	70	86	102	119	144			3.2	1000	
30	38	46	50	63	78	92	107	130			2.9	900	315
25.5	31	38	42	52	65	77	89	108			2.4	750	
341.25	344.23	333.33	369.46	365.26	356.86	341.25	341.25	347.61			Exact Reduction Ratio		
55	66	81	88	106	139	168	195	229*			5.1	1800	355
46	55	68	73	89	116	140	163	191			4.2	1500	
37	44	54	59	71	93	112	131	153			3.4	1200	355
31	37	45	49	59	78	93	109	128			2.8	1000	
28.1	33	41	44	53	70	84	98	115			2.5	900	355
23.4	27.8	34	37	44	58	70	82	96			2.1	750	
B-66	B-66	B-66	B-66	B-66	B-68	B-68	B-68	B-70	B-70	B-70	Horizontal Vertical Upright	Dimension Tables	

Notes

- For * marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
137	167	180	208	228	248	304	304	340	421	421	-	1800	Quadruple Reduction Horizontal Type
132	162	175	202	220	240	295	295	332	412	412	-	1500	
126	155	167	192	210	228	282	282	319	397	397	-	1200	280
120	149	160	184	200	218	270	270	306	383	383	-	1000	
116	145	155	179	195	212	263	263	299	374	374	-	900	▼
110	138	147	169	184	200	250	250	285	358	358	-	750	355
143	176	189	217	237							-	1800	Quadruple Reduction Vertical Type
137	169	182	208	227							-	1500	
129	160	172	197	215							-	1200	280
123	153	164	188	204							-	1000	
119	148	159	182	198							-	900	▼
112	140	150	172	187							-	750	355
											-	1800	Quadruple Reduction Upright Type
											-	1500	
											-	1200	280
											-	1000	
											-	900	▼
											-	750	355

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 400 ▶ 450

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
400	Exact Reduction Ratio									388.53		409.25		399.38		386.60
	1800	4.5							9.7		14.4		23.8		36	
	1500	3.8							8.1		12.0		19.9		30	
	1200	3.0							6.5		9.6		15.9		24.2	
	1000	2.5							5.4		8.0		13.3		20.2	
	900	2.3							4.8		7.2		12.0		18.2	
450	750	1.9							4.0		6.0		10.0		15.1	
	Exact Reduction Ratio								451.41		454.72		426.01		431.03	
	1800	4.0							8.3		13.0		22.4		32	
	1500	3.3							6.9		10.8		18.6		27.1	
	1200	2.7							5.6		8.7		14.9		21.7	
	1000	2.2							4.6		7.2		12.5		18.1	
Dimension Tables	Horizontal									B-62		B-64		B-64		B-64
	Vertical									B-82		B-84		B-84		B-84
	Upright									B-96		B-98		B-98		B-98

THERMAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
Quadruple Reduction Horizontal Type	1800	-								45		64		86		110
	1500	-								43		61		83		106
	1200	-								40		58		78		100
	1000	-								37		54		74		95
	900	-								36		52		71		92
	750	-								33		49		67		87
Quadruple Reduction Vertical Type	1800	-								46		66		89		114
	1500	-								44		63		85		109
	1200	-								41		59		80		103
	1000	-								38		55		75		97
	900	-								36		53		72		94
	750	-								34		49		68		88
Quadruple Reduction Upright Type	1800	-								45		64		86		110
	1500	-								43		61		83		106
	1200	-								40		58		78		100
	1000	-								37		54		74		95
	900	-								36		52		71		92
	750	-								33		49		67		87

Speed Reducer Selection Tables Dimension Tables

SELECTION Right Angle Shaft Quadruple Reduction Nominal Reduction Ratio 400 ▶ 450

Size of Reducer										L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
391.44	380.94		417.44	407.84							Exact Reduction Ratio		
48	71		93	122							4.5	1800	400
40	59		78	102						3.8	1500		
32	48		62	81						3.0	1200		
27.2	40		52	68						2.5	1000		
24.5	36		47	61						2.3	900		
20.4	30		39	51						1.9	750		
											Exact Reduction Ratio		450
											4.0	1800	
											3.3	1500	
											2.7	1200	
											2.2	1000	
											2.0	900	
											1.7	750	
B-66	B-66		B-66	B-68							Horizontal	Dimension Tables	
B-86	B-86		B-86								Vertical Upright		

Notes

- For ※ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B42-B45 for the allowable radial and axial load on each shaft.

Size of Reducer										Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	Ambient Temperature °C	Temperature Correction Factor	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136				Without Fan	With Fan
137	179		225	246							-	1800	Quadruple Reduction Horizontal Type	20	1.00
133	174		218	238							-	1500		30	0.85
127	166		208	226							-	1200		40	0.70
121	159		198	216							-	1000		50	0.55
117	155		193	210							-	900			0.60
111	147		183	198							-	750			
144	188		234								-	1800	Quadruple Reduction Vertical Type		
138	181		225								-	1500			
130	171		213								-	1200			
123	163		202								-	1000			
119	158		196								-	900			
113	149		185								-	750			
											-	1800	Quadruple Reduction Upright Type		
											-	1500			
											-	1200			
											-	1000		400	
											-	900		▼	
											-	750	450		

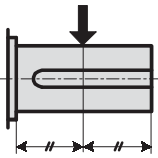
Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Allowable Radial and Axial Loads on Slow Speed Right Angle shaft

Allowable Radial Load (kN)



Sheet 1

Applicable to configurations: Double Reduction RR, LL/

L.Speed Shaft Speed r/min	Size of Reducer																	
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	9095	9100	
Standard bearing model	250	11.8	17.7	17.7	29.4	29.9	32.4	37.8	46.6	39.7	49.1	44.1	77.0	77.0	100.1	100.1	137.8	139.8
	160	11.8	17.7	20.1	31.4	32.4	33.8	39.7	48.1	41.7	50.5	46.1	89.0	89.0	108.9	108.9	145.7	157.5
	100	11.8	17.7	25.0	35.3	38.7	39.2	47.1	53.5	47.6	54.4	54.4	99.0	99.0	122.1	122.1	147.6	166.3
	63	11.8	17.7	26.5	35.3	42.2	47.1	54.9	62.3	58.9	64.3	65.2	131.5	131.5	125.6	125.6	143.7	165.3
	40	11.8	17.7	26.5	35.3	42.2	49.1	54.9	67.7	71.1	78.0	79.0	141.0	141.0	125.1	125.1	137.8	164.8
≤ 25	11.8	17.7	26.5	35.3	42.2	49.1	54.9	67.7	81.4	95.2	99.1	139.5	139.5	122.6	122.6	135.4	163.3	
Heavy duty bearing model	250									71.1	93.7	70.1	122.5	122.5	141.8	141.8	158.9	181.0
	160									78.0	94.7	77.5	137.5	137.5	132.4	132.4	151.6	174.6
	100									81.4	98.1	92.2	149.5	149.5	127.0	127.0	147.6	166.8
	63									81.4	98.1	114.8	149.0	149.0	125.6	125.6	143.7	165.8
	40									81.4	98.1	117.7	148.5	148.5	125.1	125.1	137.8	165.3
≤ 25									81.4	98.1	117.7	147.0	147.0	122.6	122.6	135.4	163.8	

Sheet 2

Applicable to configurations: Double Reduction RL, LR/

L.Speed Shaft Speed r/min	Size of Reducer																	
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	9095	9100	
Standard bearing model	250	8.3	15.2	9.8	21.6	19.1	21.6	22.6	31.4	16.7	28.4	17.2	44.0	44.0	58.4	58.4	97.6	80.4
	160	9.8	17.7	12.3	23.1	20.6	23.1	24.0	31.4	18.1	27.0	17.7	55.5	55.5	64.3	64.3	103.0	96.1
	100	11.8	17.7	16.7	29.4	26.0	27.5	28.4	35.3	22.1	30.4	25.5	63.5	63.5	74.6	74.6	110.9	105.9
	63	11.8	17.7	21.6	35.3	32.9	35.3	37.3	42.7	33.4	38.3	33.8	95.0	95.0	104.5	104.5	148.1	153.5
	40	11.8	17.7	26.5	35.3	41.7	43.7	48.6	55.4	45.1	51.5	47.6	129.0	129.0	146.7	146.7	172.2	203.6
≤ 25	11.8	17.7	26.5	35.3	42.2	49.1	54.9	67.7	60.8	68.7	67.7	167.0	167.0	171.2	171.2	171.2	215.3	
Heavy duty bearing model	250									46.1	74.6	40.2	90.0	90.0	114.8	114.8	156.0	150.6
	160									52.0	72.1	45.6	103.5	103.5	125.1	125.1	164.8	170.7
	100									60.3	79.0	59.4	116.0	116.0	140.8	140.8	176.1	187.4
	63									81.4	96.6	80.0	152.5	152.5	174.1	174.1	186.9	218.8
	40									81.4	98.1	108.9	192.0	192.0	191.8	191.8	193.7	241.8
≤ 25									81.4	98.1	117.7	180.5	180.5	171.2	171.2	171.2	214.8	

Allowable Axial Load (kN)



L.Speed Shaft Speed r/min	Size of Reducer																	
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	9095	9100	
Standard bearing model	250	9.3	11.4	14.7	23.1	26.5	31.4	32.9	31.9	27.0	43.2	28.0	28.0	23.5	23.5	31.4	52.0	45.1
	160	9.3	11.4	18.1	23.1	28.4	31.4	33.4	31.9	28.9	43.2	28.4	28.4	27.5	27.5	34.3	53.0	53.0
	100	9.3	11.4	24.5	23.1	32.9	31.4	37.3	31.9	34.3	43.2	39.7	39.7	32.9	32.9	43.2	59.4	58.4
	63	9.3	11.4	26.5	23.1	32.9	31.4	37.3	31.9	49.1	43.2	52.5	52.5	45.6	45.6	54.0	59.8	81.4
	40	9.3	11.4	26.5	23.1	32.9	31.4	37.3	31.9	49.1	43.2	61.4	61.4	63.3	60.3	59.8	59.8	83.4
≤ 25	9.3	11.4	26.5	23.1	32.9	31.4	37.3	31.9	49.1	43.2	61.4	61.4	67.7	60.3	59.8	59.8	83.4	
Heavy duty bearing model	250									23.1	34.8	18.6	18.6	56.9	56.9	59.8	59.8	83.4
	160									25.0	33.4	21.1	21.1	56.9	56.9	59.8	59.8	83.4
	100									29.4	36.8	27.5	27.5	56.9	56.9	59.8	59.8	83.4
	63									39.2	43.2	36.3	36.3	56.9	56.9	59.8	59.8	83.4
	40									39.2	43.2	49.1	49.1	56.9	56.9	59.8	59.8	83.4
≤ 25									39.2	43.2	56.9	56.9	56.9	56.9	59.8	59.8	83.4	

Speed Reducer Selection Tables Dimension Tables

SELECTION Allowable Radial and Axial Loads on Slow Speed Right Angle shaft

Triple Reduction RL, LR/Quadruple Reduction RR, LL

Size of Reducer									L.Speed Shaft Speed r/min	
9105	9110	9115	9118	9121	9126	9128	9131	9136		
192.3	167.8	222.7							250	Standard bearing model
200.6	174.1	234.9							160	
183.9	184.9	245.7	391.9	352.7	330.6	315.4	403.2	391.9	100	Standard bearing model
178.1	190.8	303.1	387.5	369.3	341.4	328.6	462.5	430.7	63	
173.6	194.7	320.8	460.1	449.3	401.2	409.6	572.4	511.1	40	
167.3	184.9	316.4	448.3	554.8	497.4	534.6	733.8	638.6	≤ 25	
213.9	250.6	316.9							250	Heavy duty bearing model
200.6	214.8	334.5							160	
183.9	195.2	340.9							100	
178.1	190.8	333.5							63	
173.6	194.7	320.8							40	
167.3	184.9	316.4							≤ 25	

Unit: kN

Triple Reduction RR, LL/Quadruple Reduction RL, LR

Size of Reducer									L.Speed Shaft Speed r/min	
9105	9110	9115	9118	9121	9126	9128	9131	9136		
131.5	94.2	152.5							250	Standard bearing model
138.3	92.2	155.0							160	
146.7	101.0	167.3	312.0	228.1	197.7	159.4	203.6	190.3	100	Standard bearing model
200.1	144.7	220.7	292.3	244.3	206.0	170.7	260.9	218.8	63	
235.4	199.1	250.2	373.3	322.7	257.0	250.2	369.3	286.5	40	
304.1	272.7	353.2	460.1	427.2	348.7	373.3	528.3	398.3	≤ 25	
213.4	191.3	248.7							250	Heavy duty bearing model
223.2	197.7	261.4							160	
236.9	210.4	274.2							100	
301.7	267.8	341.9							63	
304.1	323.7	382.1							40	
304.1	323.7	374.7							≤ 25	

Unit: kN

Overhang Factor

Overhang Member	Overhang Factor
Sprocket (Single Row)	1
Sprocket (Double Row)	1.25
Gears	1.25

Notes

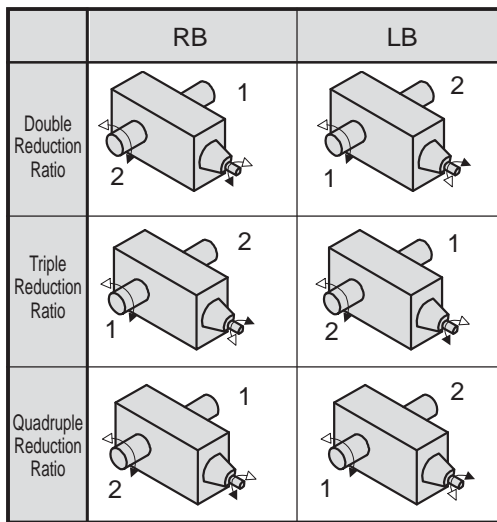
- The value shown in the table is allowable radial load when it is applied to the center of the solid shaft (except hollow shaft). Consult us when a load is not in the center.
- Consult us for the blanks in the table.
- Consult us when the radial load is applied upward.
- In case of double projection shaft (RB, LB)
 - See sheet1 when the radial load is applied only to the shaft1.
 - See sheet2 when the radial load is applied only to the shaft2.
 - Consult us when the radial load is applied to both shafts.
- Refer to B-6 to check overhang load, and calculate equivalent load at peak load value. Be careful under following condition because large peak load may be generated.

Application: When the inertia is large, such as for crane driving, slewing, etc.

Motor: inline motor
Connecting method: Sprocket or gear
Consult us when the peak load is larger than allowable value.

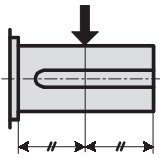
Size of Reducer									L.Speed Shaft Speed r/min	
9105	9110	9115	9118	9121	9126	9128	9131	9136		
50.0	50.0	76.5							250	Standard bearing model
49.5	49.5	76.5							160	
54.0	54.0	83.4	119.7	121.6	116.7	91.2	113.3	107.9	100	Standard bearing model
74.6	74.6	83.4	119.7	121.6	121.6	96.6	140.3	122.6	63	
83.4	83.4	83.4	119.7	121.6	121.6	134.9	191.3	155.5	40	
83.4	83.4	83.4	119.7	121.6	121.6	144.2	192.3	192.3	≤ 25	
83.4	83.4	83.4							250	Heavy duty bearing model
83.4	83.4	83.4							160	
83.4	83.4	83.4							100	
83.4	83.4	83.4							63	
83.4	83.4	83.4							40	
83.4	83.4	83.4							≤ 25	

Unit: kN



SELECTION Allowable Radial and Axial Loads on Slow Speed Right Angle shaft

Allowable Radial Load (kgf)



Sheet 1

Applicable to configurations: Double Reduction RR, LL/

L.Speed Shaft Speed r/min	Size of Reducer																	
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	9095	9100	
Standard bearing model	250	1200	1800	1800	3000	3050	3300	3850	4750	4050	5000	4500	7850	7850	10200	10200	14050	14250
	160	1200	1800	2050	3200	3300	3450	4050	4900	4250	5150	4700	9050	9050	11100	11100	14850	16050
	100	1200	1800	2550	3600	3950	4000	4800	5450	4850	5550	5550	10100	10100	12450	12450	15050	16950
	63	1200	1800	2700	3600	4300	4800	5600	6350	6000	6550	6650	13400	13400	12800	12800	14650	16850
	40	1200	1800	2700	3600	4300	5000	5600	6900	7250	7950	8050	14350	14350	12750	12750	14050	16800
≤ 25	1200	1800	2700	3600	4300	5000	5600	6900	8300	9700	10100	14200	14200	12500	12500	13800	16650	
Heavy duty bearing model	250									7250	9550	7150	12500	12500	14450	14450	16200	18450
	160									7950	9650	7900	14000	14000	13500	13500	15450	17800
	100									8300	10000	9400	15250	15250	12950	12950	15050	17000
	63									8300	10000	11700	15200	15200	12800	12800	14650	16900
	40									8300	10000	12000	15150	15150	12750	12750	14050	16850
≤ 25									8300	10000	12000	15000	15000	12500	12500	13800	16700	

Sheet 2

Applicable to configurations: Double Reduction RL, LR/

L.Speed Shaft Speed r/min	Size of Reducer																	
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	9095	9100	
Standard bearing model	250	850	1550	1000	2200	1950	2200	2300	3200	1700	2900	1750	4500	4500	5950	5950	9950	8200
	160	1000	1800	1250	2350	2100	2350	2450	3200	1850	2750	1800	5650	5650	6550	6550	10500	9800
	100	1200	1800	1700	3000	2650	2800	2900	3600	2250	3100	2600	6450	6450	7600	7600	11300	10800
	63	1200	1800	2200	3600	3350	3600	3800	4350	3400	3900	3450	9700	9700	10650	10650	15100	15650
	40	1200	1800	2700	3600	4250	4450	4950	5650	4600	5250	4850	13150	13150	14950	14950	17550	20750
≤ 25	1200	1800	2700	3600	4300	5000	5600	6900	6200	7000	6900	17000	17000	17450	17450	17450	21950	
Heavy duty bearing model	250									4700	7600	4100	9150	9150	11700	11700	15900	15350
	160									5300	7350	4650	10550	10550	12750	12750	16800	17400
	100									6150	8050	6050	11800	11800	14350	14350	17950	19100
	63									8300	9850	8150	15550	15550	17750	17750	19050	22300
	40									8300	10000	11100	19550	19550	19550	19550	19750	24650
≤ 25									8300	10000	12000	18400	18400	17450	17450	17450	21900	

Allowable Axial Load (kgf)



L.Speed Shaft Speed r/min	Size of Reducer																	
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	9095	9100	
Standard bearing model	250	950	1160	1500	2350	2700	3200	3350	3250	2750	4400	2850	2850	2400	2400	3200	5300	4600
	160	950	1160	1850	2350	2900	3200	3400	3250	2950	4400	2900	2900	2800	2800	3500	5400	5400
	100	950	1160	2500	2350	3350	3200	3800	3250	3500	4400	4050	4050	3350	3350	4400	6050	5950
	63	950	1160	2700	2350	3350	3200	3800	3250	5000	4400	5350	5350	4650	4650	5500	6100	8300
	40	950	1160	2700	2350	3350	3200	3800	3250	5000	4400	6260	6260	6450	6150	6100	6100	8500
≤ 25	950	1160	2700	2350	3350	3200	3800	3250	5000	4400	6260	6260	6900	6150	6100	6100	8500	
Heavy duty bearing model	250									2350	3550	1900	1900	5800	5800	6100	6100	8500
	160									2550	3400	2150	2150	5800	5800	6100	6100	8500
	100									3000	3750	2800	2800	5800	5800	6100	6100	8500
	63									4000	4400	3700	3700	5800	5800	6100	6100	8500
	40									4000	4400	5000	5000	5800	5800	6100	6100	8500
≤ 25									4000	4400	5800	5800	5800	5800	6100	6100	8500	

Speed Reducer Selection Tables Dimension Tables

SELECTION Allowable Radial and Axial Loads on Slow Speed Right Angle shaft

Triple Reduction RL, LR/Quadruple Reduction RR ,LL

Size of Reducer									L.Speed Shaft Speed r/min	
9105	9110	9115	9118	9121	9126	9128	9131	9136		
19600	17100	22700							250	Standard bearing model
20450	17750	23950							160	
18750	18850	25050	39950	35950	33700	32150	41100	39950	100	Standard bearing model
18150	19450	30900	39500	37650	34800	33500	47150	43900	63	
17700	19850	32700	46900	45800	40900	41750	58350	52100	40	
17050	18850	32250	45700	56550	50700	54500	74800	65100	≤ 25	
21800	25550	32300							250	
20450	21900	34100							160	
18750	19900	34750							100	
18150	19450	34000							63	
17700	19850	32700							40	
17050	18850	32250							≤ 25	

Unit: kgf

Triple Reduction RR, LL/Quadruple Reduction RL ,LR

Size of Reducer									L.Speed Shaft Speed r/min	
9105	9110	9115	9118	9121	9126	9128	9131	9136		
13400	9600	15550							250	Standard bearing model
14100	9400	15800							160	
14950	10300	17050	31800	23250	20150	16250	20750	19400	100	Standard bearing model
20400	14750	22500	29800	24900	21000	17400	26600	22300	63	
24000	20300	25500	38050	32900	26200	25500	37650	29200	40	
31000	27800	36000	46900	43550	35550	38050	53850	40600	≤ 25	
21750	19500	25350							250	
22750	20150	26650							160	
24150	21450	27950							100	
30750	27300	34850							63	
31000	33000	38950							40	
31000	33000	38200							≤ 25	

Unit: kgf

Overhang Factor

Overhang Member	Overhang Factor
Sprocket (Single Row)	1
Sprocket (Double Row)	1.25
Gears	1.25

Notes

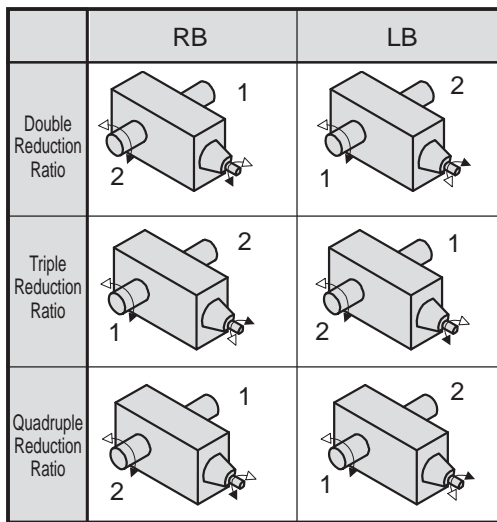
- The value shown in the table is allowable radial load when it is applied to the center of the solid shaft (except hollow shaft). Consult us when a load is not in the center.
- Consult us for the blanks in the table.
- Consult us when the radial load is applied upward.
- In case of double projection shaft (RB, LB)
 - See sheet1 when the radial load is applied only to the shaft1.
 - See sheet2 when the radial load is applied only to the shaft2.
 - Consult us when the radial load is applied to both shafts.
- Refer to B-6 to check overhang load, and calculate equivalent load at peak load value. Be careful under following condition because large peak load may be generated.

Application: When the inertia is large, such as for crane driving, slewing, etc.

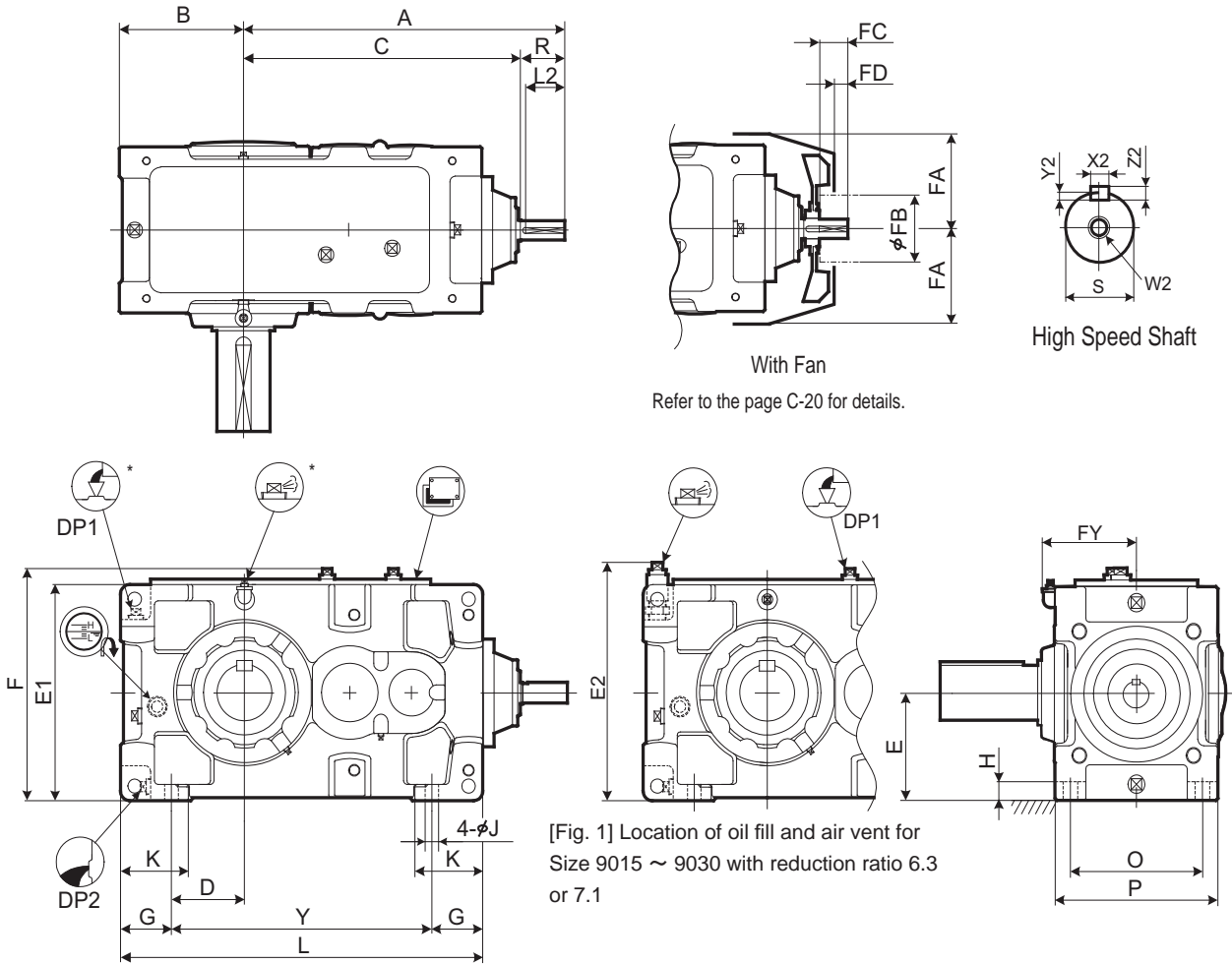
Motor: inline motor
Connecting method: Sprocket or gear
Consult us when the peak load is larger than allowable value.

Size of Reducer									L.Speed Shaft Speed r/min	
9105	9110	9115	9118	9121	9126	9128	9131	9136		
5100	5100	7800							250	Standard bearing model
5050	5050	7800							160	
5500	5500	8500	12200	12400	11900	9300	11550	11000	100	Standard bearing model
7600	7600	8500	12200	12400	12400	9850	14300	12500	63	
8500	8500	8500	12200	12400	12400	13750	19500	15850	40	
8500	8500	8500	12200	12400	12400	14700	19600	19600	≤ 25	
8500	8500	8500							250	
8500	8500	8500							160	
8500	8500	8500							100	
8500	8500	8500							63	
8500	8500	8500							40	
8500	8500	8500							≤ 25	

Unit: kgf



DIMENSIONS Right Angle Shaft Double Reduction Horizontal Mounting 9015 ▶ 9055



* Location of oil fill and air vent changes for Size 9015 ~ 9030 with reduction ratio 6.3 or 7.1. Refer to Fig. 1.

Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	E2	F	FY	G	H	J	K	L	O	P	Y
9015	507	160	427	90	135	270	309	299	129	70	22	15	95	440	170	205	300
9025	545	175	465	95	155	310	346	339	142	80	25	19	110	505	195	235	345
9030	645	200	535	110	160	320	353	349	154	90	28	24	120	590	215	265	410
9035	676	219	566	129	185	370		399	154	90	28	24	120	640	215	265	460
9040	705	235	595	120	200	400		431	172	115	30	28	150	685	255	315	455
9045	744	256	634	141	220	440		471	172	115	30	28	150	745	255	315	515
9050	755	255	645	138.5	210	420		451	192	116.5	32	28	150	775	285	345	542
9055	794	286	684	171	245	490		521	192	115	32	28	150	845	285	345	615

Size	High Speed Shaft							Fan				DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key			L2	FA	FB	FC	FD				
9015	80	28k6	M12/28	8	4	7	70	125	125	50	30	3/4"	3/4"	95	5
9025	80	35k6	M12/28	10	5	8	70	135	140	50	30	3/4"	3/4"	140	7
9030	110	40k6	M16/36	14	5.5	9	95	150	140	80	52	3/4"	3/4"	205	10
9035	110	40k6	M16/36	14	5.5	9	95	150	140	80	52	3/4"	3/4"	225	12
9040	110	45k6	M16/36	14	5.5	9	95	170	160	80	52	1"	1"	305	16
9045	110	45k6	M16/36	14	5.5	9	95	170	160	80	52	1"	1"	365	18
9050	110	50k6	M16/36	14	5.5	9	95	190	160	80	52	1"	1"	435	21
9055	110	50k6	M16/36	14	5.5	9	95	190	160	80	52	1"	1"	495	28

Unit: mm

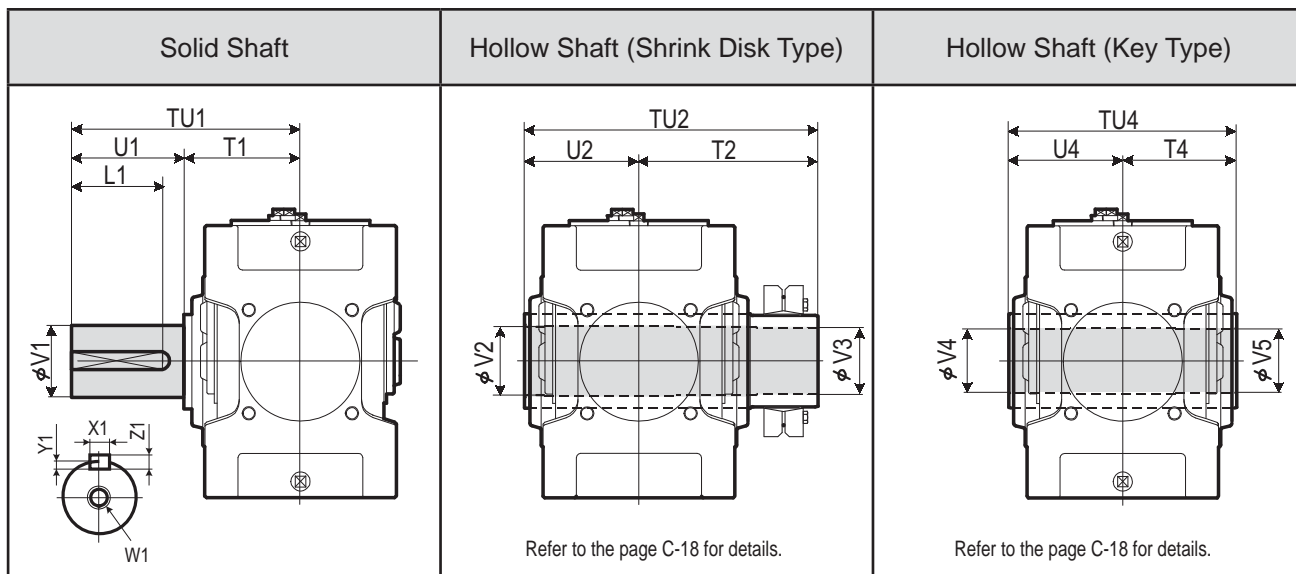
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-12 for dimensions shown in these drawings.

4. Refer to the page C-24 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Double Reduction Horizontal Mounting 9015 ▶ 9055

PARAMAX Horizontal Monoblock
 9015
 9055
 Right Angle
 Double Reduction
 P
 H
 A
 R
 2

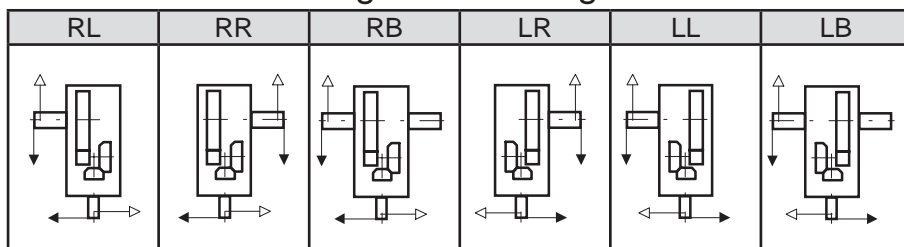
Slow Speed Shaft



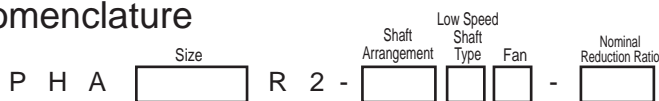
Size	Solid Shaft									Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
						X1	Y1	Z1	L1										
9015	245	135	110	58m6	M20/42	18	7	11	95	328	193	135	63	60	270	135	135	55	55
9025	285	145	140	70m6	M20/42	20	7.5	12	125	358	213	145	73	70	300	150	150	65	65
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115

Unit: mm

Standard Shaft Arrangement Configuration



Nomenclature



- 9015
- 9025
- 9030
- 9035
- 9040
- 9045
- 9050
- 9055

- RL
- RR
- RB
- LR
- LL
- LB

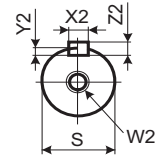
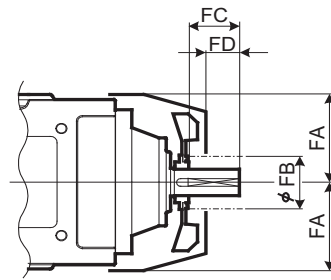
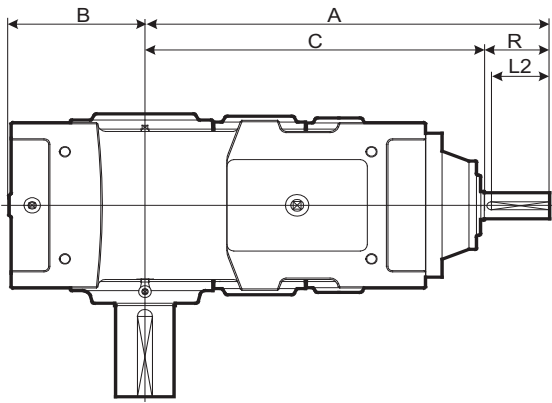
(blank) : Without Fan
F : With Fan

(blank) : Solid Shaft
T : Hollow Shaft (Shrink Disk type)
K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9015	○	○	○	○	○	○	○	○	○	○		
9025	○	○	○	○	○	○	○	○	○	○		
9030	○	○	○	○	○	○	○	○	○	○		
9035	○	○	○	○	○	○	○	○	○	○	○	
9040	○	○	○	○	○	○	○	○	○	○	○	○
9045		○	○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○	○	○
9055			○	○	○	○	○	○	○	○	○	○

- Air Breather
- Air Vent
- Oil Fill
- Drain Plug
- Dip Stick
- Oil Gauge
- Inspection Cover
- Oil Pump
- Backstop (Option)
- Opposite Side

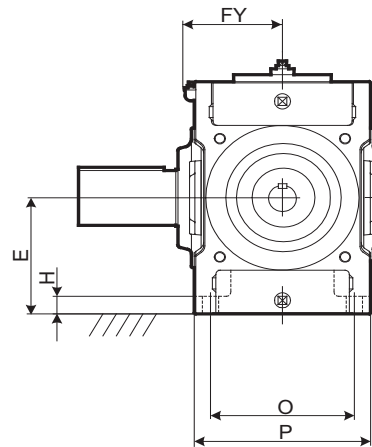
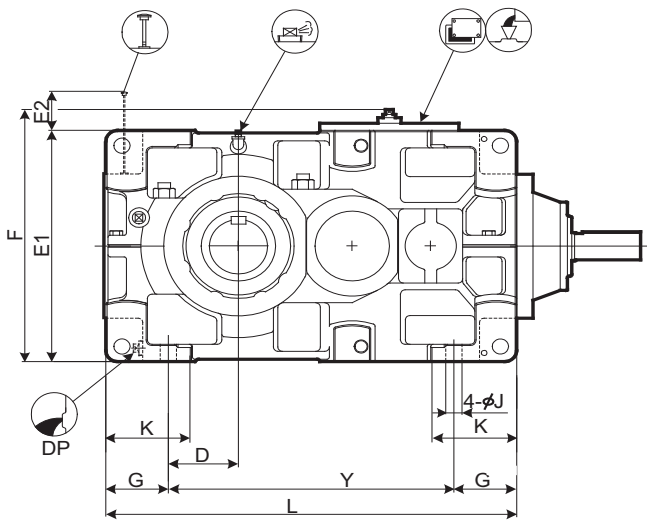
DIMENSIONS Right Angle Shaft Double Reduction Horizontal Mounting 9060 ▶ 9085



With Fan

High Speed Shaft

Refer to the page C-20 for details.



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	E2	F	FY	G	H	J	K	L	O	P	Y
9060	865	299	725	151	265	530	183	578	212	135	35	35	180	885	310	380	615
9065	911	338	771	190	300	600	148	648	212	135	35	35	180	970	310	380	700
9070	965	336	825	163	300	600	213	648	237	160	40	42	215	1020	350	430	700
9075	1018	383	878	210	335	670	178	718	237	160	52	42	220	1120	350	430	800
9080	1080	378	940	205	335	670	236	718	257	160	52	42	220	1155	380	460	835
9085	1136	422	996	249	375	750	196	798	257	160	52	42	220	1255	380	460	935

Size	High Speed Shaft								Fan				DP	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key			L2	FA	FB	FC	FD				
			X2	Y2	Z2										
9060	140	60m6	M20/42	18	7	11	125	220	160	105	65	1"	600	25	
9065	140	60m6	M20/42	18	7	11	125	220	160	105	65	1"	725	29	
9070	140	65m6	M20/42	18	7	11	125	245	200	105	65	1"	920	37	
9075	140	65m6	M20/42	18	7	11	125	245	200	105	65	1"	1170	46	
9080	140	75m6	M20/42	20	7.5	12	125	270	225	105	60	1"	1300	53	
9085	140	75m6	M20/42	20	7.5	12	125	270	225	105	60	1"	1560	67	

Unit: mm

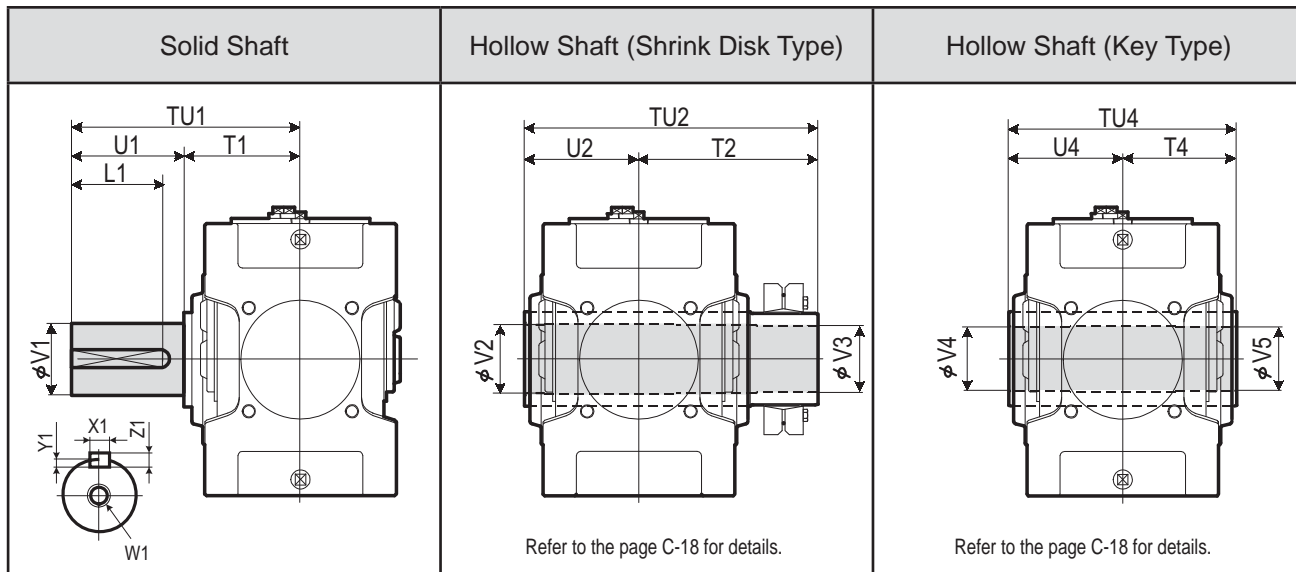
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-14 for dimensions not shown in these drawings.

4. Refer to the page C-27 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Double Reduction Horizontal Mounting 9060 ▶ 9085

PARAMAX Horizontal Split 9060 9085 Right Angle Double Reduction P H D R 2

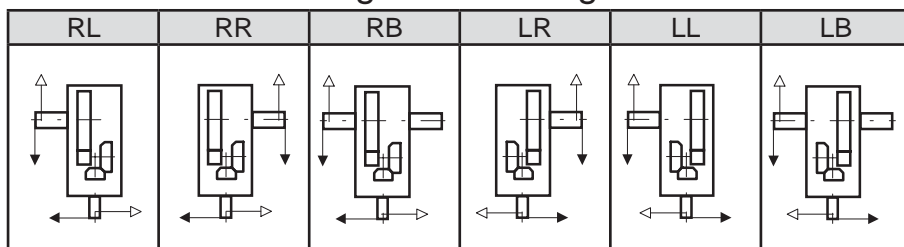
Slow Speed Shaft



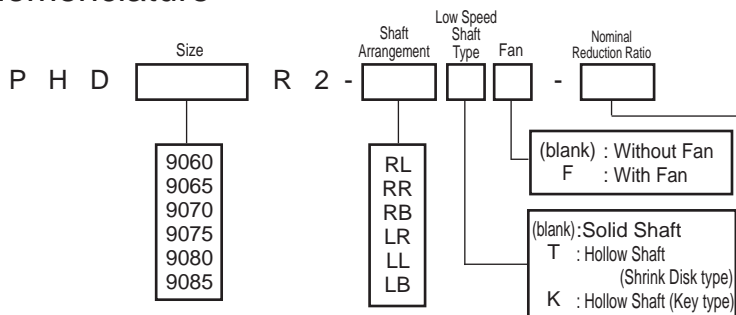
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

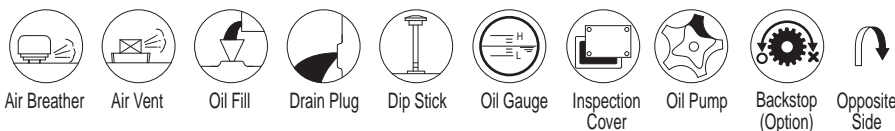
Standard Shaft Arrangement Configuration



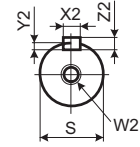
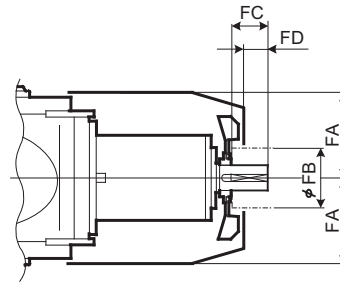
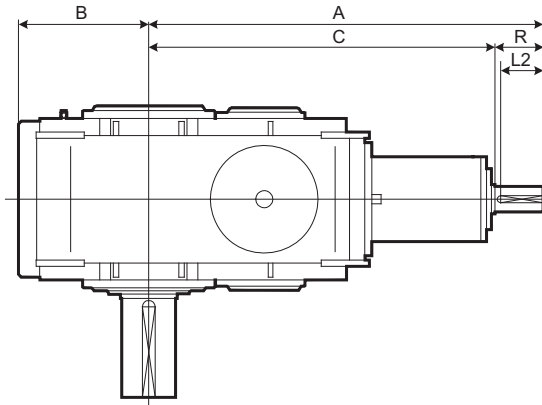
Nomenclature



Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9060	○	○	○	○	○	○	○	○	○	○		
9065				○	○	○	○	○	○	○	○	○
9070		○	○	○	○	○	○	○	○	○	○	○
9075				○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○
9085				○	○	○	○	○	○	○	○	○



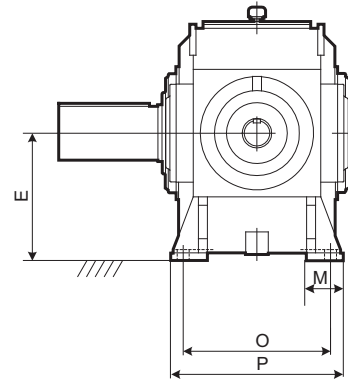
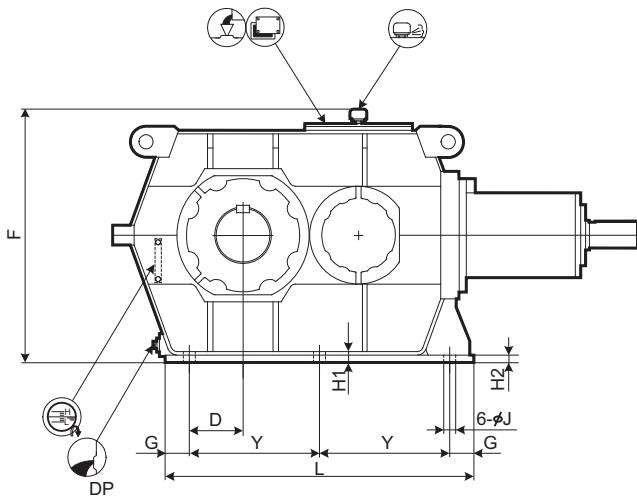
DIMENSIONS Right Angle Shaft Double Reduction Horizontal Mounting 9095, 9105, 9115



High Speed Shaft

With Fan

Refer to the page C-20 for details.



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	F	G	H1	H2	J	L	M	O	P	Y
9095	1393	460	1223	190	450	895	85	39	27	42	1090	130	520	610	460
9105	1589	500	1379	210	500	995	90	39	27	42	1220	130	570	660	520
9115	1802	560	1592	240	560	1120	100	46	34	48	1390	140	630	730	595

Size	High Speed Shaft							Fan				DP	Wt. kg	Oil Qty. L	
	R	S	W2/Depth	Key				FA	FB	FC	FD				
				X2	Y2	Z2	L2								
9095	170	90m6	M24/50	25	9	14	150	340	250	135	90	1 1/2"	2050	100	
9105	210	100m6	M24/50	28	10	16	190	380	250	175	130	1 1/2"	2800	150	
9115	210	110m6	M24/50	28	10	16	190	410	250	175	130	1 1/2"	3800	200	

• In case of continuous load, the forced oil lubrication is necessary. For details, consult us.

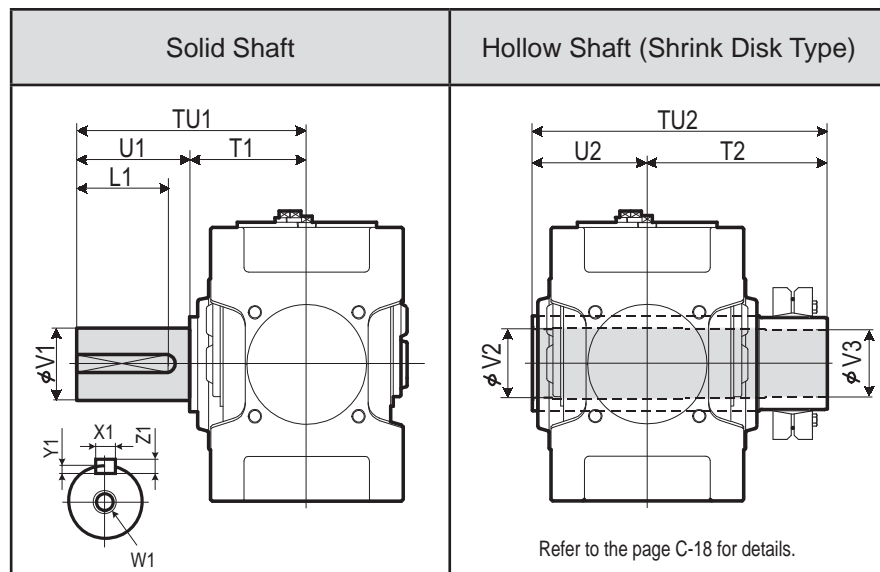
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Consult us for the dimensions not shown in these drawings.

4. Refer to the page C-30 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Double Reduction Horizontal Mounting 9095, 9105, 9115

Slow Speed Shaft

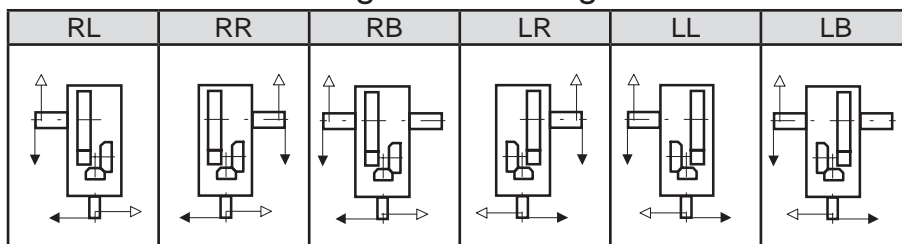


Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200	
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220	
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250	

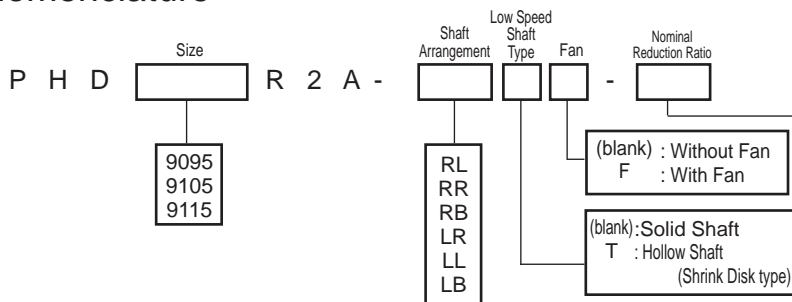
Unit: mm

PARAMAX Horizontal Split 9095 9115 Right Angle Double Reduction Housing Steel A

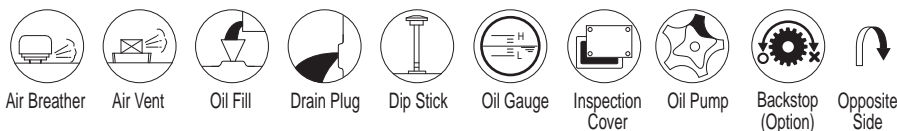
Standard Shaft Arrangement Configuration



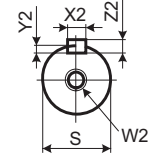
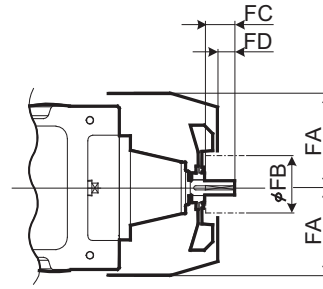
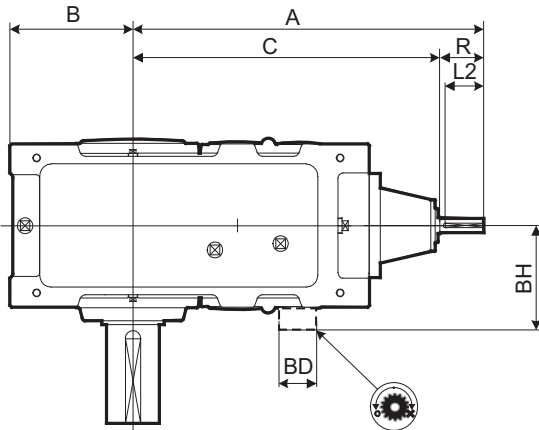
Nomenclature



Size	Nominal Reduction Ratio										
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20
9090											
9095				○	○	○	○	○	○	○	○
9100											
9105				○	○	○	○	○	○	○	○
9110											
9115				○	○	○	○	○	○	○	○

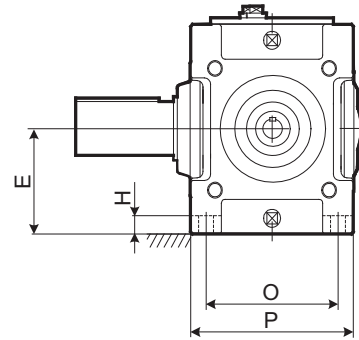
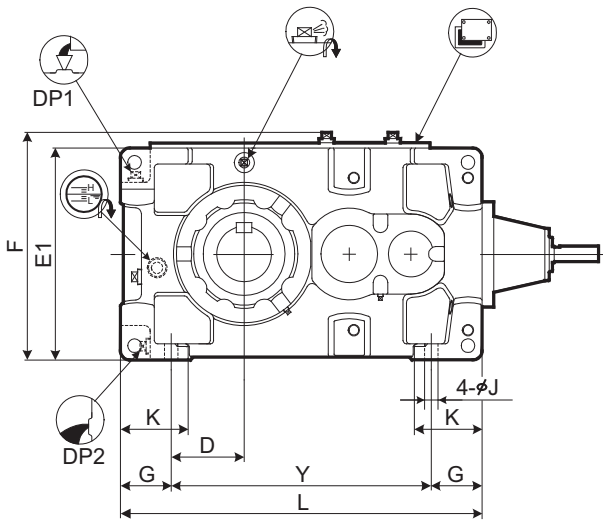


DIMENSIONS Right Angle Shaft Triple Reduction Horizontal Mounting 9030 ▶ 9055



High Speed Shaft

With Fan
Refer to the page C-21 for details.



Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	Y
9030	656	200	576	110	160	320	349	90	28	24	120	590	215	265	410
9035	687	219	607	129	185	370	399	90	28	24	120	640	215	265	460
9040	716	235	636	120	200	400	431	115	30	28	150	685	255	315	455
9045	755	256	675	141	220	440	471	115	30	28	150	745	255	315	515
9050	808	255	728	138.5	210	420	451	116.5	32	28	150	775	285	345	542
9055	847	286	767	171	245	490	521	115	32	28	150	845	285	345	615

Size	High Speed Shaft							Fan				Backstop		DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key			L2	FA	FB	FC	FD	BD	BH				
9030	80	28k6	M10/22	8	4	7	70	150	125	50	30			3/4"	3/4"	210	10
9035	80	28k6	M10/22	8	4	7	70	150	125	50	30			3/4"	3/4"	230	12
9040	80	30k6	M10/22	8	4	7	70	170	125	50	30			1"	1"	305	16
9045	80	30k6	M10/22	8	4	7	70	170	125	50	30			1"	1"	365	18
9050	80	35k6	M12/28	10	5	8	70	190	140	50	22	150	263	1"	1"	445	21
9055	80	35k6	M12/28	10	5	8	70	190	140	50	22	150	263	1"	1"	505	28

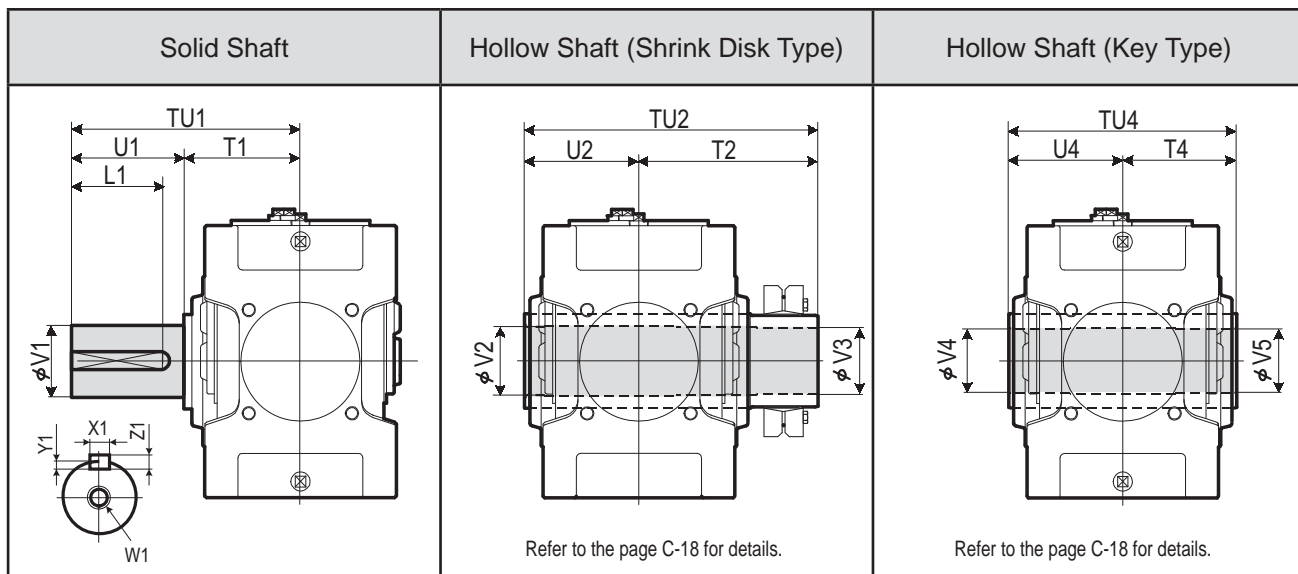
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-12 for dimensions shown in these drawings.

4. Refer to the page C-24 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Triple Reduction Horizontal Mounting 9030 ▶ 9055

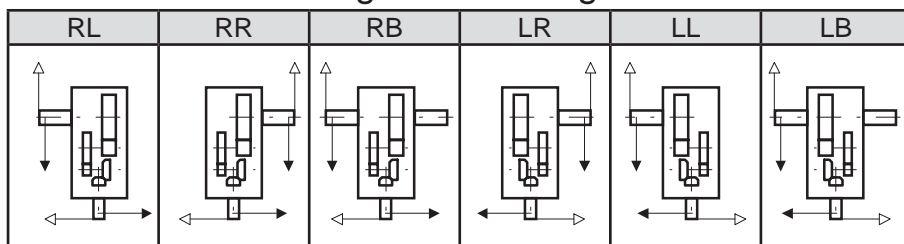
Slow Speed Shaft



Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
						X1	Y1	Z1	L1											
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

Standard Shaft Arrangement Configuration



Nomenclature

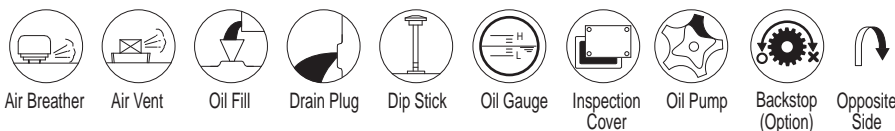


- 9030
- 9035
- 9040
- 9045
- 9050
- 9055

- RL
- RR
- RB
- LR
- LL
- LB

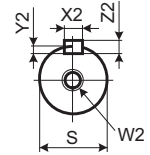
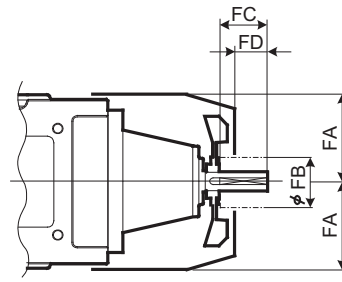
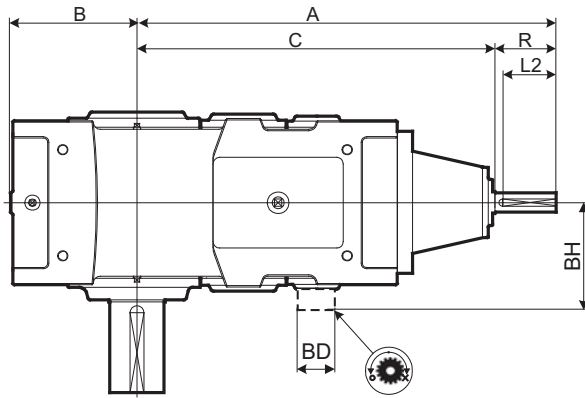
- (blank) : Without Fan
- F : With Fan
- B : With Backstop
- FB : With Fan & Backstop
- (blank) : Solid Shaft
- T : Hollow Shaft (Shrink Disk type)
- K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9030	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9035	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9040	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9045	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9055	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PARAMAX Horizontal Monoblock
 9030
 9055
 Right Angle Triple Reduction
 P
 H
 A
 R
 3

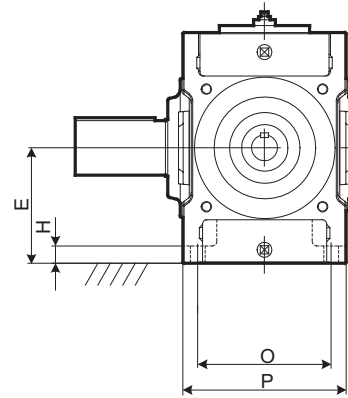
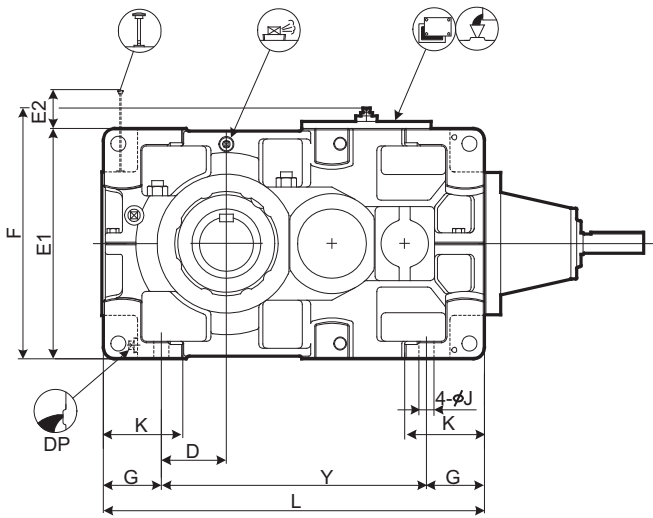
DIMENSIONS Right Angle Shaft Triple Reduction Horizontal Mounting 9060 ▶ 9085



High Speed Shaft

With Fan

Refer to the page C-21 for details.



Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K	L	O	P	Y
9060	939	299	829	151	265	530	158	578	135	35	35	180	885	310	380	615
9065	985	338	875	190	300	600	123	648	135	35	35	180	970	310	380	700
9070	1027	336	917	163	300	600	183	648	160	40	42	215	1020	350	430	700
9075	1080	383	970	210	335	670	148	718	160	52	42	220	1120	350	430	800
9080	1176	378	1036	205	335	670	208	718	160	52	42	220	1155	380	460	835
9085	1232	422	1092	249	375	750	168	798	160	52	42	220	1255	380	460	935

Size	High Speed Shaft							Fan				Backstop		DP	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				FA	FB	FC	FD	BD	BH			
				X2	Y2	Z2	L2									
9060	110	45k6	M16/36	14	5.5	9	95	220	160	80	52	175	308	1"	660	29
9065	110	45k6	M16/36	14	5.5	9	95	220	160	80	52	175	308	1"	785	33
9070	110	50k6	M16/36	14	5.5	9	95	245	160	80	52	190	330	1"	940	45
9075	110	50k6	M16/36	14	5.5	9	95	245	160	80	52	190	330	1"	1190	52
9080	140	60m6	M20/42	18	7	11	125	270	160	105	65	210	365	1"	1350	60
9085	140	60m6	M20/42	18	7	11	125	270	160	105	65	210	365	1"	1610	75

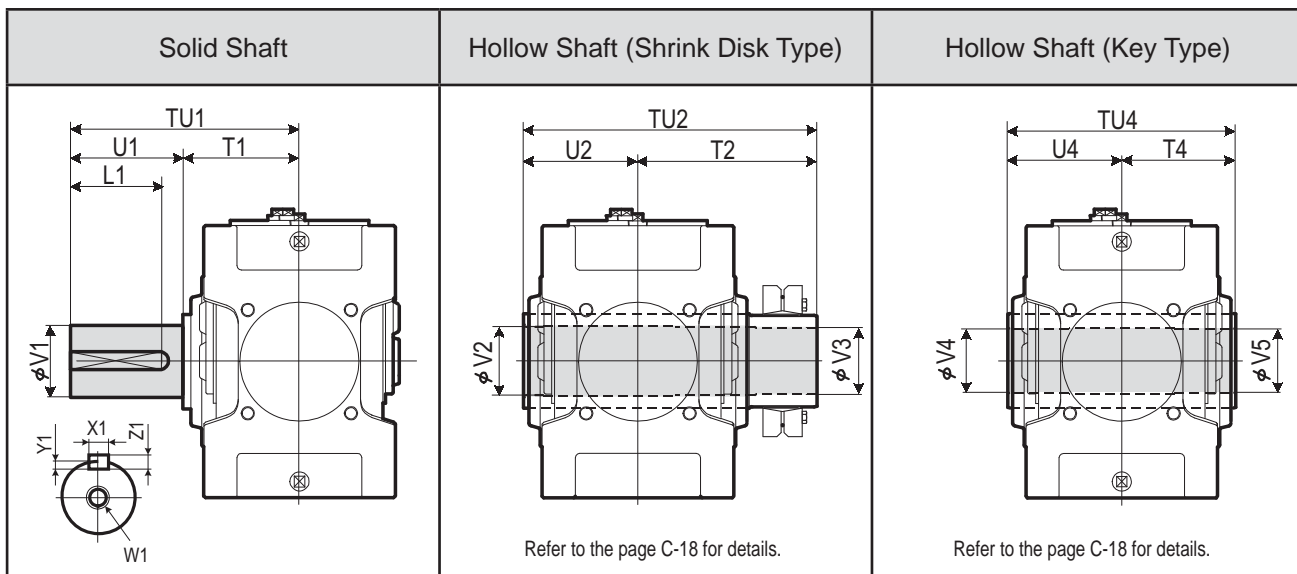
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-14 for dimensions not shown in these drawings.

4. Refer to the page C-27 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Triple Reduction Horizontal Mounting 9060 ▶ 9085

Slow Speed Shaft

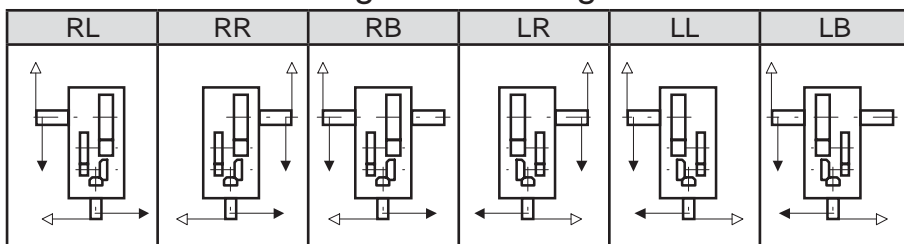


Size	Solid Shaft					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)								
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173

Unit: mm

PARAMAX Horizontal Split 9060 9085 Right Angle Triple Reduction

Standard Shaft Arrangement Configuration



Nomenclature

P H D Size R 3 - Shaft Arrangement Shaft Type Option - Nominal Reduction Ratio

Size

- 9060
- 9065
- 9070
- 9075
- 9080
- 9085

Shaft Arrangement

- RL
- RR
- RB
- LR
- LL
- LB

Shaft Type

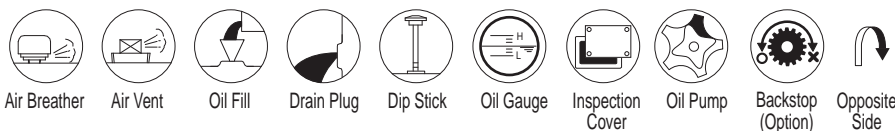
- (blank) : Without Fan
- F : With Fan
- B : With Backstop
- FB : With Fan & Backstop

Option

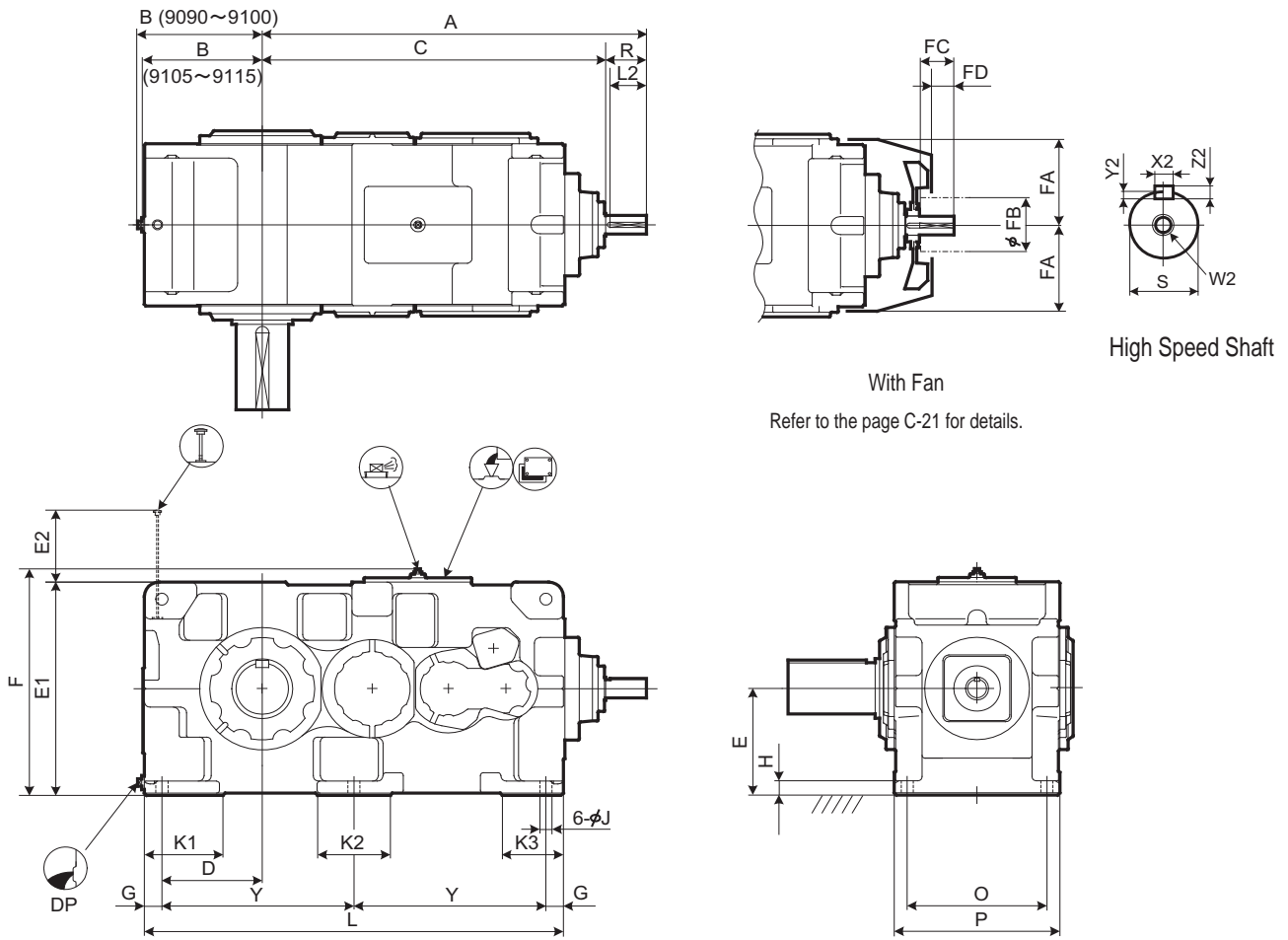
- (blank): Solid Shaft
- T : Hollow Shaft (Shrink Disk type)
- K : Hollow Shaft (Key type)

Nominal Reduction Ratio

Size	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9060	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065				○	○	○	○	○	○	○	○	○	○	○
9070				○	○	○	○	○	○	○	○	○	○	○
9075				○	○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Triple Reduction Horizontal Mounting 9090 ▶ 9115



Speed Reducer

Dimension Selection Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K1	K2	K3	L	O	P	Y
9090	1320	428	1180	345	375	750	253	797	60	50	42	270	250	210	1440	480	570	660
9095	1350	458	1210	375	400	800	258	847	60	50	42	290	250	210	1500	480	570	690
9100	1474	468	1334	375	425	850	282	897	70	55	48	300	280	240	1610	560	650	735
9105	1508	493	1368	410	450	900	287	947	70	55	48	320	280	240	1680	560	650	770
9110	1684	508	1514	420	475	950	303	997	75	60	56	340	310	260	1810	610	710	830
9115	1733	558	1563	470	500	1000	302	1047	75	60	56	350	310	260	1910	610	710	880

Size	High Speed Shaft							Fan				DP	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				FA	FB	FC	FD			
				X2	Y2	Z2	L2							
9090	140	65m6	M20/42	18	7	11	125	340	200	105	65	1 1/2"	2150	120
9095	140	65m6	M20/42	18	7	11	125	340	200	105	65	1 1/2"	2400	155
9100	140	75m6	M20/42	20	7.5	12	125	380	225	105	60	1 1/2"	2880	180
9105	140	75m6	M20/42	20	7.5	12	125	380	225	105	60	1 1/2"	3440	220
9110	170	85m6	M20/42	22	9	14	150	410	225	135	90	1 1/2"	4160	250
9115	170	85m6	M20/42	22	9	14	150	410	225	135	90	1 1/2"	4610	310

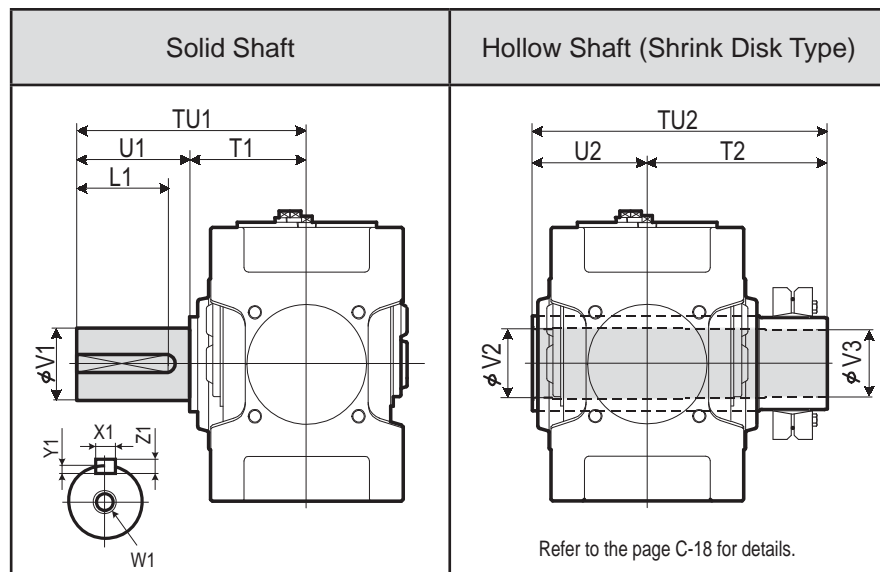
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-16 for dimensions shown in these drawings.

4. Refer to the page C-30 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Triple Reduction Horizontal Mounting 9090 ▶ 9115

Slow Speed Shaft

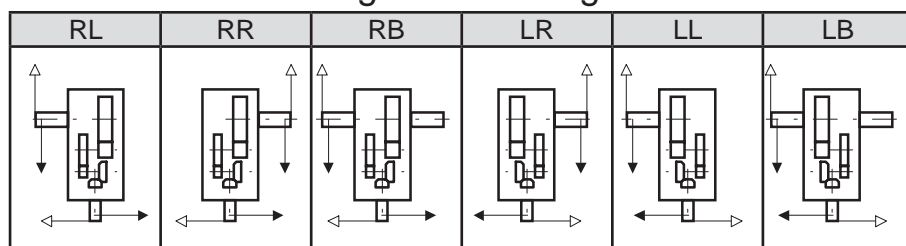


Size	Solid Shaft					Key				Hollow Shaft (Shrink Disk Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250

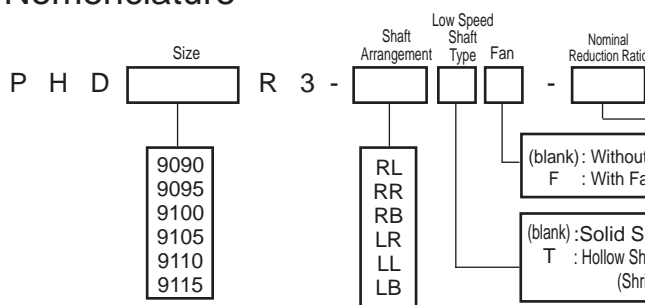
Unit: mm

PARAMAX Horizontal Split 9090 9115 Right Angle Triple Reduction

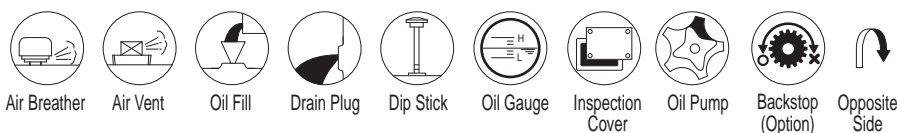
Standard Shaft Arrangement Configuration



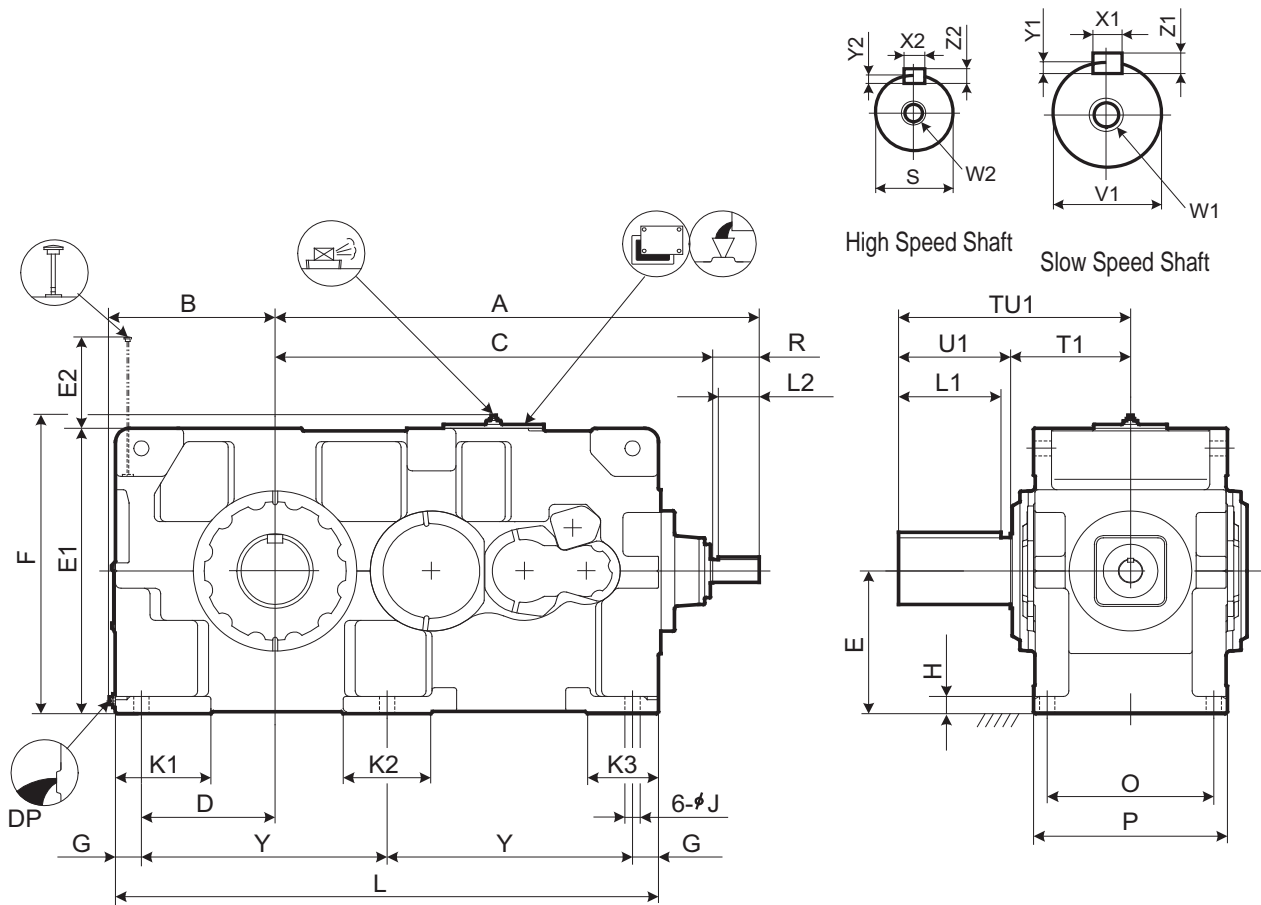
Nomenclature



Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9090	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9095		○	○	○	○	○	○	○	○	○	○	○	○	○
9100		○	○	○	○	○	○	○	○	○	○	○	○	○
9105			○	○	○	○	○	○	○	○	○	○	○	○
9110			○	○	○	○	○	○	○	○	○	○	○	○
9115			○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Triple Reduction Horizontal Mounting 9118 ▶ 9126



Speed Reducer

Selection Tables

Dimension Tables

Size	Ratio	A	B	C	D	E	E1	E2	F	G	H	J	K1	K2	K3	L	O	P	Y
9118	ALL	1774	608	1604	490	535	1070	343	1117	95	65	56	350	320	260	1990	610	710	900
9121	⅓ 31.5	2053	663	1843	545	580	1160	357	1207	95	70	56	390	300	270	2180	680	780	995
	⅓ 35.5	2013	663	1843	545	580	1160	357	1207	95	70	56	390	300	270	2180	680	780	995
9126	⅓ 31.5	2053	663	1843	545	580	1160	357	1207	95	70	56	390	300	270	2180	680	780	995
	⅓ 35.5	2013	663	1843	545	580	1160	357	1207	95	70	56	390	300	270	2180	680	780	995

Size	Ratio	High Speed Shaft								DP	Wt. kg	Oil Qty. L
		R	S	W2/Depth	X2	Y2	Z2	L2				
9118	ALL	170	85m6	M20/42	22	9	14	150	1 1/2"	5200	350	
9121	⅓ 31.5	210	110m6	M24/50	28	10	16	190	1 1/2"	6200	460	
	⅓ 35.5	170	90m6	M24/50	25	9	14	150	1 1/2"	6200	460	
9126	⅓ 31.5	210	110m6	M24/50	28	10	16	190	1 1/2"	6550	460	
	⅓ 35.5	170	90m6	M24/50	25	9	14	150	1 1/2"	6550	460	

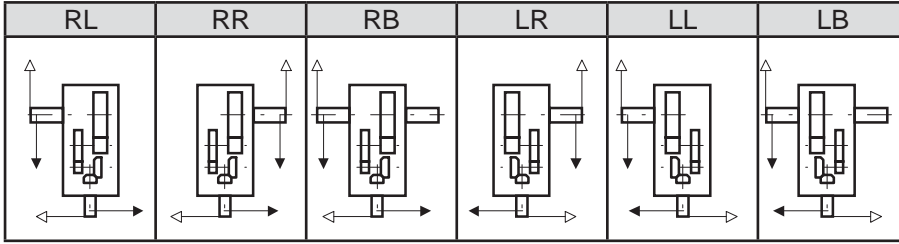
Size	Ratio	Slow Speed Shaft (Solid)								
		TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1
9118	ALL	850	440	410	260m6	M36/70	56	20	32	375
9121	⅓ 31.5	935	465	470	280m6	M36/70	63	20	32	425
	⅓ 35.5	935	465	470	280m6	M36/70	63	20	32	425
9126	⅓ 31.5	935	465	470	300m6	M36/70	70	22	36	425
	⅓ 35.5	935	465	470	300m6	M36/70	70	22	36	425

Unit: mm

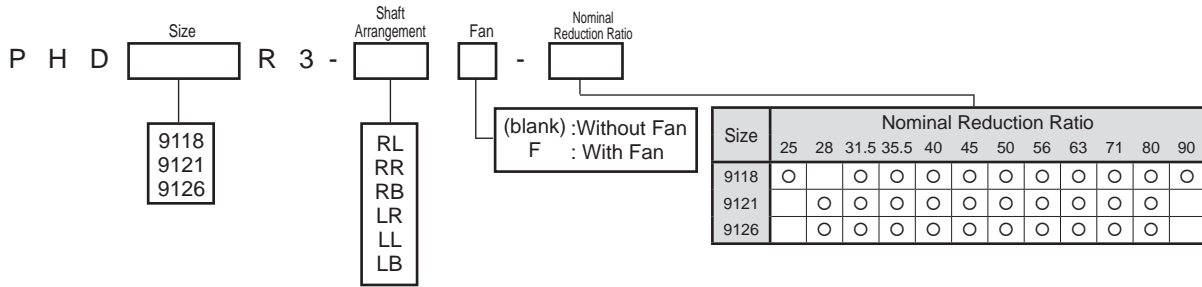
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Consult us for the dimensions not shown in these drawings.

DIMENSIONS Right Angle Shaft Triple Reduction Horizontal Mounting 9118 ▶ 9126

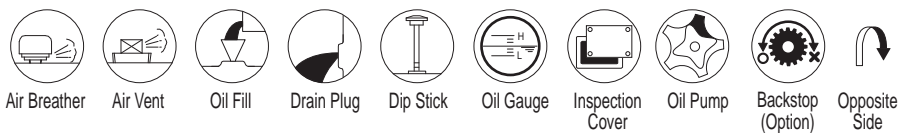
Standard Shaft Arrangement Configuration

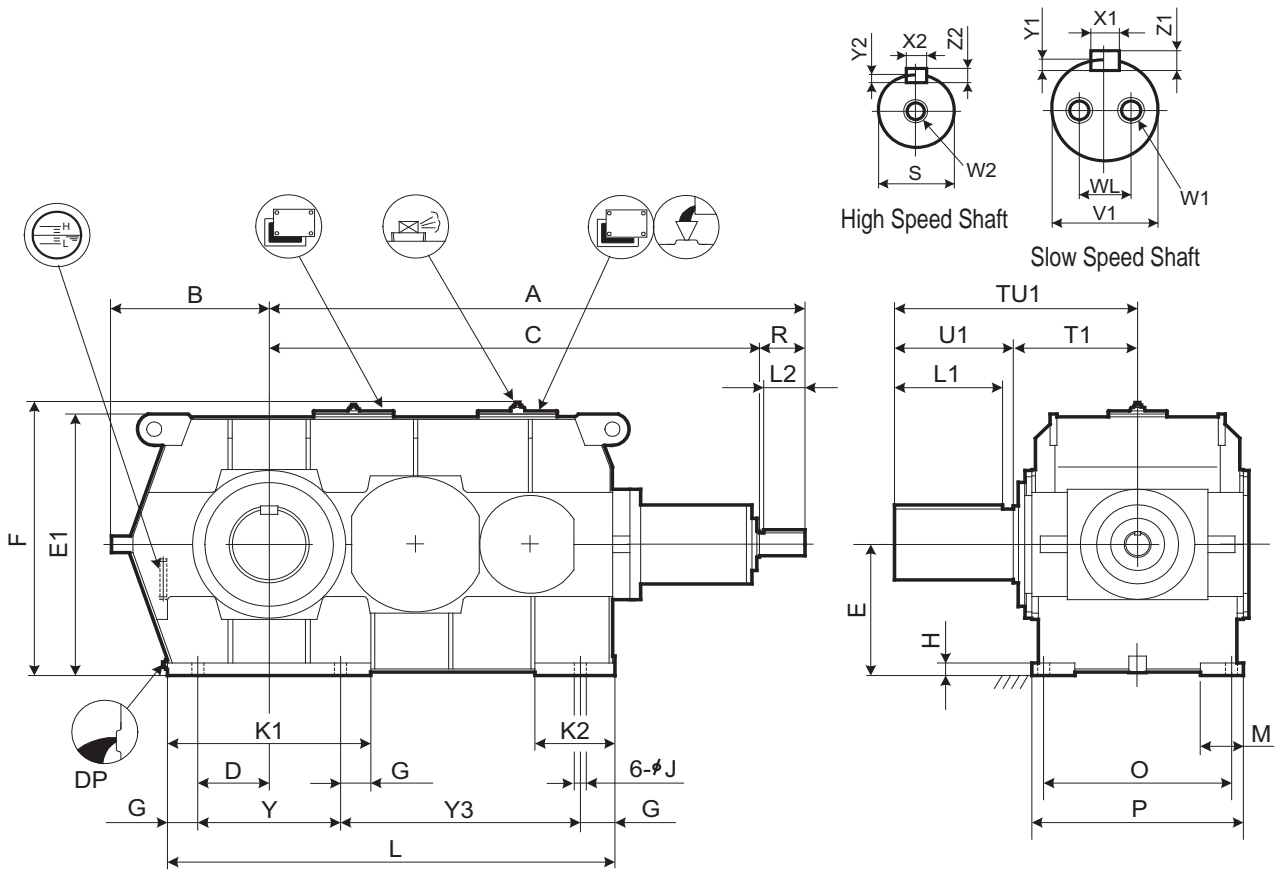


Nomenclature



PARAMAX Horizontal Split
 9118
 9126
 Right Angle Triple Reduction
 R
 3





Note : Cast iron housing is available.
Consult us when the dimension is required.

Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K1	K2	L	M	O	P	Y	Y3
9128	2244	680	2034	330	600	1194	1241	140	55	66	940	280	1930	170	710	840	660	990
9131	2479	730	2269	330	630	1256	1303	140	60	66	940	280	2070	200	850	980	660	1130
9136	2479	730	2269	330	630	1256	1303	140	60	66	940	280	2070	200	850	980	660	1130

Size	High Speed Shaft								DP	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key							
				X2	Y2	Z2	L2				
9128	210	100m6	M24/50	28	10	16	190	1 1/2"	7400	350	
9131	210	110m6	M24/50	28	10	16	190	1 1/2"	9850	510	
9136	210	110m6	M24/50	28	10	16	190	1 1/2"	10200	500	

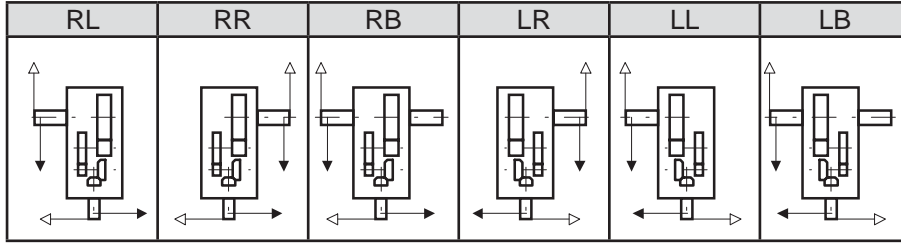
Size	Solid Shaft									
	TU1	T1	U1	V1	W1/Depth	WL	Key			
							X1	Y1	Z1	L1
9128	950	480	470	320m6	M36/70	200	70	22	36	425
9131	1100	550	550	340m6	M36/70	215	80	25	40	500
9136	1110	560	550	360m6	M36/70	230	80	25	40	500

Unit: mm

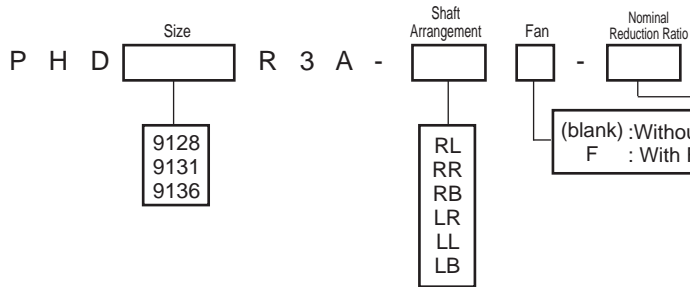
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Consult us for the dimensions not shown in these drawings.

DIMENSIONS Right Angle Shaft Triple Reduction Horizontal Mounting 9128 ▶ 9136

Standard Shaft Arrangement Configuration

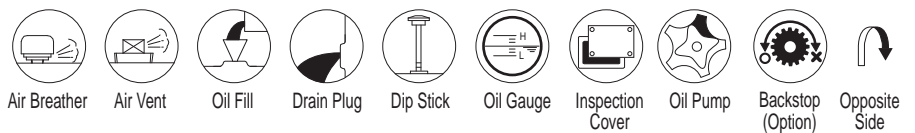


Nomenclature

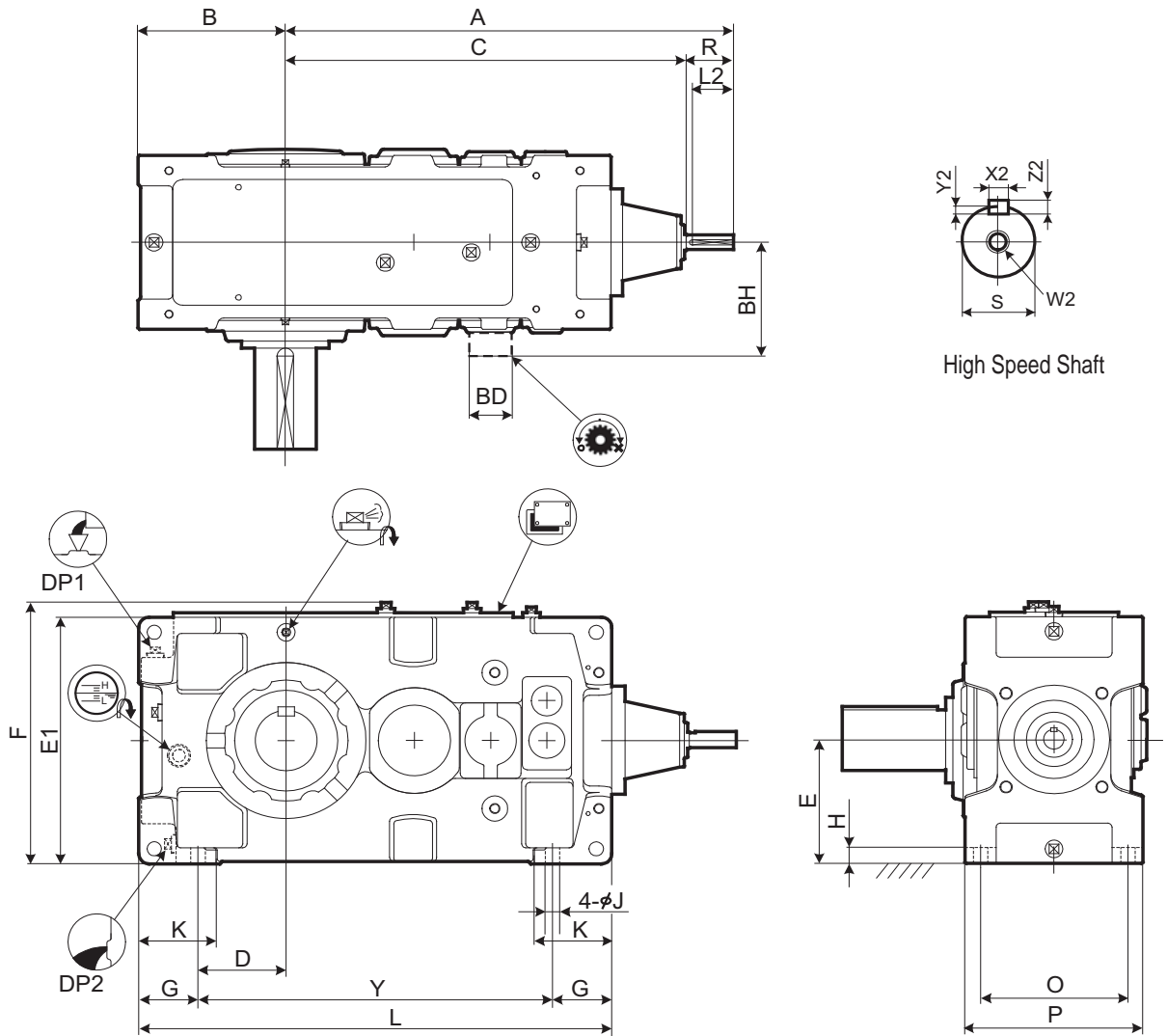


Size	28	31.5	35.5	40	45	50	56	63	71	80
9128			○	○		○	○	○	○	○
9131	○	○	○	○	○	○	○	○		
9136	○	○	○	○	○	○	○	○		

PARAMAX Horizontal Split
 9128
 9136
 Right Angle
 Triple Reduction
 Steel Housing



DIMENSIONS Right Angle Shaft Quadruple Reduction Horizontal Mounting 9040 ▶ 9055



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	Y
9040	790	235	710	120	200	400	431	115	30	28	150	759	255	315	529
9045	829	256	749	141	220	440	471	115	30	28	150	819	255	315	589
9050	859	255	779	138.5	210	420	451	116.5	32	28	150	848	285	345	615
9055	898	286	818	171	245	490	521	115	32	28	150	918	285	345	688

Size	High Speed Shaft							Backstop		DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				BD	BH				
				X2	Y2	Z2	L2						
9040	80	28k6	M10/22	8	4	7	70			1"	1"	325	19
9045	80	28k6	M10/22	8	4	7	70			1"	1"	395	21
9050	80	28k6	M10/22	8	4	7	70	150	263	1"	1"	460	24
9055	80	28k6	M10/22	8	4	7	70	150	263	1"	1"	520	29

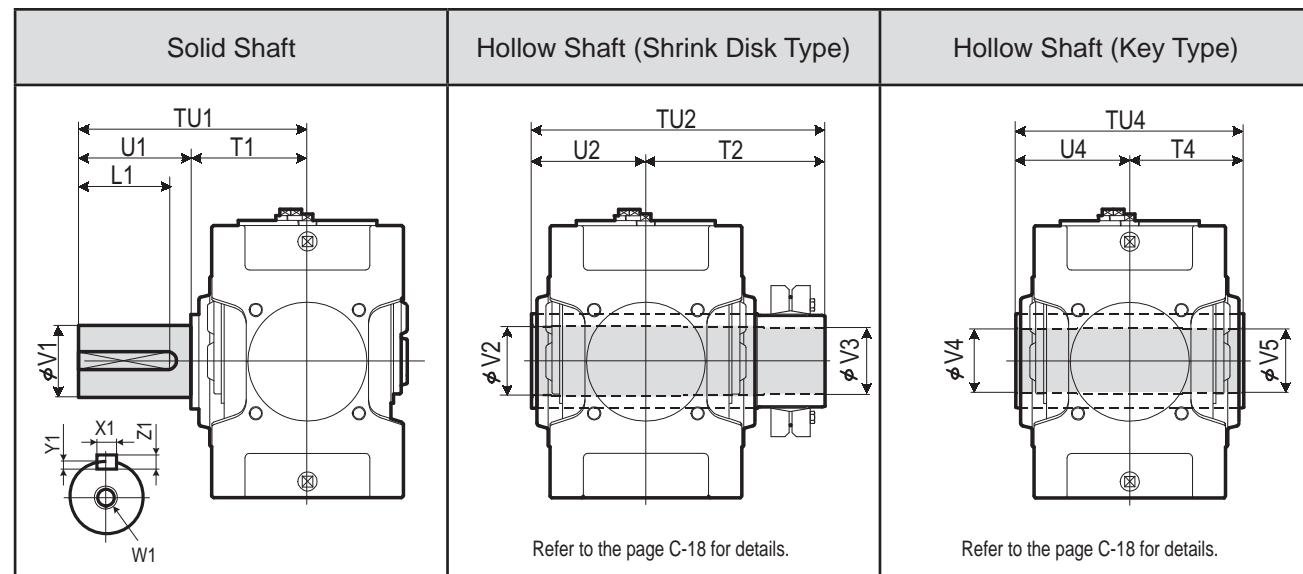
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-13 for dimensions shown in these drawings.

4. Refer to the page C-24 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Quadruple Reduction Horizontal Mounting 9040 ▶ 9055

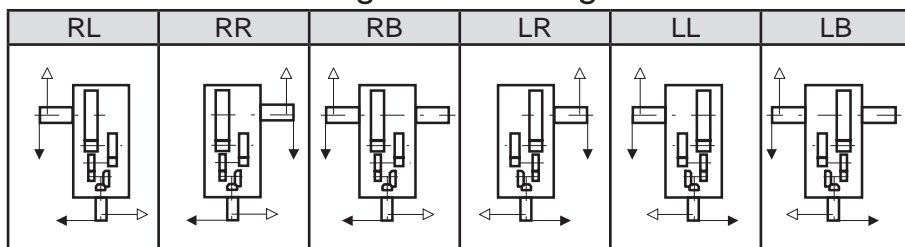
Slow Speed Shaft



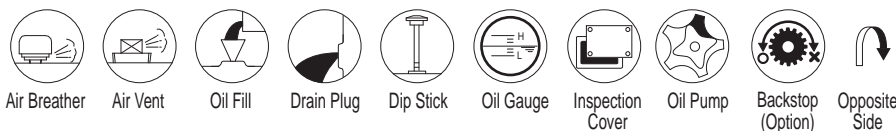
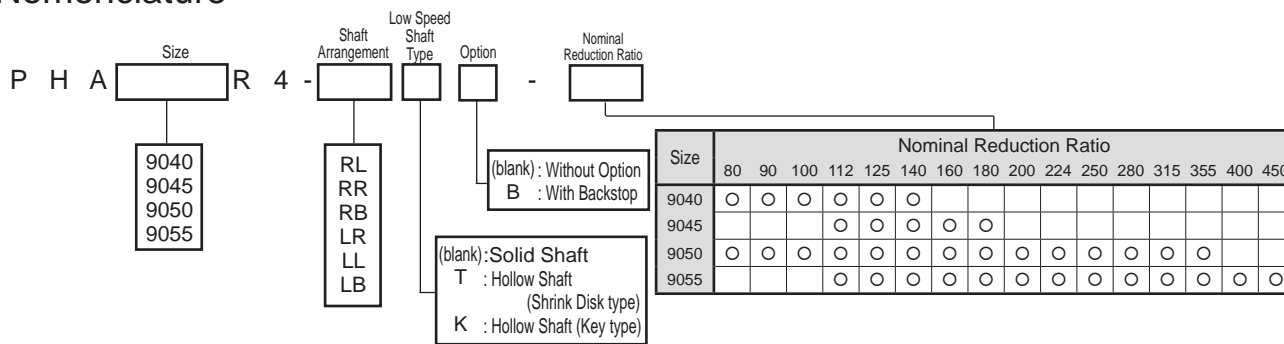
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

Standard Shaft Arrangement Configuration

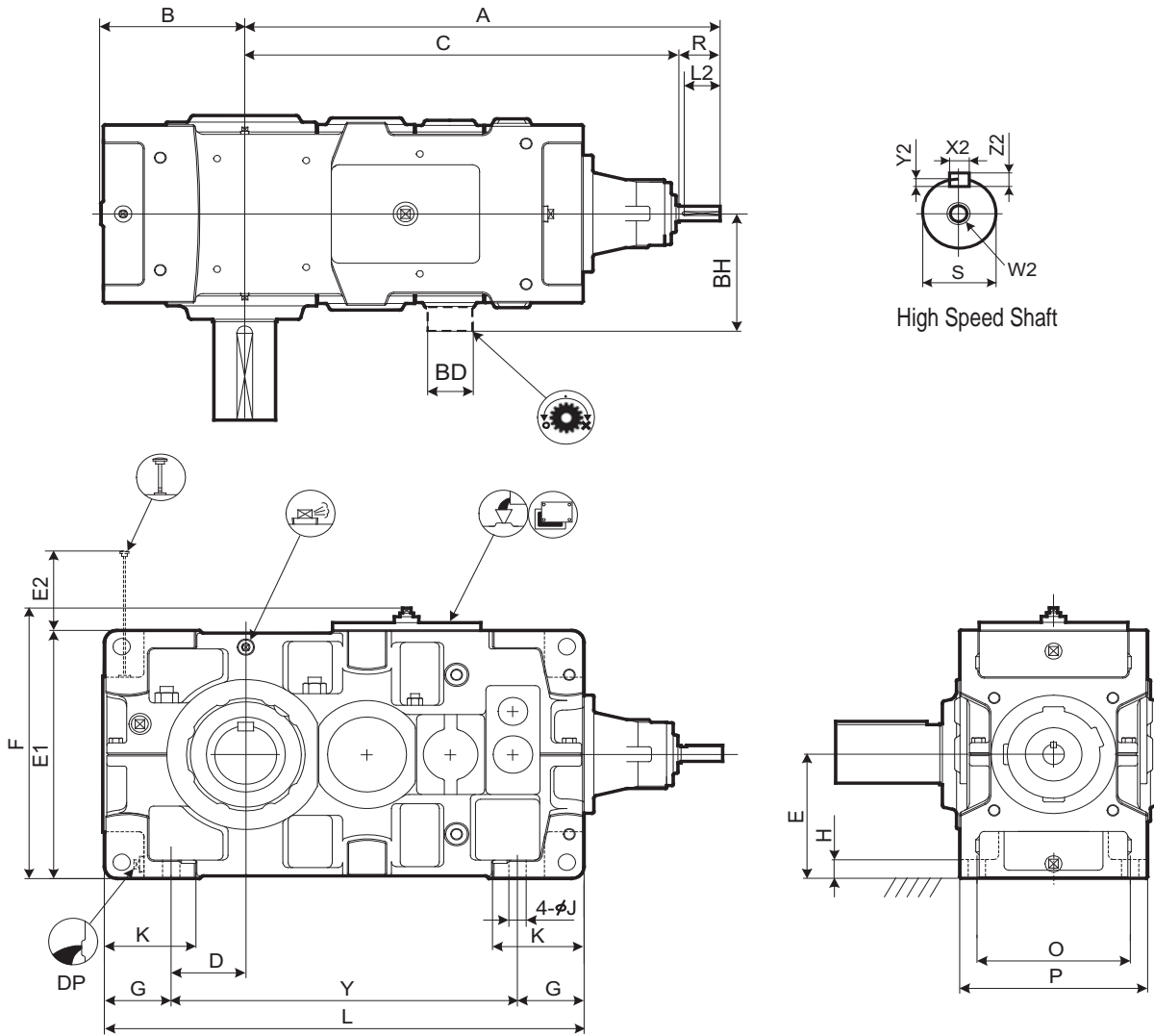


Nomenclature



PARAMAX Horizontal Monoblock 9040 9055 Right Angle Quadruple Reduction P H A R 4

DIMENSIONS Right Angle Shaft Quadruple Reduction Horizontal Mounting 9060 ▶ 9085



Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K	L	O	P	Y
9060	950	299	870	151	265	530	121	578	135	35	35	180	970	310	380	700
9065	996	338	916	190	300	600	86	648	135	35	35	180	1055	310	380	785
9070	1080	336	1000	163	300	600	140	648	160	40	42	215	1115	350	430	795
9075	1133	383	1053	210	335	670	105	718	160	52	42	220	1215	350	430	895
9080	1250	378	1140	205	335	670	162	718	160	52	42	220	1275	380	460	955
9085	1306	422	1196	249	375	750	122	798	160	52	42	220	1375	380	460	1055

Size	High Speed Shaft							Backstop		DP	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				BD	BH			
				X2	Y2	Z2	L2					
9060	80	30k6	M10/22	8	4	7	70	175	308	1"	670	38
9065	80	30k6	M10/22	8	4	7	70	175	308	1"	825	43
9070	80	35k6	M12/28	10	5	8	70	190	330	1"	960	57
9075	80	35k6	M12/28	10	5	8	70	190	330	1"	1180	67
9080	110	45k6	M16/36	14	5.5	9	95	210	365	1"	1390	73
9085	110	45k6	M16/36	14	5.5	9	95	210	365	1"	1650	90

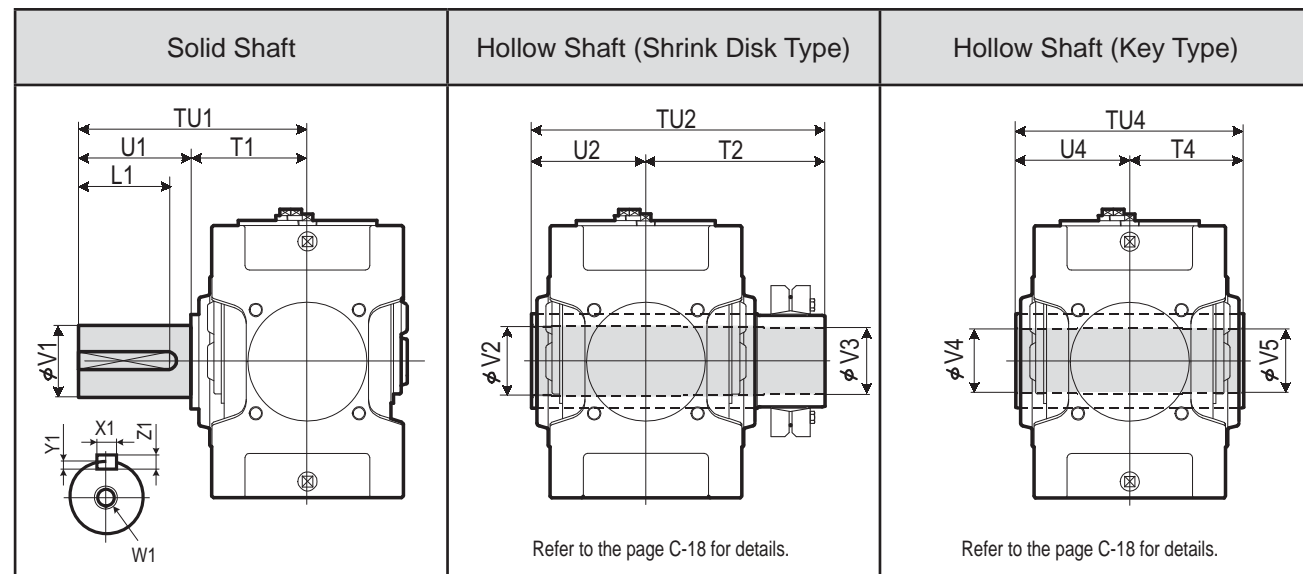
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-15 for dimensions shown in these drawings.

4. Refer to the page C-27 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Quadruple Reduction Horizontal Mounting 9060 ▶ 9085

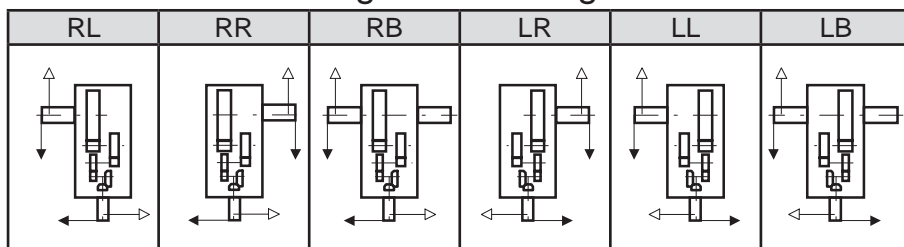
Slow Speed Shaft



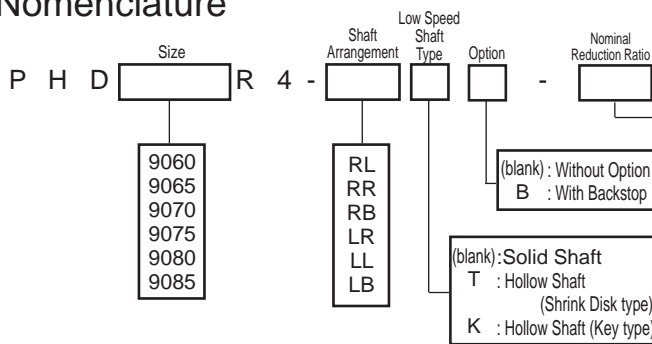
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

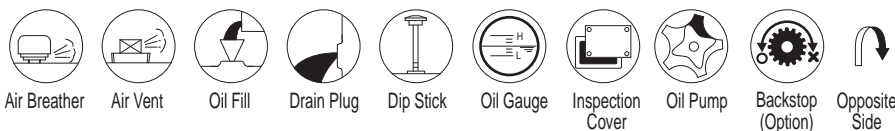
Standard Shaft Arrangement Configuration



Nomenclature

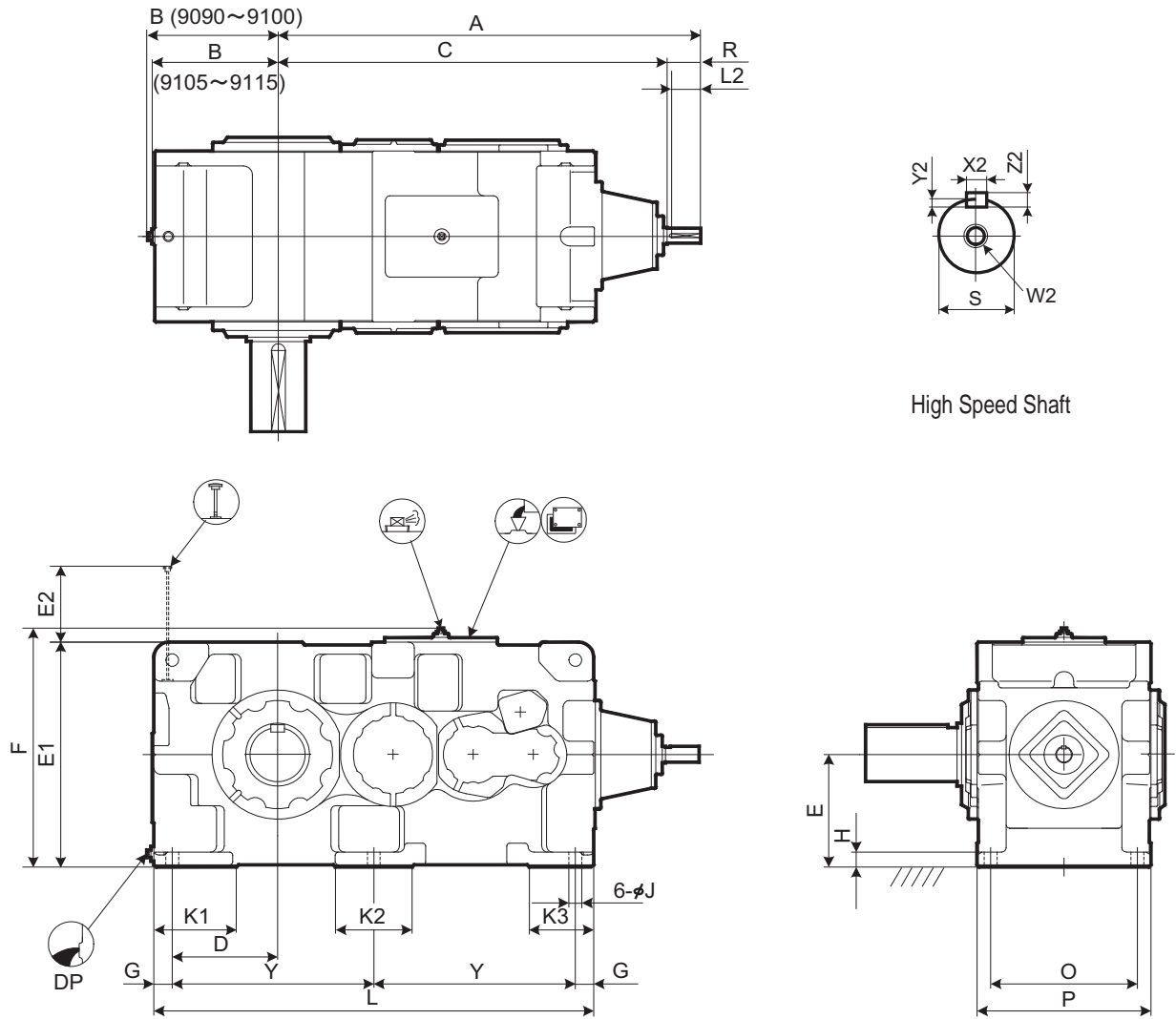


Size	Nominal Reduction Ratio															
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450
9060		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065				○	○	○	○	○	○	○	○	○	○	○	○	○
9070		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9075			○	○	○	○	○	○	○	○	○	○	○	○	○	○
9080		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○	○	○	○	○



PARAMAX Horizontal Split 9060 9085 Right Angle Quadruple Reduction P H D R 4

DIMENSIONS Right Angle Shaft Quadruple Reduction Horizontal Mounting 9090 ▶ 9115



High Speed Shaft

Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K1	K2	K3	L	O	P	Y
9090	1382	428	1272	345	375	750	198	797	60	50	42	270	250	210	1440	480	570	660
9095	1412	458	1302	375	400	800	203	847	60	50	42	290	250	210	1500	480	570	690
9100	1570	468	1430	375	425	850	215	897	70	55	48	300	280	240	1610	560	650	735
9105	1604	493	1464	410	450	900	220	947	70	55	48	320	280	240	1680	560	650	770
9110	1670	508	1530	420	475	950	225	997	75	60	56	340	310	260	1810	610	710	830
9115	1719	558	1579	470	500	1000	224	1047	75	60	56	350	310	260	1910	610	710	880

Size	High Speed Shaft							DP	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key						
				X2	Y2	Z2	L2			
9090	110	50k6	M16/36	14	5.5	9	95	1 1/2"	2150	150
9095	110	50k6	M16/36	14	5.5	9	95	1 1/2"	2400	180
9100	140	60m6	M20/42	18	7	11	125	1 1/2"	2880	210
9105	140	60m6	M20/42	18	7	11	125	1 1/2"	3440	255
9110	140	60m6	M20/42	18	7	11	125	1 1/2"	4060	300
9115	140	60m6	M20/42	18	7	11	125	1 1/2"	4510	360

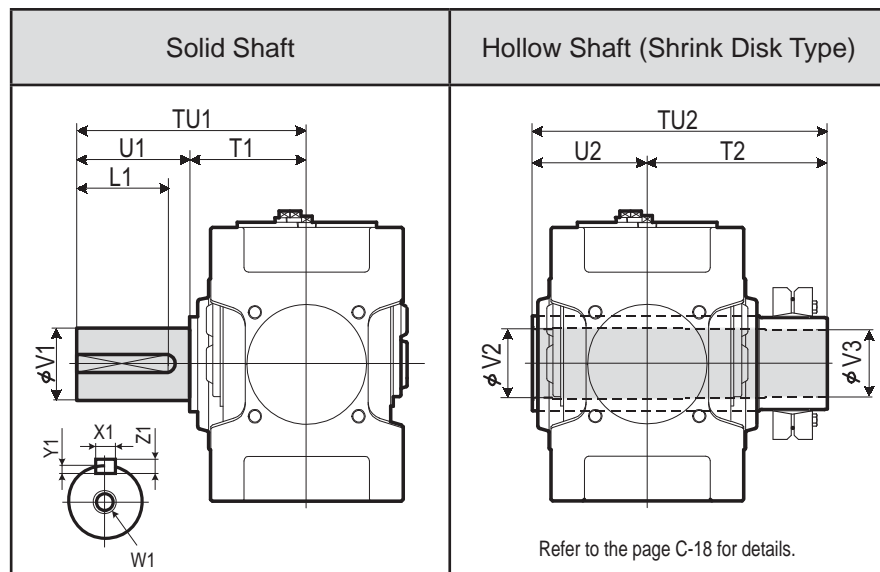
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-16 for dimensions shown in these drawings.

4. Refer to the page C-30 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Quadruple Reduction Horizontal Mounting 9090 ▶ 9115

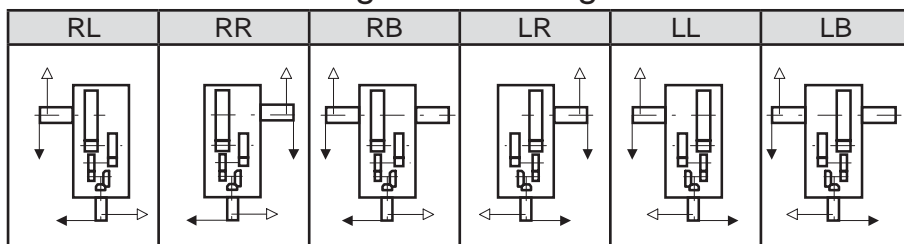
Slow Speed Shaft



Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	
						X1	Y1	Z1	L1						
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190	
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200	
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210	
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220	
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240	
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250	

Unit: mm

Standard Shaft Arrangement Configuration



Nomenclature

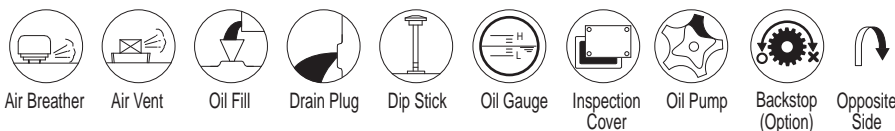
P H D Size R 4 - Shaft Arrangement Low Speed Shaft Type - Nominal Reduction Ratio

9090
9095
9100
9105
9110
9115

RL
RR
RB
LR
LL
LB

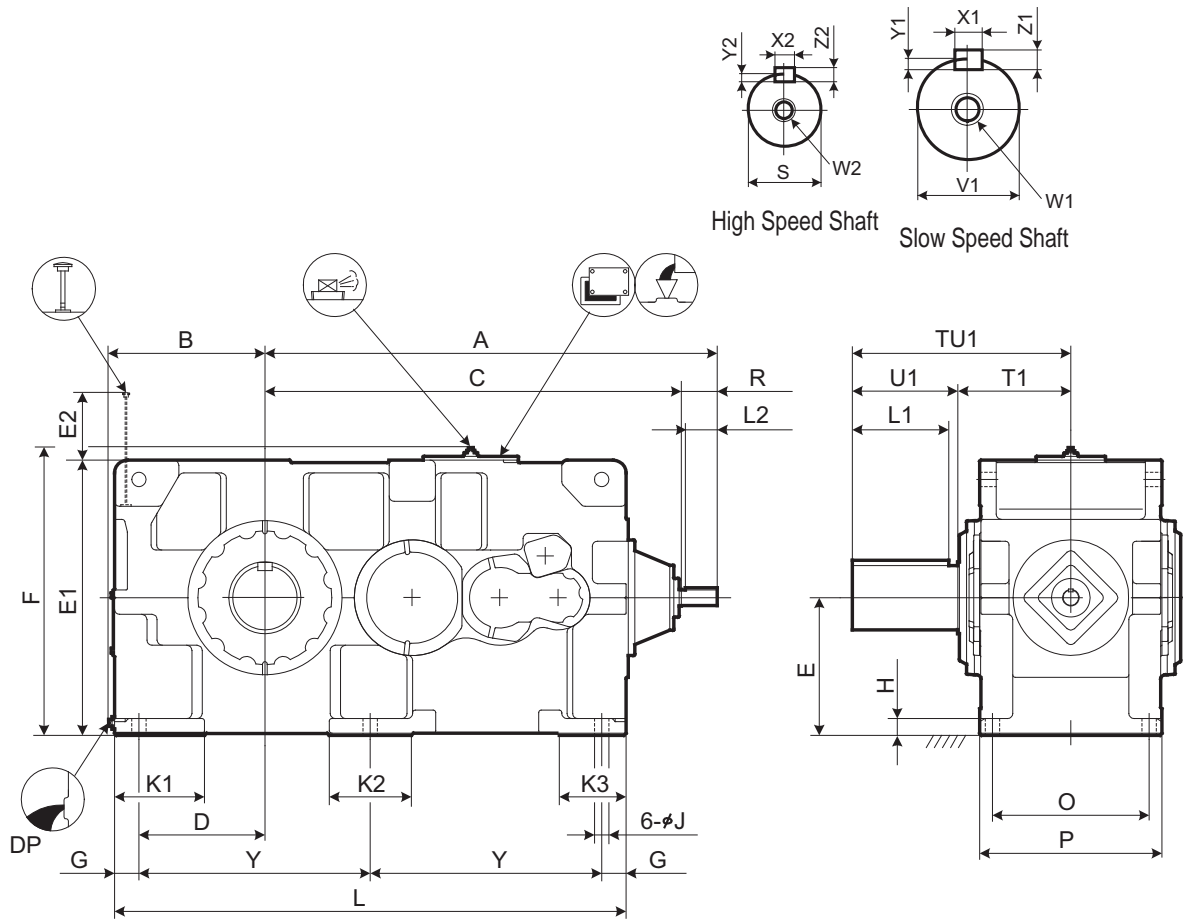
(blank): Solid Shaft
T : Hollow Shaft
(Shrink Disk type)

Size	Nominal Reduction Ratio													
	90	100	112	125	140	160	180	200	224	250	280	315	355	400
9090	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9095	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9100	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9105	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9110	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9115	○	○	○	○	○	○	○	○	○	○	○	○	○	○



PARAMAX Horizontal Split 9090 9115 Right Angle Quadruple Reduction P H D R 4

DIMENSIONS Right Angle Shaft Quadruple Reduction Horizontal Mounting 9118 ▶ 9126



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K1	K2	K3	L	O	P	Y
9118	1760	608	1620	490	535	1070	263	1117	95	65	56	350	320	260	1990	610	710	900
9121	1970	663	1830	545	580	1160	257	1207	95	70	56	390	300	270	2180	680	780	995
9126	1970	663	1830	545	580	1160	257	1207	95	70	56	390	300	270	2180	680	780	995

Size	High Speed Shaft							DP	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key						
				X2	Y2	Z2	L2			
9118	140	60m6	M20/42	18	7	11	125	1 1/2"	5100	390
9121	140	65m6	M20/42	18	7	11	125	1 1/2"	6150	540
9126	140	65m6	M20/42	18	7	11	125	1 1/2"	6450	530

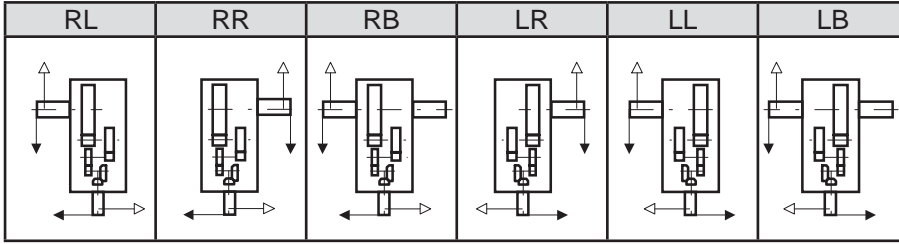
Size	Slow Speed Shaft (Solid)							L1	
	TU1	T1	U1	V1	W1/Depth	Key			
						X1	Y1	Z1	
9118	850	440	410	260m6	M36/70	56	20	32	375
9121	935	465	470	280m6	M36/70	63	20	32	425
9126	935	465	470	300m6	M36/70	70	22	36	425

Unit: mm

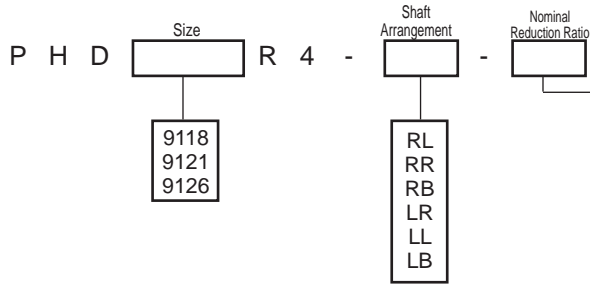
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Consult us for the dimensions not shown in these drawings.

DIMENSIONS Right Angle Shaft Quadruple Reduction Horizontal Mounting 9118 ▶ 9126

Standard Shaft Arrangement Configuration

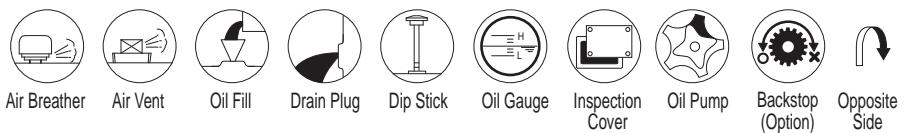


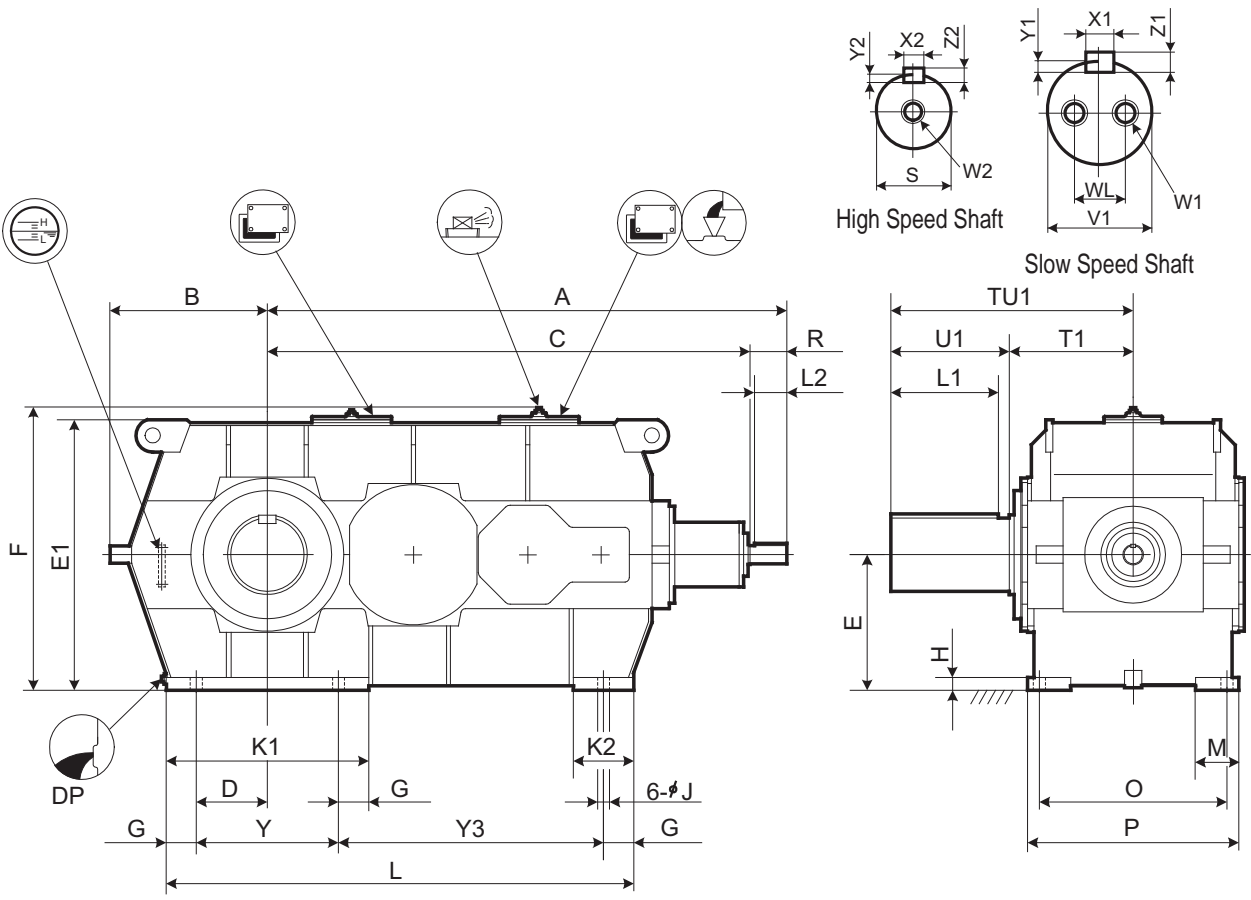
Nomenclature



Size	Nominal Reduction Ratio													
	90	100	112	125	140	160	180	200	224	250	280	315	355	400
9118		○	○	○	○	○	○	○	○	○	○	○	○	○
9121	○	○	○	○	○	○	○	○	○	○	○	○	○	
9126	○	○	○	○	○	○	○	○	○	○	○	○	○	

PARAMAX Horizontal Split
 9118
9126
 Right Angle Quadruple Reduction
 P
H
D
R
4





Note : Cast iron housing is available.
Consult us when the dimension is required.

Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K1	K2	L	M	O	P	Y	Y3
9128	2163	680	2023	330	600	1194	1241	140	55	66	940	280	1990	170	710	840	660	1050
9131	2410	730	2240	330	630	1256	1303	140	60	66	940	280	2170	200	850	980	660	1230
9136	2410	730	2240	330	630	1256	1303	140	60	66	940	280	2170	200	850	980	660	1230

Size	High Speed Shaft								DP	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key							
				X2	Y2	Z2	L2				
9128	140	75m6	M20/42	20	7.5	12	125	1 1/2"	7400	460	
9131	170	85m6	M20/42	22	9	14	150	1 1/2"	9850	680	
9136	170	85m6	M20/42	22	9	14	150	1 1/2"	10200	660	

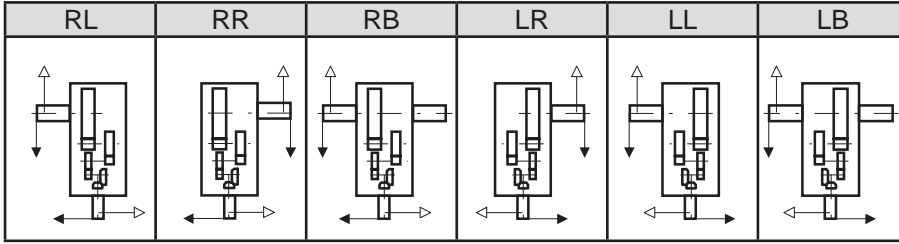
Size	Slow Speed Shaft (Solid)										
	TU1	T1	U1	V1	W1/Depth	WL	Key				
							X1	Y1	Z1	L1	
9128	950	480	470	320m6	M36/70	200	70	22	36	425	
9131	1100	550	550	340m6	M36/70	215	80	25	40	500	
9136	1110	560	550	360m6	M36/70	230	80	25	40	500	

Unit: mm

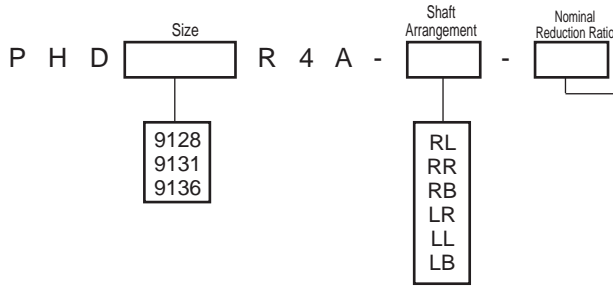
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Consult us for the dimensions not shown in these drawings.

DIMENSIONS Right Angle Shaft Quadruple Reduction Horizontal Mounting 9128 ▶ 9136

Standard Shaft Arrangement Configuration



Nomenclature



Size	Nominal Reduction Ratio														
	71	80	90	100	112	125	140	160	180	200	224	250	280	315	355
9128			○	○	○	○	○	○	○	○	○	○	○	○	○
9131	○	○	○	○	○	○	○	○	○	○	○	○	○		
9136	○	○	○	○	○	○	○	○	○	○	○	○	○		

PARAMAX Horizontal Split 9128 9136 Right Angle Quadruple Reduction Steel Housing

P

H

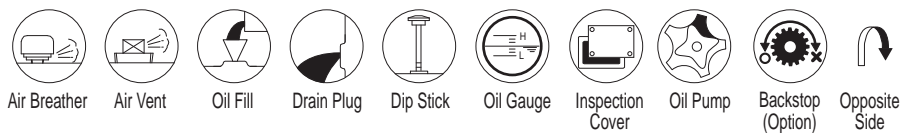
D

9128
9136

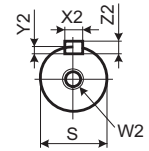
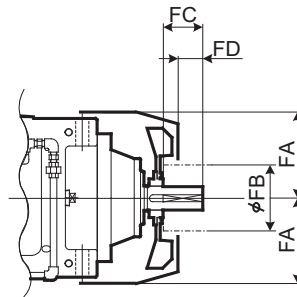
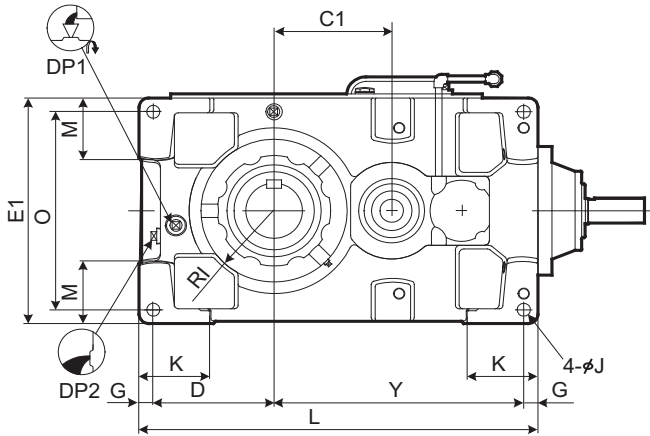
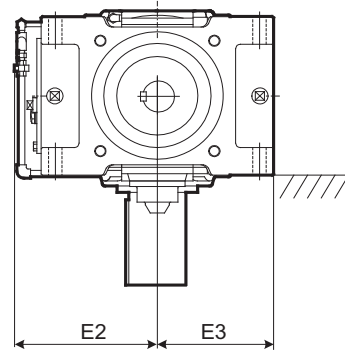
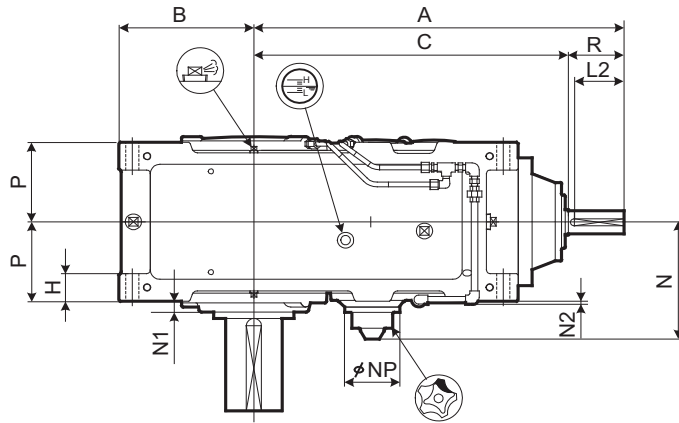
R

4

A



DIMENSIONS Right Angle Shaft Double Reduction Vertical Mounting 9015 ▶ 9055



High Speed Shaft

With Fan

Refer to the page C-20 for details.

Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	C1	D	E1	E2	E3	G	H	RI	J	K	L	M	N	N1	N2	NP	O	P	Y
9015	507	160	427	115	140	270	195	135	20	35	80	15	95	440	70	189	25	14	100	230	102.5	260
9025	545	175	465	135	155	310	215	155	20	40	87.5	19	110	505	75	201.5	23	12	100	270	117.5	310
9030	645	200	535	155	175	320	220	160	25	50	105	24	120	590	85	224	22	9	117	270	132.5	365
9035	676	219	566	186	194	370	245	185	25	50	120	24	120	640	100	224	22	9	117	320	132.5	396
9040	705	235	595	180	205	400	260	200	30	60	120	28	150	685	100	241.5	15	2	117	340	157.5	420
9045	744	256	634	219	226	440	266	220	30	60	140	28	150	745	120	241.5	17.5	2	117	380	157.5	459
9050	755	255	645	210	225	420	270	210	30	60	140	28	150	775	110	252	23	7	137	360	172.5	490
9055	794	286	684	249	256	490	305	245	30	60	155	28	150	845	135	252	23	7	137	430	172.5	529

Size	High Speed Shaft							Fan				DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC	FD				
9015	80	28k6	M12/28	8	4	7	70	125	125	50	30	3/4"	3/4"	95	5
9025	80	35k6	M12/28	10	5	8	70	135	140	50	30	3/4"	3/4"	140	7
9030	110	40k6	M16/36	14	5.5	9	95	150	140	80	52	3/4"	3/4"	205	7
9035	110	40k6	M16/36	14	5.5	9	95	150	140	80	52	3/4"	3/4"	225	9
9040	110	45k6	M16/36	14	5.5	9	95	170	160	80	52	1"	1"	305	19
9045	110	45k6	M16/36	14	5.5	9	95	170	160	80	52	1"	1"	365	23
9050	110	50k6	M16/36	14	5.5	9	95	190	160	80	52	1"	1"	435	20
9055	110	50k6	M16/36	14	5.5	9	95	190	160	80	52	1"	1"	495	26

Unit: mm

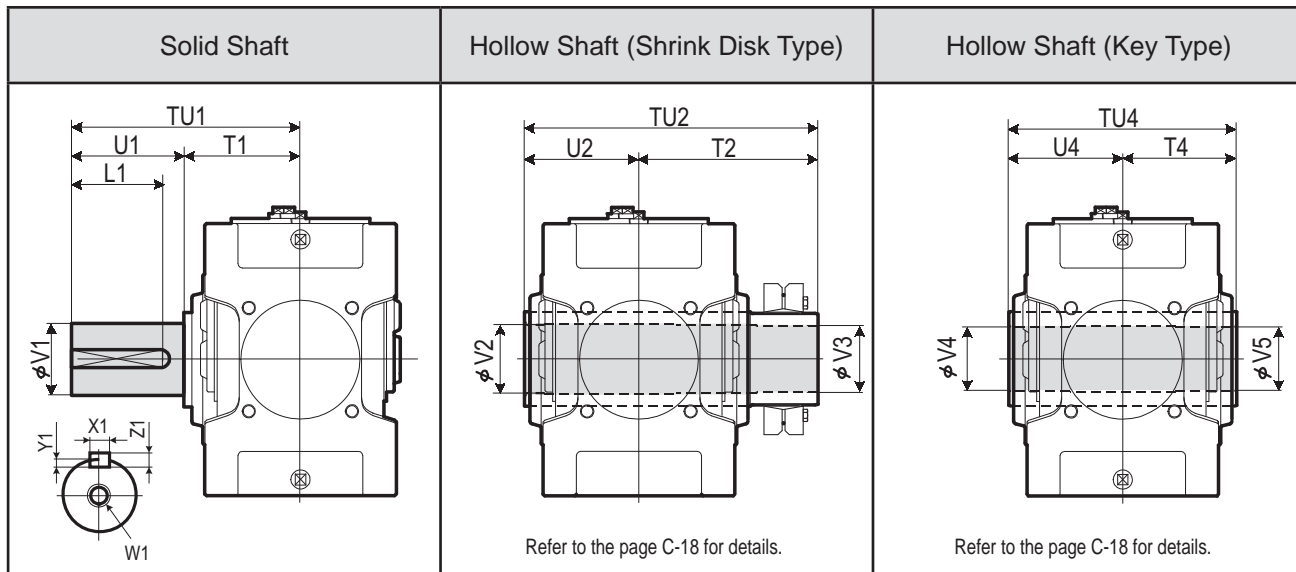
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-12 for dimensions shown in these drawings.

4. Refer to the page C-25 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Double Reduction Vertical Mounting 9015 ▶ 9055

PARAMAX Vertical Monoblock 9015 9055 Right Angle Double Reduction P V A R 2

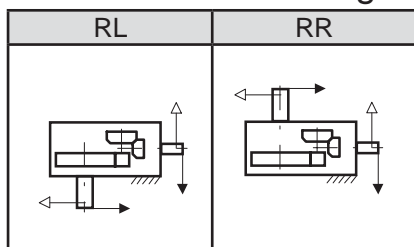
Slow Speed Shaft



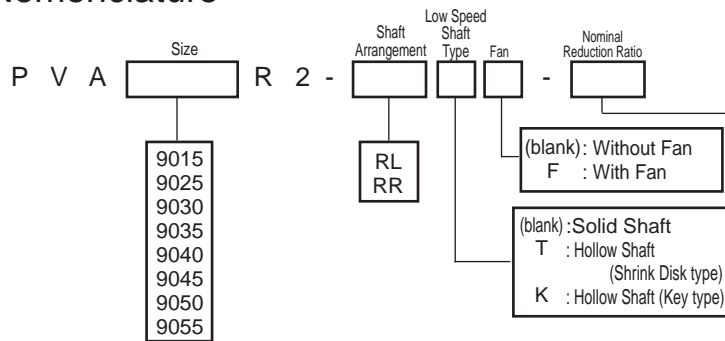
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9015	245	135	110	58m6	M20/42	18	7	11	95	328	193	135	63	60	270	135	135	55	55	
9025	285	145	140	70m6	M20/42	20	7.5	12	125	358	213	145	73	70	300	150	150	65	65	
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

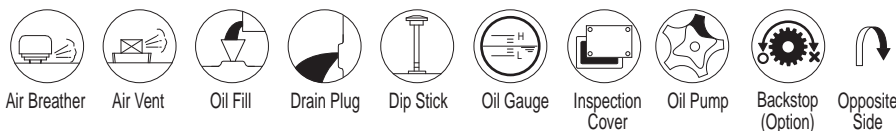
Standard Shaft Arrangement Configuration



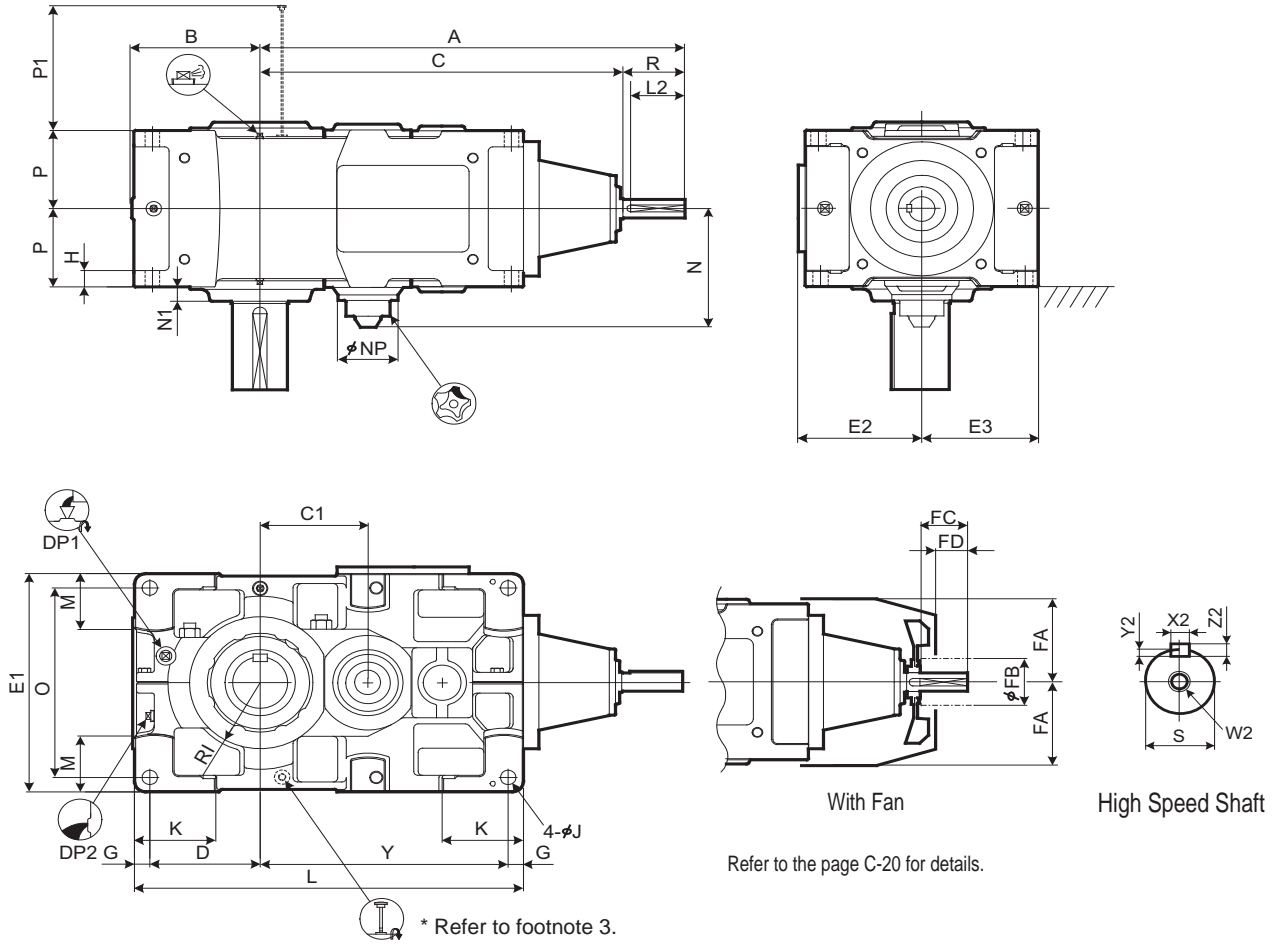
Nomenclature



Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9015	○	○	○	○	○	○	○	○	○	○		
9025	○	○	○	○	○	○	○	○	○	○		
9030	○	○	○	○	○	○	○	○	○	○		
9035			○	○	○	○	○	○	○	○	○	○
9040	○	○	○	○	○	○	○	○	○	○		
9045			○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○		
9055			○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Double Reduction Vertical Mounting 9060 ▶ 9085



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	C1	D	E1	E2	E3	G	H	RI	J	K	L	M	N	N1	NP	O	P	P1	Y
9060	865	299	725	245	251	530	282	265	35	35	160	35	180	885	140	272	35	137	460	190	229	564
9065	911	338	771	291	290	600	317	300	35	35	175	35	180	970	175	272	38	137	530	190	229	610
9070	965	336	825	285	283	600	317	300	40	40	175	42	215	1020	155	303	38	137	520	215	262	657
9075	1018	383	878	338	330	670	352	335	40	52	190	42	220	1120	195	303	40	137	590	215	262	710
9080	1080	378	940	330	325	670	352	335	40	52	190	42	220	1155	170	323	45	137	590	230	295	750
9085	1136	422	996	386	369	750	392	375	40	52	215	42	220	1255	210	323	40	137	670	230	295	806

Size	High Speed Shaft							Fan				DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				FA	FB	FC	FD				
				X2	Y2	Z2	L2								
9060	140	60m6	M20/42	18	7	11	125	220	160	105	65	1"	1"	600	Refer to the next page.
9065	140	60m6	M20/42	18	7	11	125	220	160	105	65	1"	1"	725	
9070	140	65m6	M20/42	18	7	11	125	245	200	105	65	1"	1"	920	
9075	140	65m6	M20/42	18	7	11	125	245	200	105	65	1"	1"	1170	
9080	140	75m6	M20/42	20	7.5	12	125	270	225	105	60	1"	1"	1300	
9085	140	75m6	M20/42	20	7.5	12	125	270	225	105	60	1"	1"	1560	

Unit: mm

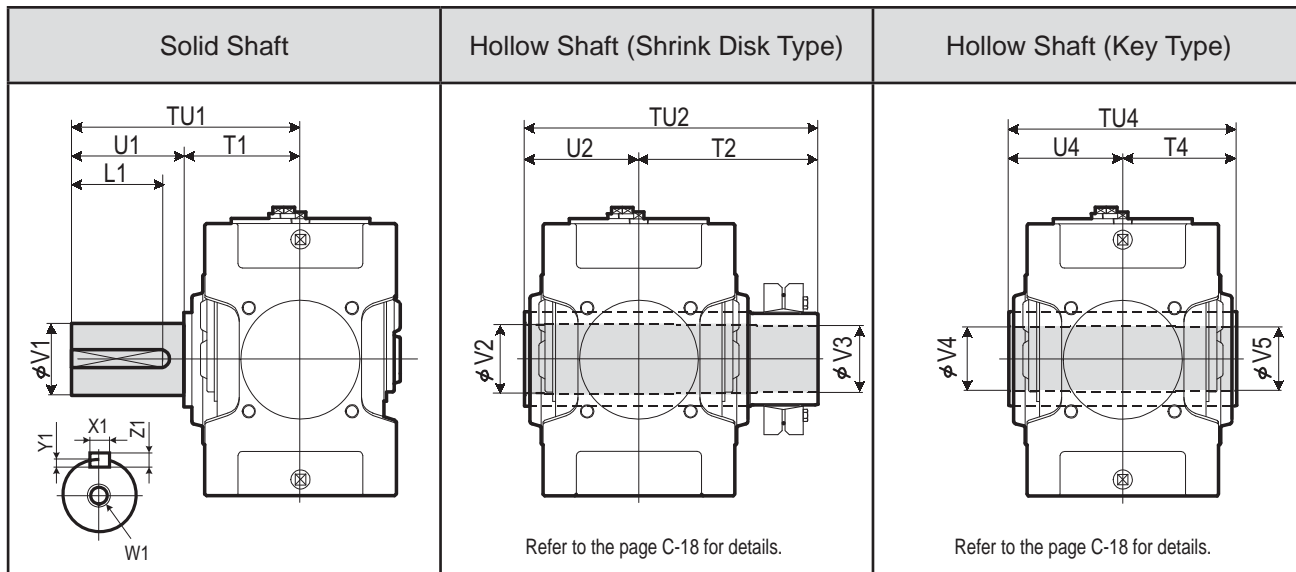
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement RR is equipped with oil gauge. Refer to the page C-28.

4. Refer to the page C-14 for dimensions shown in these drawings.
 5. Refer to the page C-28 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Double Reduction Vertical Mounting 9060 ▶ 9085

PARAMAX Vertical Split 9060 9085 Right Angle Double Reduction P V D R 2

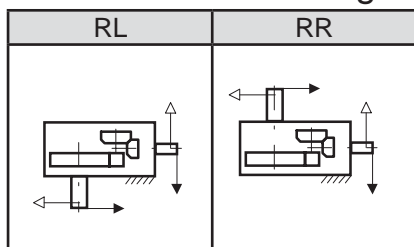
Slow Speed Shaft



Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

Standard Shaft Arrangement Configuration

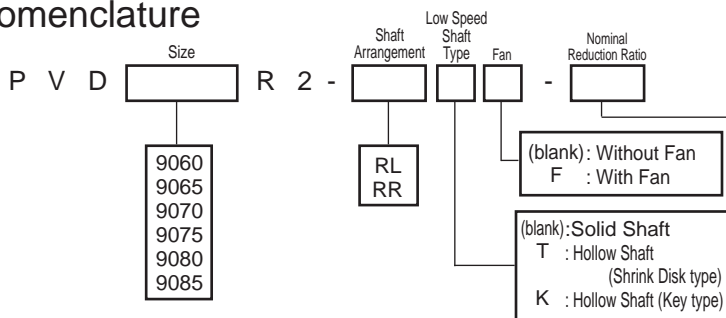


Approx. Oil Qty.

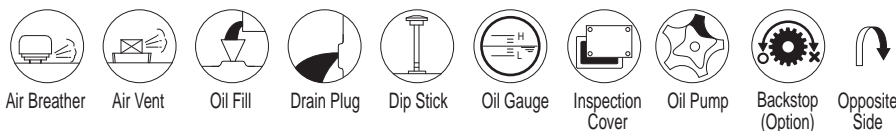
Size	Nominal Reduction Ratio			
	6.3-9	10-18	8-11.2	12.5-22.4
9060	25	28		
9065			32	36
9070	35	41		
9075			47	54
9080	46	55		
9085			58	68

Unit: liters

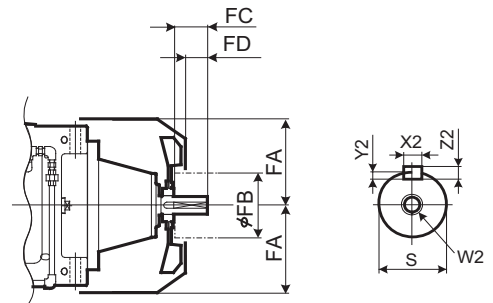
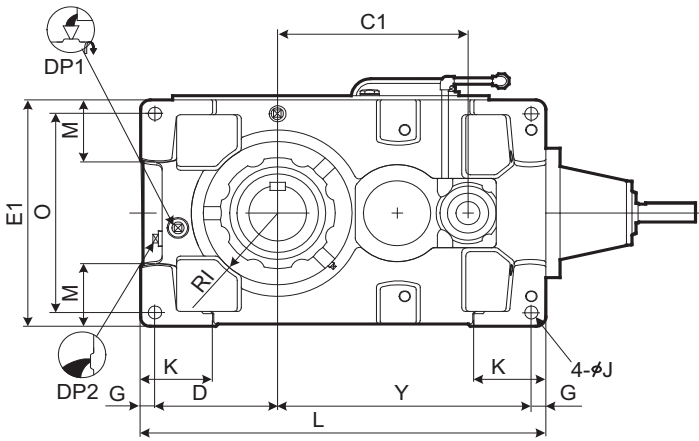
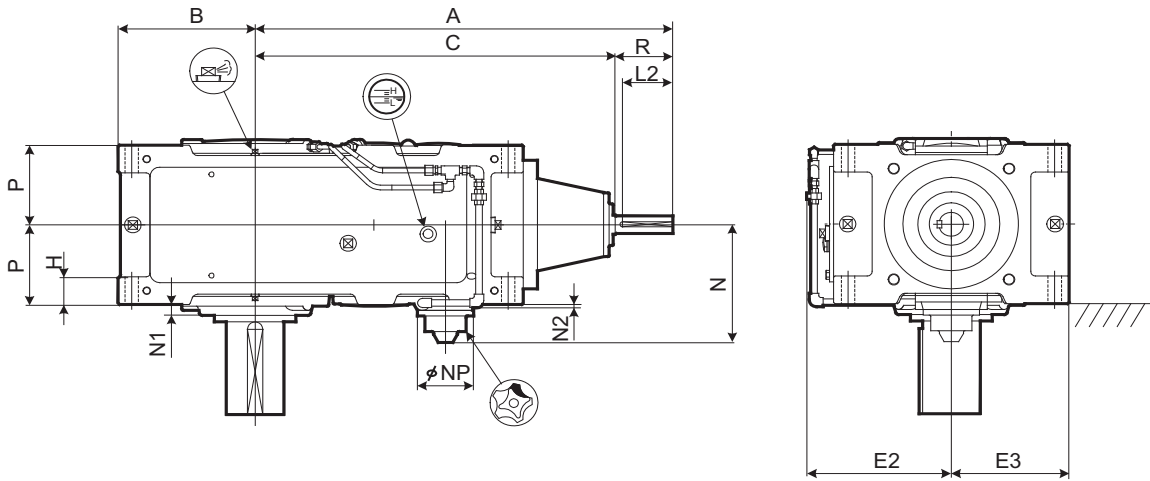
Nomenclature



Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9060	○	○	○	○	○	○	○	○	○	○		
9065				○	○	○	○	○	○	○	○	○
9070		○	○	○	○	○	○	○	○	○		
9075				○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○
9085				○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Triple Reduction Vertical Mounting 9030 ▶ 9055



With Fan
Refer to the page C-21 for details.

High Speed Shaft

Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	C1	D	E1	E2	E3	G	H	RI	J	K	L	M	N	N1	N2	NP	O	P	Y
9030	656	200	576	264	175	320	220	160	25	50	105	24	120	590	85	211	22	9	100	270	132.5	365
9035	687	219	607	295	194	370	245	185	25	50	120	24	120	640	100	211	22	9	100	320	132.5	396
9040	716	235	636	306	205	400	260	200	30	60	120	28	150	685	100	237.5	15	2	117	340	157.5	420
9045	755	256	675	345	226	440	266	220	30	60	140	28	150	745	120	237.5	17.5	2	117	380	157.5	459
9050	808	255	728	358	225	420	270	210	30	60	140	28	150	775	110	257.5	23	7	117	360	172.5	490
9055	847	286	767	397	256	490	305	245	30	60	155	28	150	845	135	257.5	23	7	117	430	172.5	529

Size	High Speed Shaft							Fan				DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				FA	FB	FC	FD				
				X2	Y2	Z2	L2								
9030	80	28k6	M10/22	8	4	7	70	150	125	50	30	3/4"	3/4"	210	9
9035	80	28k6	M10/22	8	4	7	70	150	125	50	30	3/4"	3/4"	230	12
9040	80	30k6	M10/22	8	4	7	70	170	125	50	30	1"	1"	305	18
9045	80	30k6	M10/22	8	4	7	70	170	125	50	30	1"	1"	365	22
9050	80	35k6	M12/28	10	5	8	70	190	140	50	22	1"	1"	445	21
9055	80	35k6	M12/28	10	5	8	70	190	140	50	22	1"	1"	505	30

Unit: mm

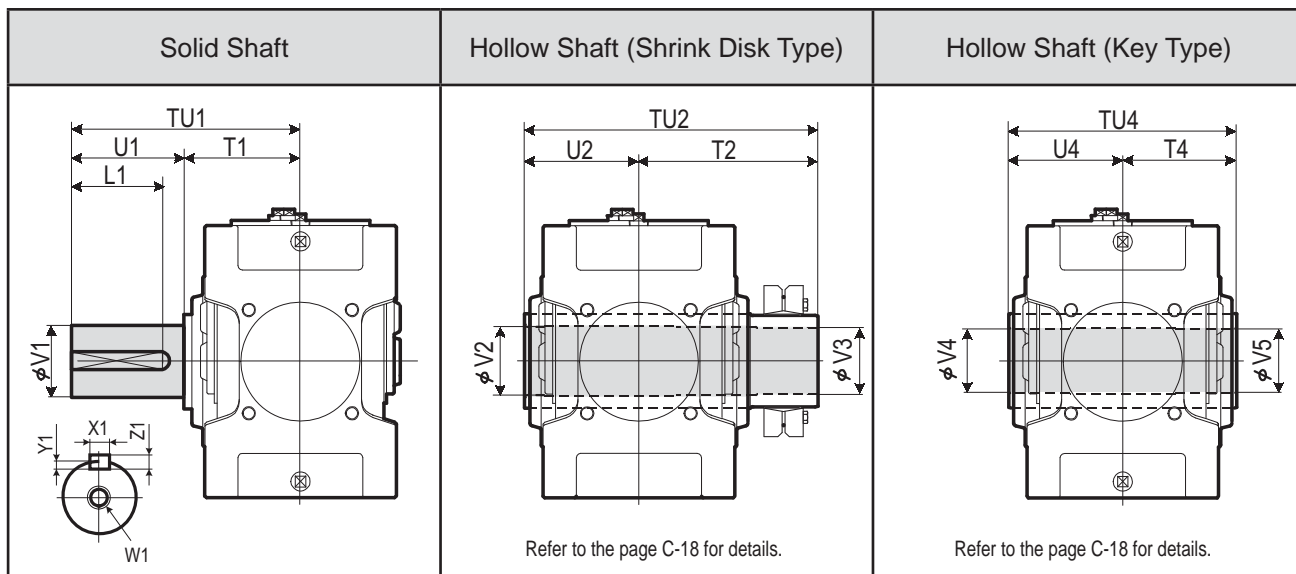
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-12 for dimensions shown in these drawings.

4. Refer to the page C-25 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Triple Reduction Vertical Mounting 9030 ▶ 9055

PARAMAX Vertical Monoblock 9030 9055 Right Angle Triple Reduction P V A R 3

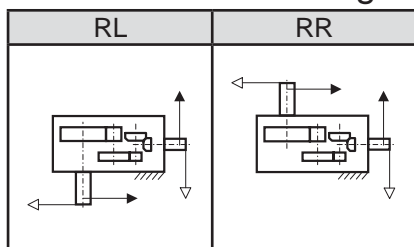
Slow Speed Shaft



Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

Standard Shaft Arrangement Configuration



Nomenclature

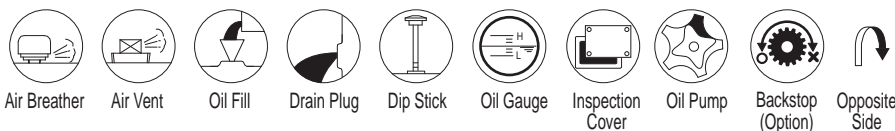


- 9030
- 9035
- 9040
- 9045
- 9050
- 9055

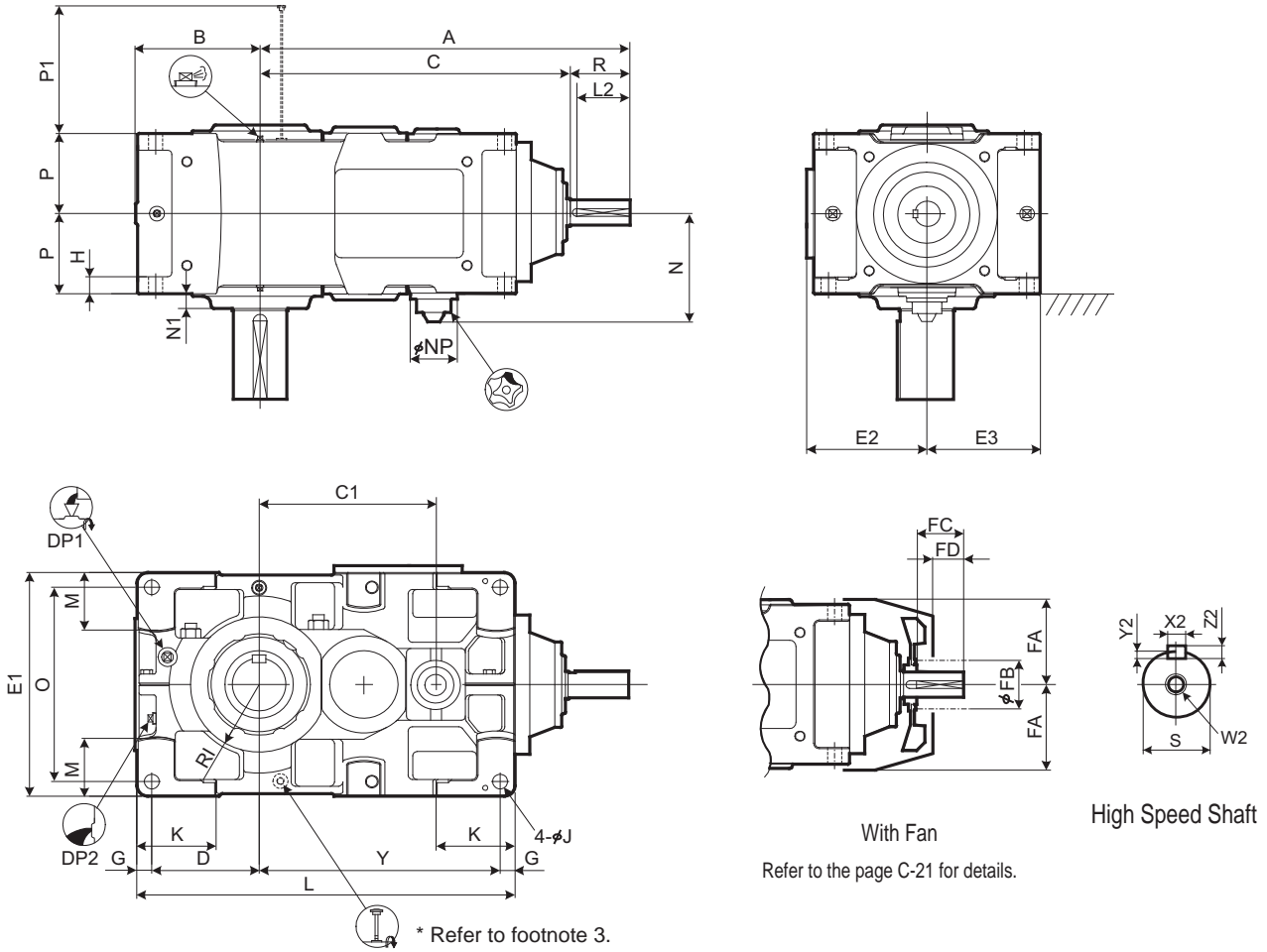
- RL
- RR

- (blank): Without Fan
- F : With Fan
- (blank) : Solid Shaft
- T : Hollow Shaft (Shrink Disk type)
- K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9030	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9035			○	○	○	○	○	○	○	○	○	○	○	○
9040	○		○	○	○	○	○	○	○	○	○	○	○	○
9045				○	○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9055			○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Triple Reduction Vertical Mounting 9060 ▶ 9085



Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	C1	D	E1	E2	E3	G	H	RI	J	K	L	M	N	N1	NP	O	P	P1	Y
9060	939	299	829	414	251	530	282	265	35	35	160	35	180	885	140	277.5	35	117	460	190	213	564
9065	985	338	875	460	290	600	317	300	35	35	175	35	180	970	175	277.5	38	117	530	190	213	610
9070	1027	336	917	482	283	600	317	300	40	40	175	42	215	1020	155	302.5	38	117	520	215	233	657
9075	1080	383	970	535	330	670	352	335	40	52	190	42	220	1120	195	302.5	40	117	590	215	233	710
9080	1176	378	1036	556	325	670	352	335	40	52	190	42	220	1155	170	322.5	45	117	590	230	268	750
9085	1232	422	1092	612	369	750	392	375	40	52	215	42	220	1255	210	322.5	40	117	670	230	268	806

Size	High Speed Shaft							Fan				DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				FA	FB	FC	FD				
				X2	Y2	Z2	L2								
9060	110	45k6	M16/36	14	5.5	9	95	220	160	80	52	1"	1"	660	28
9065	110	45k6	M16/36	14	5.5	9	95	220	160	80	52	1"	1"	785	35
9070	110	50k6	M16/36	14	5.5	9	95	245	160	80	52	1"	1"	940	46
9075	110	50k6	M16/36	14	5.5	9	95	245	160	80	52	1"	1"	1190	59
9080	140	60m6	M20/42	18	7	11	125	270	160	105	65	1"	1"	1350	60
9085	140	60m6	M20/42	18	7	11	125	270	160	105	65	1"	1"	1610	80

Unit: mm

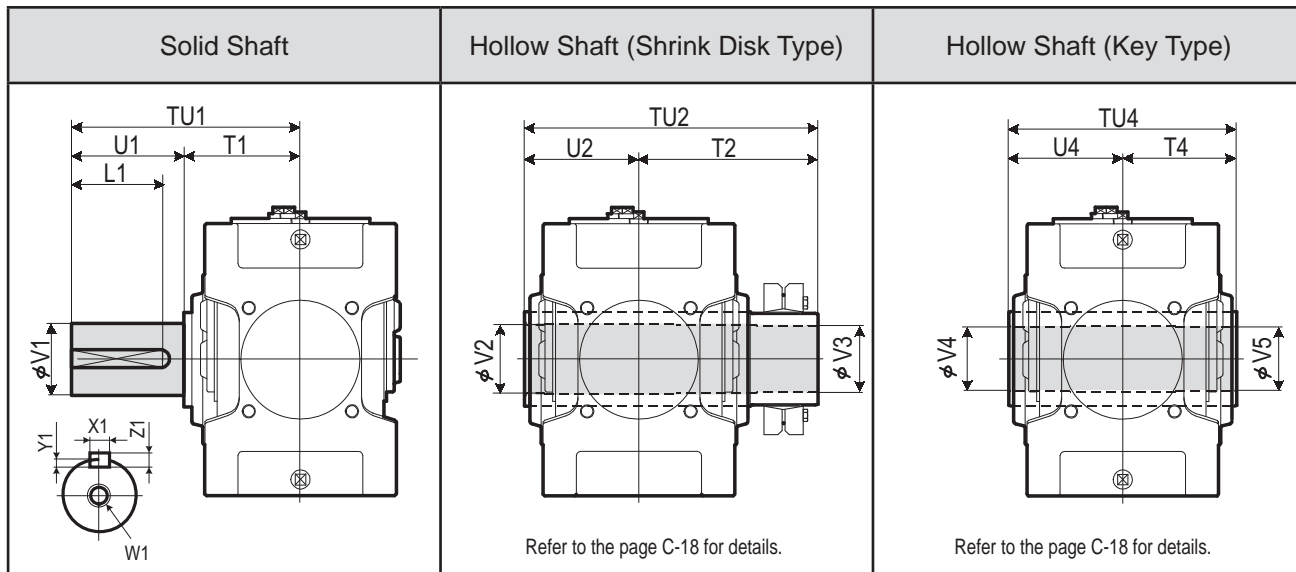
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement RR is equipped with oil gauge. Refer to the page C-28.

4. Refer to the page C-14 for dimensions shown in these drawings.
 5. Refer to the page C-28 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Triple Reduction Vertical Mounting 9060 ▶ 9085

PARAMAX Vertical Split 9060 9085 Right Angle Triple Reduction P V D R 3

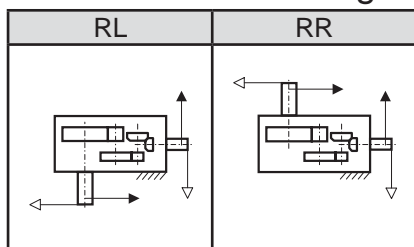
Slow Speed Shaft



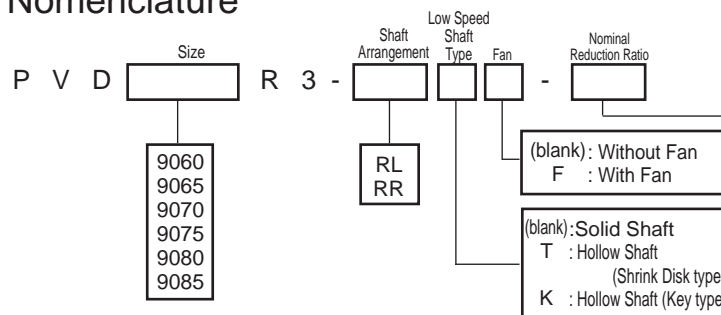
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

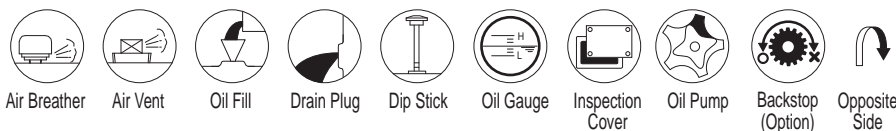
Standard Shaft Arrangement Configuration



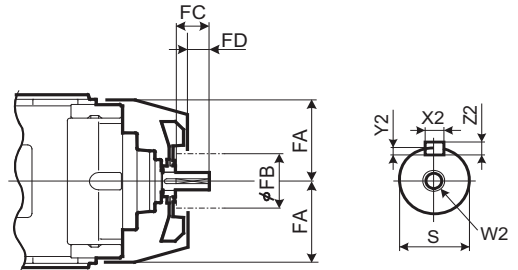
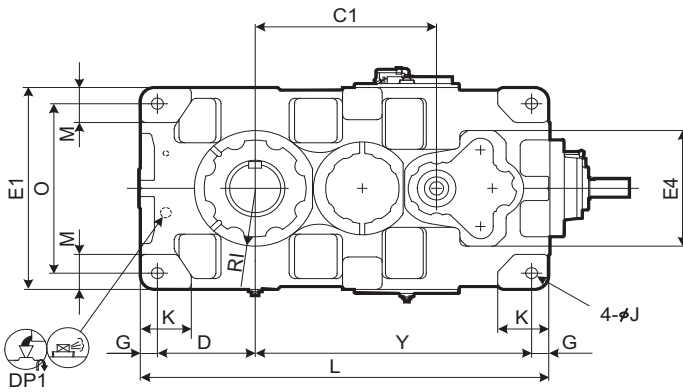
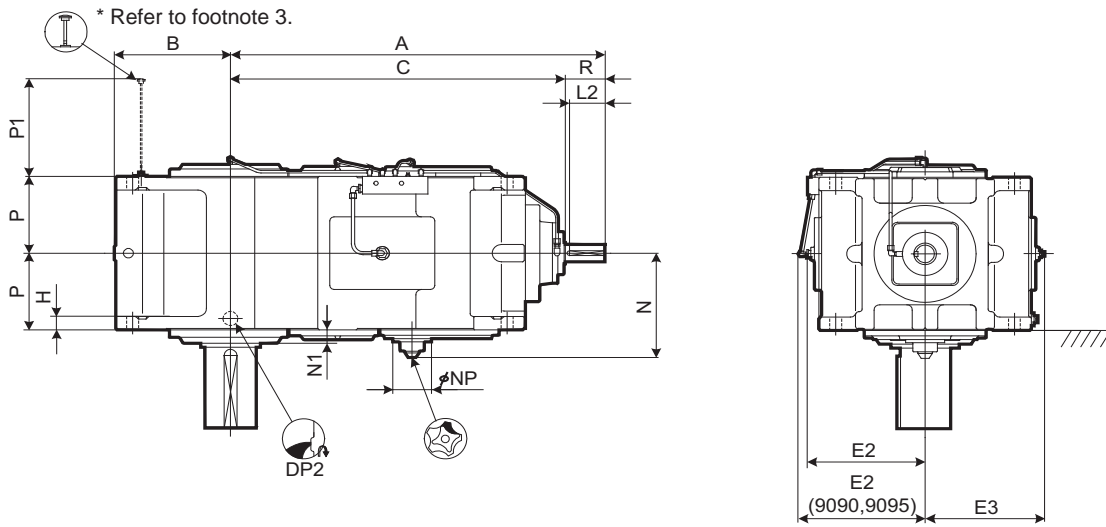
Nomenclature



Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9060	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065				○	○	○	○	○	○	○	○	○	○	○
9070	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9075				○	○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Triple Reduction Vertical Mounting 9090 ▶ 9115



With Fan

High Speed Shaft

Refer to the page C-21 for details.

Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	C1	D	E1	E2	E3	E4	G	H	RI	J	K	L	M	N	N1	NP	O	P	P1	Y
9090	1320	410	1180	640	345	750	449	421	430	60	50	215	42	180	1440	130	381	50	137	630	285	363	975
9095	1350	440	1210	670	375	800	474	446	430	60	50	235	42	200	1500	140	381	50	137	680	285	363	1005
9100	1474	450	1334		375	850	471	471	500	70	55	235	48	200	1610	150		60	710	325	411	1095	
9105	1508	485	1368		410	900	496	496	500	70	55	260	48	220	1680	160		60	760	325	411	1130	
9110	1684	500	1514		420	950	521	521	500	75	60	265	56	220	1810	170		55	800	355	446	1240	
9115	1733	550	1563		470	1000	546	546	500	75	60	280	56	250	1910	180		55	850	355	446	1290	

Size	High Speed Shaft							Fan				DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				FA	FB	FC	FD				
				X2	Y2	Z2	L2								
9090	140	65m6	M20/42	18	7	11	125	340	200	105	65	1"	1 1/2"	2170	120
9095	140	65m6	M20/42	18	7	11	125	340	200	105	65	1"	1 1/2"	2430	145
9100	140	75m6	M20/42	20	7.5	12	125	380	225	105	60	1"	1 1/2"	2970	170
9105	140	75m6	M20/42	20	7.5	12	125	380	225	105	60	1"	1 1/2"	3450	210
9110	170	85m6	M20/42	22	9	14	150	410	225	135	90	1"	1 1/2"	4150	230
9115	170	85m6	M20/42	22	9	14	150	410	225	135	90	1"	1 1/2"	4670	290

※ 9100 - 9115 are equipped with motor driven pumps. For details consult us.

Unit: mm

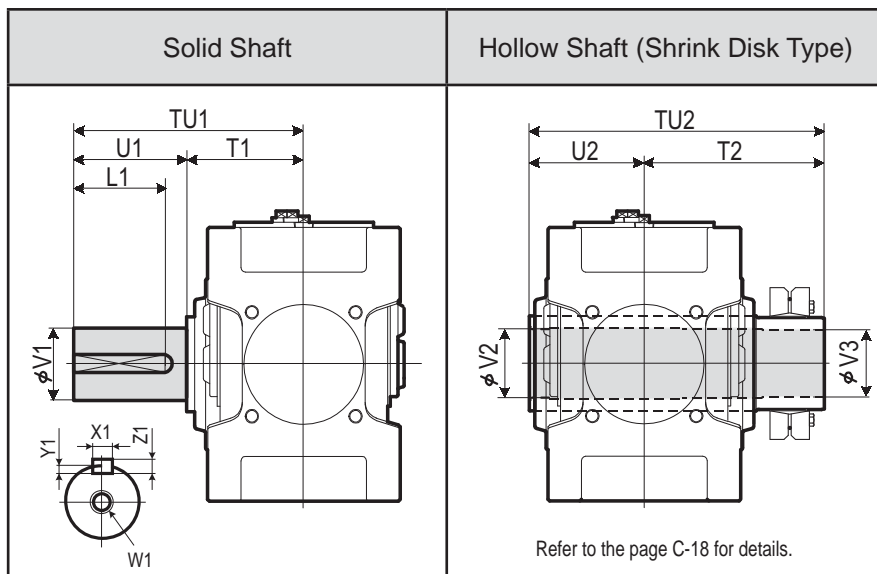
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement RR is equipped with oil gauge. Refer to the page C-31.

4. Refer to the page C-16 for dimensions shown in these drawings.
 5. Refer to the page C-31 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Triple Reduction Vertical Mounting 9090 ▶ 9115

PARAMAX Vertical Split 9090 9115 Right Angle Triple Reduction

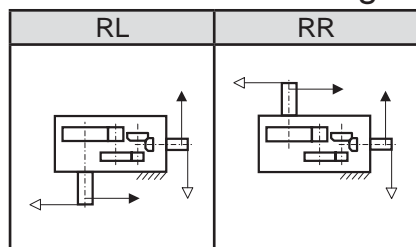
Slow Speed Shaft



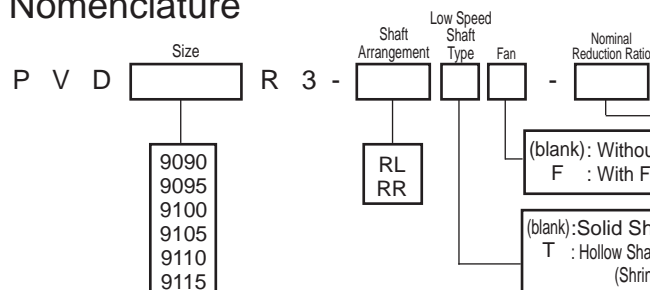
Size	Solid Shaft					Hollow Shaft (Shrink Disk Type)								
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250

Unit: mm

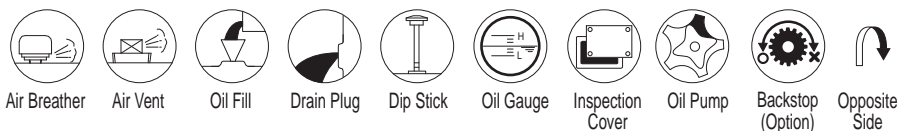
Standard Shaft Arrangement Configuration



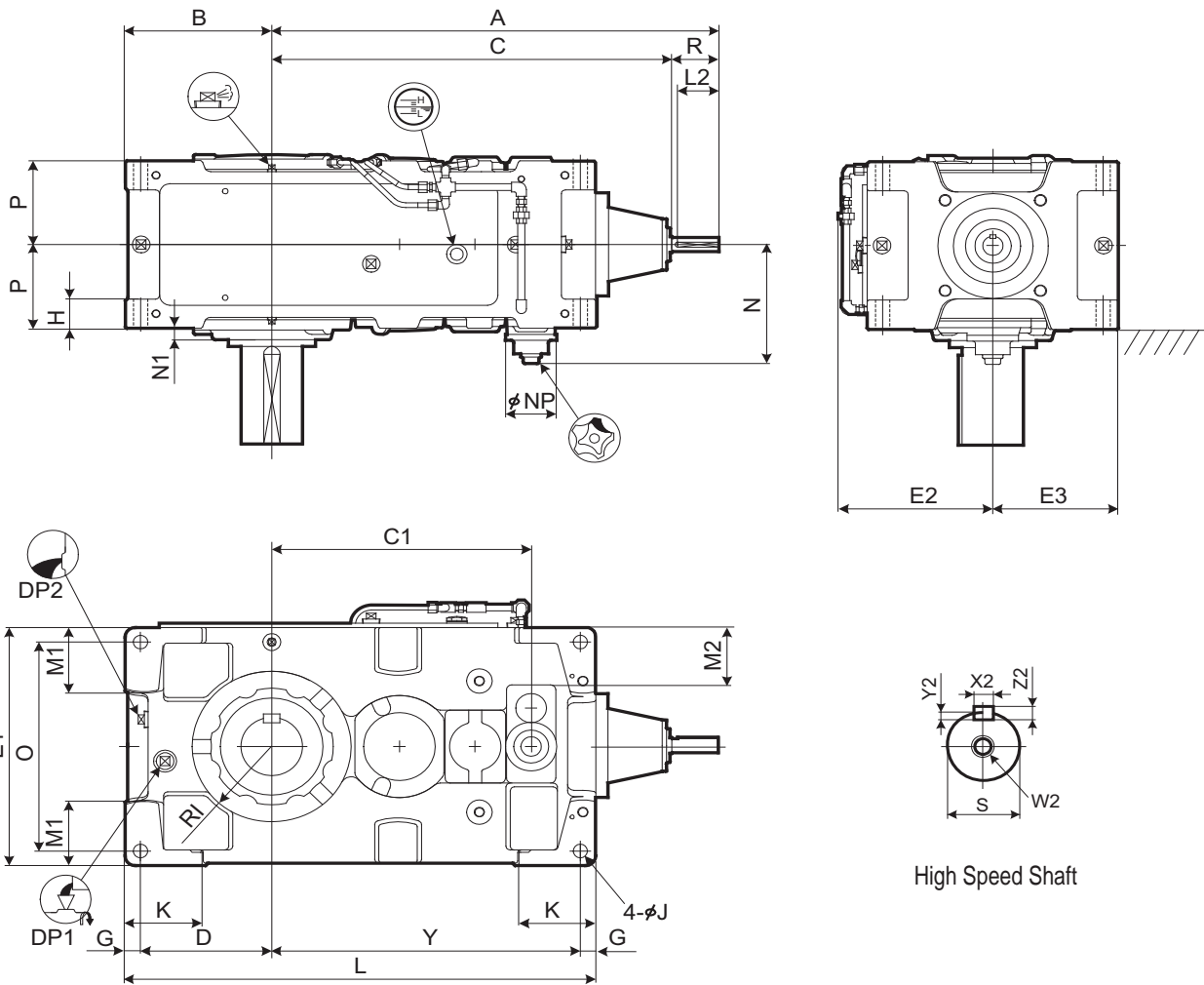
Nomenclature



Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9090	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9095	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9100	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9105	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9110	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9115	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



DIMENSIONS Right Angle Shaft Quadruple Reduction Vertical Mounting 9040 ▶ 9055



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	C1	D	E1	E2	E3	G	H	RI	J	K	L	M1	M2	N	N1	NP	O	P	Y
9040	790	235	710	398	205	400	260	200	30	60	120	28	150	759	100	70	228.5	15	100	340	157.5	494
9045	829	256	749	437	226	440	277	220	30	60	140	28	150	819	120	90	228.5	17.5	100	380	157.5	533
9050	859	255	779	467	225	420	270	210	30	60	140	28	150	848	110	83	248.5	23	100	360	172.5	563
9055	898	286	818	506	256	490	305	245	30	60	155	28	150	918	135	118	248.5	23	100	430	172.5	602

Size	High Speed Shaft							DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key							
				X2	Y2	Z2	L2				
9040	80	28k6	M10/22	8	4	7	70	1"	1"	325	18
9045	80	28k6	M10/22	8	4	7	70	1"	1"	395	22
9050	80	28k6	M10/22	8	4	7	70	1"	1"	460	24
9055	80	28k6	M10/22	8	4	7	70	1"	1"	520	34

Unit: mm

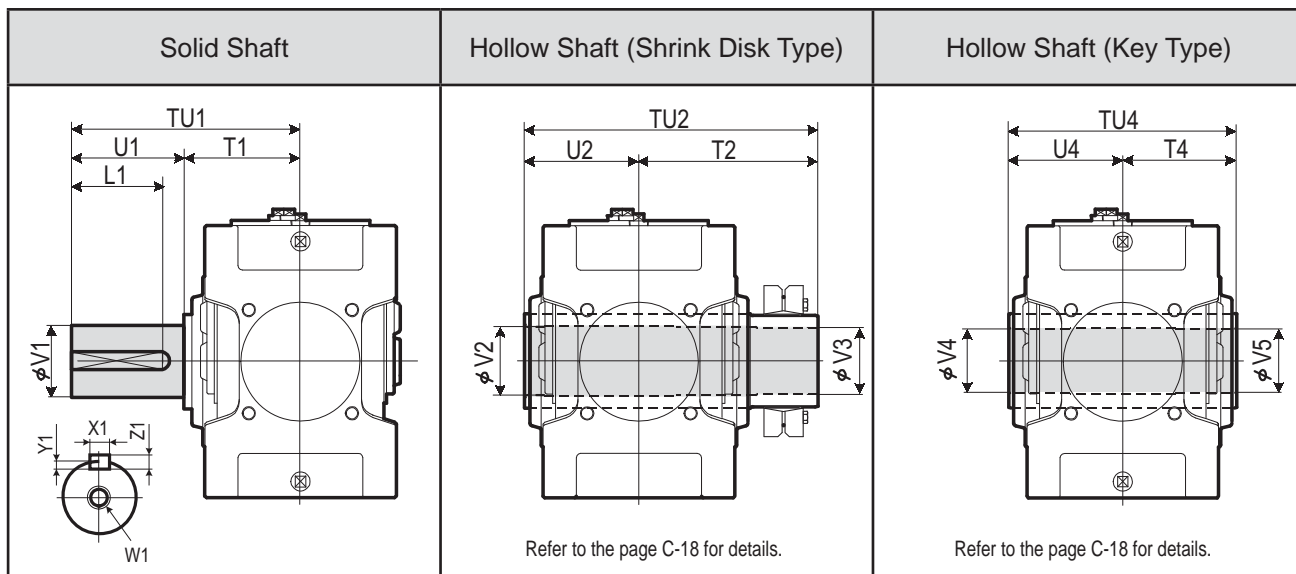
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-13 for dimensions shown in these drawings.

4. Refer to the page C-25 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Quadruple Reduction Vertical Mounting 9040 ▶ 9055

PARAMAX Vertical Monoblock 9040 9055 Right Angle Quadruple Reduction P V A R 4

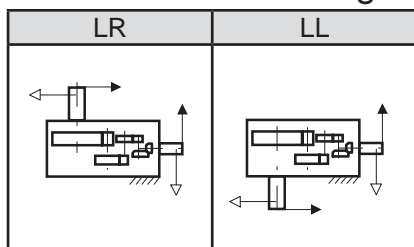
Slow Speed Shaft



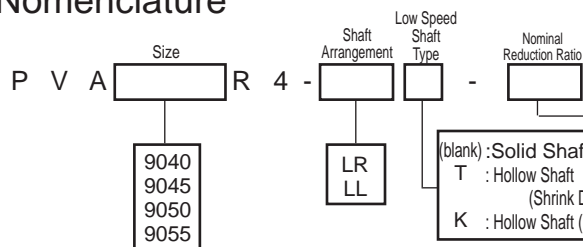
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

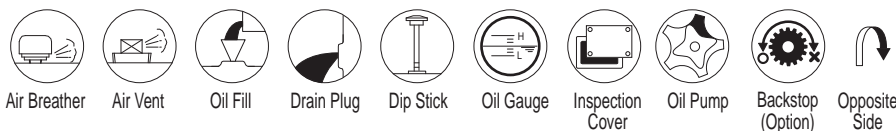
Standard Shaft Arrangement Configuration



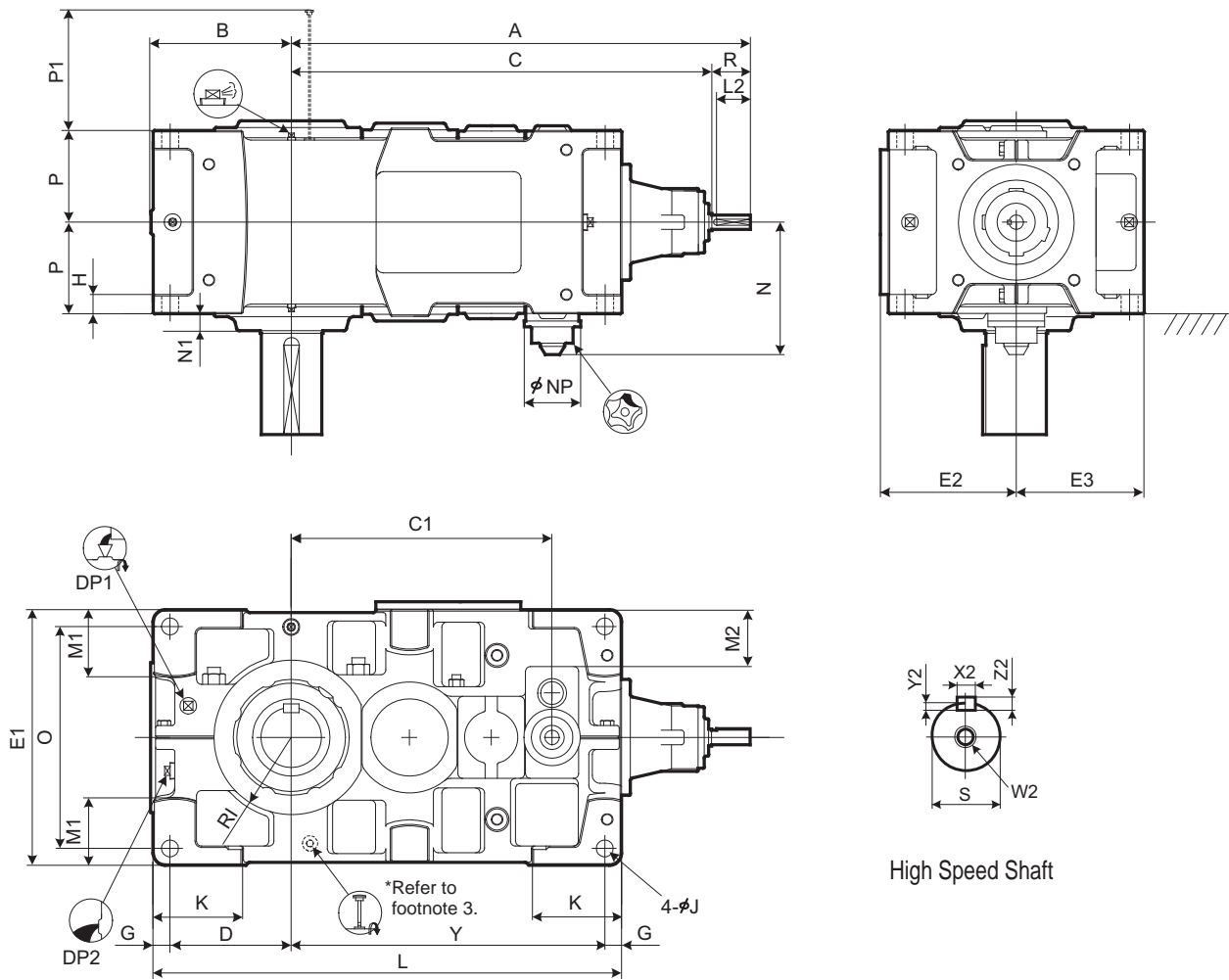
Nomenclature



Size	Nominal Reduction Ratio															
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450
9040	○	○	○	○	○	○										
9045				○	○	○	○	○								
9050	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
9055				○	○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Quadruple Reduction Vertical Mounting 9060 ▶ 9085



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	C1	D	E1	E2	E3	G	H	RI	J	K	L	M1	M2	N	N1	NP	O	P	P1	Y
9060	950	299	870	540	251	530	282	265	35	35	160	35	180	970	140	118	277.5	35	117	460	190	203	649
9065	996	338	916	586	290	600	317	300	35	35	175	35	180	1055	175	153	277.5	38	117	530	190	203	695
9070	1080	336	1000	630	283	600	317	300	40	40	175	42	215	1115	155	128	302.5	38	117	520	215	233	752
9075	1133	383	1053	683	330	670	352	335	40	52	190	42	220	1215	195	163	302.5	40	117	590	215	233	805
9080	1250	378	1140	725	325	670	352	335	40	52	190	42	220	1275	170	140	322.5	45	117	590	230	263	870
9085	1306	422	1196	781	369	750	392	375	40	52	215	42	220	1375	210	180	322.5	40	117	670	230	263	926

Size	High Speed Shaft							DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key							
				X2	Y2	Z2	L2				
9060	80	30k6	M10/22	8	4	7	70	1"	1"	670	36
9065	80	30k6	M10/22	8	4	7	70	1"	1"	825	45
9070	80	35k6	M12/28	10	5	8	70	1"	1"	960	54
9075	80	35k6	M12/28	10	5	8	70	1"	1"	1180	68
9080	110	45k6	M16/36	14	5.5	9	95	1"	1"	1390	69
9085	110	45k6	M16/36	14	5.5	9	95	1"	1"	1650	94

Unit: mm

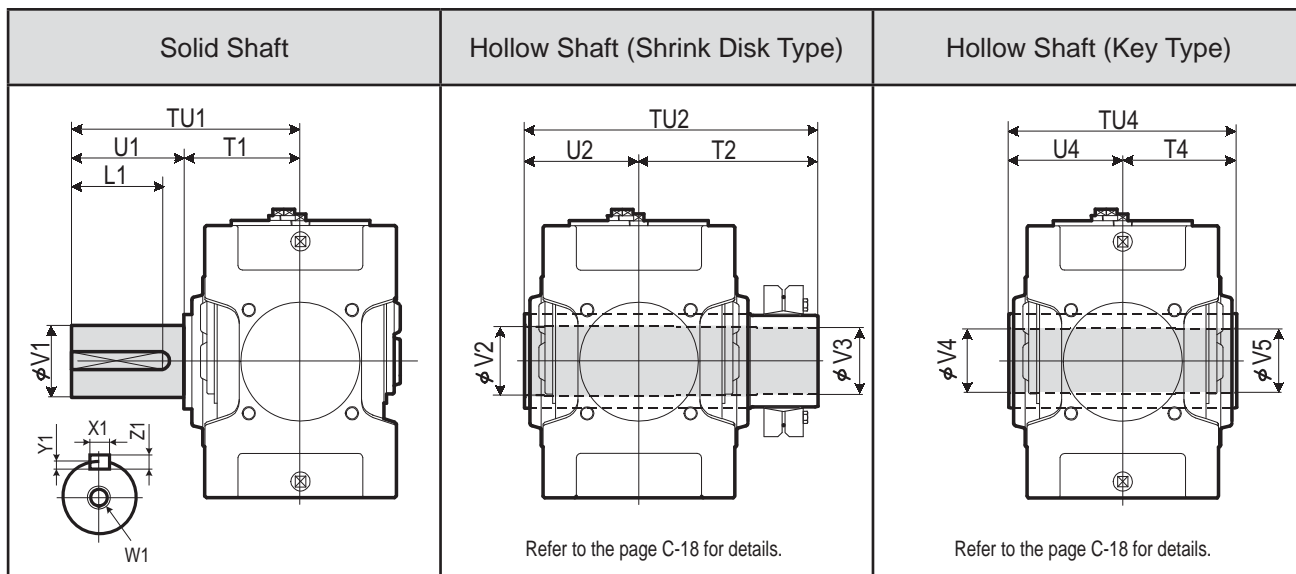
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement LR is equipped with oil gauge. Refer to the page C-28.

4. Refer to the page C-15 for dimensions shown in these drawings.
 5. Refer to the page C-28 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Quadruple Reduction Vertical Mounting 9060 ▶ 9085

PARAMAX Vertical Split 9060 9085 Right Angle Quadruple Reduction P V D R 4

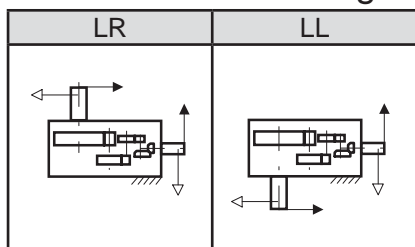
Slow Speed Shaft



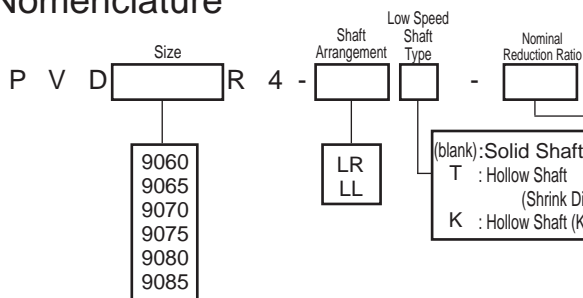
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

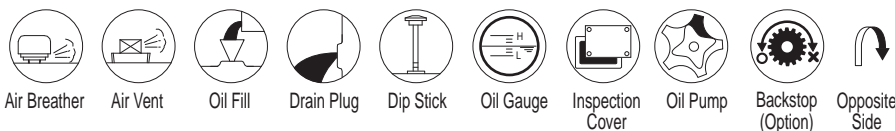
Standard Shaft Arrangement Configuration



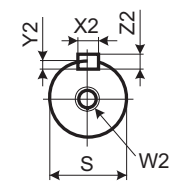
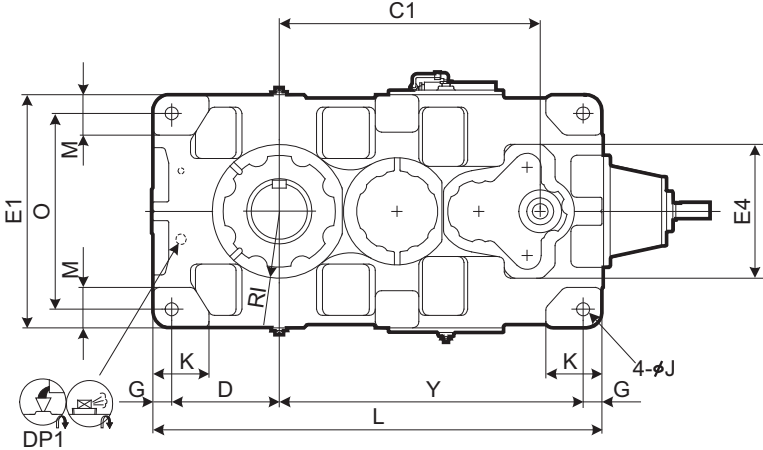
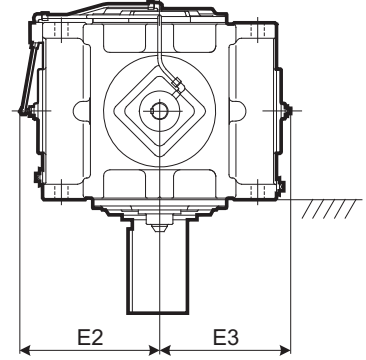
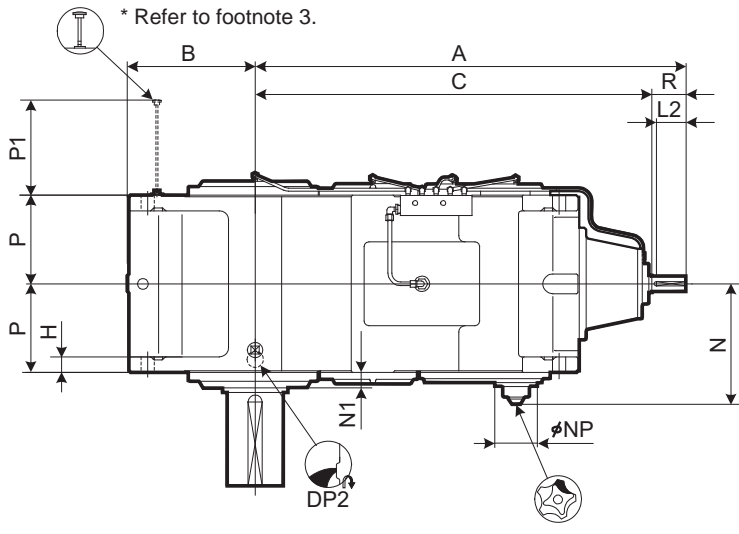
Nomenclature



Size	Nominal Reduction Ratio															
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450
9060		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065				○	○	○	○	○	○	○	○	○	○	○	○	○
9070		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9075				○	○	○	○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Quadruple Reduction Vertical Mounting 9090 ▶ 9115



High Speed Shaft

Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	C1	D	E1	E2	E3	E4	G	H	R1	J	K	L	M	N	N1	NP	O	P	P1	Y
9090	1382	410	1272	837	345	750	449	421	430	60	50	215	42	180	1440	130	381	50	137	630	285	354	975
9095	1412	440	1302	867	375	800	474	446	430	60	50	235	42	200	1500	140	381	50	137	680	285	354	1005
9100	1570	450	1430	950	375	850	499	471	500	70	55	235	48	200	1610	150	421	60	137	710	325	399	1095
9105	1604	485	1464	984	410	900	524	496	500	70	55	260	48	220	1680	160	421	60	137	760	325	399	1130
9110	1670	500	1530	1050	420	950	559	521	500	75	60	265	56	220	1810	170	451	55	137	800	355	429	1240
9115	1719	550	1579	1099	470	1000	584	546	500	75	60	280	56	250	1910	180	451	55	137	850	355	429	1290

Size	High Speed Shaft							DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key			L2				
				X2	Y2	Z2					
9090	110	50k6	M16/36	14	5.5	9	95	1"	1 1/2"	2170	120
9095	110	50k6	M16/36	14	5.5	9	95	1"	1 1/2"	2430	155
9100	140	60m6	M20/42	18	7	11	125	1"	1 1/2"	2970	180
9105	140	60m6	M20/42	18	7	11	125	1"	1 1/2"	3450	220
9110	140	60m6	M20/42	18	7	11	125	1"	1 1/2"	4100	250
9115	140	60m6	M20/42	18	7	11	125	1"	1 1/2"	4620	315

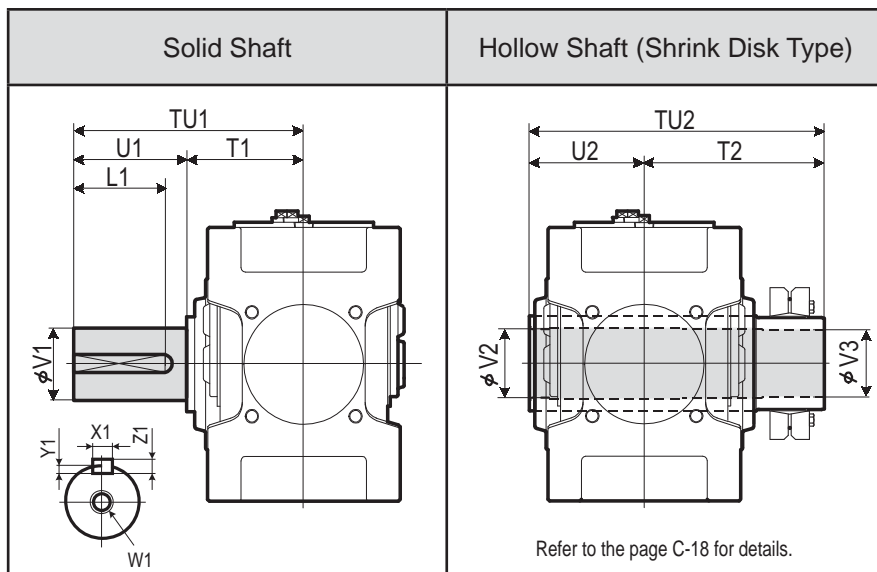
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement LR is equipped with oil gauge. Refer to the page C-31.
 4. Refer to the page C-16 for dimensions shown in these drawings.
 5. Refer to the page C-31 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Quadruple Reduction Vertical Mounting 9090 ▶ 9115

PARAMAX Vertical Split 9090 9115 Right Angle Quadruple Reduction

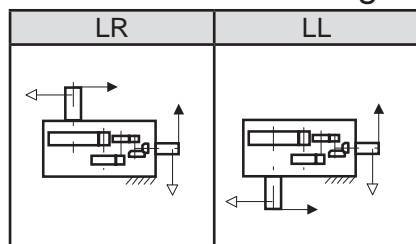
Slow Speed Shaft



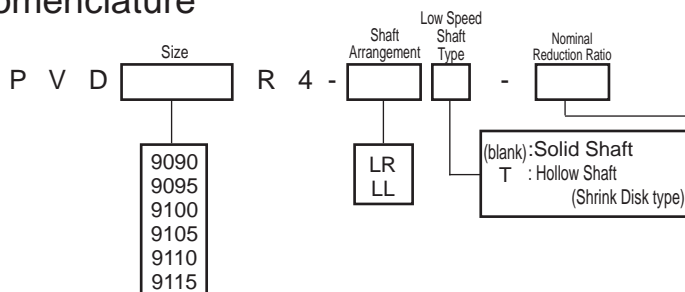
Size	Solid Shaft					Hollow Shaft (Shrink Disk Type)								
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250

Unit: mm

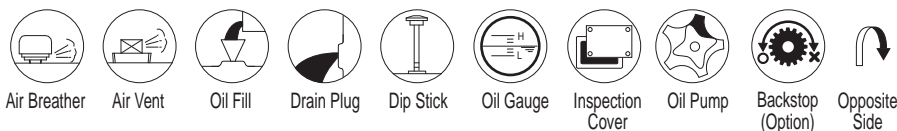
Standard Shaft Arrangement Configuration



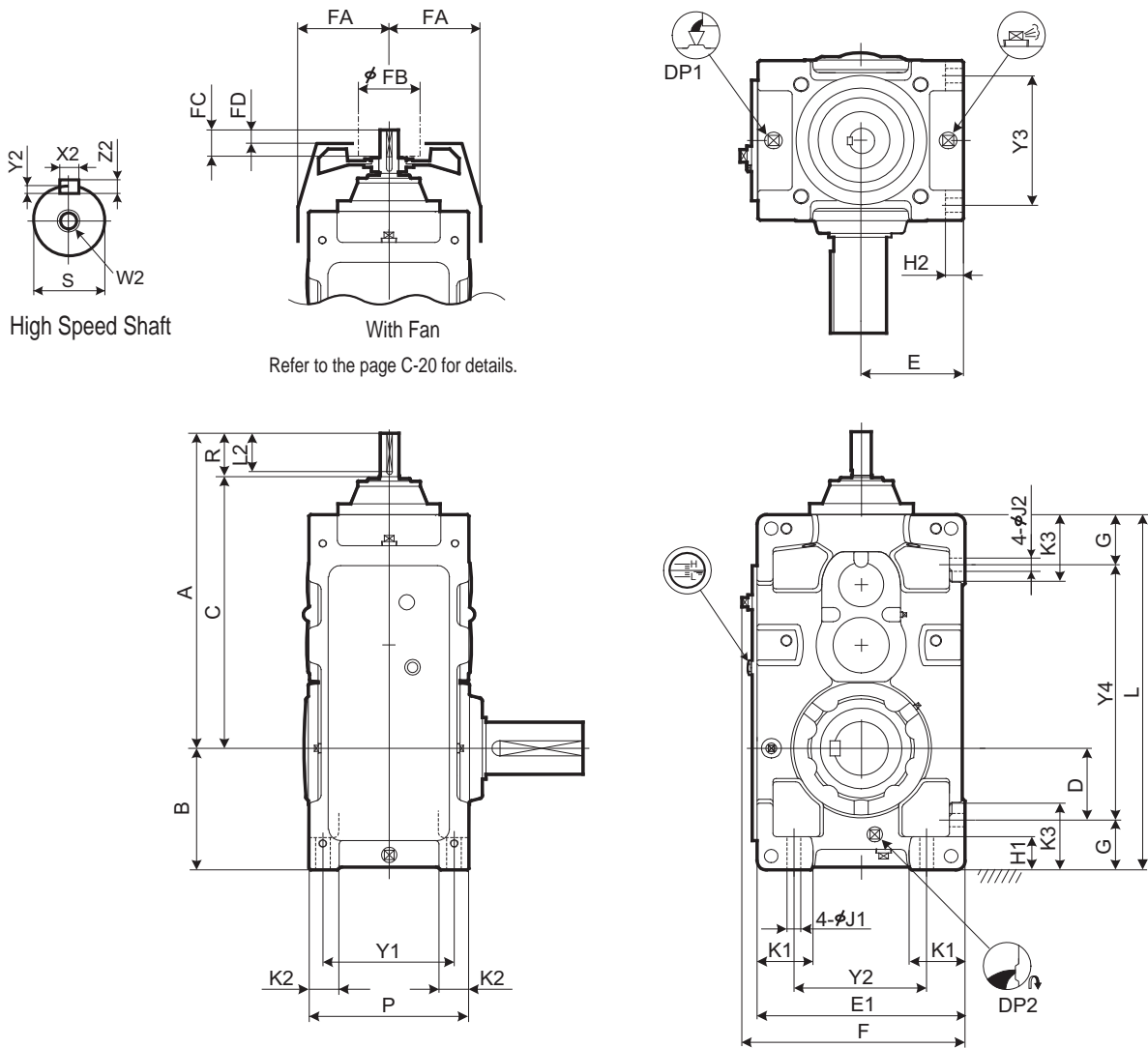
Nomenclature



Size	Nominal Reduction Ratio													
	90	100	112	125	140	160	180	200	224	250	280	315	355	400
9090	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9095	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9100	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9105	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9110	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9115	○	○	○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Double Reduction Upright Mounting 9015 ▶ 9055



Refer to the page C-20 for details.

Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	F	G	H1	H2	J1	J2	K1	K2	K3	L	P	Y1	Y2	Y3	Y4
9015	507	160	427	90	135	270	298	70	50	22	15	15	70	35	95	440	205	170	180	170	300
9025	545	175	465	95	155	310	338	80	55	25	19	19	75	40	110	505	235	195	210	195	345
9030	645	200	535	110	160	320	348	90	60	28	24	24	85	50	120	590	265	215	200	215	410
9035	676	219	566	129	185	370	398	90	60	28	24	24	100	50	120	640	265	215	250	215	460
9040	705	235	595	120	200	400	430	115	75	30	28	28	100	60	150	685	315	255	260	255	455
9045	744	256	634	141	220	440	470	115	75	30	28	28	120	60	150	745	315	255	300	255	515
9050	755	255	645	138.5	210	420	450	116.5	75	32	28	28	110	60	150	775	345	285	280	285	542
9055	794	286	684	171	245	490	520	115	75	32	28	28	135	60	150	845	345	285	350	285	615

Size	High Speed Shaft							Fan				DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				FA	FB	FC	FD				
				X2	Y2	Z2	L2								
9015	80	28k6	M12/28	8	4	7	70	125	125	50	30	3/4"	3/4"	95	7
9025	80	35k6	M12/28	10	5	8	70	135	140	50	30	3/4"	3/4"	140	11
9030	110	40k6	M16/36	14	5.5	9	95	150	140	80	52	3/4"	3/4"	205	14
9035	110	40k6	M16/36	14	5.5	9	95	150	140	80	52	3/4"	3/4"	225	19
9040	110	45k6	M16/36	14	5.5	9	95	170	160	80	52	1"	1"	305	24
9045	110	45k6	M16/36	14	5.5	9	95	170	160	80	52	1"	1"	365	30
9050	110	50k6	M16/36	14	5.5	9	95	190	160	80	52	1"	1"	435	31
9055	110	50k6	M16/36	14	5.5	9	95	190	160	80	52	1"	1"	495	45

Unit: mm

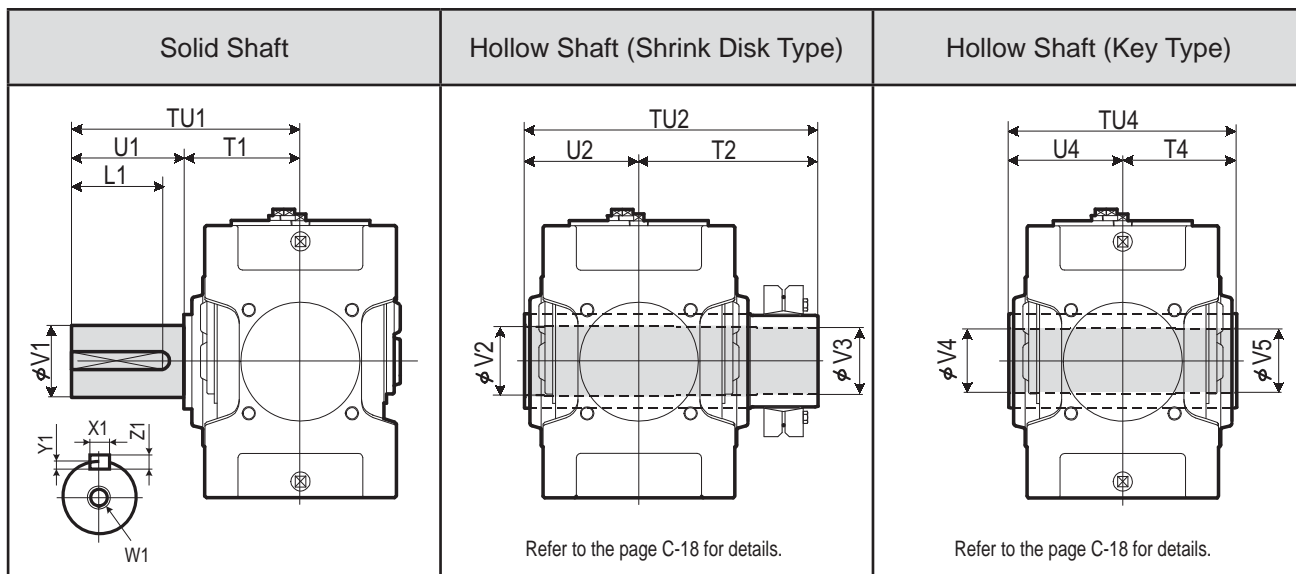
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Refer to the page C-12 for dimensions shown in these drawings.

4. Refer to the page C-26 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Double Reduction Upright Mounting 9015 ▶ 9055

PARAMAX Upright Monoblock 9015 9025 9030 9035 9040 9045 9050 9055
 Right Angle Reduction Double
 P W A R 2

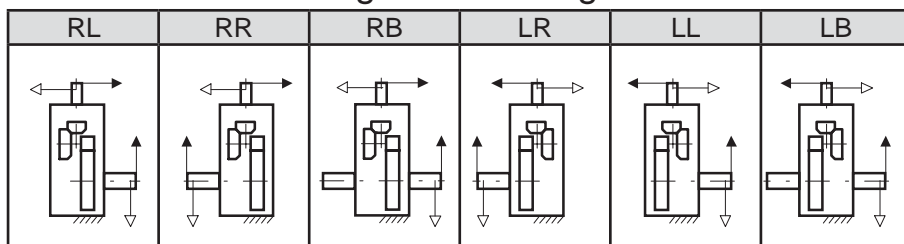
Slow Speed Shaft



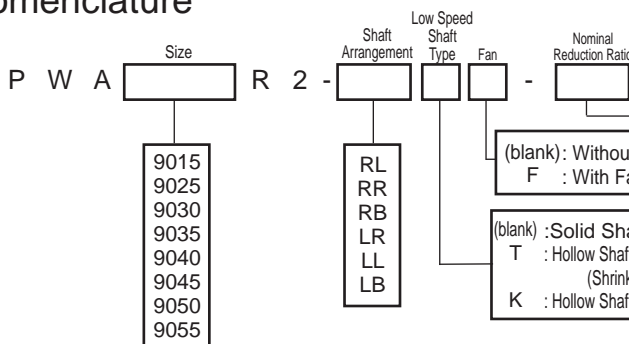
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9015	245	135	110	58m6	M20/42	18	7	11	95	328	193	135	63	60	270	135	135	55	55	
9025	285	145	140	70m6	M20/42	20	7.5	12	125	358	213	145	73	70	300	150	150	65	65	
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

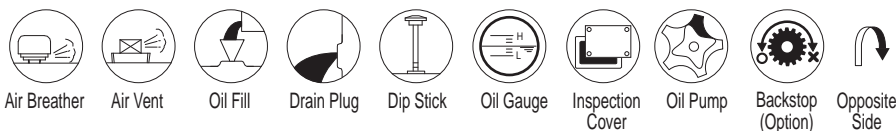
Standard Shaft Arrangement Configuration



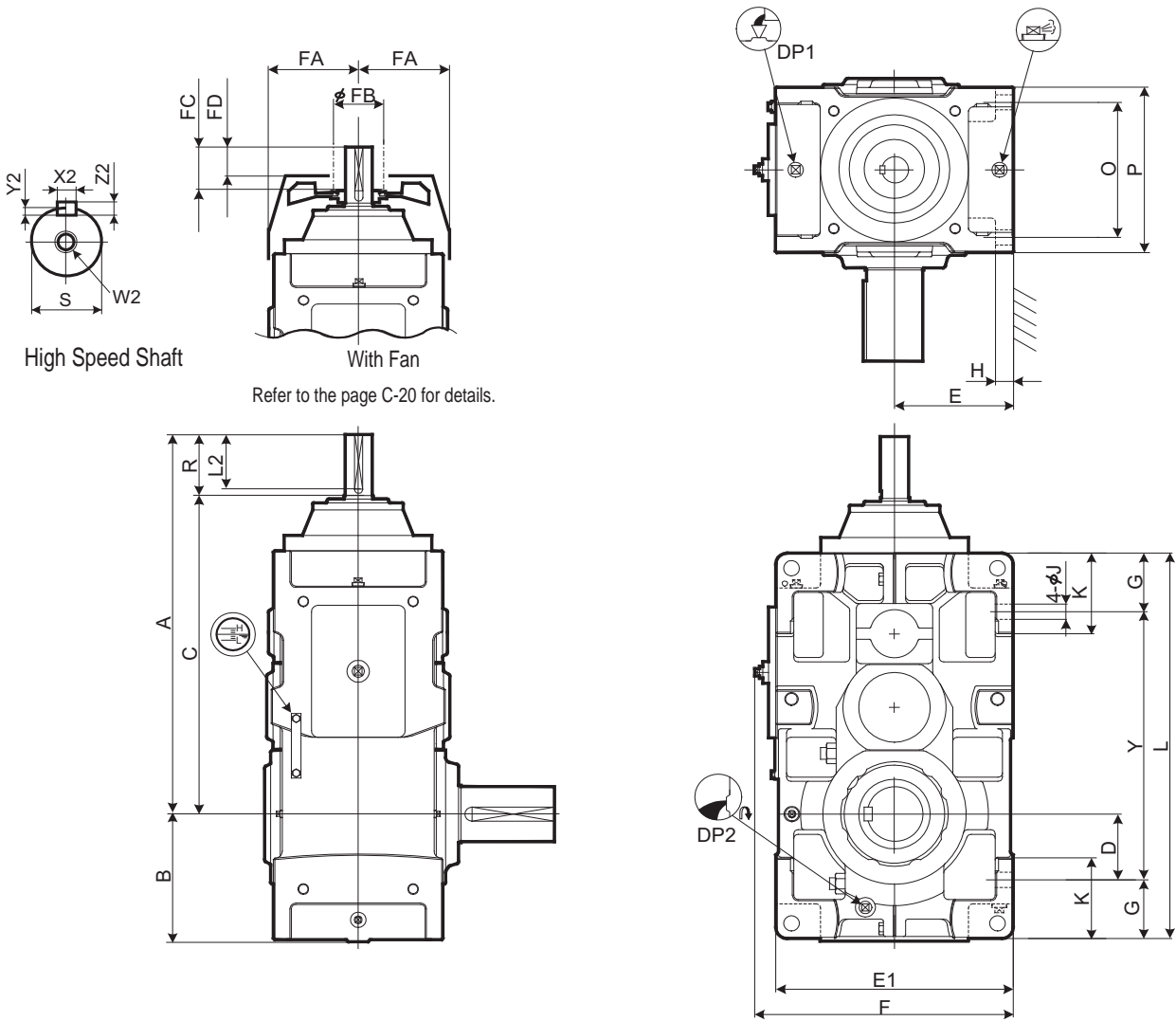
Nomenclature



Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9015	○	○	○	○	○	○	○	○	○	○		
9025	○	○	○	○	○	○	○	○	○	○		
9030	○	○	○	○	○	○	○	○	○	○		
9035			○	○	○	○	○	○	○	○	○	○
9040	○	○	○	○	○	○	○	○	○	○		
9045			○	○	○	○	○	○	○	○	○	○
9050	○	○										
9055												



DIMENSIONS Right Angle Shaft Double Reduction Upright Mounting 9060 ▶ 9085



Refer to the page C-20 for details.

Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	Y
9060	865	299	725	151	265	530	577	135	35	35	180	885	310	380	615
9065	911	338	771	190	300	600	647	135	35	35	180	970	310	380	700
9070	965	336	825	163	300	600	647	160	40	42	215	1020	350	430	700
9075	1018	383	878	210	335	670	717	160	52	42	220	1120	350	430	800
9080	1080	378	940	205	335	670	717	160	52	42	220	1155	380	460	835
9085	1136	422	996	249	375	750	797	160	52	42	220	1255	380	460	935

Size	High Speed Shaft				Fan				DP1	DP2	Wt. kg	Oil Qty. L			
	R	S	W2/Depth	Key				FA					FB	FC	FD
				X2	Y2	Z2	L2								
9060	140	60m6	M20/42	18	7	11	125	220	160	105	65	1"	1"	600	44
9065	140	60m6	M20/42	18	7	11	125	220	160	105	65	1"	1"	725	56
9070	140	65m6	M20/42	18	7	11	125	245	200	105	65	1"	1"	920	65
9075	140	65m6	M20/42	18	7	11	125	245	200	105	65	1"	1"	1170	87
9080	140	75m6	M20/42	20	7.5	12	125	270	225	105	60	1"	1"	1300	90
9085	140	75m6	M20/42	20	7.5	12	125	270	225	105	60	1"	1"	1560	126

Unit: mm

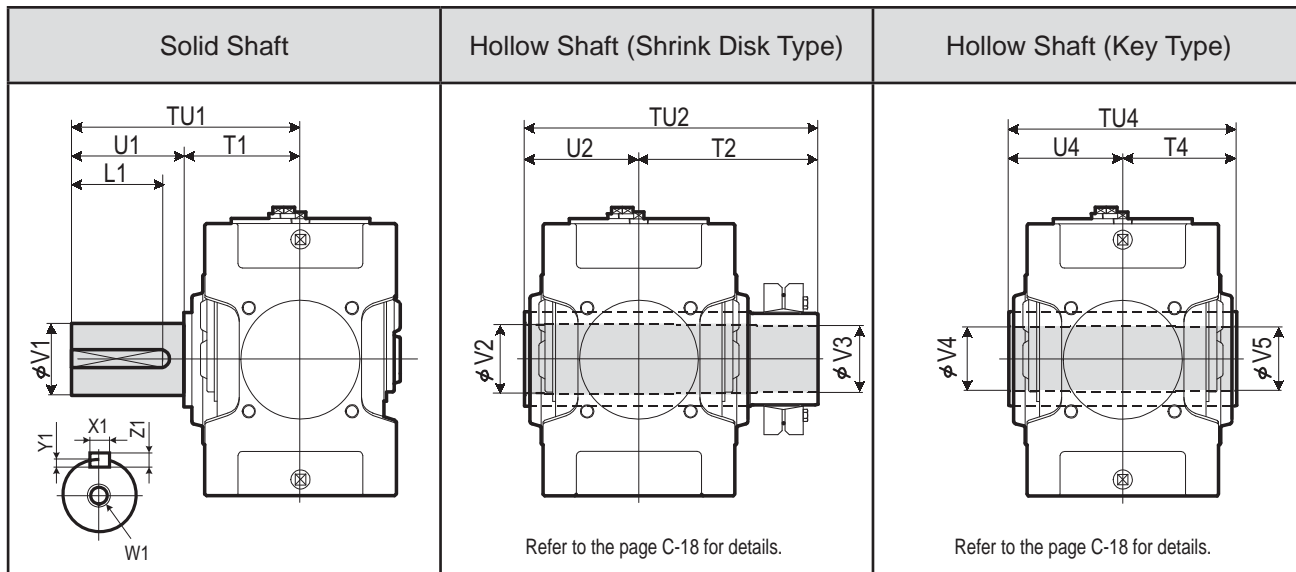
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-14 for dimensions shown in these drawings.

4. Refer to the page C-29 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Double Reduction Upright Mounting 9060 ▶ 9085

PARAMAX Upright Split 9060 9085 Right Angle Double Reduction Mount Wall

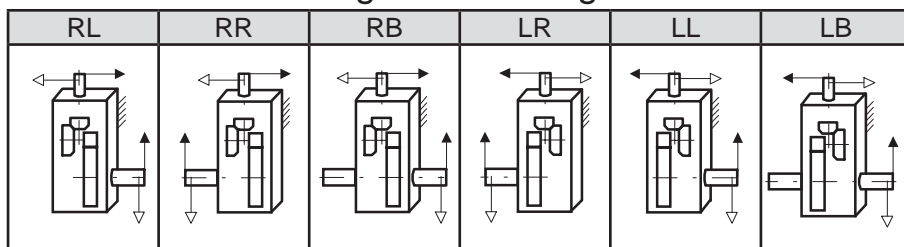
Slow Speed Shaft



Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
						X1	Y1	Z1	L1											
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

Standard Shaft Arrangement Configuration



Nomenclature

P W D Size R 2 W - Shaft Arrangement Low Speed Shaft Type Fan - Nominal Reduction Ratio

Size

- 9060
- 9065
- 9070
- 9075
- 9080
- 9085

Shaft Arrangement

- RL
- RR
- RB
- LR
- LL
- LB

Low Speed Shaft Type

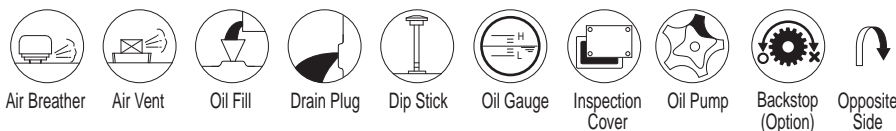
- (blank) : Without Fan
- F : With Fan

Shaft Type

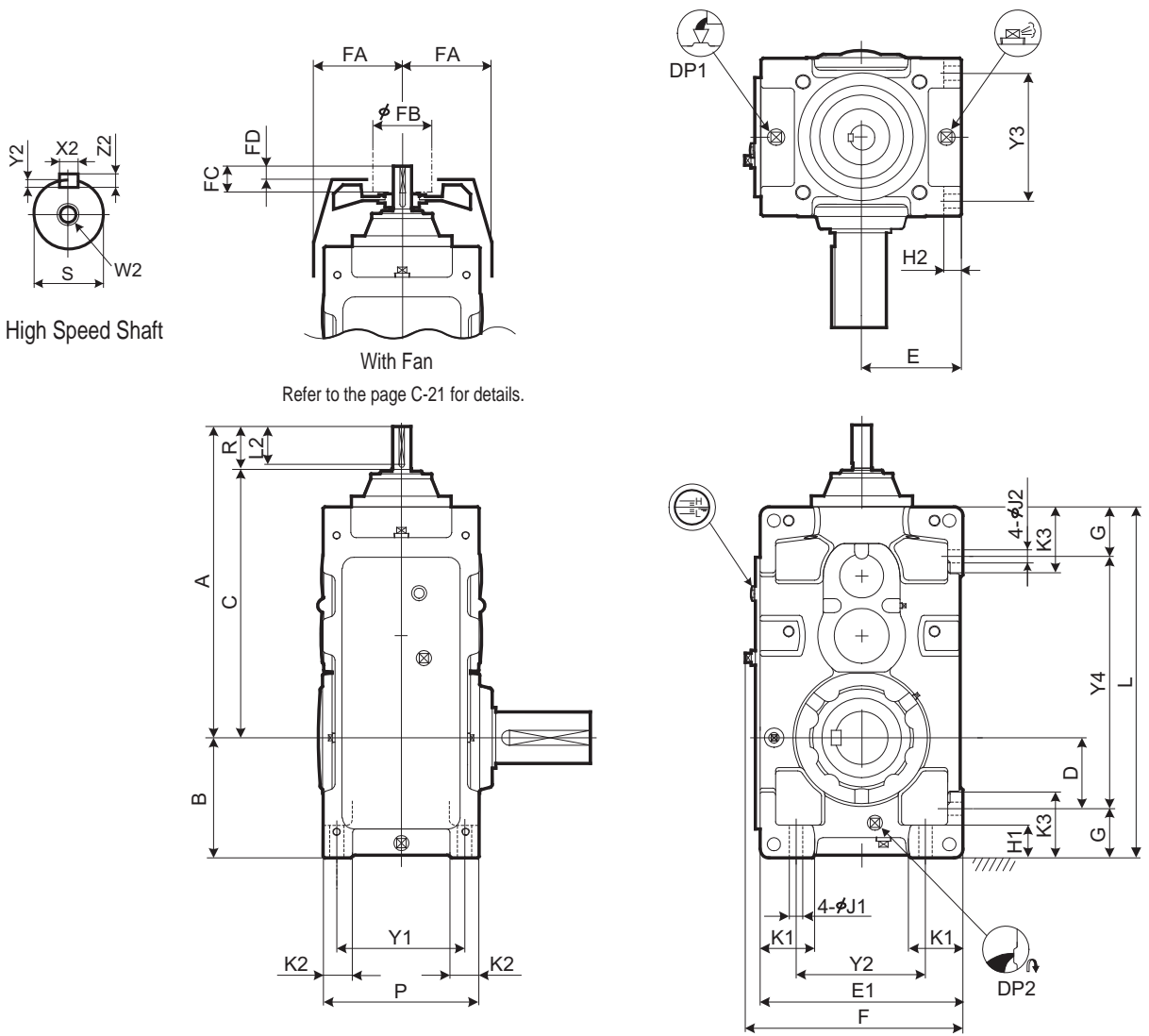
- (blank) : Solid Shaft
- T : Hollow Shaft (Shrink Disk type)
- K : Hollow Shaft (Key type)

Nominal Reduction Ratio

Size	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9060	○	○	○	○	○	○	○	○	○	○		
9065				○	○	○	○	○	○	○	○	○
9070		○	○	○	○	○	○	○	○	○	○	○
9075				○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○
9085				○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Triple Reduction Upright Mounting 9030 ▶ 9055



Refer to the page C-21 for details.

Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	F	G	H1	H2	J1	J2	K1	K2	K3	L	P	Y1	Y2	Y3	Y4
9030	656	200	576	110	160	320	348	90	60	28	24	24	85	50	120	590	265	215	200	215	410
9035	687	219	607	129	185	370	398	90	60	28	24	24	100	50	120	640	265	215	250	215	460
9040	716	235	636	120	200	400	430	115	75	30	28	28	100	60	150	685	315	255	260	255	455
9045	755	256	675	141	220	440	470	115	75	30	28	28	120	60	150	745	315	255	300	255	515
9050	808	255	728	138.5	210	420	450	116.5	75	32	28	28	110	60	150	775	345	285	280	285	542
9055	847	286	767	171	245	490	520	115	75	32	28	28	135	60	150	845	345	285	350	285	615

Size	High Speed Shaft							Fan				DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key				FA	FB	FC	FD				
			X2	Y2	Z2	L2									
9030	80	28k6	M10/22	8	4	7	70	150	125	50	30	3/4"	3/4"	210	16
9035	80	28k6	M10/22	8	4	7	70	150	125	50	30	3/4"	3/4"	230	21
9040	80	30k6	M10/22	8	4	7	70	170	125	50	30	1"	1"	305	29
9045	80	30k6	M10/22	8	4	7	70	170	125	50	30	1"	1"	365	36
9050	80	35k6	M12/28	10	5	8	70	190	140	50	22	1"	1"	445	35
9055	80	35k6	M12/28	10	5	8	70	190	140	50	22	1"	1"	505	46

Unit: mm

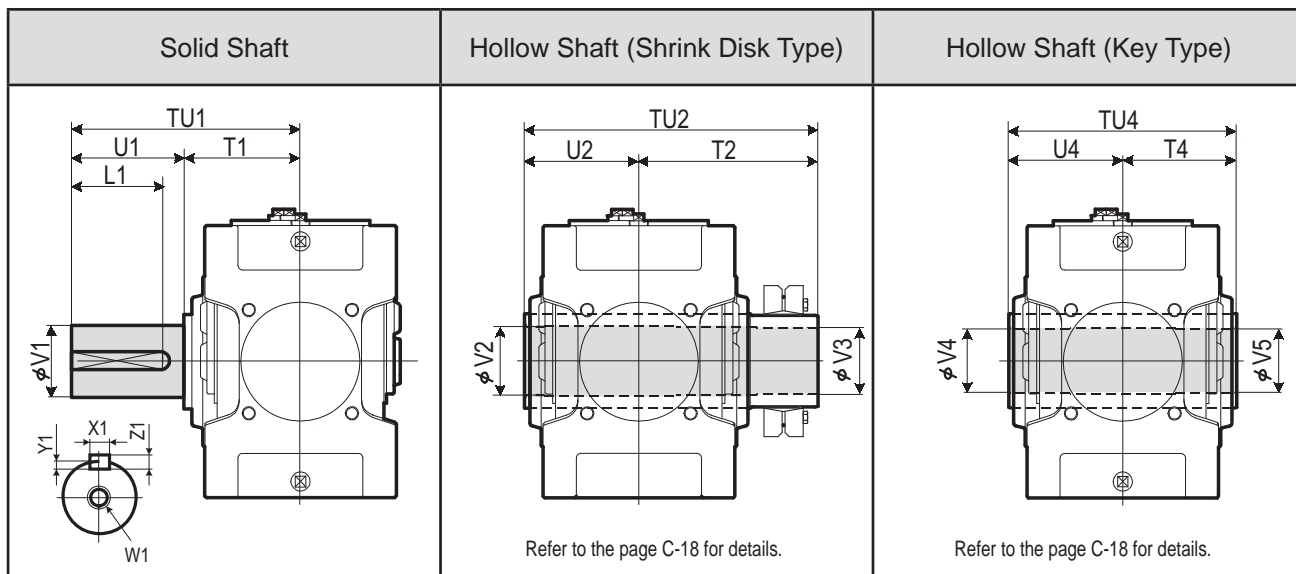
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-12 for dimensions shown in these drawings.

4. Refer to the page C-26 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Triple Reduction Upright Mounting 9030 ▶ 9055

PARAMAX Upright Monoblock 9030 9055 Right Angle Triple Reduction P W A R 3

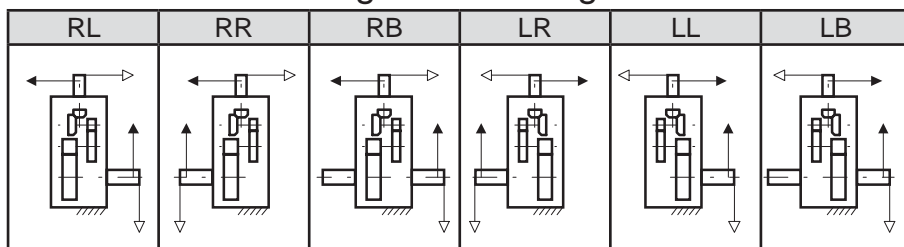
Slow Speed Shaft



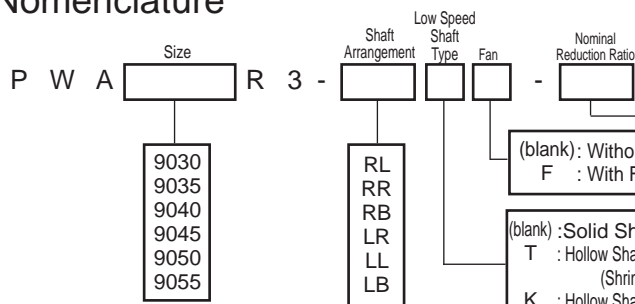
Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
						X1	Y1	Z1	L1											
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

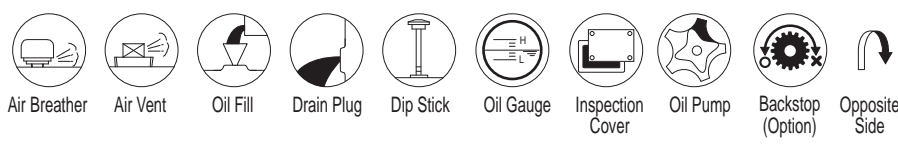
Standard Shaft Arrangement Configuration

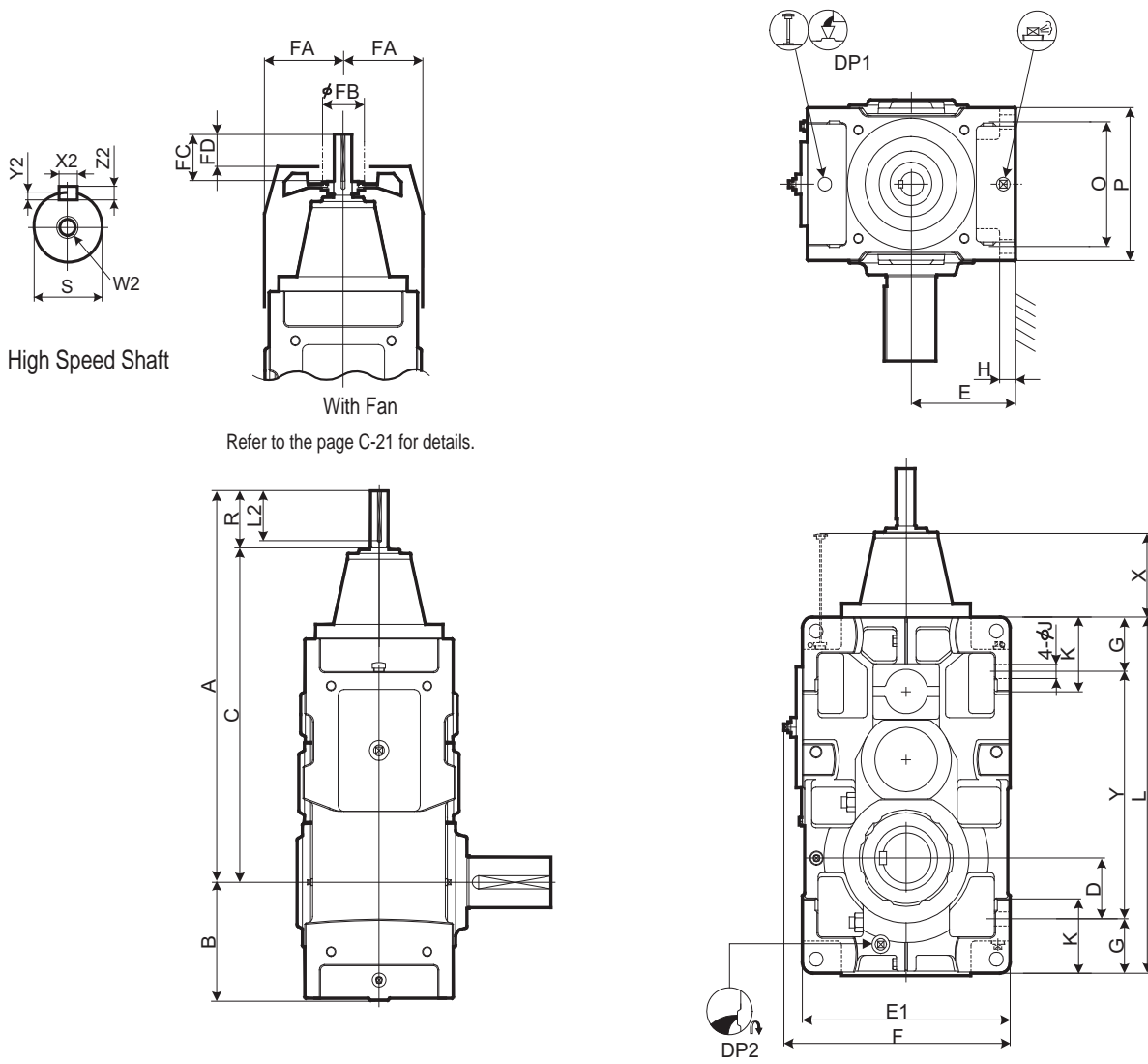


Nomenclature



Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9030	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9035			○	○	○	○	○	○	○	○	○	○	○	○
9040	○		○	○	○	○	○	○	○	○	○	○	○	○
9045				○	○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9055			○	○	○	○	○	○	○	○	○	○	○	○





Refer to the page C-21 for details.

Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	X	Y
9060	939	299	829	151	265	530	577	135	35	35	180	885	310	380	131	615
9065	985	338	875	190	300	600	647	135	35	35	180	970	310	380	131	700
9070	1027	336	917	163	300	600	647	160	40	42	215	1020	350	430	138	700
9075	1080	383	970	210	335	670	717	160	52	42	220	1120	350	430	138	800
9080	1176	378	1036	205	335	670	717	160	52	42	220	1155	380	460	165	835
9085	1232	422	1092	249	375	750	797	160	52	42	220	1255	380	460	165	935

Size	High Speed Shaft				Fan				DP1	DP2	Wt. kg	Oil Qty. L			
	R	S	W2/Depth	Key				FA					FB	FC	FD
				X2	Y2	Z2	L2								
9060	110	45k6	M16/36	14	5.5	9	95	220	160	80	52	1"	1"	660	56
9065	110	45k6	M16/36	14	5.5	9	95	220	160	80	52	1"	1"	785	65
9070	110	50k6	M16/36	14	5.5	9	95	245	160	80	52	1"	1"	940	83
9075	110	50k6	M16/36	14	5.5	9	95	245	160	80	52	1"	1"	1190	100
9080	140	60m6	M20/42	18	7	11	125	270	160	105	65	1"	1"	1350	115
9085	140	60m6	M20/42	18	7	11	125	270	160	105	65	1"	1"	1610	144

Unit: mm

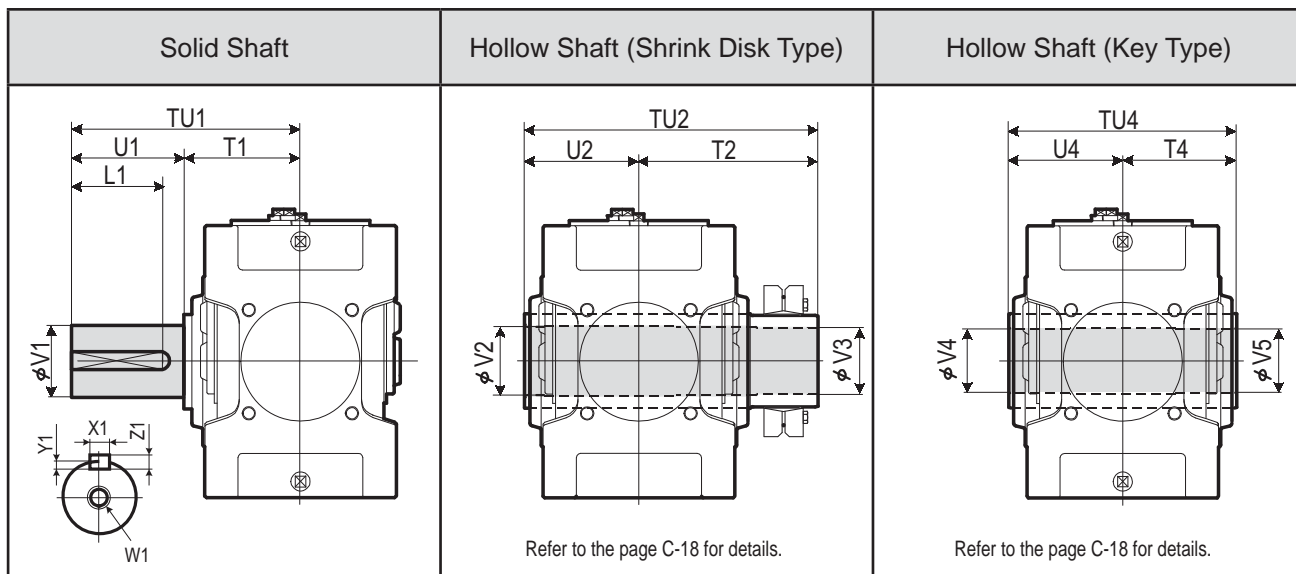
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-14 for dimensions shown in these drawings.

4. Refer to the page C-29 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Triple Reduction Upright Mounting 9060 ▶ 9085

PARAMAX Upright Split 9060 9085 Right Angle Triple Reduction Mount Wall W

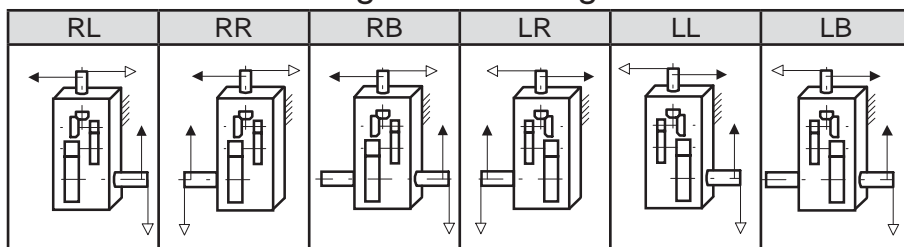
Slow Speed Shaft



Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

Standard Shaft Arrangement Configuration



Nomenclature

P W D Size R 3 W - Shaft Arrangement Low Speed Shaft Type Fan - Nominal Reduction Ratio

Size

- 9060
- 9065
- 9070
- 9075
- 9080
- 9085

Shaft Arrangement

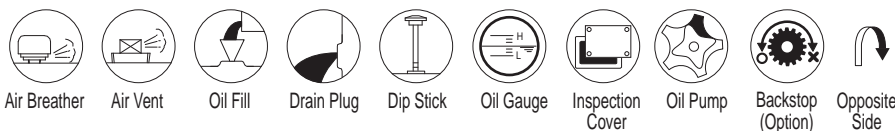
- RL
- RR
- RB
- LR
- LL
- LB

Low Speed Shaft Type

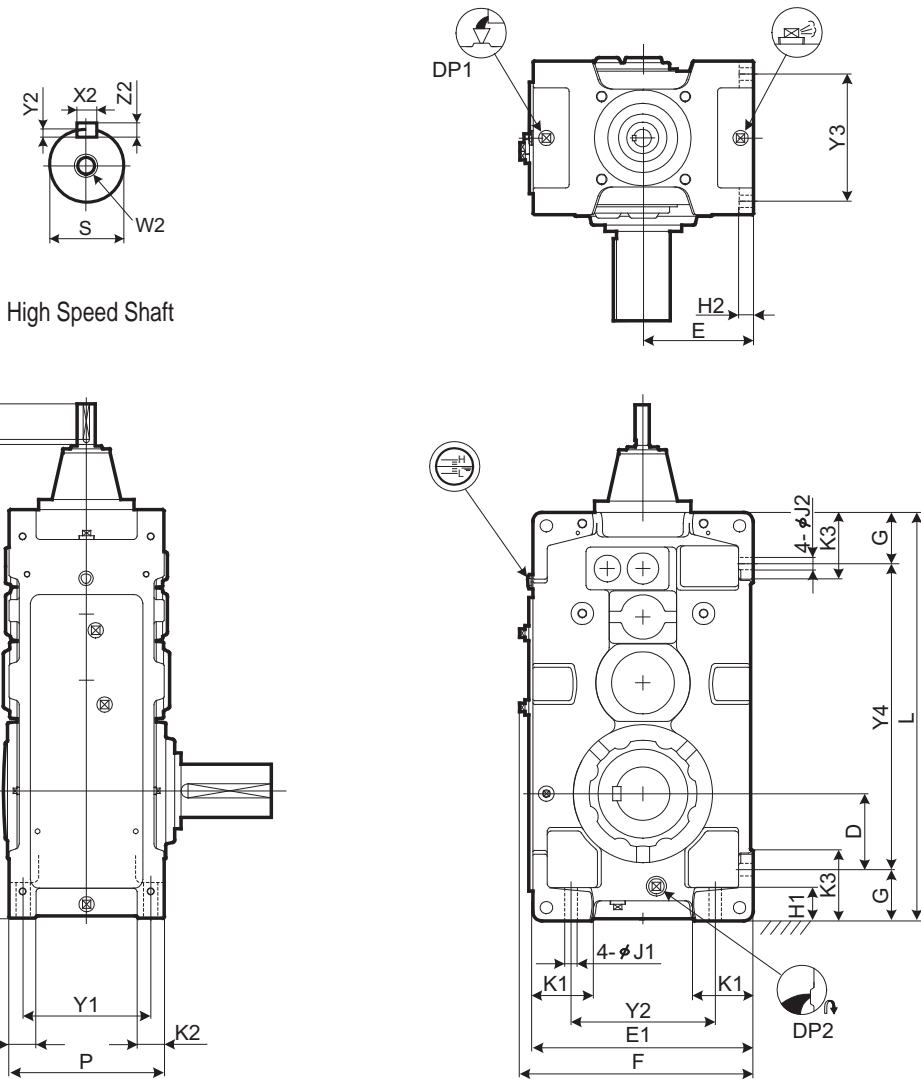
- (blank) : Without Fan
- F : With Fan

Nominal Reduction Ratio

Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9060	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065				○	○	○	○	○	○	○	○	○	○	○
9070				○	○	○	○	○	○	○	○	○	○	○
9075				○	○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Quadruple Reduction Upright Mounting 9040 ▶ 9055



Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	F	G	H1	H2	J1	J2	K1	K2	K3	L	P	Y1	Y2	Y3	Y4
9040	790	235	710	120	200	400	430	115	75	30	28	28	100	60	150	759	315	255	260	255	529
9045	829	256	749	141	220	440	470	115	75	30	28	28	120	60	150	819	315	255	300	255	589
9050	859	255	779	138.5	210	420	450	116.5	75	32	28	28	110	60	150	848	345	285	280	285	615
9055	898	286	818	171	245	490	520	115	75	32	28	28	135	60	150	918	345	285	350	285	688

Size	High Speed Shaft							DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key							
				X2	Y2	Z2	L2				
9040	80	28k6	M10/22	8	4	7	70	1"	1"	325	35
9045	80	28k6	M10/22	8	4	7	70	1"	1"	395	43
9050	80	28k6	M10/22	8	4	7	70	1"	1"	460	46
9055	80	28k6	M10/22	8	4	7	70	1"	1"	520	59

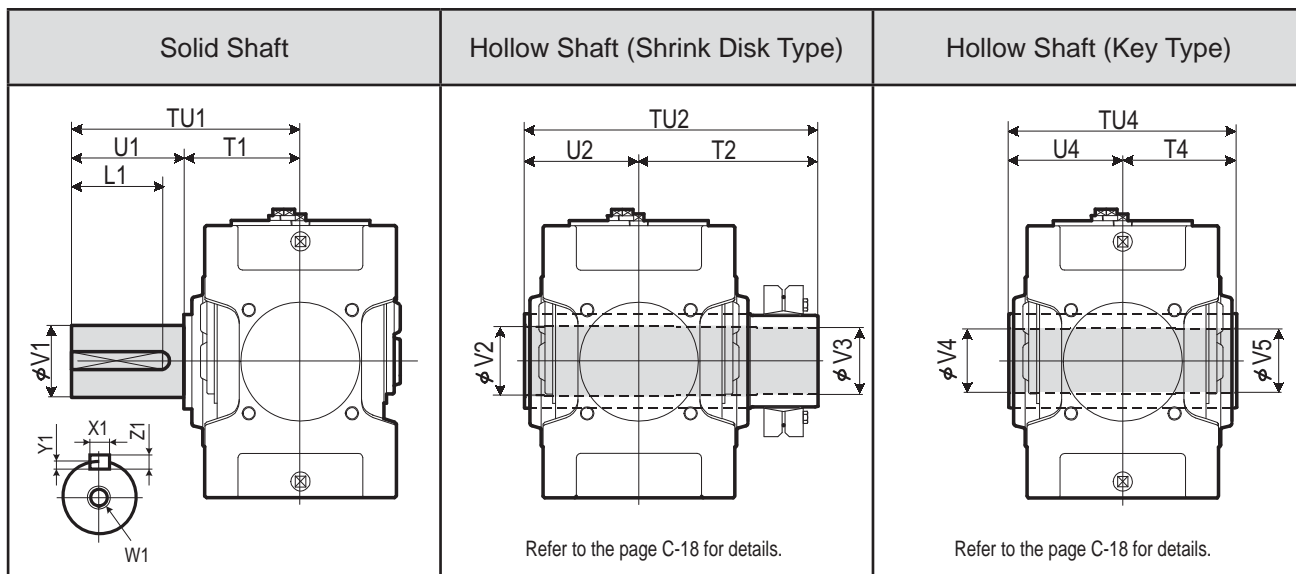
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-13 for dimensions shown in these drawings.
 4. Refer to the page C-26 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Quadruple Reduction Upright Mounting 9040 ▶ 9055

PARAMAX Upright Monoblock 9040 9055 Right Angle Quadruple Reduction P W A R 4

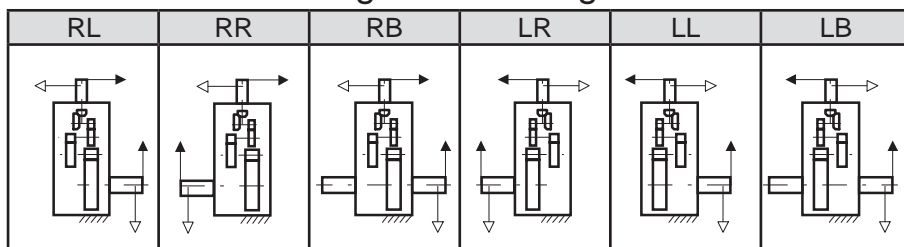
Slow Speed Shaft



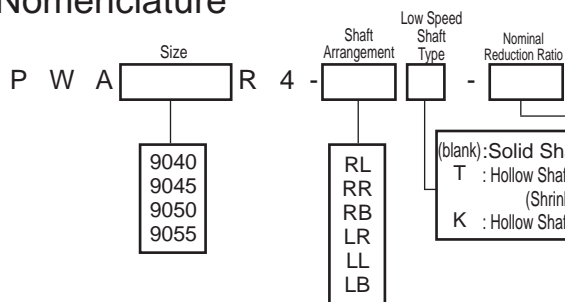
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

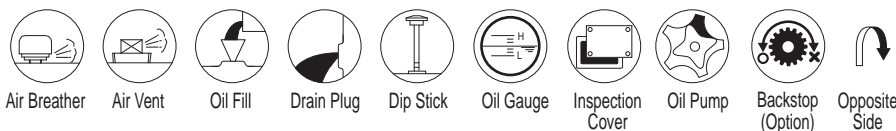
Standard Shaft Arrangement Configuration



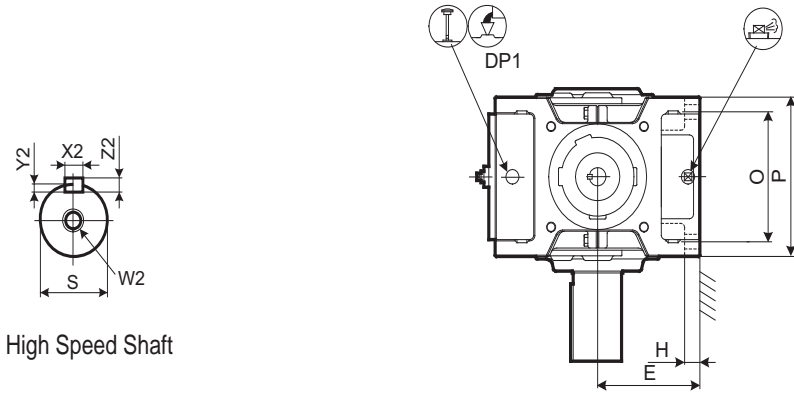
Nomenclature



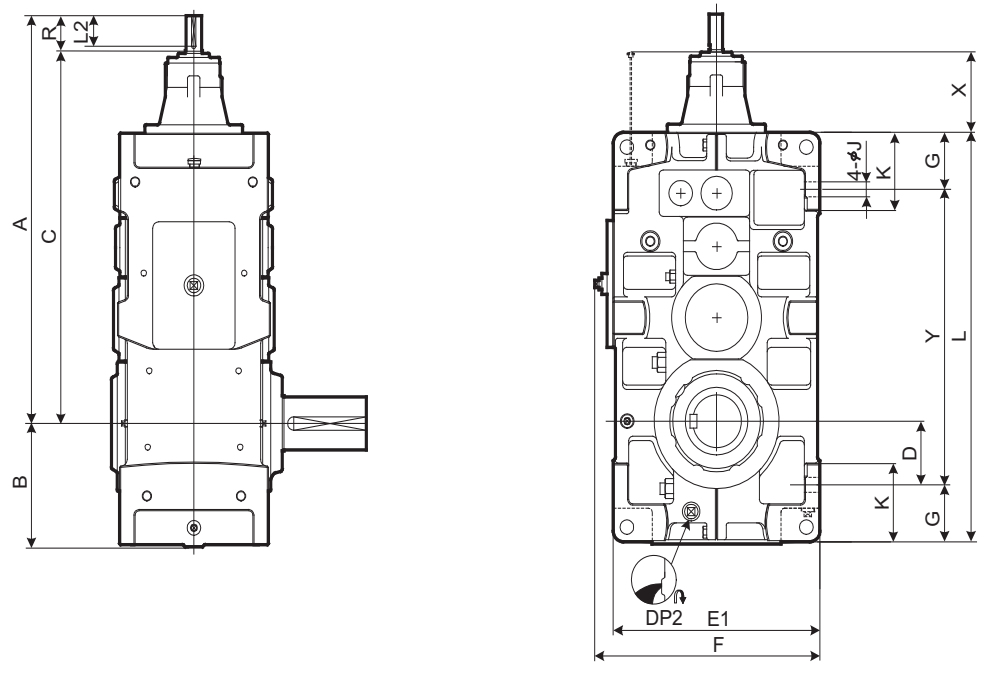
Size	Nominal Reduction Ratio															
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450
9040	○	○	○	○	○	○										
9045				○	○	○	○	○								
9050	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
9055				○	○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Right Angle Shaft Quadruple Reduction Upright Mounting 9060 ▶ 9085



High Speed Shaft



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	X	Y
9060	950	299	870	151	265	530	577	135	35	35	180	970	310	380	79	700
9065	996	338	916	190	300	600	647	135	35	35	180	1055	310	380	79	785
9070	1080	336	1000	163	300	600	647	160	40	42	215	1115	350	430	70	795
9075	1133	383	1053	210	335	670	717	160	52	42	220	1215	350	430	70	895
9080	1250	378	1140	205	335	670	717	160	52	42	220	1275	380	460	101	955
9085	1306	422	1196	249	375	750	797	160	52	42	220	1375	380	460	101	1055

Size	High Speed Shaft								DP1	DP2	Wt. kg	Oil Qty. L
	R	S	W2/Depth	Key								
			X2	Y2	Z2	L2						
9060	80	30k6	M10/22	8	4	7	70	1"	1"	670	68	
9065	80	30k6	M10/22	8	4	7	70	1"	1"	825	85	
9070	80	35k6	M12/28	10	5	8	70	1"	1"	960	107	
9075	80	35k6	M12/28	10	5	8	70	1"	1"	1180	122	
9080	110	45k6	M16/36	14	5.5	9	95	1"	1"	1390	128	
9085	110	45k6	M16/36	14	5.5	9	95	1"	1"	1650	174	

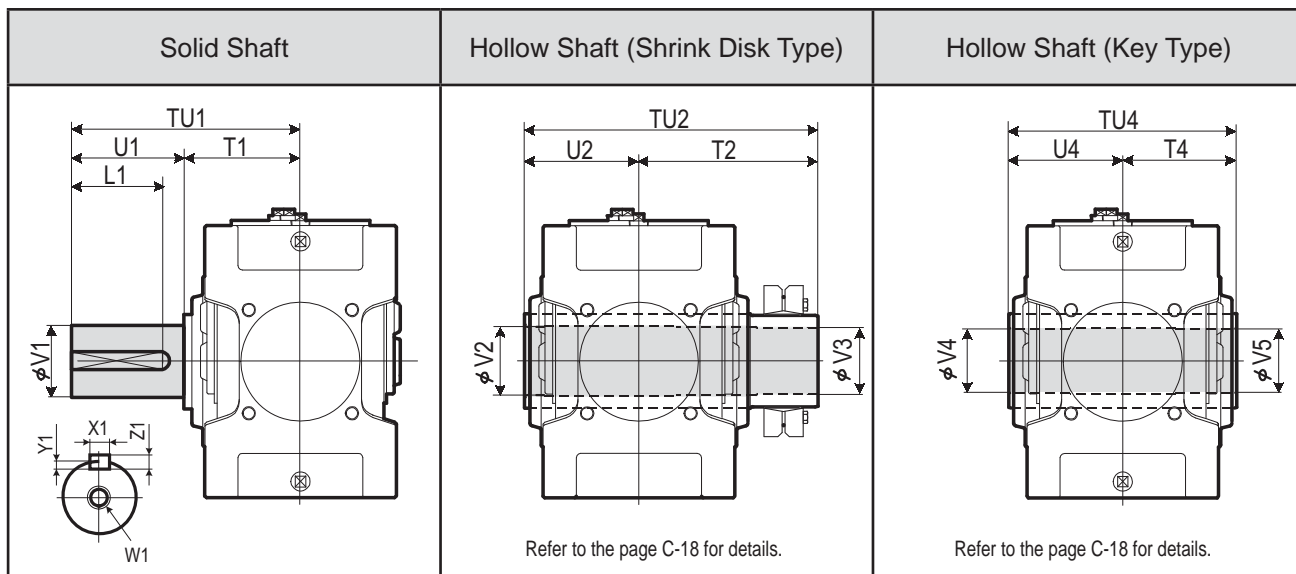
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-15 for dimensions shown in these drawings.
 4. Refer to the page C-29 for the dimension of optional parts.

DIMENSIONS Right Angle Shaft Quadruple Reduction Upright Mounting 9060 ▶ 9085

PARAMAX Upright Split 9060 9085 Right Angle Quadruple Reduction Mount Wall

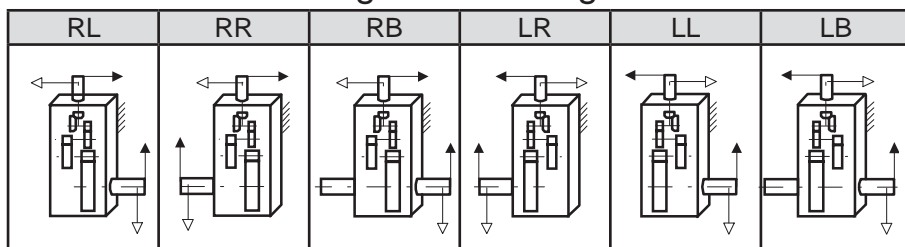
Slow Speed Shaft



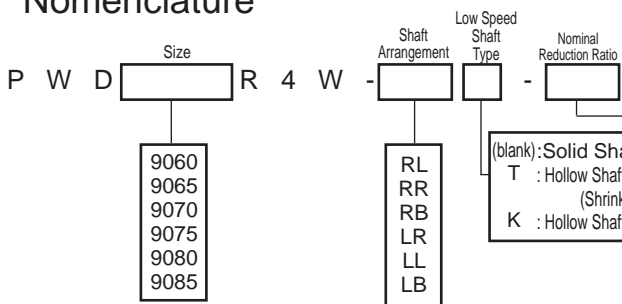
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

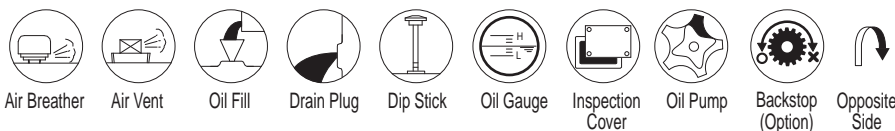
Standard Shaft Arrangement Configuration

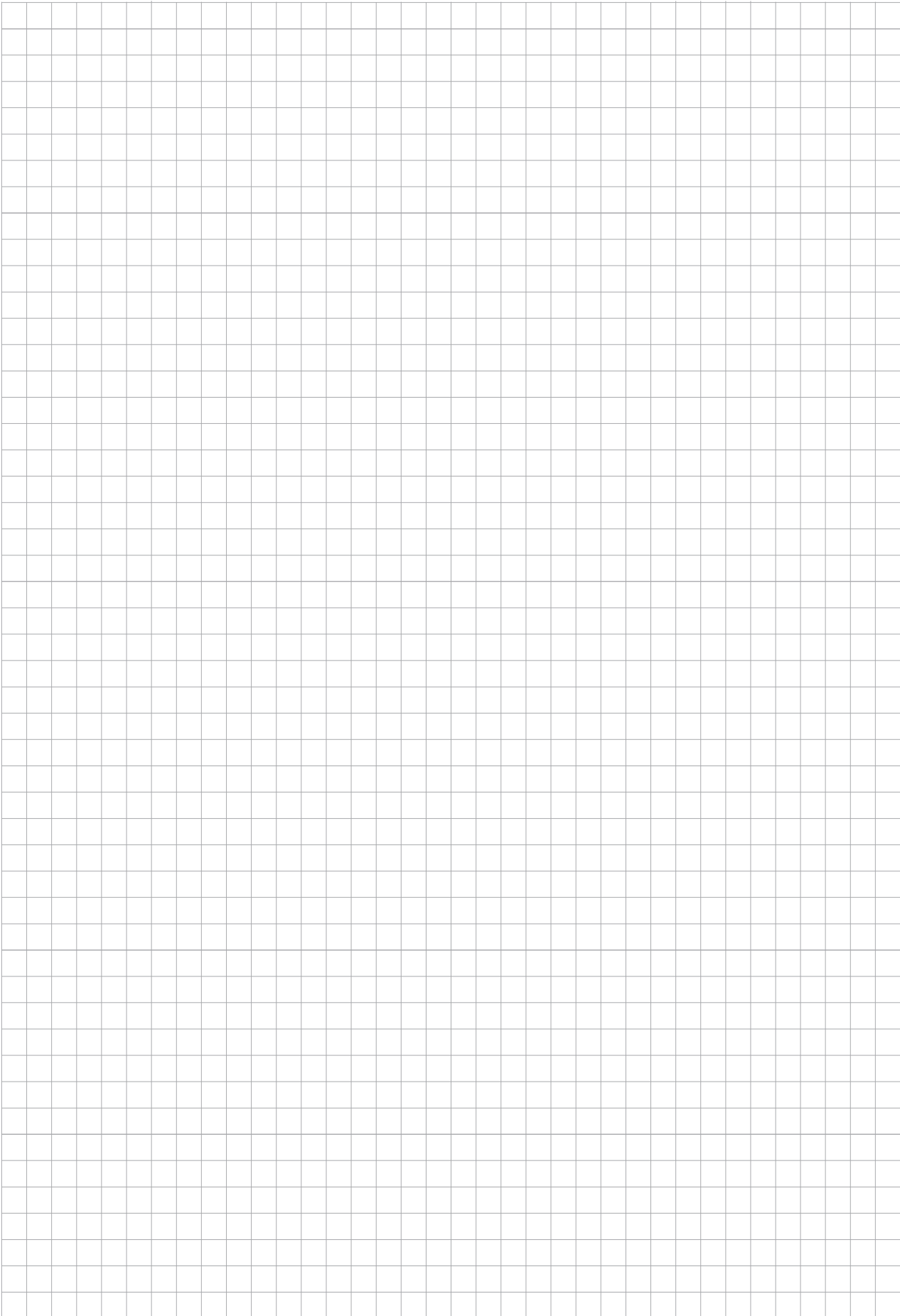


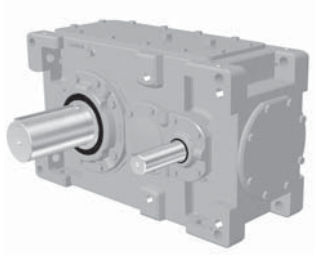
Nomenclature



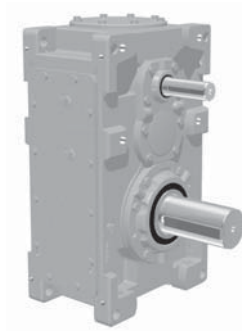
Size	Nominal Reduction Ratio															
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450
9060		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065				○	○	○	○	○	○	○	○	○	○	○	○	○
9070	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9075			○	○	○	○	○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○	○	○	○	○



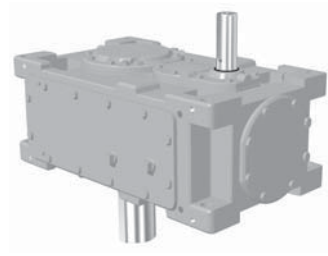




<Reducer: Parallel Shaft Horizontal Mounting>



<Reducer: Parallel Shaft Upright Mounting>



<Reducer: Parallel Shaft Vertical Mounting>

B

Reducer: Parallel shaft

Selection Tables	··· B- 102
Allowable Loads	··· B- 132
Dimension Sheets	··· B- 136

SELECTION Parallel Shaft Double Reduction Nominal Reduction Ratio 6.3 ▶ 8

Size of Reducer										L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio						
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136								
6.460		6.203		Exact Reduction Ratio														
2970*		3900*		286		1800		6.3										
2610		3440*		238		1500												
2160		2940		190		1200		6.3										
1810		2550		159		1000												
1630		2340		143		900		6.3										
1370		2000		119		750												
7.333 6.933 7.071 7.118 7.030										Exact Reduction Ratio								
1950		2790*		2970*		3460*		3910*		254		1800		7.1				
1710		2380		2610		3050*		3440*		211		1500						
1450		1920		2230		2600		2940		169		1200		7.1				
1240		1610		1930		2240		2550		141		1000						
1140		1450		1760		2020		2340		127		900		7.1				
978		1220		1480		1690		2000		106		750						
7.956 8.222 7.672 8.059 8.042										Exact Reduction Ratio								
1830		2480*		2790*		3200*		3460*		225		1800		8				
1610		2120		2450		2820*		3050*		188		1500						
1360		1710		2080		2350		2610		150		1200		8				
1170		1430		1740		2020		2260		125		1000						
1060		1290		1570		1850		2070		113		900		8				
891		1080		1310		1580		1780		94		750						
B-140 B-140 B-140 B-140 B-140										Horizontal		Dimension Tables						
B-166 B-166 B-166 B-166 B-166										Vertical Upright								

Notes

- For ※ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer										Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
※※	※※	※※	※※	※※	※※	※※	※※	※※	※※	※※	-	1800	Double Reduction Horizontal Type
※※	※※	※※	※※	※※	※※	※※	※※	※※	※※	※※	1	1500	
401	454	509	567	633	633	633	633	633	633	633	1	1200	6.3
1056	1148	1241	1336	1443	1443	1443	1443	1443	1443	1443	1	1000	
415	471	533	610	673	673	673	673	673	673	673	-	900	8
970	1056	1153	1277	1362	1362	1362	1362	1362	1362	1362	1	750	
417	474	539	621	687	687	687	687	687	687	687	-	1800	Double Reduction Vertical Type
864	942	1034	1152	1231	1231	1231	1231	1231	1231	1231	1	1500	
415	472	538	621	689	689	689	689	689	689	689	-	1200	6.3
823	898	988	1103	1182	1182	1182	1182	1182	1182	1182	1	900	
408	465	532	616	685	685	685	685	685	685	685	-	1000	8
737	805	889	995	1069	1069	1069	1069	1069	1069	1069	1	750	
256	221	280	188	258	258	258	258	258	258	258	-	1800	Double Reduction Upright Type
311	311	367	339	407	407	407	407	407	407	407	-	1500	
351	382	432	452	515	515	515	515	515	515	515	-	1200	6.3
369	412	463	507	567	567	567	567	567	567	567	-	1000	
375	419	474	529	587	587	587	587	587	587	587	-	900	8
378	425	484	549	608	608	608	608	608	608	608	-	750	
										-	1800	Double Reduction Upright Type	
										-	1500		
										-	1200	6.3	
										-	1000		
										-	900	8	
										-	750		

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.
- For ※ ※ marked, please consult us.

SELECTION Parallel Shaft Double Reduction Nominal Reduction Ratio 9 ▶ 11.2

Size of Reducer					L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio			
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136
9.000	8.824	9.000	9.248	9.134	Exact Reduction Ratio					
1660	2250*	2480*	2840*	3200*	200	1800	9			
1450	1890	2190	2500*	2820*	167	1500				
1200	1520	1820	2070	2350	133	1200				
1030	1270	1550	1740	2020	111	1000				
948	1150	1390	1570	1850	100	900				
813	965	1170	1310	1580	83	750				
9.765	9.984	9.765	9.774	10.449	Exact Reduction Ratio					
1560	2090*	2330*	2780*	2850*	180	1800	10			
1370	1760	2040	2400*	2500*	150	1500				
1130	1410	1640	1990	2090	120	1200				
966	1180	1380	1700	1790	100	1000				
872	1070	1240	1560	1640	90	900				
730	897	1040	1310	1390	75	750				
11.475	10.714	10.929	11.216	11.078	Exact Reduction Ratio					
1380	1860*	2150*	2470*	2780*	161	1800	11.2			
1180	1560	1850	2130*	2400*	134	1500				
981	1260	1530	1720	1990	107	1200				
842	1050	1280	1440	1710	89	1000				
770	954	1150	1300	1560	80	900				
651	799	970	1090	1340	67	750				
B-140	B-140	B-140	B-140	B-140	Horizontal		Dimension Tables			
B-166	B-166	B-166	B-166	B-166	Vertical Upright					

Notes

- For ※ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer					Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio			
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136
※※	※※	※※	※※	※※	-	1800	Double Reduction Horizontal Type			
※※	※※	※※	※※	※※	1	1500				
374	443	496	544	619	1	1200				
986	1119	1210	1282	1411	1	1000				
376	452	504	563	644	-	900		9 ▼		
879	1015	1090	1178	1302	1	750	11.2			
371	451	500	565	646	-					
770	897	960	1049	1157	1					
367	448	496	563	642	-					
728	852	910	1000	1102	1					
357	438	484	554	631	-					
644	759	809	896	985	1					
274	279	326	276	338	-	1800	Double Reduction Vertical Type			
315	344	388	379	441	-	1500				
335	384	434	456	518	-	1200				
340	400	448	485	554	-	1000		9 ▼		
340	404	451	495	566	-	900			11.2	
337	405	451	502	575	-	750				
					-	1800	Double Reduction Upright Type			
					1	1500				
					1	1200				
					1	1000		9 ▼		
					1	900			11.2	
					1	750				

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.
- For ※ ※ marked, please consult us.

SELECTION Parallel Shaft Double Reduction Nominal Reduction Ratio 12.5 ▶ 16

Size of Reducer										L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio			
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136					
12.450	12.950	11.857	12.434	12.672									Exact Reduction Ratio		
1290	1630*	2020*	2240*	2470*									144	1800	12.5
1110	1360	1690*	1920*	2130*									120	1500	
910	1100	1360	1590	1770									96	1200	
762	922	1140	1360	1520									80	1000	
688	832	1030	1240	1370									72	900	
576	696	864	1040	1150									60	750	
14.400	13.897	14.175	14.268	14.092									Exact Reduction Ratio		
1110	1450*	1700*	1990*	2240*									129	1800	14
958	1210	1460	1690*	1920*									107	1500	
794	980	1190	1360	1590									86	1200	
681	821	996	1140	1370									71	1000	
623	740	899	1030	1250									64	900	
521	619	752	862	1070									54	750	
15.624	15.961	15.379	15.325	16.121									Exact Reduction Ratio		
1050	1330*	1570*	1870*	2000*									113	1800	16
902	1110	1310	1600*	1710*									94	1500	
730	898	1060	1330	1420									75	1200	
611	752	887	1120	1200									63	1000	
551	678	800	1010	1080									56	900	
461	567	670	850	911									47	750	
B-140	B-140	B-140	B-140	B-140									Horizontal Vertical Upright		Dimension Tables
B-166	B-166	B-166	B-166	B-166											

Notes

- For * marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer										Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio			
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136					
359	399	462	505	565									-	1800	Double Reduction Horizontal Type
1064	1133	1265	1338	1446									1	1500	
364	405	471	522	585									-	1500	
959	1024	1149	1230	1332									1	1200	
362	404	471	527	592									-	1200	
847	905	1020	1103	1197									1	1000	
355	396	464	522	588									-	1000	12.5
736	788	890	968	1053									1	900	
350	390	458	516	582									-	900	16
694	743	841	916	998									1	750	
338	378	444	502	568									-	750	
611	654	743	812	887									1		
289	315	344	343	373									-	1800	Double Reduction Vertical Type
316	342	392	406	452									-	1500	
328	359	417	449	504									-	1200	
329	362	423	463	521									-	1000	
328	361	423	466	525									-	900	
322	356	418	464	525									-	750	
											-	1800	Double Reduction Upright Type		
											-	1500			
											-	1200			
											-	1000			
											-	900		12.5	
											-	750		16	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Double Reduction Nominal Reduction Ratio 18 ▶ 22.4**MECHANICAL POWER RATING (kW)**

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer															
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	
18	Exact Reduction Ratio		18.250	17.503	17.243	17.325	17.750	18.059	18.789	17.631	18.640	17.506	17.647	17.506	17.157	17.078	17.647	
	1800	100	25.3	41	65	85	95	124	140	191	222	301	368	485	574	728	818	
	1500	83	21.1	34	54	71	80	104	117	159	185	252	308	406	481	610	685	
	1200	67	17.0	27.6	43	57	64	84	94	128	149	203	247	326	386	490	551	
	1000	56	14.2	23.1	36	48	53	70	78	107	124	169	207	273	323	410	461	
	900	50	12.8	20.8	32	43	48	63	71	96	112	153	186	246	291	370	416	
750	42	10.7	17.4	27.5	36	40	52	59	81	94	128	156	206	244	310	348		
20	Exact Reduction Ratio		19.938			19.778			20.566			20.059			19.500		18.958	
	1800	90	*	*	*	75	*	123	*	182	*	300	*	465	*	699	*	
	1500	75	*	*	*	63	*	103	*	152	*	251	*	389	*	585	*	
	1200	60	*	*	*	50	*	82	*	122	*	202	*	313	*	470	*	
	1000	50	*	*	*	42	*	69	*	102	*	169	*	261	*	393	*	
	900	45	*	*	*	38	*	62	*	92	*	152	*	236	*	355	*	
750	38	*	*	*	31	*	52	*	77	*	127	*	197	*	297	*		
22.4	Exact Reduction Ratio		21.676			22.500			23.105			22.941			21.882		20.817	
	1800	80	*	*	*	68	*	100	*	146	*	231	*	390	*	601	*	
	1500	67	*	*	*	57	*	84	*	122	*	193	*	326	*	503	*	
	1200	54	*	*	*	46	*	67	*	98	*	155	*	262	*	404	*	
	1000	45	*	*	*	38	*	56	*	82	*	130	*	219	*	338	*	
	900	40	*	*	*	34	*	51	*	74	*	117	*	198	*	305	*	
750	33	*	*	*	29.1	*	42	*	62	*	98	*	165	*	255	*		
Dimension Tables	Horizontal		B-136	B-136	B-136	B-136	B-136	B-136	B-136	B-136	B-138	B-138	B-138	B-138	B-138	B-138	B-140	
	Vertical		B-162	B-162	B-162	B-162	B-162	B-162	B-162	B-162	B-164	B-164	B-164	B-164	B-164	B-164	B-166	
	Upright		B-180	B-180	B-180	B-180	B-180	B-180	B-180	B-180	B-182	B-182	B-182	B-182	B-182	B-182	B-182	

THERMAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer															
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	
Double Reduction Horizontal Type	1800	-	29	41	50	60	66	83	88	106	127	153	166	194	209	247	309	
	1500	-	81	106	127	156	162	203	213	255	358	431	433	459	498	664	950	
	1200	-	26	37	47	55	63	78	84	100	122	145	164	189	211	245	308	
	1000	-	58	77	93	114	121	151	161	190	272	323	338	353	397	521	750	
	900	-	25	35	45	52	60	74	81	96	118	140	160	184	207	239	301	
	750	-	48	65	79	96	103	127	137	162	233	276	291	303	345	450	650	
Double Reduction Vertical Type	1800	-	29	41	51	60	62	85	90	107	131	149	173	201	224	262	256	
	1500	-	28	40	49	58	62	82	88	105	129	146	172	199	224	260	272	
	1200	-	26	37	47	55	61	79	85	100	124	140	168	193	219	253	280	
	1000	-	25	35	45	53	59	75	82	96	120	135	162	186	213	246	280	
	900	-	24	34	43	51	57	73	79	93	116	131	159	182	209	240	278	
	750	-	22	32	41	48	55	68	75	88	111	124	152	174	200	230	272	
Double Reduction Upright Type	1800	-	23	32	40	48	53	66	71	84	102	122	133	156	168	198	198	
	1500	-	65	85	102	125	130	163	171	204	287	345	346	367	399	532	532	
	1200	-	22	31	39	46	52	65	70	83	101	120	133	155	170	199	199	
	1000	-	55	73	88	108	114	141	150	178	253	301	310	326	360	476	476	
	900	-	21	30	37	44	50	62	67	80	98	116	131	152	169	196	196	
	750	-	46	61	75	91	97	121	129	152	218	258	270	282	318	417	417	
18	1000	-	20	28	36	42	48	59	65	76	94	112	128	147	166	191	191	
	900	-	38	52	63	77	83	102	110	129	186	221	233	243	276	360	360	
	750	-	19	27	35	40	47	58	63	74	92	109	125	144	163	188	188	
	22.4	900	1	35	48	59	71	77	95	102	121	174	206	219	227	260	339	339
		750	-	18	25	32	38	45	54	60	70	88	103	120	138	157	181	181
		750	1	30	41	50	61	67	81	88	104	151	178	191	198	228	296	296

SELECTION Parallel Shaft Double Reduction Nominal Reduction Ratio 18 ▶ 22.4

Size of Reducer										L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio			
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136					
18.000	17.128	17.471	17.585	17.368								Exact Reduction Ratio			
920	1180*	1420*	1650*	1870*								100	1800	18	
789	994	1200	1380*	1610*								83	1500		
654	799	971	1110	1330								67	1200	18	
555	669	812	931	1140								56	1000		
501	603	733	840	1040								50	900	18	
419	505	613	703	899								42	750		
19.529										18.955		19.869	Exact Reduction Ratio		
867	*	1280*	*	1670*								90	1800	20	
730	*	1070	*	1430*								75	1500		
587	*	864	*	1170								60	1200	20	
491	*	723	*	983								50	1000		
443	*	652	*	887								45	900	20	
370	*	546	*	742								38	750		
										Exact Reduction Ratio				22.4	
*	*	*	*	*								80	1800		
*	*	*	*	*								67	1500		
*	*	*	*	*								54	1200		
*	*	*	*	*								45	1000		
*	*	*	*	*								40	900		
*	*	*	*	*								33	750		
B-140	B-140	B-140	B-140	B-140								Horizontal Vertical Upright		Dimension Tables	
B-166	B-166	B-166	B-166	B-166											

* marked models are triple reduction units. Refer to B-110 and B-111.

- ### Notes
- For ✕ marked values, the forced oil lubrication is required at continuous operation.
 - Consult us when the high speed shaft speed is over 1800r/min.
 - When the high speed shaft speed is not shown in the table, find it by the interpolation method.
 - When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
 - Shown in the table are the ratings for the slow speed shaft.
 - Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer										Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio		
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136				
336	402	437	485	537								-	1800	Double Reduction Horizontal Type
995	1141	1198	1285	1375								-	1500	
889	1032	1076	1179	1252								1	1200	
332	406	437	504	551								-	1200	18
777	911	946	1056	1114								1	1000	
324	399	428	499	543								-	1000	18
672	793	821	926	973								1	900	
318	393	421	493	536								-	900	22.4
631	747	773	876	920								1	750	
306	380	406	480	521								-	750	22.4
553	658	679	776	813								1	750	
284	319	355	349	402								-	1800	Double Reduction Vertical Type
298	346	380	397	447								-	1500	
305	362	393	431	478								-	1200	18
303	365	395	444	488								-	1000	
300	364	393	446	489								-	900	22.4
293	358	385	444	485								-	750	
										-	1800	Double Reduction Upright Type		
										-	1500			
										-	1200			
										-	1000			
										-	900			
										-	750			

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

- ### Notes
- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
 - The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
 - When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Triple Reduction Nominal Reduction Ratio 20 ▶ 25

Size of Reducer										L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio				
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136						
20.812		19.984											Exact Reduction Ratio			
*	1100	*	1500	*									90	1800	20	
*	922	*	1290	*									75	1500		
*	742	*	1070	*									60	1200		
*	620	*	919	*									50	1000		
*	559	*	838	*									45	900		
*	468	*	701	*									38	750		
22.841	22.335	22.781	22.930	22.648						21.793	21.793	Exact Reduction Ratio				
758	981	1140	1340	1500									80	1800	22.4	
650	821	982	1140	1290						3290*	3430*	67	1500			
539	660	801	919	1070						2650*	2840*	54	1200			
462	552	670	769	919						2220*	2440*	45	1000			
423	498	605	693	841						2000	2230	40	900			
355	416	506	580	708						1670	1910	33	750			
24.782	25.651	24.717	24.630	25.908	25.313						24.930	24.930	Exact Reduction Ratio			
713	898	1060	1250	1340	1590									72	1800	25
612	752	888	1080	1150	1400						2890*	3060*	60	1500		
497	604	714	895	954	1190						2320*	2530*	48	1200		
416	505	597	757	812	1050						1940*	2170*	40	1000		
375	456	538	683	732	955						1750	1990	36	900		
313	381	450	571	612	796						1470	1710	30	750		
B-146	B-146	B-146	B-146	B-146	B-148						B-150	B-150	Horizontal Vertical Upright		Dimension Tables	

* marked models are double reduction units. Refer to B-108 and B-109.

Notes

- For ✕ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer										Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio			
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136					
264	296	333	391	429	481						663	663	-	1800	Triple Reduction Horizontal Type
603	651	713	813	867	794						1095	1095			
267	301	340	399	436	486						701	701	-	1500	
545	590	647	738	784	801						1157	1157	1		
266	301	340	397	435	481						723	723	-	1200	
481	524	575	653	694	794						1193	1193	1		
262	297	336	391	428	472						726	726	-	1000	
419	458	503	569	605	779						1199	1199	1		
258	294	332	386	423	465						724	724	-	900	
396	433	475	538	572	768						1195	1195	1		
250	285	322	375	410	451						714	714	-	750	
349	383	421	475	506	744						1178	1178	1		

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

238	265	298	348	386								-	1800	Triple Reduction Vertical Type
248	278	313	367	404								-	1500	
252	285	321	377	412								-	1200	
251	285	321	375	411								-	1000	
249	283	319	372	408								-	900	
243	277	313	364	399								-	750	

											-	1800	Triple Reduction Upright Type
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Triple Reduction Nominal Reduction Ratio 28 ▶ 35.5

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
28.552	27.527	28.078	28.261	27.914		29.333	29.333	28.679	28.315	28.315	Exact Reduction Ratio		
624	800	957	1110	1260		1870*	2000*	2640*			64	1800	28
535	669	813	932	1080		1570*	1720*	2230*	2550*	2750*	54	1500	
444	538	653	749	896		1260	1430	1790*	2050*	2280*	43	1200	
378	450	546	626	768		1050	1220	1500	1720*	1960*	36	1000	
341	405	492	565	703		954	1110	1350	1550	1790	32	900	
285	339	412	472	603		798	929	1130	1290	1530	27	750	
30.978	32.067	30.463	30.789	31.932	31.197	31.826	31.826	31.115	32.390	32.390	Exact Reduction Ratio		
588	722	865	1040	1120	1530	1730*	1870*	2460*			57	1800	31.5
497	604	724	898	963	1280	1450*	1600*	2060*	2240*	2450*	48	1500	
400	485	581	727	791	1030	1160	1330	1660*	1800*	2030*	38	1200	
334	406	486	608	661	865	977	1130	1380	1500*	1740*	32	1000	
301	366	438	548	596	780	881	1020	1250	1360	1590	29	900	
252	306	366	458	499	653	736	857	1040	1130	1340	24	750	
35.345	34.412	35.100	35.329	34.895	36.870	36.000	36.000	36.500	34.341	34.341	Exact Reduction Ratio		
525	643	781	895	1040	1300	1530*	1690*	2110*			51	1800	35.5
450	538	653	749	899	1090	1280*	1450*	1760*	2110*	2340*	42	1500	
366	432	525	602	745	878	1030	1200	1420*	1700*	1940*	34	1200	
306	361	439	503	639	735	866	1000	1180	1420*	1660*	28	1000	
276	325	395	454	581	662	780	908	1070	1280	1510	25	900	
231	272	330	379	485	554	652	759	895	1070	1260	21	750	
B-146	B-146	B-146	B-146	B-146	B-148	B-148	B-148	B-150	B-150	B-150	Horizontal Vertical Upright	Dimension Tables	
B-172	B-172	B-172	B-172	B-172									

- ### Notes
- For ※ marked values, the forced oil lubrication is required at continuous operation.
 - Consult us when the high speed shaft speed is over 1800r/min.
 - When the high speed shaft speed is not shown in the table, find it by the interpolation method.
 - When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.
$$PN = P_{750} \times \frac{N}{750}$$
 - Shown in the table are the ratings for the slow speed shaft.
 - Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
250	294	323	378	417	467	508	508	564	657	657	-	1800	Triple Reduction Horizontal Type
572	647	691	786	842	770	838	838	931	1084	1084	1	1500	
248	295	325	377	421	466	515	515	577	682	682	-	1500	
506	577	618	697	757	769	849	849	952	1125	1125	1	1200	
243	290	319	369	415	458	512	512	579	689	689	-	1200	
439	504	538	607	661	756	845	845	955	1137	1137	1	1000	
236	283	310	359	403	448	504	504	572	683	683	-	1000	
378	436	465	523	570	739	831	831	943	1128	1128	1	1000	
231	278	305	353	395	440	497	497	565	677	677	-	900	28 ▼ 35.5
355	410	437	491	535	726	820	820	933	1117	1117	1	900	
222	268	294	340	380	426	483	483	551	661	661	-	750	
310	360	383	431	468	702	796	796	909	1091	1091	1	750	
231	267	292	344	380							-	1800	Triple Reduction Vertical Type
235	277	304	356	393							-	1500	
233	277	306	355	398							-	1200	
229	273	301	348	391							-	1000	
225	270	296	343	385							-	900	
218	262	287	332	373							-	750	
											-	1800	Triple Reduction Upright Type
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

- ### Notes
- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
 - The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
 - When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Triple Reduction Nominal Reduction Ratio 56 ▶ 71

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
57.600	54.044	55.125	55.485	54.803	56.807	57.600	57.600	57.487	53.842	53.842	Exact Reduction Ratio		
338	413	502	575	717	856	972*	1130*	1350*			32	1800	56
282	345	419	481	615	716	812*	946*	1130*	1360*	1600*	27	1500	
226	277	336	386	494	575	652	759	909*	1090*	1290*	21	1200	
189	231	281	322	413	480	545	635	760	916*	1080*	18	1000	
170	208	253	291	372	433	492	572	685	826	974	16	900	
142	174	212	243	311	362	411	478	572	690	814	13	750	
62.494	62.070	59.809	59.598	62.691	61.933	62.494	62.494	62.372	61.592	61.592	Exact Reduction Ratio		
299	378	446	566	607	786	897*	1040*	1240*			29	1800	63
249	316	373	473	508	657	750*	873*	1040*	1190*	1410*	24	1500	
200	253	299	380	408	528	602	701	839*	960*	1130*	19	1200	
167	212	250	317	340	441	503	586	701	802*	946*	16	1000	
151	191	225	286	307	397	454	528	632	723	853	14	900	
126	159	188	239	256	332	379	441	528	604	713	12	750	
72.000	66.609	67.941	68.385	67.544	73.193	72.000	72.000	70.853	72.791	72.791	Exact Reduction Ratio		
271	336	408	468	599	667	780*	908*	1100*			25	1800	71
226	281	341	391	501	558	652*	759*	922*	1010*	1190*	21	1500	
182	225	274	314	402	448	524	610	740*	814*	961*	17	1200	
152	188	229	262	336	374	438	509	618	681*	803*	14	1000	
137	170	206	236	303	337	394	459	557	613*	724	13	900	
114	141	172	197	253	281	329	383	466	512	604	11	750	
B-146 B-146 B-146 B-146 B-146 B-148 B-148 B-148 B-150 B-150 B-150											Horizontal	Dimension Tables	
B-172 B-172 B-172 B-172 B-172											Vertical Upright		

Notes

1. For ✖ marked values, the forced oil lubrication is required at continuous operation.

2. Consult us when the high speed shaft speed is over 1800r/min.

3. When the high speed shaft speed is not shown in the table, find it by the interpolation method.

4. When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$

5. Shown in the table are the ratings for the slow speed shaft.

6. Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
214	262	288	337	378	422	448	448	512	591	591	-	1800	Triple Reduction Horizontal Type
491	576	617	700	764	696	739	739	845	975	975	-	1500	
427	504	539	610	664	681	731	731	840	977	977	1	1200	
201	249	273	318	356	398	432	432	498	583	583	-	1000	56
364	433	462	522	567	657	712	712	821	962	962	1	900	
193	241	264	306	342	384	418	418	484	570	570	-	900	71
310	371	395	445	483	633	690	690	799	940	940	1	750	
188	235	257	298	333	375	410	410	475	560	560	-		
289	346	369	415	451	618	676	676	784	924	924	1		
179	225	246	284	318	358	393	393	457	540	540	-		
250	301	320	361	391	591	648	648	754	891	891	1		

205	248	274	321	362	-	1800	Triple Reduction Vertical Type
202	247	272	318	357	-	1500	
196	242	266	309	347	-	1200	
189	235	258	299	335	-	1000	56
185	230	252	293	328	-	900	▼ 71
177	221	242	280	313	-	750	

					-	1800	Triple Reduction Upright Type
					-	1500	
					-	1200	
					-	1000	56
					-	900	▼ 71
					-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

1. Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)

2. The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.

3. When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Triple Reduction Nominal Reduction Ratio 80 ▶ 90

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer																
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090		
80	Exact Reduction Ratio		79.751			78.012			81.056			80.234			79.219			77.018 77.090	
	1800	23	*	20.6	*	32	*	50	*	82	*	125	*	189	206				
	1500	19	*	17.2	*	27.4	*	42	*	68	*	105	*	158	172				
	1200	15	*	13.8	*	21.9	*	33	*	55	*	84	*	127	138				
	1000	13	*	11.5	*	18.3	*	28.3	*	45	*	70	*	106	115				
	900	11	*	10.4	*	16.5	*	25.5	*	41	*	63	*	95	104				
750	9.4	*	8.7	*	13.7	*	21.3	*	34	*	53	*	79	87					
90	Exact Reduction Ratio		86.706			88.750			91.063			91.765			88.897			84.569	
	1800	20	*	18.8	*	27.9	*	40	*	63	*	105	*	162	*				
	1500	17	*	15.7	*	23.3	*	34	*	53	*	88	*	136	*				
	1200	13	*	12.6	*	18.7	*	27.3	*	42	*	70	*	109	*				
	1000	11	*	10.5	*	15.6	*	22.8	*	35	*	59	*	91	*				
	900	10	*	9.4	*	14.0	*	20.5	*	32	*	53	*	82	*				
750	8.3	*	7.9	*	11.7	*	17.1	*	26.7	*	44	*	68	*					
Dimension Tables	Horizontal		B-142			B-142			B-142			B-144			B-144			B-144 B-146	
	Vertical		B-168			B-168			B-168			B-170			B-170			B-170 B-172	
	Upright		B-184			B-184			B-184			B-186			B-186				

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer																	
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090			
Triple Reduction Horizontal Type	1800	-	-	37			56			73			100			139			178 202		
		1	-	79			137			177			196			238			479 479		
	1500	-	-	36			54			70			96			134			173 198		
		1	-	67			118			151			167			205			414 417		
	1200	-	-	33			50			66			91			127			165 190		
		1	-	55			97			126			141			173			351 356		
80	1000	-	-	31			47			62			86			121			158 183		
		1	-	46			81			106			118			146			297 304		
90	900	-	-	30			45			60			83			117			153 178		
		1	-	42			74			97			109			135			276 283		
750	750	-	-	28			42			56			78			111			145 170		
		1	-	36			63			83			93			116			238 246		
Triple Reduction Vertical Type	1800	-	-	36			55			71			96			134			171 192		
		-	-	35			52			69			93			130			168 190		
	1200	-	-	33			49			65			89			125			161 185		
		-	-	31			47			61			85			119			155 179		
	80	1000	-	-	29			45			59			82			116			151 175	
			-	-	27			42			56			77			109			143 167	
Triple Reduction Upright Type	1800	-	-	37			56			73			100			139			178		
		1	-	79			137			177			196			238			479		
	1500	-	-	36			54			70			96			134			173		
		1	-	67			118			151			167			205			414		
	1200	-	-	33			50			66			91			127			165		
		1	-	55			97			126			141			173			351		
80	1000	-	-	31			47			62			86			121			158		
		1	-	46			81			106			118			146			297		
90	900	-	-	30			45			60			83			117			153		
		1	-	42			74			97			109			135			276		
750	750	-	-	28			42			56			78			111			145		
		1	-	36			63			83			93			116			238		

SELECTION Parallel Shaft Triple Reduction Nominal Reduction Ratio 80 ▶ 90

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136				
78.118	75.300	73.714	80.819	77.266	75.490	78.118	78.118	76.873	Exact Reduction Ratio					
240	298	363	397	495	647	720*	839*	1010*	23	1800	80			
200	249	304	332	413	541	602*	701*	851*	19	1500				
160	200	244	266	332	434	483	563	683*	15	1200				
134	167	203	222	277	363	404	470	571	13	1000				
121	150	183	200	250	327	364	424	514	11	900				
101	125	153	167	208	273	304	354	430	9.4	750				
85.313	83.332			91.315	89.216	85.313	85.313	86.903	Exact Reduction Ratio					
220	*	322	*	420	549	661*	769*	902*	20	1800	90			
183	*	269	*	351	459	552*	643*	754*	17	1500				
147	*	216	*	281	368	443	516	605*	13	1200				
123	*	180	*	235	308	370	431	506	11	1000				
111	*	162	*	212	277	334	388	456	10	900				
92	*	135	*	177	231	278	324	380	8.3	750				
B-146	B-146	B-146	B-146	B-146	B-148	B-148	B-148	B-150	Horizontal Vertical Upright		Dimension Tables			
B-172	B-172	B-172	B-172	B-172										

* marked models are quadruple reduction units. Refer to B-120 and B-121.

Notes

- For ✕ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
214	265	283	333	362	399	446	446	500	Triple Reduction Horizontal Type				
490	582	606	693	732	659	735	735	825					
209	260	278	326	354	389	441	441	495	80				
426	510	530	604	636	642	727	727	817					
201	252	269	314	340	373	429	429	482	90				
363	438	454	516	543	615	708	708	796					
193	243	259	302	327	358	415	415	468	80				
309	374	388	440	462	591	685	685	772					
188	237	253	295	319	349	406	406	459	90				
288	350	362	411	431	576	670	670	757					
179	227	241	281	304	332	389	389	440	80				
250	304	315	357	374	548	642	642	726					

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

204	251	269	319	347	-		1800	Triple Reduction Vertical Type	
202	250	268	315	343	-		1500		
196	244	261	306	332	-		1200	80	
189	237	253	296	321	-		1000		
185	233	248	290	314	-		900	90	
176	223	238	277	300	-		750		

											-	1800	Triple Reduction Upright Type
											-	1500	
											-	1200	80
											-	1000	
											-	900	90
											-	750	

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 80 ▶ 100

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer																							
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090									
80	Exact Reduction Ratio		82.394			79.669			79.341			76.744			78.120			79.124								
	1800	23	15.3	*	25.0	*	32	*	50	*	82	*	134	*	*	*										
	1500	19	12.8	*	20.9	*	27.2	*	41	*	68	*	111	*	*	*										
	1200	15	10.3	*	16.7	*	21.7	*	33	*	54	*	89	*	*	*										
	1000	13	8.6	*	13.9	*	18.1	*	27.9	*	45	*	74	*	*	*										
	900	11	7.7	*	12.6	*	16.3	*	25.1	*	41	*	67	*	*	*										
	750	9.4	6.4	*	10.5	*	13.6	*	20.9	*	34	*	55	*	*	*										
90	Exact Reduction Ratio		88.813			90.908			90.326			89.427			87.529			87.269			88.471					
	1800	20	13.8	*	20.5	*	32	*	50	*	81	*	124	*	180											
	1500	17	11.5	*	17.1	*	26.7	*	41	*	68	*	104	*	150											
	1200	13	9.2	*	13.7	*	21.4	*	33	*	54	*	83	*	120											
	1000	11	7.7	*	11.5	*	17.9	*	27.9	*	45	*	69	*	101											
	900	10	6.9	*	10.3	*	16.1	*	25.1	*	41	*	62	*	91											
	750	8.3	5.8	*	8.6	*	13.4	*	20.9	*	34	*	52	*	75											
100	Exact Reduction Ratio		103.09		102.69		99.26		101.29		103.97		98.871		100.57		97.650		96.720		96.444		96.432		101.66	
	1800	18	12.3	16.1	20.1	25.1	29.8	32	49		78	82	118	134	163											
	1500	15	10.3	13.4	16.8	20.9	24.9	27.2	41		65	68	99	111	136											
	1200	12	8.2	10.7	13.5	16.7	19.9	21.7	33		52	54	79	89	109											
	1000	10	6.9	9.0	11.2	13.9	16.6	18.1	27.6		43	45	66	74	91											
	900	9.0	6.2	8.1	10.1	12.6	15.0	16.3	24.9		39	41	59	67	82											
	750	7.5	5.2	6.7	8.4	10.5	12.5	13.6	20.7		33	34	49	55	68											
Dimension Tables	Horizontal		B-152	B-152	B-152	B-152	B-152	B-152	B-152	B-154		B-154	B-154	B-154	B-154	B-156										
	Vertical		B-174	B-174	B-174	B-174	B-174	B-174	B-174	B-176		B-176	B-176	B-176	B-176	B-178										
	Upright		B-188	B-188	B-188	B-188	B-188	B-188	B-188	B-190		B-190	B-190	B-190	B-190											

THERMAL POWER RATING (kW)

Speed Reducer
Selection Tables
Dimension Tables

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer												
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080
Quadruple Reduction Horizontal Type	1800	-	27	34	42	51	52	65	73		100	122	128	155	157
	1500	-	26	32	41	50	50	62	71		97	118	125	151	156
	1200	-	24	30	39	47	47	59	67		93	113	120	145	152
	1000	-	23	29	37	45	45	56	64		89	108	115	139	148
	900	-	22	28	36	43	44	54	62		86	105	112	135	145
	750	-	21	26	34	41	41	51	59		82	99	107	128	139
	Quadruple Reduction Vertical Type	1800	-	28	35	45	54	54	67	77		105	128	136	164
1500		-	27	33	43	51	52	64	73		101	123	131	157	167
1200		-	25	31	40	48	49	60	69		96	116	124	149	160
1000		-	24	29	38	46	46	57	65		91	110	119	142	154
900		-	23	28	37	44	45	55	63		88	107	115	138	150
750		-	21	26	34	41	42	51	60		83	101	109	130	143
Quadruple Reduction Upright Type		1800	-	27	34	47	51	52	65	74		101	124	130	157
	1500	-	26	32	45	50	50	63	71		98	120	126	153	
	1200	-	25	31	43	47	48	59	68		93	114	121	146	
	1000	-	23	29	41	45	45	56	64		89	108	116	139	
	900	-	22	28	39	43	44	54	62		87	105	113	136	
	750	-	21	26	37	41	41	51	59		82	100	107	129	

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 80 ▶ 100

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio									
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136												
											80.205	80.205	Exact Reduction Ratio									
*	*	*	*	*	*	*	*	*	*	*	1100	1210	23	1800	80							
*	*	*	*	*	*	*	*	*	*	*	922	1060	19	1500								
*	*	*	*	*	*	*	*	*	*	*	740	872	15	1200								
*	*	*	*	*	*	*	*	*	*	*	618	727	13	1000								
*	*	*	*	*	*	*	*	*	*	*	557	654	11	900								
*	*	*	*	*	*	*	*	*	*	*	465	545	9.4	750								
											88.676	91.041	Exact Reduction Ratio									
*	254	*	353	*	*	*	*	*	*	*	994	1170	20	1800	90							
*	212	*	295	*	*	*	*	*	*	*	831	980	17	1500								
*	170	*	237	*	*	*	*	*	*	*	667	786	13	1200								
*	142	*	198	*	*	*	*	*	*	*	557	657	11	1000								
*	128	*	178	*	*	*	*	*	*	*	502	592	10	900								
*	106	*	149	*	*	*	*	*	*	*	419	494	8.3	750								
											97.907	101.85	98.135	97.789	102.87	96.134	101.59	101.59	98.178	102.03	102.03	Exact Reduction Ratio
192	232	274	348	373	465	556	648	800	871	1020	18	1800	100									
160	194	229	290	312	388	465	541	669	728	858	15	1500										
128	155	184	233	250	310	373	434	537	584	689	12	1200										
107	129	153	194	209	258	311	363	448	488	575	10	1000										
96	117	138	175	188	232	281	327	404	439	518	9.0	900										
80	97	115	146	157	194	234	273	337	367	433	7.5	750										
B-156	B-156	B-156	B-156	B-156	B-158	B-158	B-158	B-160	B-160	B-160	Horizontal Vertical Upright	Dimension Tables										

* marked models are triple reduction units. Refer to B-118 and B-119.

Notes

- For ✕ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
177	204	230	271	299	328	392	392	425	521	521	-	1800	Quadruple Reduction Horizontal Type 80 ▼ 100
175	203	228	268	295	322	386	386	422	515	515	-	1500	
170	199	223	261	286	311	374	374	413	502	502	-	1200	
165	193	217	253	277	300	362	362	402	487	487	-	1000	
162	190	213	248	271	293	354	354	395	478	478	-	900	
155	182	205	238	260	280	339	339	381	460	460	-	750	
193	225	252	294	323							-	1800	Quadruple Reduction Vertical Type 80 ▼ 100
187	219	245	286	313							-	1500	
179	210	235	273	299							-	1200	
172	202	226	262	287							-	1000	
167	197	221	256	280							-	900	
159	188	211	244	267							-	750	
											-	1800	Quadruple Reduction Upright Type 80 ▼ 100
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 112 ▶ 140

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
112	Exact Reduction Ratio		111.12	111.65	113.26	115.23	118.37	111.08	117.19	110.06	109.41	108.54	106.37	105.89	110.59	
	1800	16	11.1	14.6	16.5	21.5	24.5	32	38	50	65	82	102	130	144	
	1500	13	9.2	12.2	13.8	18.0	20.4	27.2	32	41	54	68	85	108	120	
	1200	11	7.4	9.8	11.0	14.4	16.4	21.8	26.0	33	43	54	68	87	97	
	1000	8.9	6.2	8.2	9.2	12.0	13.7	18.1	21.7	27.9	36	45	57	72	80	
	900	8.0	5.6	7.3	8.3	10.8	12.3	16.3	19.6	25.1	33	41	51	65	72	
750	6.7	4.6	6.1	6.9	9.0	10.3	13.6	16.3	20.9	27.5	34	43	54	60		
125	Exact Reduction Ratio		127.97	128.49	122.72	126.20	130.09	129.57	125.30	126.11	127.97	120.90	126.39	117.54	127.07	
	1800	14	9.9	12.9	16.3	20.3	23.9	31	39	50	60	82	90	124	131	
	1500	12	8.3	10.7	13.6	17.0	19.9	26.6	33	41	50	68	75	104	109	
	1200	9.6	6.6	8.6	10.9	13.6	16.0	21.3	26.6	33	40	54	60	83	87	
	1000	8.0	5.5	7.2	9.1	11.3	13.3	17.8	22.2	27.9	33	45	50	69	73	
	900	7.2	5.0	6.5	8.2	10.2	12.0	16.0	20.0	25.1	30	41	45	62	66	
750	6.0	4.2	5.4	6.8	8.5	10.0	13.4	16.7	20.9	25.2	34	38	52	55		
140	Exact Reduction Ratio		137.94	139.69	140.03	143.57	148.10	145.56	146.01	144.24	143.38	135.67	139.40	129.07	138.24	
	1800	13	8.9	11.7	13.4	17.3	19.6	25.6	31	40	50	69	78	107	116	
	1500	11	7.4	9.8	11.2	14.5	16.4	21.4	26.1	33	41	58	65	89	97	
	1200	8.6	6.0	7.8	8.9	11.6	13.1	17.1	20.9	27.1	33	46	52	71	77	
	1000	7.1	5.0	6.5	7.5	9.7	10.9	14.3	17.5	22.7	28.0	38	43	59	64	
	900	6.4	4.5	5.9	6.7	8.7	9.9	12.9	15.7	20.4	25.2	35	39	54	58	
750	5.4	3.7	4.9	5.6	7.3	8.2	10.7	13.1	17.0	21.0	29.2	32	45	48		
Dimension Tables	Horizontal		B-152	B-152	B-152	B-152	B-152	B-152	B-152	B-154	B-154	B-154	B-154	B-154	B-154	B-156
	Vertical		B-174	B-174	B-174	B-174	B-174	B-174	B-174	B-176	B-176	B-176	B-176	B-176	B-176	B-178
	Upright		B-188	B-188	B-188	B-188	B-188	B-188	B-188	B-190	B-190	B-190	B-190	B-190	B-190	B-190

THERMAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
Quadruple Reduction Horizontal Type	1800	-	25	31	40	48	50	61	70	84	95	117	122	150	151	
	1500	-	24	30	38	46	48	59	68	81	92	113	119	146	149	
	1200	-	23	28	36	43	45	56	64	77	88	108	114	139	145	
	112	1000	-	22	27	35	41	43	53	61	73	84	103	109	134	141
	▼	900	-	21	26	34	40	42	51	59	71	82	100	106	130	138
	140	750	-	20	24	32	38	39	48	56	67	77	95	101	124	132
Quadruple Reduction Vertical Type	1800	-	27	33	42	50	52	64	73	88	100	122	129	158	164	
	1500	-	25	31	40	47	50	61	70	84	96	117	124	151	159	
	1200	-	24	29	37	45	47	57	66	79	90	111	118	144	152	
	112	1000	-	22	27	35	42	44	54	62	75	86	105	112	137	146
	▼	900	-	21	26	34	41	43	52	60	72	83	102	109	133	143
	140	750	-	20	24	32	38	40	49	57	68	79	96	103	126	136
Quadruple Reduction Upright Type	1800	-	26	31	44	48	50	62	71	84	96	118	124	152		
	1500	-	25	30	43	46	48	59	68	81	93	114	120	147		
	1200	-	23	28	40	43	46	56	65	77	89	108	115	140		
	112	1000	-	22	27	38	41	43	53	61	73	84	103	110	134	
	▼	900	-	21	26	37	40	42	51	60	71	82	100	107	131	
	140	750	-	20	24	35	38	39	48	56	67	78	95	102	124	

Speed Reducer Selection Tables Dimension Tables

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 112 ▶ 140

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
112.80	109.29	111.48	112.21	110.83	113.61	117.50	117.50	117.37	109.93	109.93	Exact Reduction Ratio		
174	206	251	287	368	433	482	561	671	809	954	16	1800	112
145	172	209	240	308	362	403	469	561	676	797	13	1500	
116	138	168	192	247	290	323	376	450	542	640	11	1200	
97	115	140	161	206	242	270	314	376	453	534	8.9	1000	
87	104	126	145	186	218	243	283	338	408	481	8.0	900	
73	86	105	121	155	182	203	236	283	341	402	6.7	750	
122.38	124.14	120.95	119.20	126.78	123.87	127.49	127.49	127.34	129.91	129.91	Exact Reduction Ratio		
154	191	223	286	304	397	445	518	619	686	810	14	1800	125
128	159	186	239	253	332	371	432	517	573	676	12	1500	
103	127	149	191	203	266	298	347	415	460	542	9.6	1200	
86	106	124	160	170	222	249	290	347	384	453	8.0	1000	
77	96	112	144	153	200	224	261	312	346	408	7.2	900	
64	80	94	120	127	167	187	218	261	289	341	6.0	750	
141.00	133.22	135.88	136.77	135.09	146.39	146.88	146.88	142.35	133.32	133.32	Exact Reduction Ratio		
139	170	206	236	303	337	387	450	555	669	789	13	1800	140
116	141	172	197	253	281	323	376	464	559	659	11	1500	
93	113	138	158	203	226	259	301	372	448	529	8.6	1200	
78	95	115	132	169	188	216	252	310	374	441	7.1	1000	
70	85	104	119	152	170	195	227	280	337	398	6.4	900	
58	71	86	99	127	142	162	189	233	281	332	5.4	750	
B-156 B-156 B-156 B-156 B-156 B-158 B-158 B-158 B-160 B-160 B-160 B-178 B-178 B-178 B-178 B-178											Horizontal Vertical Upright	Dimension Tables	

Notes

- For ✕ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
164	198	218	256	287	321	372	372	413	502	502	-	1800	Quadruple Reduction Horizontal Type 112 ▼ 140
162	196	216	252	282	314	365	365	406	493	493	-	1500	
157	192	210	245	273	303	352	352	394	476	476	-	1200	
152	187	204	237	264	292	340	340	381	461	461	-	1000	
149	183	200	232	258	285	333	333	373	451	451	-	900	
142	176	192	223	247	273	319	319	358	432	432	-	750	
177	216	237	276	307							-	1800	Quadruple Reduction Vertical Type 112 ▼ 140
172	211	230	267	297							-	1500	
164	202	220	256	284							-	1200	
157	194	212	245	272							-	1000	
153	189	207	239	265							-	900	
146	181	197	228	253							-	750	
											-	1800	Quadruple Reduction Upright Type 112 ▼ 140
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 160 ▶ 200

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
160	Exact Reduction Ratio		165.49	159.50	159.92	156.02	158.68	162.11	154.58	157.13	153.94	158.44	158.25	154.04	168.71	
	1800	11	7.7	10.4	12.6	16.5	17.4	25.5	26.6	42	44	63	71	95	99	
	1500	9.4	6.4	8.7	10.5	13.7	14.5	21.3	22.2	35	37	53	59	79	82	
	1200	7.5	5.1	6.9	8.4	11.0	11.6	17.1	17.8	28.1	29.9	42	47	64	66	
	1000	6.3	4.3	5.8	7.0	9.1	9.7	14.2	14.8	23.4	24.9	35	39	53	55	
	900	5.6	3.9	5.2	6.3	8.2	8.7	12.8	13.3	21.1	22.4	31	35	48	49	
750	4.7	3.2	4.3	5.3	6.9	7.2	10.7	11.1	17.5	18.7	26.6	29.7	40	41		
180	Exact Reduction Ratio		178.38	173.41	182.48	177.50	180.65	182.13	180.12	179.71	172.48	177.79	174.54	169.14	183.53	
	1800	10	6.9	9.4	10.3	14.0	16.1	20.5	25.4	32	41	53	62	82	87	
	1500	8.3	5.8	7.9	8.6	11.7	13.4	17.1	21.2	27.2	34	44	52	68	73	
	1200	6.7	4.6	6.3	6.9	9.4	10.8	13.7	17.0	21.8	27.9	35	42	54	58	
	1000	5.6	3.9	5.3	5.7	7.8	9.0	11.4	14.2	18.2	23.3	29.7	35	45	49	
	900	5.0	3.5	4.7	5.2	7.1	8.1	10.3	12.8	16.4	21.0	26.7	31	41	44	
750	4.2	2.9	4.0	4.3	5.9	6.7	8.6	10.7	13.7	17.5	22.3	26.4	34	36		
200	Exact Reduction Ratio		205.43	206.26	197.71	203.32	207.95	197.74	202.57	193.83	192.43	190.60	192.89	192.86	210.89	
	1800	9.0	6.2	8.0	10.2	12.6	15.0	17.4	24.7	26.6	40	44	59	71	79	
	1500	7.5	5.2	6.7	8.5	10.5	12.5	14.5	20.6	22.2	33	37	49	59	66	
	1200	6.0	4.1	5.4	6.8	8.4	10.0	11.6	16.5	17.8	26.8	29.9	39	47	53	
	1000	5.0	3.5	4.5	5.7	7.0	8.4	9.7	13.8	14.8	22.4	24.9	33	39	44	
	900	4.5	3.1	4.0	5.1	6.3	7.5	8.7	12.4	13.3	20.2	22.4	30	35	39	
750	3.8	2.6	3.4	4.3	5.3	6.3	7.3	10.3	11.1	16.8	18.7	25.0	29.7	33		
Dimension Tables	Horizontal		B-152	B-152	B-152	B-152	B-152	B-152	B-152	B-154	B-154	B-154	B-154	B-154	B-154	B-156
	Vertical		B-174	B-174	B-174	B-174	B-174	B-174	B-174	B-176	B-176	B-176	B-176	B-176	B-176	B-178
	Upright		B-188	B-188	B-188	B-188	B-188	B-188	B-188	B-190	B-190	B-190	B-190	B-190	B-190	

THERMAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer												
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080
Quadruple Reduction Horizontal Type 160	1800	-	23	29	36	43	42	52	61	74	85	103	109	131	138
	1500	-	22	28	34	41	40	49	58	71	81	98	105	126	134
	1200	-	20	26	32	38	37	46	55	66	76	92	99	118	127
	1000	-	19	24	30	36	35	43	51	62	72	87	93	112	121
	900	-	18	23	29	35	33	41	49	59	69	84	90	108	117
	750	-	17	21	27	32	31	38	46	55	65	78	85	101	111
Quadruple Reduction Vertical Type 160	1800	-	24	30	37	44	43	53	63	76	88	106	113	136	145
	1500	-	23	28	35	42	41	50	60	72	83	101	108	129	139
	1200	-	21	26	33	39	38	46	56	67	78	94	101	121	131
	1000	-	20	24	31	37	35	43	52	63	73	88	95	114	124
	900	-	19	23	30	35	34	41	50	60	70	85	92	110	120
	750	-	17	21	27	33	31	38	47	56	66	79	86	103	113
Quadruple Reduction Upright Type 160	1800	-	23	29	39	43	42	52	62	74	85	104	110	132	
	1500	-	22	28	37	41	40	49	59	71	81	99	105	126	
	1200	-	21	26	35	38	37	46	55	66	76	93	99	119	
	1000	-	19	24	33	36	35	43	51	62	72	87	94	112	
	900	-	18	23	32	35	33	41	50	59	69	84	91	108	
	750	-	17	21	30	32	31	38	46	55	65	79	85	102	

Speed Reducer Selection Tables Dimension Tables

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 160 ▶ 200

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
152.98	167.85	147.43	151.57	154.53	150.98	160.41	160.41	154.45	157.56	157.56	Exact Reduction Ratio		
123	141	183	226	250	327	355	413	512	567	669	11	1800	160
103	118	153	188	208	273	296	345	428	474	559	9.4	1500	
82	94	123	151	167	219	237	276	343	380	448	7.5	1200	160
69	79	102	126	139	183	198	231	286	317	374	6.3	1000	
62	71	92	113	126	165	178	208	258	286	337	5.6	900	160
51	59	77	95	105	137	149	173	215	238	281	4.7	750	
187.20	180.12	183.73	173.92	171.78	178.43	176.73	176.73	175.45	171.78	171.78	Exact Reduction Ratio		
105	126	153	186	239	277	322	375	451	521	614	10	1800	180
88	105	127	155	199	231	269	313	377	435	513	8.3	1500	
70	84	102	125	160	185	216	251	302	349	411	6.7	1200	180
59	70	85	104	133	155	180	209	252	291	343	5.6	1000	
53	63	77	94	120	139	162	189	227	262	309	5.0	900	180
44	53	64	78	100	116	135	157	190	219	258	4.2	750	
203.11	206.87	199.34	198.63	196.51	191.99	193.01	193.01	190.35	203.02	203.02	Exact Reduction Ratio		
93	115	136	173	197	258	295	344	416	442	521	9.0	1800	200
78	96	113	144	164	215	246	287	348	369	435	7.5	1500	
62	77	91	115	132	172	198	230	279	296	349	6.0	1200	200
52	64	76	96	110	144	165	192	233	247	291	5.0	1000	
47	58	68	87	99	130	148	173	210	222	262	4.5	900	200
39	48	57	72	82	108	124	144	175	185	219	3.8	750	
B-156	B-156	B-156	B-156	B-156	B-158	B-158	B-158	B-160	B-160	B-160	Horizontal Vertical Upright	Dimension Tables	
B-178	B-178	B-178	B-178	B-178									

Notes

- For ✕ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
154	180	202	236	269	297	360	360	393	480	480	-	1800	Quadruple Reduction Horizontal Type 160
149	175	196	229	262	288	351	351	385	467	467	-	1500	
142	167	187	218	250	275	337	337	373	449	449	-	1200	Quadruple Reduction Vertical Type 160
135	160	179	207	240	263	325	325	361	432	432	-	1000	
131	155	174	201	234	256	317	317	353	422	422	-	900	Quadruple Reduction Upright Type 160
123	147	164	190	222	243	303	303	339	403	403	-	750	
162	190	213	247	283							-	1800	Quadruple Reduction Vertical Type 160
155	183	204	237	272							-	1500	
146	173	193	223	258							-	1200	Quadruple Reduction Upright Type 160
138	164	183	212	246							-	1000	
133	159	177	205	239							-	900	Quadruple Reduction Upright Type 200
125	150	167	193	226							-	750	
											-	1800	Quadruple Reduction Upright Type 200
											-	1500	
											-	1200	Quadruple Reduction Upright Type 200
											-	1000	
											-	900	Quadruple Reduction Upright Type 200
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 224 ▶ 280

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer												
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080
224	Exact Reduction Ratio		221.43	224.24	225.60	231.31	236.74	222.15	236.05	221.69	215.61	213.88	212.75	211.77	229.41
	1800	8.0	5.6	7.3	8.3	10.8	12.3	16.8	19.4	26.5	33	44	51	65	70
	1500	6.7	4.7	6.1	6.9	9.0	10.3	14.0	16.2	22.1	27.9	37	43	54	58
	1200	5.4	3.7	4.9	5.6	7.2	8.2	11.3	13.0	17.7	22.4	29.6	34	44	47
	1000	4.5	3.1	4.1	4.6	6.0	6.9	9.4	10.8	14.8	18.7	24.7	28.8	36	39
	900	4.0	2.8	3.7	4.2	5.4	6.2	8.5	9.8	13.3	16.8	22.3	25.9	33	35
	750	3.3	2.3	3.1	3.5	4.5	5.2	7.1	8.1	11.1	14.0	18.6	21.6	27.6	29.5
250	Exact Reduction Ratio		256.04		251.37	260.18	259.14	252.38	254.02	252.17	238.24	252.78	235.08	263.61	
	1800	7.2	6.5		10.2	12.0	16.0	19.8	26.0	30	42	45	62	63	
	1500	6.0	5.4		8.5	10.0	13.4	16.6	21.7	25.6	35	38	52	53	
	1200	4.8	4.3		6.8	8.0	10.7	13.3	17.4	20.5	28.3	30	42	42	
	1000	4.0	3.6		5.7	6.7	8.9	11.1	14.5	17.1	23.6	25.5	35	35	
	900	3.6	3.3		5.1	6.0	8.0	10.0	13.0	15.4	21.3	22.9	31	32	
	750	3.0	2.7		4.3	5.0	6.7	8.3	10.9	12.8	17.8	19.1	26.4	26.7	
280	Exact Reduction Ratio		278.37		285.97	296.20	291.13	294.09	290.52	282.55	267.35	278.80	258.13	286.77	
	1800	6.4	5.9		8.7	9.9	12.9	15.6	20.3	25.6	35	39	54	56	
	1500	5.4	4.9		7.3	8.2	10.7	13.0	16.9	21.3	29.6	32	45	47	
	1200	4.3	3.9		5.8	6.6	8.6	10.4	13.5	17.1	23.7	26.4	36	37	
	1000	3.6	3.3		4.9	5.5	7.2	8.7	11.3	14.3	19.8	22.0	30	31	
	900	3.2	3.0		4.4	4.9	6.5	7.8	10.2	12.8	17.8	19.8	27.1	28.3	
	750	2.7	2.5		3.7	4.1	5.4	6.5	8.5	10.7	14.9	16.5	22.6	23.6	
Dimension Tables	Horizontal		B-152	B-152	B-152	B-152	B-152	B-152	B-154	B-154	B-154	B-154	B-154	B-154	B-156
	Vertical		B-174	B-174	B-174	B-174	B-174	B-174	B-176	B-176	B-176	B-176	B-176	B-176	B-178
	Upright		B-188	B-188	B-188	B-188	B-188	B-188	B-190	B-190	B-190	B-190	B-190	B-190	

THERMAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer												
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080
Quadruple Reduction Horizontal Type 224	1800	-	23	27	35	40	40	49	59	71	80	99	104	127	132
	1500	-	22	25	33	38	38	47	56	67	77	94	99	121	127
	1200	-	20	24	31	36	36	43	52	63	72	88	94	114	121
	1000	-	19	22	29	34	33	41	49	59	68	83	89	108	115
	900	-	18	21	28	32	32	39	47	56	66	80	86	104	112
280	750	-	17	20	26	30	30	36	44	53	61	75	80	98	106
Quadruple Reduction Vertical Type 224	1800	-	24	28	36	41	42	51	60	72	83	102	107	131	138
	1500	-	22	26	34	39	39	48	57	68	79	96	102	124	132
	1200	-	21	24	32	36	36	44	53	64	74	90	96	116	125
	1000	-	19	22	30	34	34	41	50	59	69	84	90	110	118
	900	-	18	21	29	33	32	39	48	57	67	81	87	106	114
280	750	-	17	20	27	31	30	36	44	53	62	76	81	99	107
Quadruple Reduction Upright Type 224	1800	-	23	27	38	40	41	50	59	71	81	99	104	127	
	1500	-	22	25	36	38	38	47	56	67	77	95	100	122	
	1200	-	20	24	34	36	36	44	52	63	72	89	94	115	
	1000	-	19	22	32	34	33	41	49	59	68	83	89	108	
	900	-	18	21	30	32	32	39	47	56	66	80	86	105	
280	750	-	17	20	28	30	30	36	44	53	62	75	81	98	

Speed Reducer Selection Tables Dimension Tables

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 224 ▶ 280

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
234.00	222.00	226.44	227.92	225.12	226.90	230.40	230.40	223.56	232.24	232.24	Exact Reduction Ratio		
84	102	124	142	183	218	248	288	355	387	456	8.0	1800	224
70	85	104	119	152	182	207	241	297	323	381	6.7	1500	
56	68	83	95	122	146	166	193	238	259	305	5.4	1200	
47	57	69	79	102	122	138	161	198	216	255	4.5	1000	
42	51	62	71	92	110	124	145	179	194	229	4.0	900	
35	43	52	60	76	91	104	121	149	162	191	3.3	750	
253.88	252.16	245.68	242.12	257.52	251.60	251.62	251.62	242.56	247.46	247.46	Exact Reduction Ratio		
74	94	110	142	150	197	227	264	328	363	428	7.2	1800	250
62	79	92	118	126	165	189	221	274	303	357	6.0	1500	
50	63	74	95	101	132	152	177	219	243	287	4.8	1200	
41	52	61	79	84	110	127	147	183	203	239	4.0	1000	
37	47	55	71	75	99	114	133	165	182	215	3.6	900	
31	39	46	59	63	83	95	111	137	152	180	3.0	750	
292.50	270.60	276.01	277.82	274.40	276.57	288.00	288.00	275.54	283.08	283.08	Exact Reduction Ratio		
67	84	102	117	150	179	199	231	289	318	375	6.4	1800	280
56	70	85	98	125	150	166	193	241	265	313	5.4	1500	
45	56	68	78	100	120	133	155	193	212	251	4.3	1200	
37	47	57	65	84	100	111	129	161	177	209	3.6	1000	
34	42	51	59	75	90	100	116	145	160	188	3.2	900	
28.5	35	42	49	63	75	83	97	121	133	157	2.7	750	
B-156	B-156	B-156	B-156	B-156	B-158	B-158	B-158	B-160	B-160	B-160	Horizontal Vertical Upright	Dimension Tables	
B-178	B-178	B-178	B-178	B-178									

Notes

- For ✕ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
142	174	190	222	247	275	322	322	366	443	443	-	1800	Quadruple Reduction Horizontal Type 224 ▼ 280
137	169	184	215	239	265	311	311	356	430	430	-	1500	
130	161	176	204	227	251	296	296	341	411	411	-	1200	
124	154	168	195	216	239	283	283	328	395	395	-	1000	
120	150	163	189	210	232	275	275	319	384	384	-	900	
114	142	155	179	198	219	261	261	304	366	366	-	750	
149	183	200	232	257							-	1800	Quadruple Reduction Vertical Type 224 ▼ 280
142	176	192	222	246							-	1500	
134	166	181	209	232							-	1200	
127	158	172	199	220							-	1000	
123	153	167	192	213							-	900	
115	144	157	181	201							-	750	
											-	1800	Quadruple Reduction Upright Type 224 ▼ 280
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 315 ▶ 400

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer															
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	
315	Exact Reduction Ratio									315.95	324.22	327.89	316.48	324.10	312.22	318.63	308.07	313.18
	1800	5.7								9.2	12.8	14.0	20.9	22.3	32	34	48	51
	1500	4.8								7.7	10.7	11.7	17.4	18.6	27.0	28.9	40	43
	1200	3.8								6.2	8.6	9.4	13.9	14.9	21.6	23.1	32	34
	1000	3.2								5.2	7.1	7.8	11.6	12.4	18.1	19.3	26.8	28.8
	900	2.9								4.6	6.4	7.0	10.5	11.2	16.3	17.4	24.2	25.9
750	2.4								3.9	5.4	5.9	8.7	9.3	13.6	14.5	20.2	21.6	
355	Exact Reduction Ratio									367.08	364.25	364.33	361.96	345.71	350.36	355.25	338.28	359.23
	1800	5.1								8.0	10.3	12.6	16.3	20.9	27.1	31	41	45
	1500	4.2								6.6	8.6	10.5	13.6	17.5	22.6	25.9	34	37
	1200	3.4								5.3	6.9	8.4	10.9	14.0	18.1	20.7	27.6	30
	1000	2.8								4.4	5.7	7.0	9.1	11.7	15.1	17.3	23.0	25.1
	900	2.5								4.0	5.2	6.3	8.2	10.5	13.6	15.6	20.7	22.6
750	2.1								3.3	4.3	5.3	6.8	8.8	11.4	13.0	17.3	18.9	
400	Exact Reduction Ratio									400.89	388.53	421.41	403.56	401.65	401.88	394.72	386.60	383.18
	1800	4.5								7.3	9.7	10.9	14.6	18.0	23.7	28.0	36	42
	1500	3.8								6.1	8.1	9.1	12.2	15.0	19.8	23.3	30	35
	1200	3.0								4.9	6.5	7.3	9.8	12.1	15.8	18.7	24.2	28.3
	1000	2.5								4.1	5.4	6.1	8.1	10.1	13.2	15.6	20.2	23.6
	900	2.3								3.7	4.8	5.5	7.3	9.1	11.9	14.0	18.2	21.2
750	1.9								3.1	4.0	4.6	6.1	7.5	9.9	11.7	15.1	17.7	
Dimension Tables	Horizontal									B-152	B-152	B-154	B-154	B-154	B-154	B-154	B-154	B-156
	Vertical									B-174	B-174	B-176	B-176	B-176	B-176	B-176	B-176	B-178
	Upright									B-188	B-188	B-190	B-190	B-190	B-190	B-190	B-190	B-190

THERMAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer															
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	
Quadruple Reduction Horizontal Type 315	1800	-								41	47	57	67	80	93	103	120	133
	1500	-								39	45	54	64	76	89	99	115	128
	1200	-								36	42	51	60	72	83	93	108	122
	1000	-								34	39	48	56	67	79	88	102	116
	900	-								33	37	46	54	65	76	85	99	113
	750	-								30	35	42	50	61	71	80	93	106
Quadruple Reduction Vertical Type 315	1800	-								42	49	59	69	82	96	107	124	139
	1500	-								40	46	56	65	78	91	101	118	133
	1200	-								37	42	52	61	73	85	95	110	125
	1000	-								34	39	48	57	68	80	89	104	119
	900	-								33	38	46	55	66	77	86	100	115
	750	-								31	35	43	51	61	72	81	94	108
Quadruple Reduction Upright Type 315	1800	-								41	48	58	67	81	94	104	121	
	1500	-								39	45	55	64	77	89	99	116	
	1200	-								36	42	51	60	72	84	93	109	
	1000	-								34	39	48	56	68	79	88	103	
	900	-								33	37	46	54	65	76	85	99	
	750	-								30	35	42	50	61	71	80	93	

Speed Reducer Selection Tables Dimension Tables

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 315 ▶ 400

Size of Reducer											L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio		
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136					
317.35	305.90	299.46	328.33	313.90	316.08	314.53	314.53	298.95	323.52	323.52	Exact Reduction Ratio				
60	74	91	99	124	157	182	212	266	278	328	5.7	1800	315		
50	62	76	83	103	131	152	177	222	232	274	4.8	1500			
40	49	60	66	83	105	122	142	178	186	220	3.8	1200			
33	41	50	55	69	88	101	118	149	155	183	3.2	1000			
30	37	45	50	62	79	91	106	134	140	165	2.9	900			
25.2	31	38	41	52	66	76	89	112	117	138	2.4	750			
346.58	349.61	338.53	375.23	370.97	362.44	341.25	341.25	355.99					Exact Reduction Ratio		
55	65	80	87	105	137	168	195	224				5.1	1800	355	
45	54	67	72	87	114	140	163	187				4.2	1500		
36	43	53	58	70	92	112	131	150				3.4	1200		
30	36	45	48	58	76	93	109	125				2.8	1000		
27.6	32	40	43	52	69	84	98	112				2.5	900		
23.0	27.4	33	36	44	57	70	82	94				2.1	750		
397.55	389.79	386.90	418.36	423.96	414.22	391.44	391.44	386.24					Exact Reduction Ratio		
48	58	70	78	92	120	146	170	207				4.5	1800	400	
40	49	59	65	76	100	122	142	172				3.8	1500		
32	39	47	52	61	80	98	114	138				3.0	1200		
26.8	32	39	43	51	67	81	95	115				2.5	1000		
24.1	29.5	35	39	46	60	73	85	104				2.3	900		
20.1	24.6	29.6	32	38	50	61	71	86				1.9	750		
B-156 B-156 B-156 B-156 B-156 B-158 B-158 B-158 B-160 B-160 B-160 B-178 B-178 B-178 B-178 B-178											Horizontal Vertical Upright	Dimension Tables			

Notes

- For ✕ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer											Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136				
142	172	187	215	237	260	316	316	353	433	433	-	1800	Quadruple Reduction Horizontal Type	
137	166	181	207	229	250	304	304	342	419	419	-	1500		
130	158	173	197	217	237	289	289	327	400	400	-	1200		
124	151	165	188	207	226	275	275	313	383	383	-	1000		
120	147	160	182	201	219	267	267	305	372	372	-	900		
113	139	152	172	190	207	253	253	289	354	354	-	750	400	
148	180	196	223	246								-	1800	Quadruple Reduction Vertical Type
142	172	188	214	235								-	1500	
134	163	178	201	222								-	1200	
127	154	169	191	211								-	1000	
122	150	164	185	204								-	900	
115	141	154	174	192								-	750	400
											-	1800	Quadruple Reduction Upright Type	
											-	1500		
											-	1200		
											-	1000		
											-	900		
											-	750	400	

Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 450 ▶ 500

MECHANICAL POWER RATING (kW)

Nominal Reduction Ratio	H.Speed Shaft Speed r/min	L.Speed Shaft Speed r/min	Size of Reducer													
			9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
450	Exact Reduction Ratio									451.41		448.40		428.67		431.03
	1800	4.0								8.3		13.2		22.2		32
	1500	3.3								6.9		11.0		18.5		27.1
	1200	2.7								5.6		8.8		14.8		21.7
	1000	2.2								4.6		7.3		12.4		18.1
	900	2.0								4.2		6.6		11.1		16.3
750	1.7								3.5		5.5		9.3		13.6	
500	Exact Reduction Ratio									492.99		518.66		498.04		478.93
	1800	3.6								7.6		11.4		19.1		29.2
	1500	3.0								6.4		9.5		16.0		24.4
	1200	2.4								5.1		7.6		12.8		19.5
	1000	2.0								4.2		6.3		10.7		16.3
	900	1.8								3.8		5.7		9.6		14.7
750	1.5								3.2		4.8		8.0		12.2	
Dimension Tables	Horizontal									B-152		B-154		B-154		B-154
	Vertical									B-174		B-176		B-176		B-176
	Upright									B-188		B-190		B-190		B-190

THERMAL POWER RATING (kW)

Speed Reducer	Nominal Reduction Ratio	H.Speed Shaft Speed r/min	Number of Cooling Fans	Size of Reducer													
				9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
Selection Tables	Quadruple Reduction Horizontal Type	1800	-								49		67		92		120
		1500	-								47		64		88		115
	1200	-									43		59		82		108
	1000	-									40		56		77		102
	▼ 900	-									39		53		74		98
	750	-									36		50		69		92
Dimension Tables	Quadruple Reduction Vertical Type	1800	-								50		69		94		123
		1500	-								48		65		89		117
	1200	-									44		60		83		109
	1000	-									41		56		78		103
	▼ 900	-									39		54		75		99
	750	-									36		50		70		93
Dimension Tables	Quadruple Reduction Upright Type	1800	-								49		67		92		120
		1500	-								47		64		88		115
	1200	-									43		59		82		108
	1000	-									41		56		77		102
	▼ 900	-									39		53		74		98
	750	-									36		50		69		92

SELECTION Parallel Shaft Quadruple Reduction Nominal Reduction Ratio 450 ▶ 500

Size of Reducer										L.Speed Shaft Speed r/min	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
424.05	431.36		472.69	461.82							Exact Reduction Ratio		
45	63		82	108							4.0	1800	450
37	52		69	90						3.3	1500		
30	42		55	72						2.7	1200		
25.1	35		46	60						2.2	1000		
22.6	31		41	54						2.0	900		
18.9	26.6		34	45						1.7	750		
											Exact Reduction Ratio		
											3.6	1800	500
											3.0	1500	
											2.4	1200	
											2.0	1000	
											1.8	900	
											1.5	750	
B-156	B-156		B-156	B-158							Horizontal	Dimension Tables	
B-178	B-178		B-178								Vertical Upright		

Notes

- For ※ marked values, the forced oil lubrication is required at continuous operation.
- Consult us when the high speed shaft speed is over 1800r/min.
- When the high speed shaft speed is not shown in the table, find it by the interpolation method.
- When the high speed shaft speed (N) is lower than 750r/min, find the mechanical power rating (PN) according to the following formula.

$$PN = P_{750} \times \frac{N}{750}$$
- Shown in the table are the ratings for the slow speed shaft.
- Refer to B132-B135 for the allowable radial and axial load on each shaft.

Size of Reducer										Number of Cooling Fans	H.Speed Shaft Speed r/min	Nominal Reduction Ratio	
9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136			
143	184		233	256							-	1800	Quadruple Reduction Horizontal Type
138	178		225	246							-	1500	
131	170		213	233							-	1200	
125	162		203	221							-	1000	
121	157		196	214							-	900	
114	148		185	202							-	750	500
149	192		241								-	1800	Quadruple Reduction Vertical Type
143	184		231								-	1500	
134	174		217								-	1200	
127	165		206								-	1000	
123	160		199								-	900	
116	151		188								-	750	500
											-	1800	Quadruple Reduction Upright Type
											-	1500	
											-	1200	
											-	1000	
											-	900	
											-	750	500

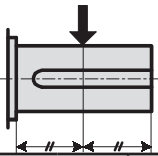
Ambient Temperature °C	Temperature Correction Factor	
	Without Fan	With Fan
20	1.00	1.00
30	0.85	0.87
40	0.70	0.73
50	0.55	0.60

Notes

- Shown in the table are the ratings for models without a fan cooling unit and those with a fan. (-: none fan, 1: with a fan)
- The values are applicable to continuous operation at ambient temperatures of 20 °C or less. When the temperature is out of the range, refer to the temperature correction factor shown above.
- When the high speed shaft speed is not shown in the table, find it by interpolation method.

SELECTION Allowable Radial and Axial Loads on Slow Speed Parallel shaft

Allowable Radial Load (kN)



Sheet 1

Applicable to configurations: RL, LR, BL

L.Speed Shaft Speed r/min	Size of Reducer																
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	9095	9100
250	11.8	17.7	17.7	29.4	29.9	32.4	37.8	46.6	39.7	49.1	44.1	77.0	77.0	100.1	100.1	137.8	139.8
160	11.8	17.7	20.1	31.4	32.4	33.8	39.7	48.1	41.7	50.5	46.1	89.0	89.0	108.9	108.9	145.7	157.5
Standard bearing model 100	11.8	17.7	25.0	35.3	38.7	39.2	47.1	53.5	47.6	54.4	54.4	99.0	99.0	122.1	122.1	147.6	166.3
63	11.8	17.7	26.5	35.3	42.2	47.1	54.9	62.3	58.9	64.3	65.2	131.5	131.5	125.6	125.6	143.7	165.3
40	11.8	17.7	26.5	35.3	42.2	49.1	54.9	67.7	71.1	78.0	79.0	141.0	141.0	125.1	125.1	137.8	164.8
≤ 25	11.8	17.7	26.5	35.3	42.2	49.1	54.9	67.7	81.4	95.2	99.1	139.5	139.5	122.6	122.6	135.4	163.3
Heavy duty bearing model 250									71.1	93.7	70.1	122.5	122.5	141.8	141.8	158.9	181.0
160									78.0	94.7	77.5	137.5	137.5	132.4	132.4	151.6	174.6
100									81.4	98.1	92.2	149.5	149.5	127.0	127.0	147.6	166.8
63									81.4	98.1	114.8	149.0	149.0	125.6	125.6	143.7	165.8
40									81.4	98.1	117.7	148.5	148.5	125.1	125.1	137.8	165.3
≤ 25									81.4	98.1	117.7	147.0	147.0	122.6	122.6	135.4	163.8

Sheet 2

Applicable to configurations: RR, LL, BR

L.Speed Shaft Speed r/min	Size of Reducer																
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	9095	9100
250	8.3	15.2	9.8	21.6	19.1	21.6	22.6	31.4	16.7	28.4	17.2	44.0	44.0	58.4	58.4	97.6	80.4
160	9.8	17.7	12.3	23.1	20.6	23.1	24.0	31.4	18.1	27.0	17.7	55.5	55.5	64.3	64.3	103.0	96.1
Standard bearing model 100	11.8	17.7	16.7	29.4	26.0	27.5	28.4	35.3	22.1	30.4	25.5	63.5	63.5	74.6	74.6	110.9	105.9
63	11.8	17.7	21.6	35.3	32.9	35.3	37.3	42.7	33.4	38.3	33.8	95.0	95.0	104.5	104.5	148.1	153.5
40	11.8	17.7	26.5	35.3	41.7	43.7	48.6	55.4	45.1	51.5	47.6	129.0	129.0	146.7	146.7	172.2	203.6
≤ 25	11.8	17.7	26.5	35.3	42.2	49.1	54.9	67.7	60.8	68.7	67.7	167.0	167.0	171.2	171.2	171.2	215.3
Heavy duty bearing model 250									46.1	74.6	40.2	90.0	90.0	114.8	114.8	156.0	150.6
160									52.0	72.1	45.6	103.5	103.5	125.1	125.1	164.8	170.7
100									60.3	79.0	59.4	116.0	116.0	140.8	140.8	176.1	187.4
63									81.4	96.6	80.0	152.5	152.5	174.1	174.1	186.9	218.8
40									81.4	98.1	108.9	192.0	192.0	191.8	191.8	193.7	241.8
≤ 25									81.4	98.1	117.7	180.5	180.5	171.2	171.2	171.2	214.8

Allowable Axial Load (kN)



L.Speed Shaft Speed r/min	Size of Reducer																
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	9090	9095	9100
250	9.3	11.4	14.7	23.1	26.5	31.4	32.9	31.9	27.0	43.2	28.0	28.0	23.5	23.5	31.4	52.0	45.1
160	9.3	11.4	18.1	23.1	28.4	31.4	33.4	31.9	28.9	43.2	28.4	28.4	27.5	27.5	34.3	53.0	53.0
Standard bearing model 100	9.3	11.4	24.5	23.1	32.9	31.4	37.3	31.9	34.3	43.2	39.7	39.7	32.9	32.9	43.2	59.4	58.4
63	9.3	11.4	26.5	23.1	32.9	31.4	37.3	31.9	49.1	43.2	52.5	52.5	45.6	45.6	54.0	59.8	81.4
40	9.3	11.4	26.5	23.1	32.9	31.4	37.3	31.9	49.1	43.2	61.4	61.4	63.3	60.3	59.8	59.8	83.4
≤ 25	9.3	11.4	26.5	23.1	32.9	31.4	37.3	31.9	49.1	43.2	61.4	61.4	67.7	60.3	59.8	59.8	83.4
Heavy duty bearing model 250									23.1	34.8	18.6	18.6	56.9	56.9	59.8	59.8	83.4
160									25.0	33.4	21.1	21.1	56.9	56.9	59.8	59.8	83.4
100									29.4	36.8	27.5	27.5	56.9	56.9	59.8	59.8	83.4
63									39.2	43.2	36.3	36.3	56.9	56.9	59.8	59.8	83.4
40									39.2	43.2	49.1	49.1	56.9	56.9	59.8	59.8	83.4
≤ 25									39.2	43.2	56.9	56.9	56.9	56.9	59.8	59.8	83.4

SELECTION Allowable Radial and Axial Loads on Slow Speed Parallel shaft

Size of Reducer									L.Speed Shaft Speed r/min	
9105	9110	9115	9118	9121	9126	9128	9131	9136		
192.3	167.8	222.7							250	Standard bearing model
200.6	174.1	234.9							160	
183.9	184.9	245.7	391.9	352.7	330.6	315.4	403.2	391.9	100	Standard bearing model
178.1	190.8	303.1	387.5	369.3	341.4	328.6	462.5	430.7	63	
173.6	194.7	320.8	460.1	449.3	401.2	409.6	572.4	511.1	40	
167.3	184.9	316.4	448.3	554.8	497.4	534.6	733.8	638.6	≤ 25	
213.9	250.6	316.9							250	Heavy duty bearing model
200.6	214.8	334.5							160	
183.9	195.2	340.9							100	
178.1	190.8	333.5							63	
173.6	194.7	320.8							40	
167.3	184.9	316.4							≤ 25	

Unit: kN

Size of Reducer									L.Speed Shaft Speed r/min	
9105	9110	9115	9118	9121	9126	9128	9131	9136		
131.5	94.2	152.5							250	Standard bearing model
138.3	92.2	155.0							160	
146.7	101.0	167.3	312.0	228.1	197.7	159.4	203.6	190.3	100	Standard bearing model
200.1	144.7	220.7	292.3	244.3	206.0	170.7	260.9	218.8	63	
235.4	199.1	250.2	373.3	322.7	257.0	250.2	369.3	286.5	40	
304.1	272.7	353.2	460.1	427.2	348.7	373.3	528.3	398.3	≤ 25	
213.4	191.3	248.7							250	Heavy duty bearing model
223.2	197.7	261.4							160	
236.9	210.4	274.2							100	
301.7	267.8	341.9							63	
304.1	323.7	382.1							40	
304.1	323.7	374.7							≤ 25	

Unit: kN

Size of Reducer									L.Speed Shaft Speed r/min	
9105	9110	9115	9118	9121	9126	9128	9131	9136		
50.0	50.0	76.5							250	Standard bearing model
49.5	49.5	76.5							160	
54.0	54.0	83.4	119.7	121.6	116.7	91.2	113.3	107.9	100	Standard bearing model
74.6	74.6	83.4	119.7	121.6	121.6	96.6	140.3	122.6	63	
83.4	83.4	83.4	119.7	121.6	121.6	134.9	191.3	155.5	40	
83.4	83.4	83.4	119.7	121.6	121.6	144.2	192.3	192.3	≤ 25	
83.4	83.4	83.4							250	Heavy duty bearing model
83.4	83.4	83.4							160	
83.4	83.4	83.4							100	
83.4	83.4	83.4							63	
83.4	83.4	83.4							40	
83.4	83.4	83.4							≤ 25	

Unit: kN

Overhang Factor

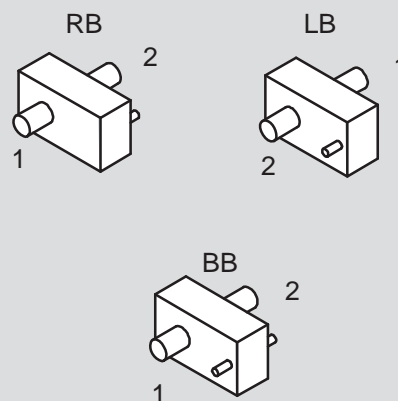
Overhang Member	Overhang Factor
Sprocket (Single Row)	1
Sprocket (Double Row)	1.25
Gears	1.25

Notes

- The value shown in the table is allowable radial load when it is applied to the center of the solid shaft (except hollow shaft). Consult us when a load is not in the center.
- Consult us for the blanks in the table.
- Consult us when the radial load is applied upward.
- In case of double projection shaft (RB, LB, BB)
 - See sheet1 when the radial load is applied only to the shaft1.
 - See sheet2 when the radial load is applied only to the shaft2.
 - Consult us when the radial load is applied to both shafts.
- Refer to B-6 to check overhang load, and calculate equivalent load at peak load value. Be careful under following condition because large peak load may be generated.

Application: When the inertia is large, such as for crane driving, slewing, etc.

Motor: inline motor
Connecting method: Sprocket or gear
Consult us when the peak load is larger than allowable value.



SELECTION Allowable Radial and Axial Loads on Slow Speed Parallel shaft

Size of Reducer									L.Speed Shaft Speed r/min		
9105	9110	9115	9118	9121	9126	9128	9131	9136			
19600	17100	22700								250	Standard bearing model
20450	17750	23950								160	
18750	18850	25050	39950	35950	33700	32150	41100	39950	100	Standard bearing model	
18150	19450	30900	39500	37650	34800	33500	47150	43900	63		
17700	19850	32700	46900	45800	40900	41750	58350	52100	40	Heavy duty bearing model	
17050	18850	32250	45700	56550	50700	54500	74800	65100	≤ 25		
21800	25550	32300								250	Heavy duty bearing model
20450	21900	34100								160	
18750	19900	34750								100	Heavy duty bearing model
18150	19450	34000								63	
17700	19850	32700								40	Heavy duty bearing model
17050	18850	32250								≤ 25	

Unit: kgf

Size of Reducer									L.Speed Shaft Speed r/min		
9105	9110	9115	9118	9121	9126	9128	9131	9136			
13400	9600	15550								250	Standard bearing model
14100	9400	15800								160	
14950	10300	17050	31800	23250	20150	16250	20750	19400	100	Standard bearing model	
20400	14750	22500	29800	24900	21000	17400	26600	22300	63		
24000	20300	25500	38050	32900	26200	25500	37650	29200	40	Heavy duty bearing model	
31000	27800	36000	46900	43550	35550	38050	53850	40600	≤ 25		
21750	19500	25350								250	Heavy duty bearing model
22750	20150	26650								160	
24150	21450	27950								100	Heavy duty bearing model
30750	27300	34850								63	
31000	33000	38950								40	Heavy duty bearing model
31000	33000	38200								≤ 25	

Unit: kgf

Size of Reducer									L.Speed Shaft Speed r/min		
9105	9110	9115	9118	9121	9126	9128	9131	9136			
5100	5100	7800								250	Standard bearing model
5050	5050	7800								160	
5500	5500	8500	12200	12400	11900	9300	11550	11000	100	Standard bearing model	
7600	7600	8500	12200	12400	12400	9850	14300	12500	63		
8500	8500	8500	12200	12400	12400	13750	19500	15850	40	Heavy duty bearing model	
8500	8500	8500	12200	12400	12400	14700	19600	19600	≤ 25		
8500	8500	8500								250	Heavy duty bearing model
8500	8500	8500								160	
8500	8500	8500								100	Heavy duty bearing model
8500	8500	8500								63	
8500	8500	8500								40	Heavy duty bearing model
8500	8500	8500								≤ 25	

Unit: kgf

Overhang Factor

Overhang Member	Overhang Factor
Sprocket (Single Row)	1
Sprocket (Double Row)	1.25
Gears	1.25

Notes

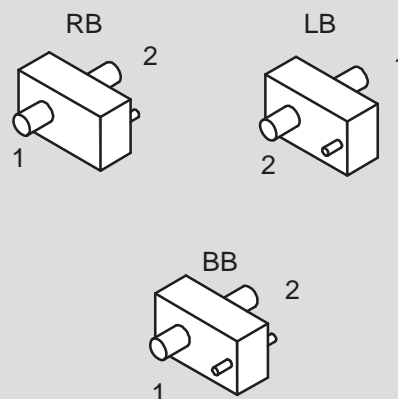
- The value shown in the table is allowable radial load when it is applied to the center of the solid shaft (except hollow shaft). Consult us when a load is not in the center.
- Consult us for the blanks in the table.
- Consult us when the radial load is applied upward.
- In case of double projection shaft (RB, LB, BB)
 - See sheet1 when the radial load is applied only to the shaft1.
 - See sheet2 when the radial load is applied only to the shaft2.
 - Consult us when the radial load is applied to both shafts.
- Refer to B-6 to check overhang load, and calculate equivalent load at peak load value. Be careful under following condition because large peak load may be generated.

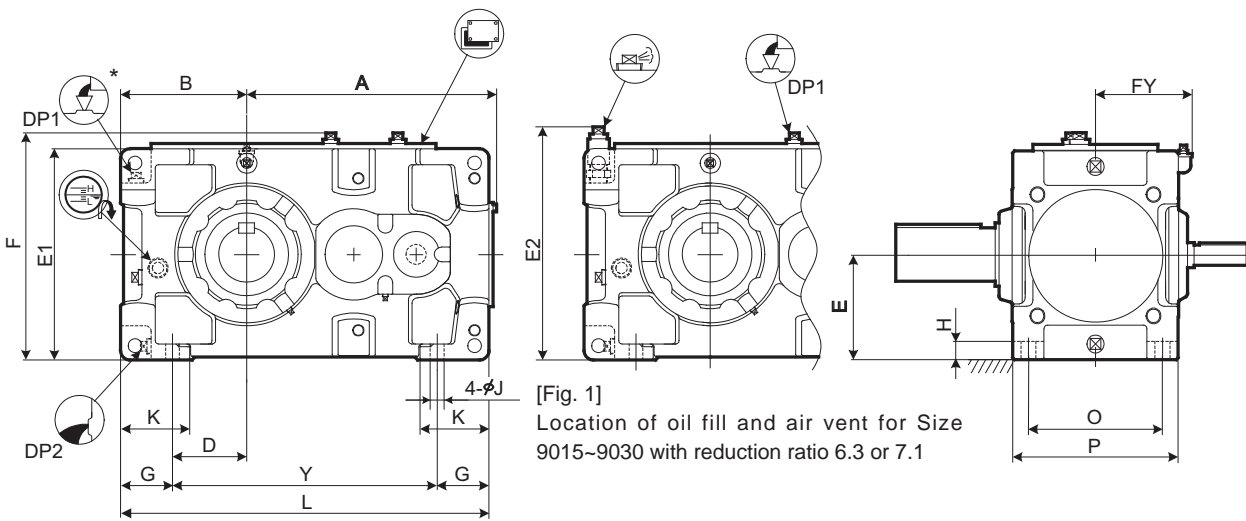
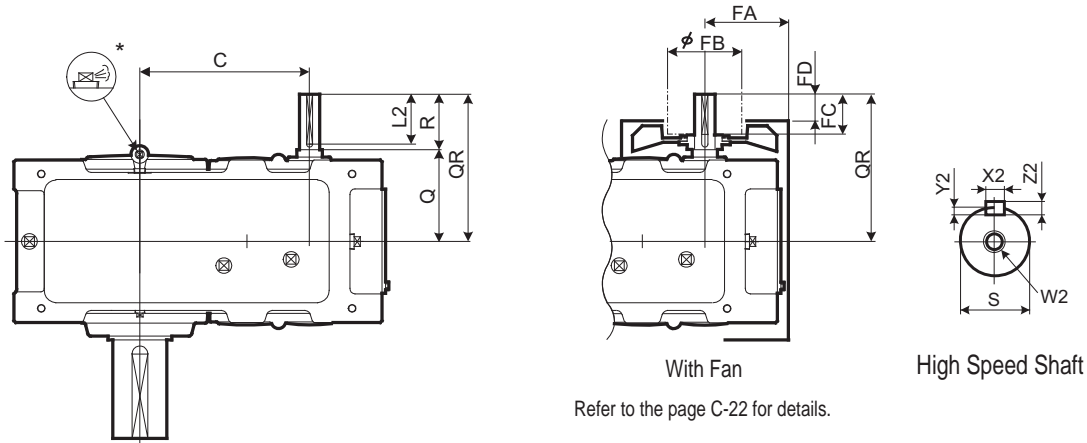
Application: When the inertia is large, such as for crane driving, slewing, etc.

Motor: inline motor

Connecting method: Sprocket or gear

Consult us when the peak load is larger than allowable value.





* Location of oil fill and air vent changes for Size 9015-9030 with reduction ratio 6.3 or 7.1. Refer to Fig. 1.

Size	A	B	C	D	E	E1	E2	F	FY	G	H	J	K	L	O	P	Y
9015	295	160	194	90	135	270	309	299	129	70	22	15	95	440	170	205	300
9025	346	175	227	95	155	310	346	339	142	80	25	19	110	505	195	235	345
9030	406	200	264	110	160	320	353	349	154	90	28	24	120	590	215	265	410
9035	437	219	295	129	185	370		399	154	90	28	24	120	640	215	265	460
9040	467	235	306	120	200	400		431	172	115	30	28	150	685	255	315	455
9045	506	256	345	141	220	440		471	172	115	30	28	150	745	255	315	515
9050	537	255	358	138.5	210	420		451	192	116.5	32	28	150	775	285	345	542
9055	576	286	397	171	245	490		521	192	115	32	28	150	845	285	345	615

Size	High Speed Shaft									Fan				DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC	FD				
9015	131	211	80	30k6	M10/22	8	4	7	70	129	125	50	30	3/4"	3/4"	100	5
9025	146	226	80	35k6	M12/28	10	5	8	70	143	140	50	30	3/4"	3/4"	140	7
9030	159	269	110	40k6	M16/36	12	5	8	95	169	140	80	52	3/4"	3/4"	195	10
9035	159	269	110	40k6	M16/36	12	5	8	95	169	140	80	52	3/4"	3/4"	215	12
9040	174	284	110	50k6	M16/36	14	5.5	9	95	188	160	80	52	1"	1"	285	16
9045	174	284	110	50k6	M16/36	14	5.5	9	95	188	160	80	52	1"	1"	345	18
9050	193	303	110	55m6	M20/42	16	6	10	95	208	160	80	52	1"	1"	415	21
9055	193	303	110	55m6	M20/42	16	6	10	95	208	160	80	52	1"	1"	475	28

Unit: mm

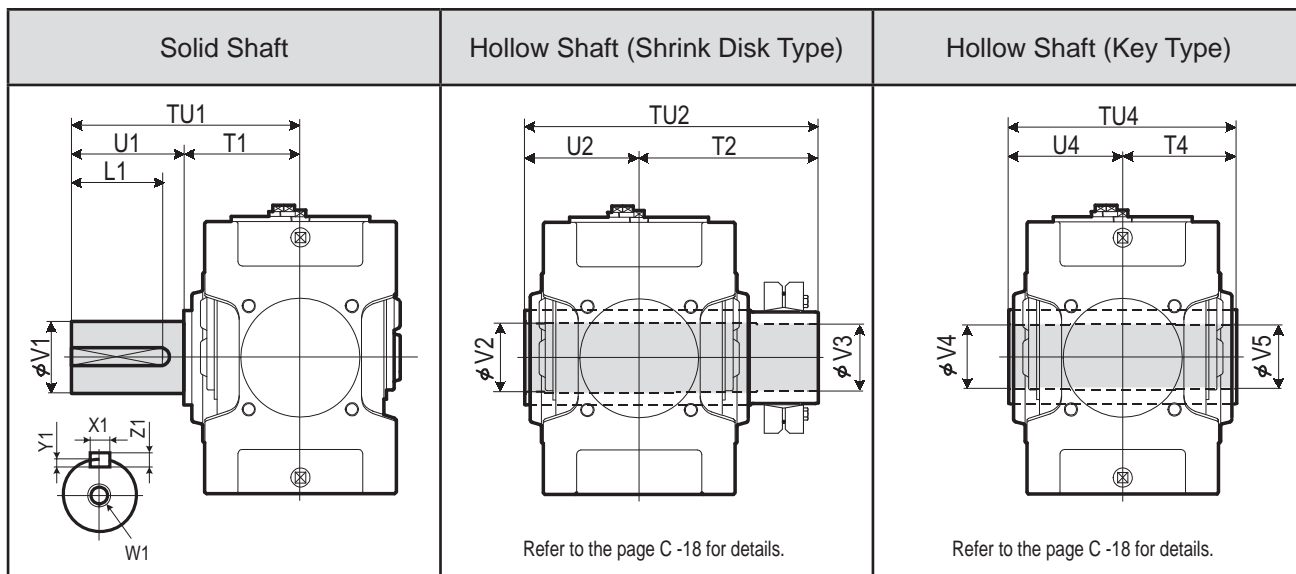
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-12 for dimensions shown in these drawings.

4. Refer to the page C-24 for the dimension of optional parts.
 5. When fastening the mounting bolt, it is necessary to remove the fan food.

DIMENSIONS Parallel Shaft Double Reduction Horizontal Mounting 9015 ▶ 9055

PARAMAX Horizontal Monoblock 9015 9055 Parallel Double Reduction P H A P 2

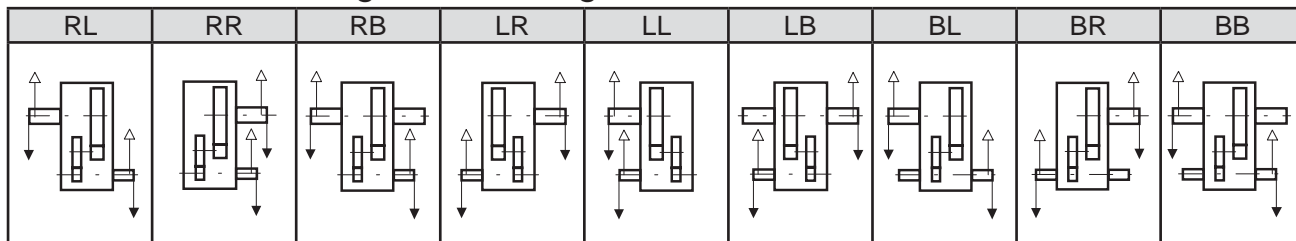
Slow Speed Shaft



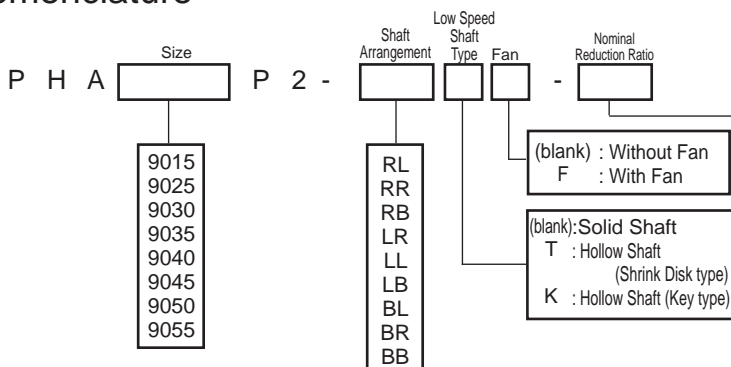
Size	Solid Shaft									Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9015	245	135	110	58m6	M20/42	18	7	11	95	328	193	135	63	60	270	135	135	55	55
9025	285	145	140	70m6	M20/42	20	7.5	12	125	358	213	145	73	70	300	150	150	65	65
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115

Unit: mm

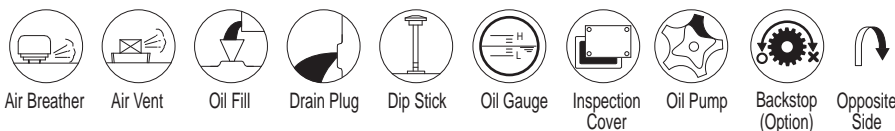
Standard Shaft Arrangement Configuration



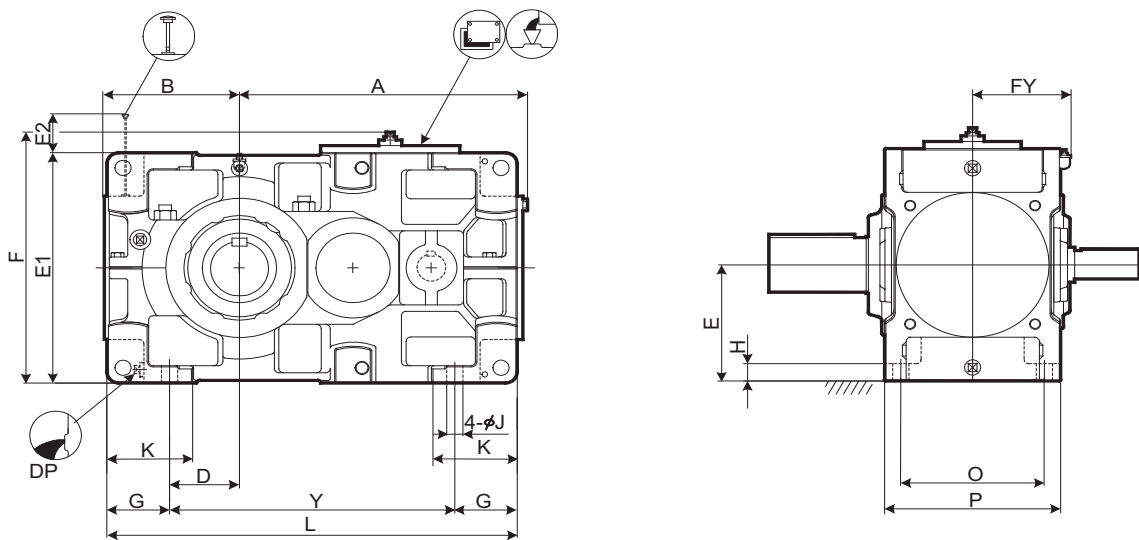
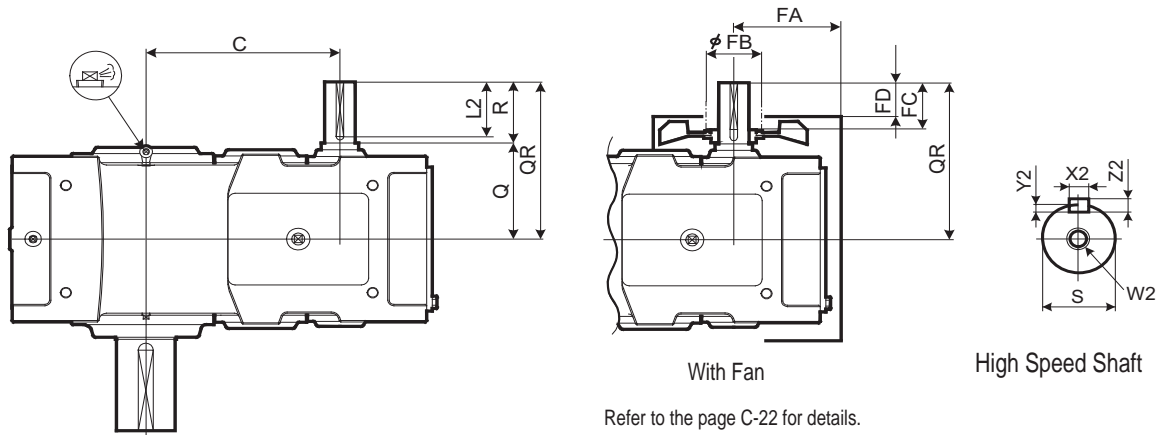
Nomenclature



Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9015	○	○	○	○	○	○	○	○	○	○		
9025	○	○	○	○	○	○	○	○	○	○		
9030	○	○	○	○	○	○	○	○	○	○		
9035			○	○	○	○	○	○	○	○	○	○
9040	○	○	○	○	○	○	○	○	○	○		
9045			○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○		
9055			○	○	○	○	○	○	○	○	○	○



DIMENSIONS Parallel Shaft Double Reduction Horizontal Mounting 9060 ▶ 9085



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	E2	F	FY	G	H	J	K	L	O	P	Y
9060	621	299	414	151	265	530	183	578	212	135	35	35	180	885	310	380	615
9065	667	338	460	190	300	600	148	648	212	135	35	35	180	970	310	380	700
9070	719	336	482	163	300	600	213	648	237	160	40	42	215	1020	350	430	700
9075	772	383	535	210	335	670	178	718	237	160	52	42	220	1120	350	430	800
9080	812	378	556	205	335	670	233	718	257	160	52	42	220	1155	380	460	835
9085	868	422	612	249	375	750	193	798	257	160	52	42	220	1255	380	460	935

Size	High Speed Shaft									Fan				DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC	FD			
9060	220	360	140	65m6	M20/42	18	7	11	125	240	200	105	65	1"	610	25
9065	220	360	140	65m6	M20/42	18	7	11	125	240	200	105	65	1"	735	32
9070	245	385	140	75m6	M20/42	20	7.5	12	125	274	225	105	65	1"	860	38
9075	245	385	140	75m6	M20/42	20	7.5	12	125	274	225	105	65	1"	1110	47
9080	264	434	170	85m6	M20/42	22	9	14	150	296	225	135	95	1"	1240	54
9085	264	434	170	85m6	M20/42	22	9	14	150	296	225	135	95	1"	1500	68

Unit: mm

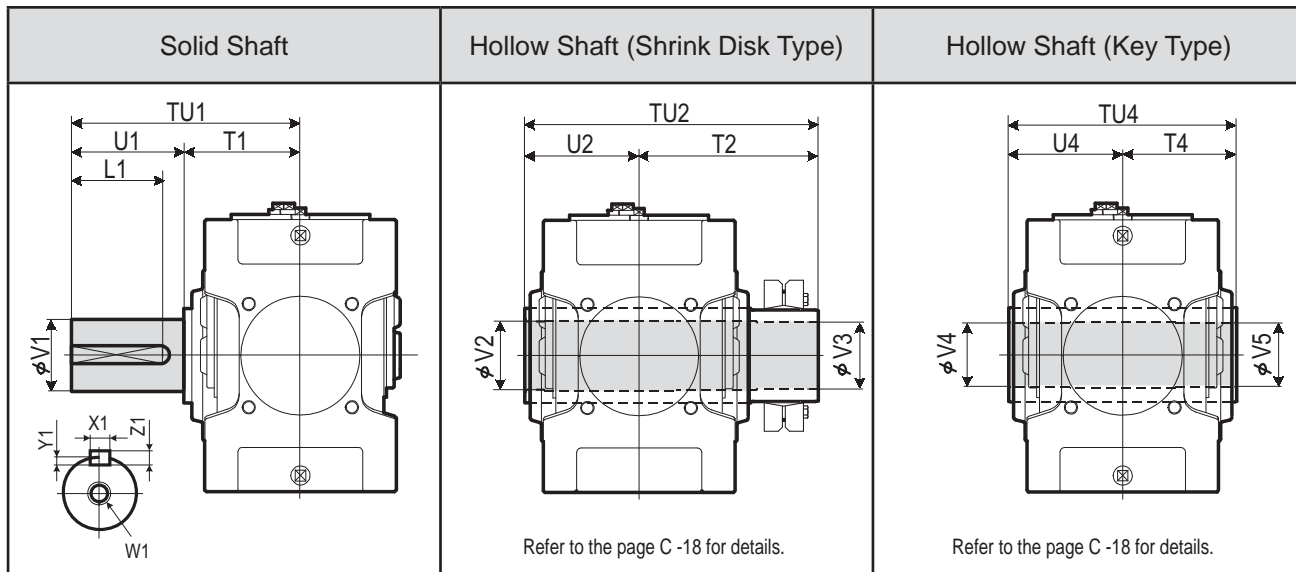
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. When fastening the mounting bolt, it is necessary to remove the fan food.

4. Refer to the page C-14 for dimensions not shown in these drawings.
 5. Refer to the page C-27 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Double Reduction Horizontal Mounting 9060 ▶ 9085

PARAMAX Horizontal Split 9060 9085 Parallel Double Reduction P H D P 2

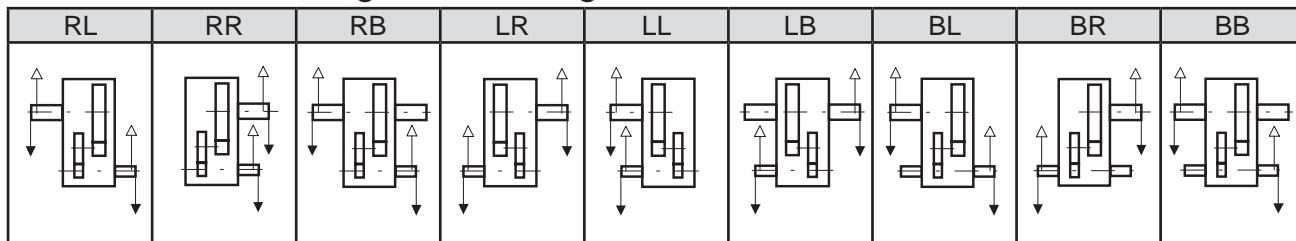
Slow Speed Shaft



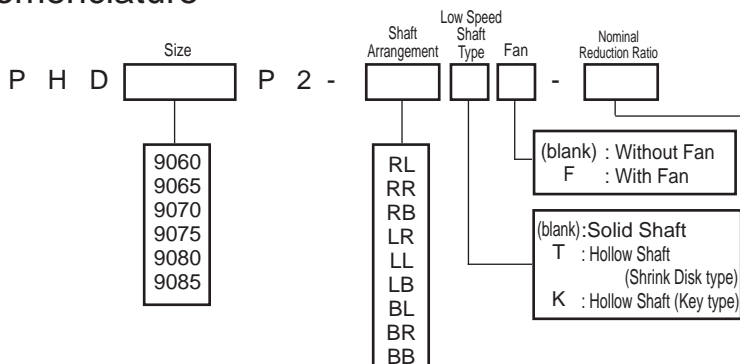
Size	Solid Shaft					Key				Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173

Unit: mm

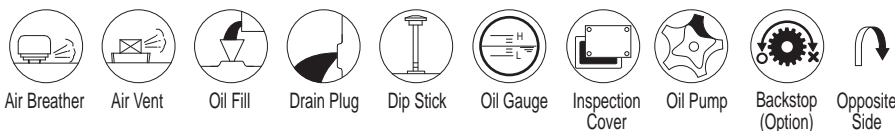
Standard Shaft Arrangement Configuration

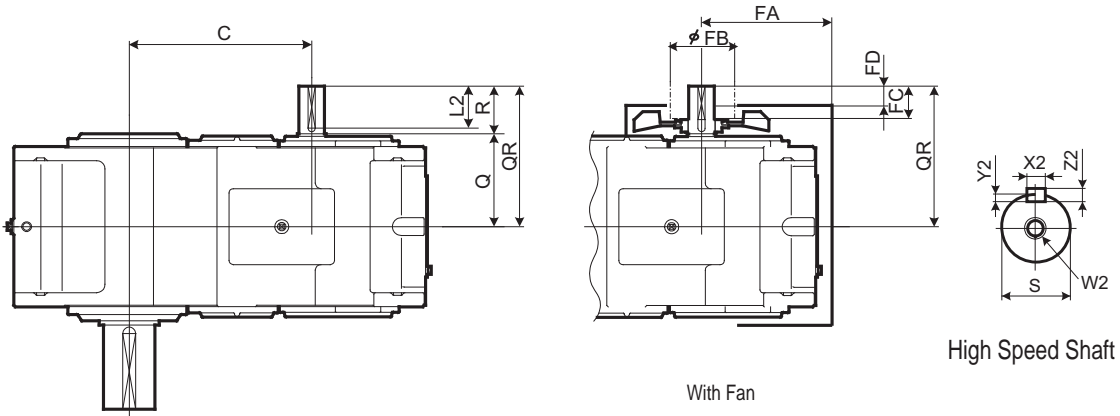


Nomenclature

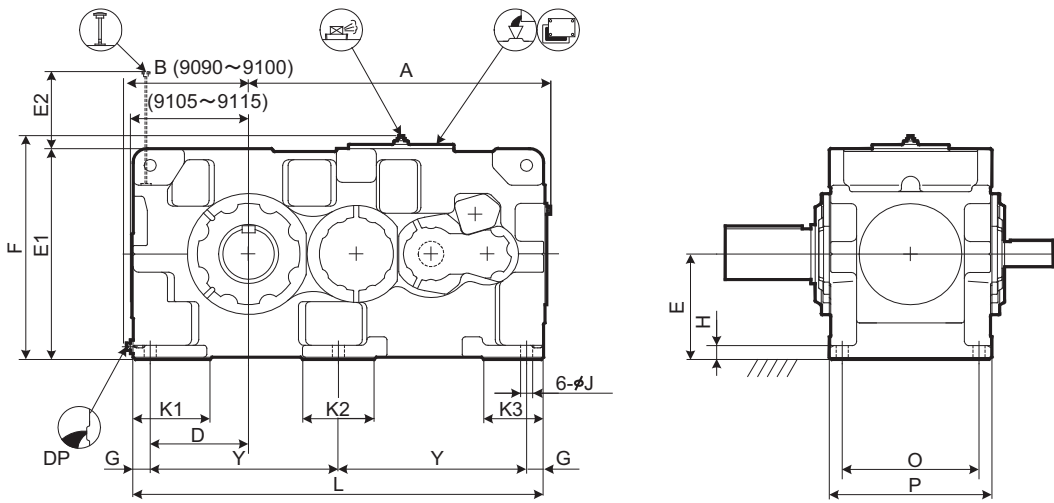


Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9060	○	○	○	○	○	○	○	○	○	○		
9065				○	○	○	○	○	○	○	○	○
9070				○	○	○	○	○	○	○	○	○
9075					○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○
9085					○	○	○	○	○	○	○	○





With Fan
Refer to the page C-22 for details.



Speed Reducer

Dimension Selection Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K1	K2	K3	L	O	P	Y
9090	1060	428	640	345	375	750	274	797	60	50	42	270	250	210	1440	480	570	660
9095	1090	458	670	375	400	800	286	847	60	50	42	290	250	210	1500	480	570	690
9100	1194	468	724	375	425	850	299	897	70	55	48	300	280	240	1610	560	650	735
9105	1228	493	758	410	450	900	316	947	70	55	48	320	280	240	1680	560	650	770
9110	1344	508	824	420	475	950	321	997	75	60	56	340	310	260	1810	610	710	830
9115	1393	558	873	470	500	1000	333	1047	75	60	56	350	310	260	1910	610	710	880

Size	High Speed Shaft					Key				Fan				DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC	FD			
9090	330	500	170	90m6	M24/50	25	9	14	150	465	250	135	90	1 1/2"	2050	120
9095	330	500	170	90m6	M24/50	25	9	14	150	465	250	135	90	1 1/2"	2300	140
9100	375	585	210	100m6	M24/50	28	10	16	190	515	250	175	130	1 1/2"	2730	170
9105	375	585	210	100m6	M24/50	28	10	16	190	515	250	175	130	1 1/2"	3290	205
9110	405	615	210	110m6	M24/50	28	10	16	190	565	250	175	130	1 1/2"	3960	240
9115	405	615	210	110m6	M24/50	28	10	16	190	565	250	175	130	1 1/2"	4410	290

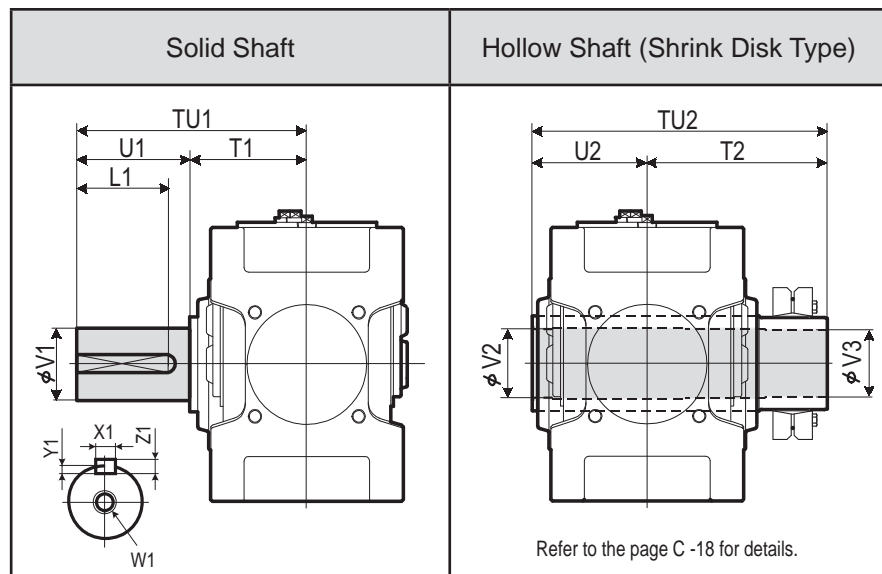
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-16 for dimensions not shown in these drawings.

4. Refer to the page C-30 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Double Reduction Horizontal Mounting 9090 ▶ 9115

Slow Speed Shaft

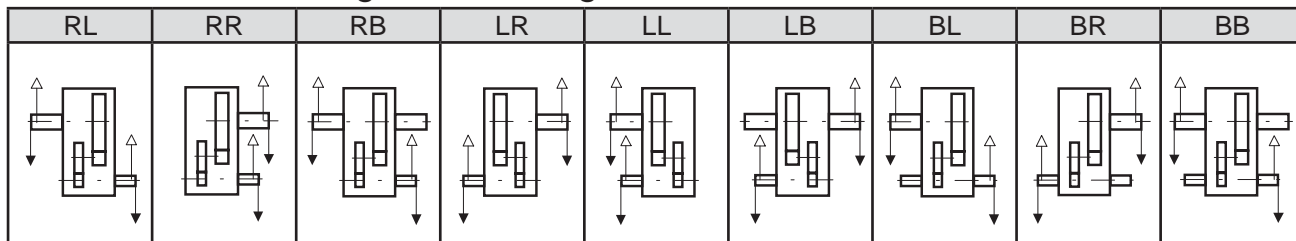


Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	
						X1	Y1	Z1	L1						
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190	
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200	
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210	
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220	
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240	
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250	

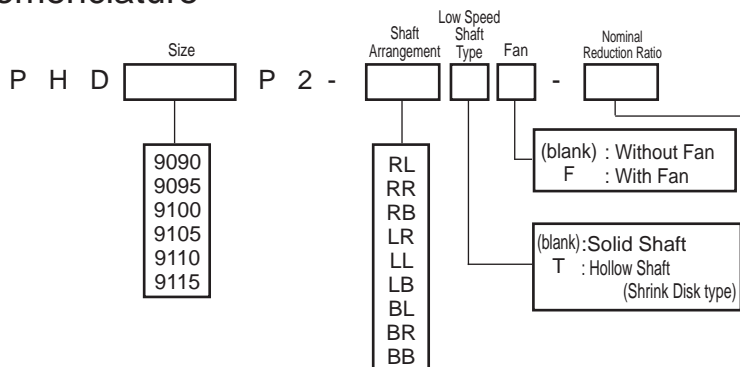
Unit: mm

PARAMAX Horizontal Split 9090 9115 Parallel Double Reduction 2

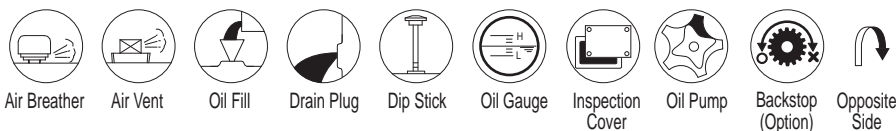
Standard Shaft Arrangement Configuration



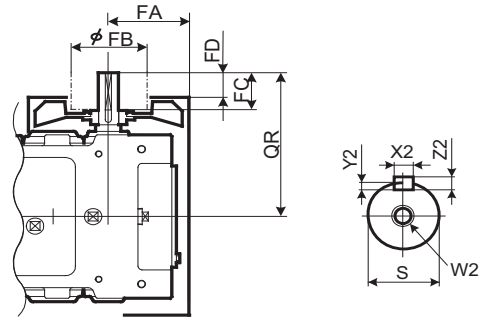
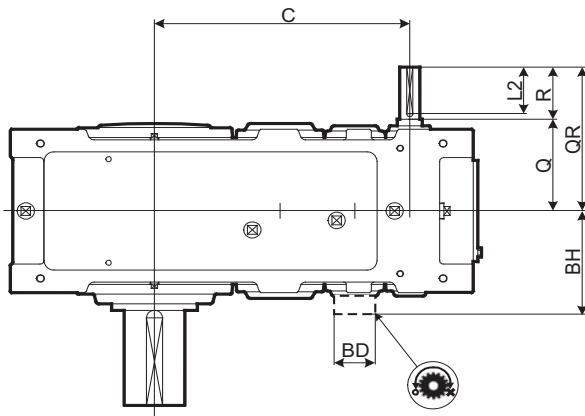
Nomenclature



Size	Nominal Reduction Ratio										
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20
9090	○	○	○	○	○	○	○	○	○	○	
9095		○	○	○	○	○	○	○	○	○	○
9100	○	○	○	○	○	○	○	○	○	○	○
9105		○	○	○	○	○	○	○	○	○	○
9110	○	○	○	○	○	○	○	○	○	○	○
9115		○	○	○	○	○	○	○	○	○	○



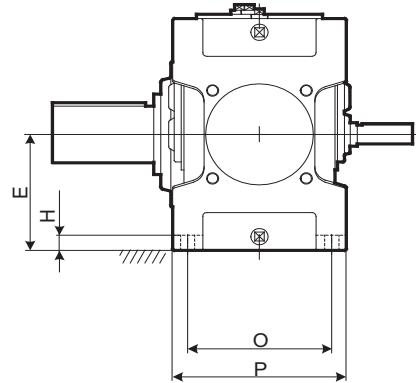
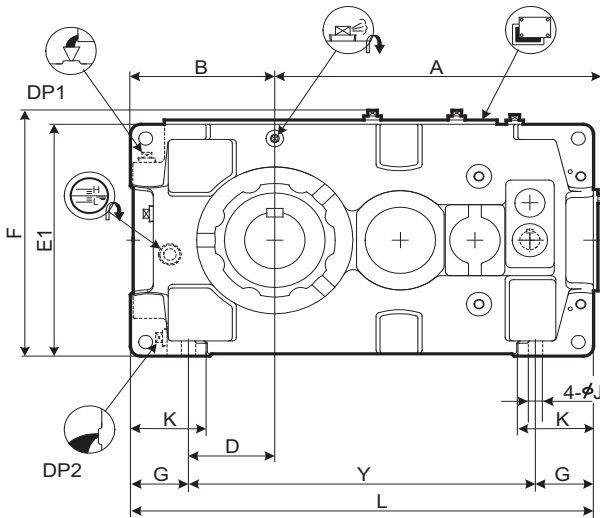
DIMENSIONS Parallel Shaft Triple Reduction Horizontal Mounting 9015 ▶ 9055



High Speed Shaft

With Fan

Refer to the page C-23 for details.



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	Y
9015	338	160	257	90	135	270	299	70	22	15	95	485	170	205	345
9025	408	175	306	95	155	310	339	80	25	19	110	570	195	235	410
9030	453	200	343	110	160	320	349	90	28	24	120	640	215	265	460
9035	484	219	374	129	185	370	399	90	28	24	120	690	215	265	510
9040	540	235	398	120	200	400	431	115	30	28	150	759	255	315	529
9045	577	256	437	141	220	440	471	115	30	28	150	819	255	315	589
9050	609	255	467	138.5	210	420	451	116.5	32	28	150	848	285	345	615
9055	648	286	506	171	245	490	521	115	32	28	150	918	285	345	688

Size	High Speed Shaft									Fan				Backstop		DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC	FD	BD	BH				
9015	130	190	60	25k6	M10/22	8	4	7	50	111	125	30	10			3/4"	3/4"	105	5
9025	144	204	60	28k6	M10/22	8	4	7	50	129	125	30	10			3/4"	3/4"	150	8
9030	161	241	80	30k6	M10/22	8	4	7	70	140	125	50	30			3/4"	3/4"	205	10
9035	161	241	80	30k6	M10/22	8	4	7	70	150	140	50	22			3/4"	3/4"	225	13
9040	176	256	80	35k6	M12/28	10	5	8	70	170	140	50	22			1"	1"	305	19
9045	176	256	80	35k6	M12/28	10	5	8	70	170	140	50	22			1"	1"	375	21
9050	194	304	110	40k6	M16/36	12	5	8	95	172	140	80	52	150	263	1"	1"	445	24
9055	194	304	110	40k6	M16/36	12	5	8	95	172	140	80	52	150	263	1"	1"	505	29

Unit: mm

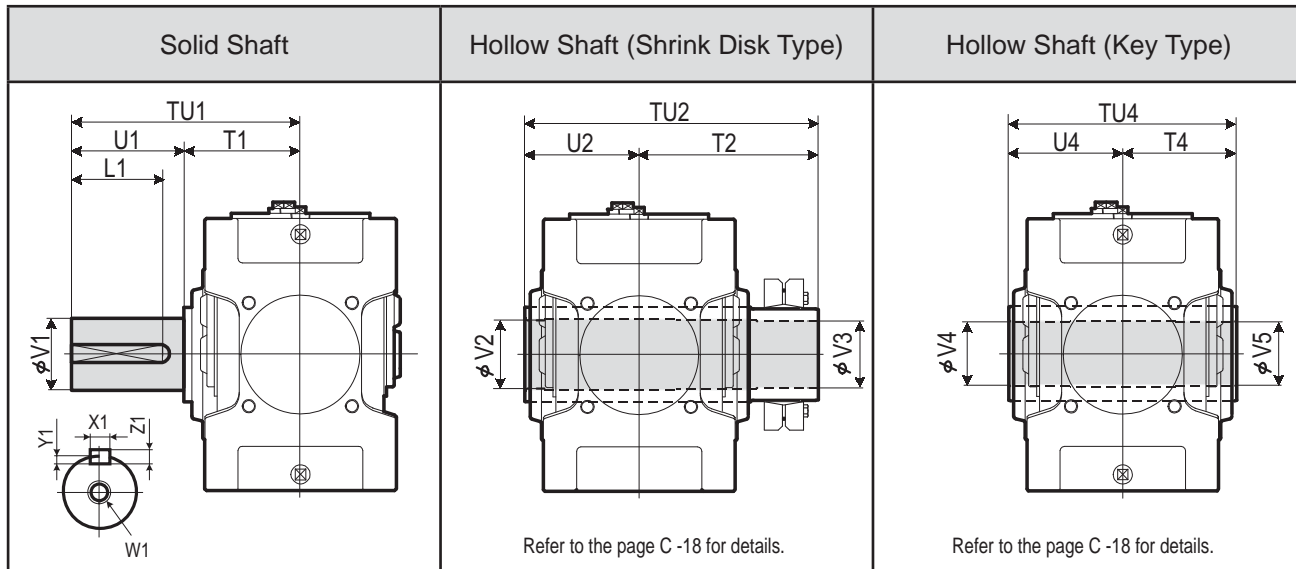
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. When fastening the mounting bolt, it is necessary to remove the fan food.

4. Refer to the page C -13 for dimensions not shown in these drawings.
5. Refer to the page C -24 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Triple Reduction Horizontal Mounting 9015 ▶ 9055

PARAMAX Horizontal Monoblock
 9015
 9055
 Parallel
 Triple
 Reduction
 P
 H
 A
 P
 3

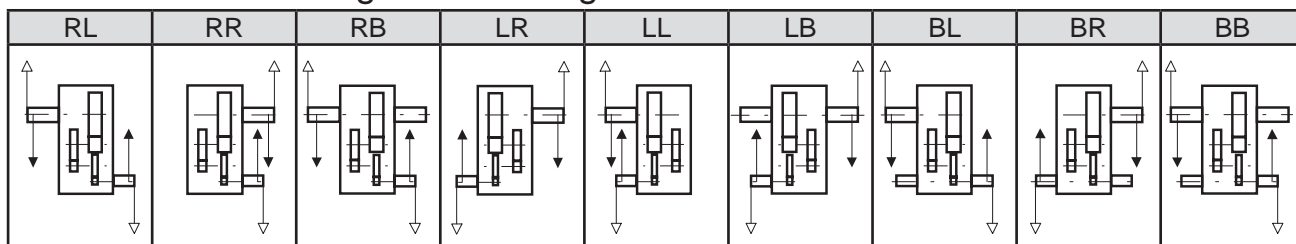
Slow Speed Shaft



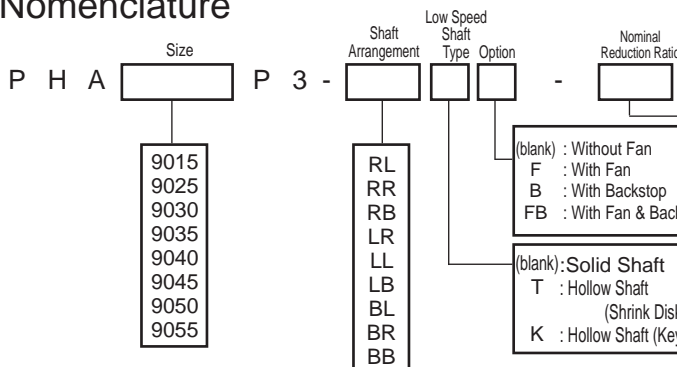
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9015	245	135	110	58m6	M20/42	18	7	11	95	328	193	135	63	60	270	135	135	55	55	
9025	285	145	140	70m6	M20/42	20	7.5	12	125	358	213	145	73	70	300	150	150	65	65	
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

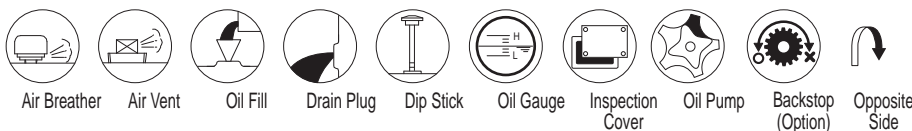
Standard Shaft Arrangement Configuration



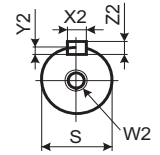
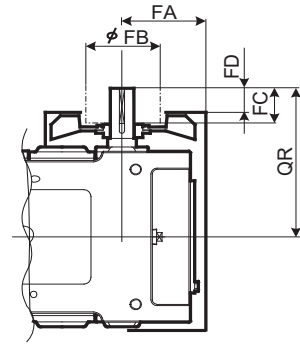
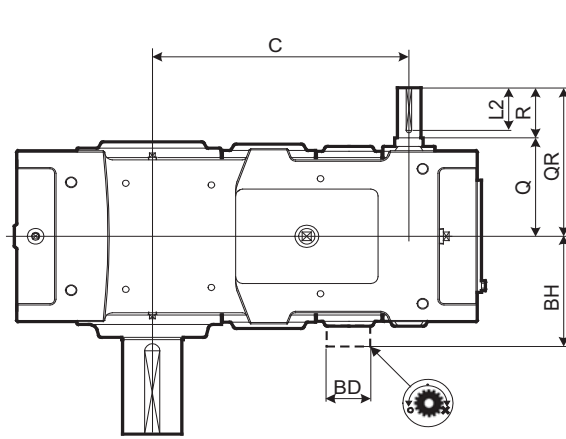
Nomenclature



Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9015	○	○	○	○	○	○	○	○						
9025	○	○	○	○	○	○	○	○						
9030	○	○	○	○	○	○	○	○						
9035			○	○	○	○	○	○	○	○	○	○	○	○
9040	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9045			○	○	○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9055			○	○	○	○	○	○	○	○	○	○	○	○



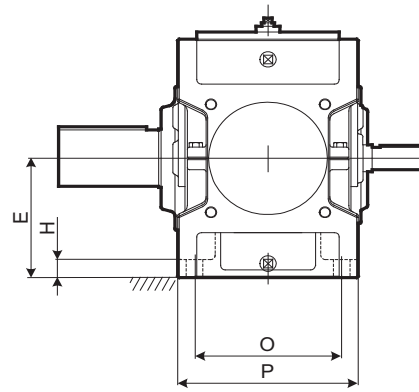
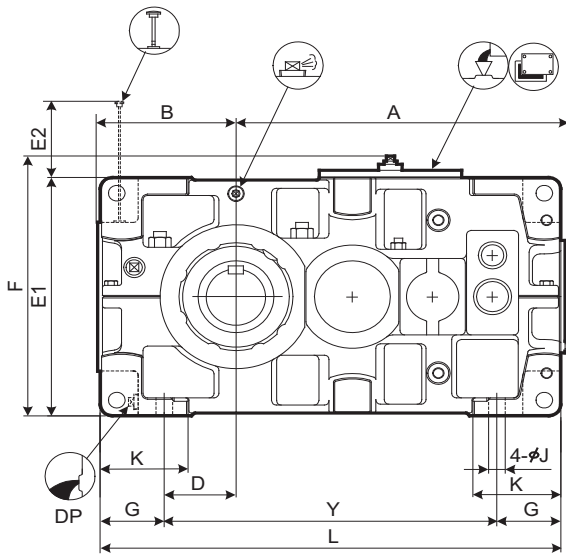
DIMENSIONS Parallel Shaft Triple Reduction Horizontal Mounting 9060 ▶ 9085



High Speed Shaft

With Fan

Refer to the page C-23 for details.



Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K	L	O	P	Y
9060	701	299	540	151	265	530	155	578	135	35	35	180	970	310	380	700
9065	747	338	586	190	300	600	120	648	135	35	35	180	1055	310	380	785
9070	809	336	630	163	300	600	181	648	160	40	42	215	1115	350	430	795
9075	862	383	683	210	335	670	146	718	160	52	42	220	1215	350	430	895
9080	932	378	725	205	335	670	205	718	160	52	42	220	1275	380	460	955
9085	988	422	781	249	375	750	165	798	160	52	42	220	1375	380	460	1055

Size	High Speed Shaft										Fan				Backstop		DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC	FD	BD	BH				
9060	219	329	110	50k6	M16/36	14	5.5	9	95	199	160	80	52	175	308	1"	660	33	
9065	219	329	110	50k6	M16/36	14	5.5	9	95	199	160	80	52	175	308	1"	815	38	
9070	244	354	110	55m6	M20/42	16	6	10	95	221	160	80	52	190	330	1"	940	49	
9075	244	354	110	55m6	M20/42	16	6	10	95	221	160	80	52	190	330	1"	1160	59	
9080	265	405	140	65m6	M20/42	18	7	11	125	247	200	105	65	210	365	1"	1350	64	
9085	265	405	140	65m6	M20/42	18	7	11	125	247	200	105	65	210	365	1"	1610	80	

Unit: mm

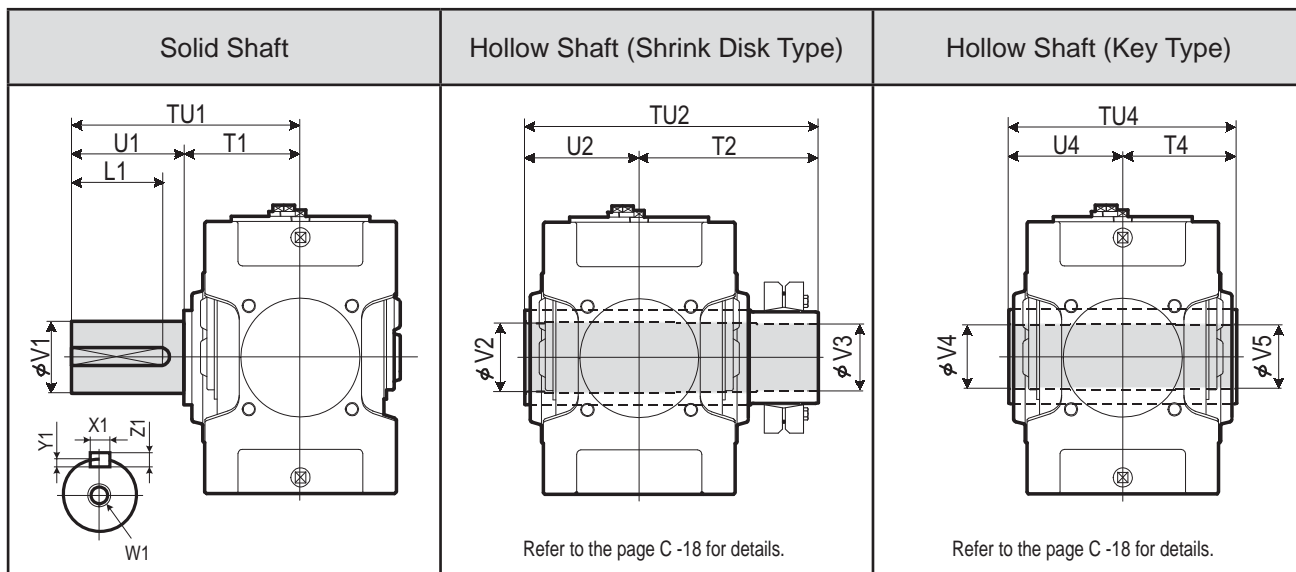
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. When fastening the mounting bolt, it is necessary to remove the fan food.

4. Refer to the page C -15 for dimensions not shown in these drawings.
 5. Refer to the page C -27 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Triple Reduction Horizontal Mounting 9060 ▶ 9085

PARAMAX Horizontal Split 9060 9085 Parallel Triple Reduction P H D P 3

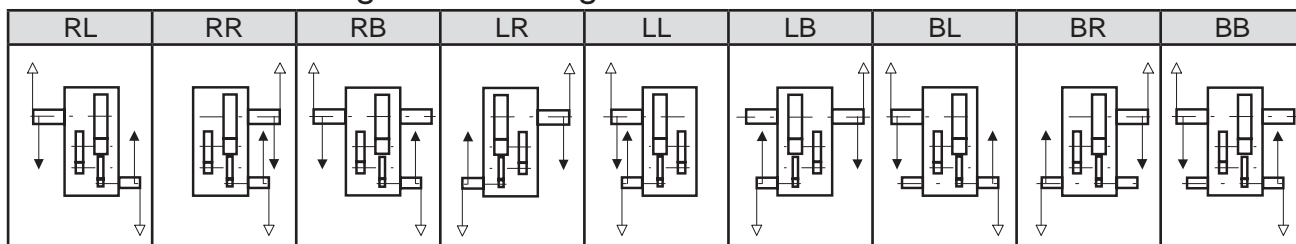
Slow Speed Shaft



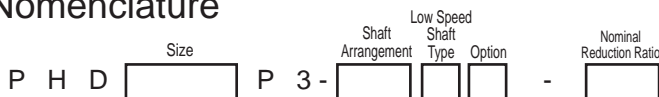
Size	Solid Shaft					Key				Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173

Unit: mm

Standard Shaft Arrangement Configuration



Nomenclature

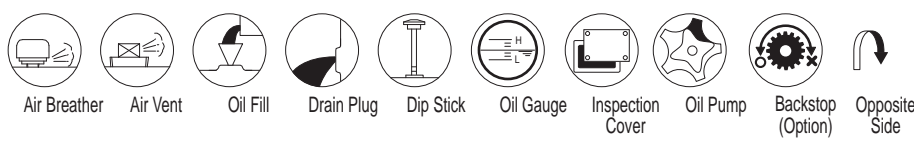


- 9060
- 9065
- 9070
- 9075
- 9080
- 9085

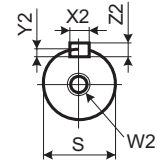
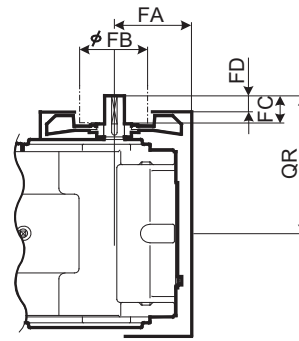
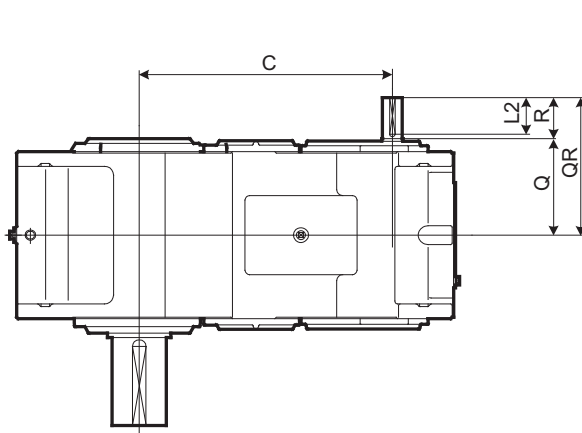
- RL
- RR
- RB
- LR
- LL
- LB
- BL
- BR
- BB

- (blank) : Without Fan
- F : With Fan
- B : With Backstop
- FB : With Fan & Backstop
- (blank) : Solid Shaft
- T : Hollow Shaft (Shrink Disk type)
- K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9060	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065			○	○	○	○	○	○	○	○	○	○	○	○
9070	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9075			○	○	○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○	○	○



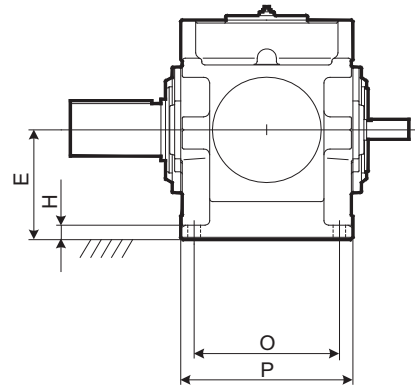
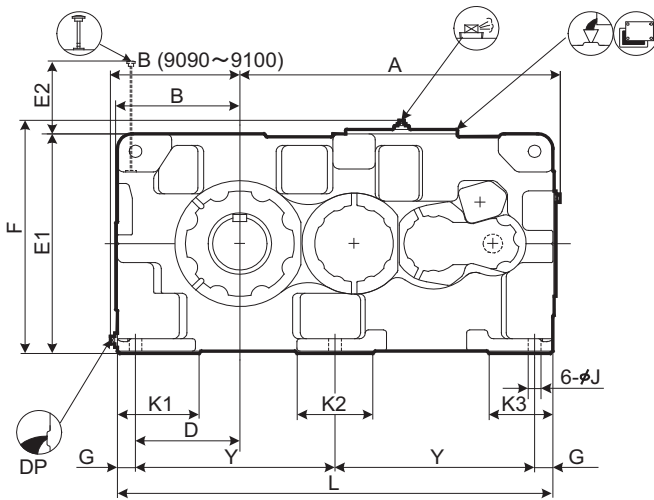
DIMENSIONS Parallel Shaft Triple Reduction Horizontal Mounting 9090 ▶ 9115



High Speed Shaft

With Fan

Refer to the page C-23 for details.



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K1	K2	K3	L	O	P	Y
9090	1060	428	837	345	375	750	249	797	60	50	42	270	250	210	1440	480	570	660
9095	1090	458	867	375	400	800	254	847	60	50	42	290	250	210	1500	480	570	690
9100	1194	468	950	375	425	850	273	897	70	55	48	300	280	240	1610	560	650	735
9105	1228	493	984	410	450	900	278	947	70	55	48	320	280	240	1680	560	650	770
9110	1344	508	1050	420	475	950	283	997	75	60	56	340	310	260	1810	610	710	830
9115	1393	558	1099	470	500	1000	282	1047	75	60	56	350	310	260	1910	610	710	880

Size	High Speed Shaft					Key				Fan				DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC	FD			
9090	330	470	140	65m6	M20/42	18	7	11	125	268	200	105	65	1 1/2"	2100	120
9095	330	470	140	65m6	M20/42	18	7	11	125	268	200	105	65	1 1/2"	2350	155
9100	375	515	140	75m6	M20/42	20	7.5	12	125	289	225	105	65	1 1/2"	2780	180
9105	375	515	140	75m6	M20/42	20	7.5	12	125	289	225	105	65	1 1/2"	3340	225
9110	405	575	170	80m6	M20/42	22	9	14	150	339	225	135	95	1 1/2"	4010	260
9115	405	575	170	80m6	M20/42	22	9	14	150	339	225	135	95	1 1/2"	4460	325

Unit: mm

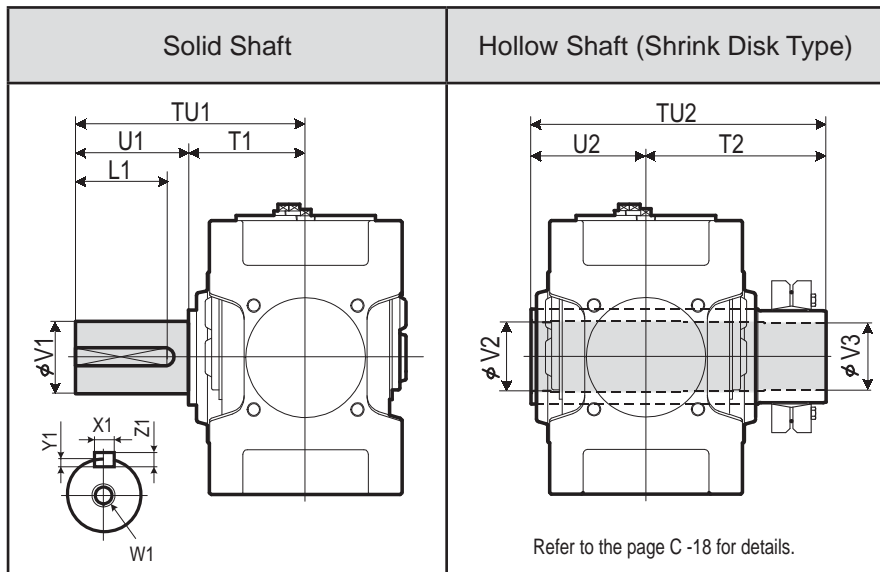
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C -16 for dimensions not shown in these drawings.

4. Refer to the page C -30 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Triple Reduction Horizontal Mounting 9090 ▶ 9115

PARAMAX Horizontal Split 9090 9115 Parallel Triple Reduction P H D P 3

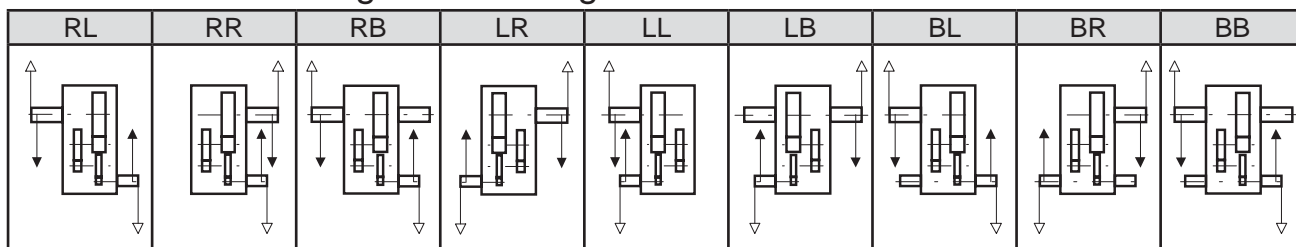
Slow Speed Shaft



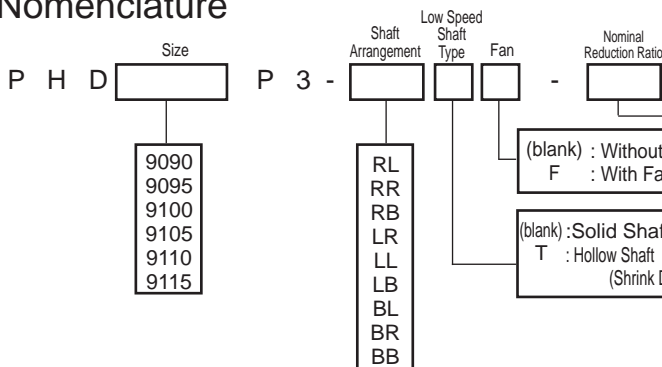
Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	
						X1	Y1	Z1	L1						
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190	
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200	
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210	
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220	
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240	
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250	

Unit: mm

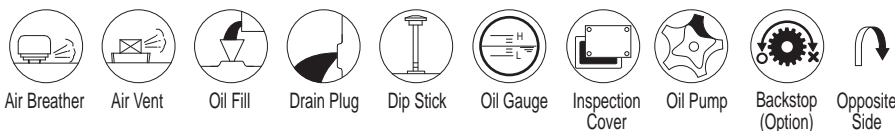
Standard Shaft Arrangement Configuration

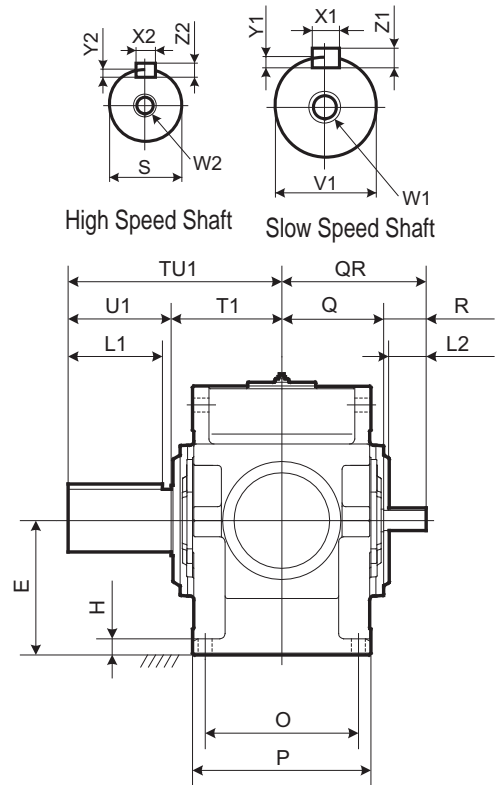
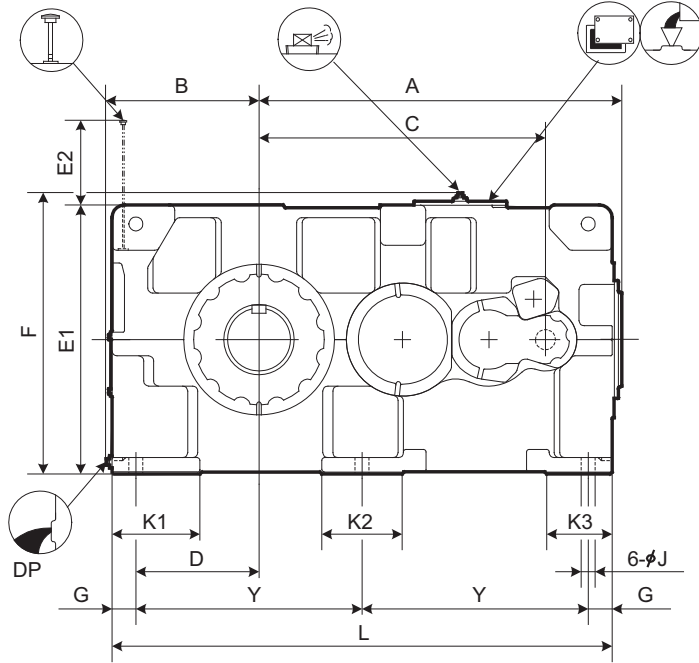


Nomenclature



Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9090	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9095		○	○	○	○	○	○	○	○	○	○	○	○	○
9100	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9105	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9110	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9115	○	○	○	○	○	○	○	○	○	○	○	○	○	○





Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K1	K2	K3	L	O	P	Y
9118	1434	608	1140	490	535	1070	338	1117	95	65	56	350	320	260	1990	610	710	900
9121	1585	663	1290	545	580	1160	347	1207	95	70	56	390	300	270	2180	680	780	995
9126	1585	663	1290	545	580	1160	347	1207	95	70	56	390	300	270	2180	680	780	995

Size	High Speed Shaft										DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	Key			
9118	405	575	170	80m6	M20/42	22	9	14	150	1 1/2"	5050	350	
9121	440	650	210	100m6	M24/50	28	10	16	190	1 1/2"	6050	470	
9126	440	650	210	100m6	M24/50	28	10	16	190	1 1/2"	6350	470	

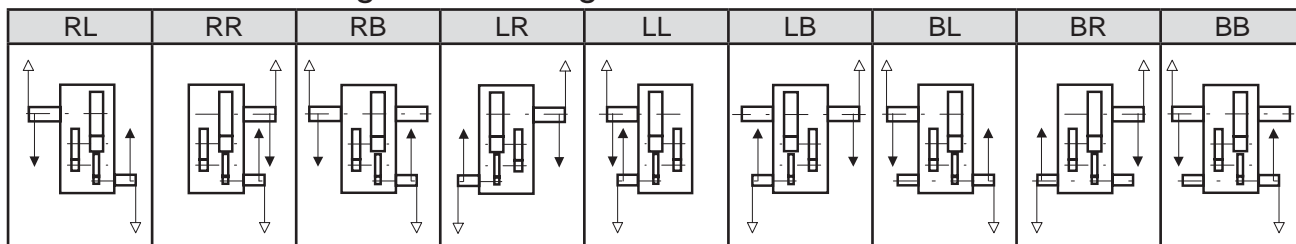
Size	Slow Speed Shaft (Solid)									
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	Key
9118	850	440	410	260m6	M36/70	56	20	32	375	
9121	935	465	470	280m6	M36/70	63	20	32	425	
9126	935	465	470	300m6	M36/70	70	22	36	425	

Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Consult us for dimensions not shown in these drawings.

DIMENSIONS Parallel Shaft Triple Reduction Horizontal Mounting 9118 ▶ 9126

Standard Shaft Arrangement Configuration



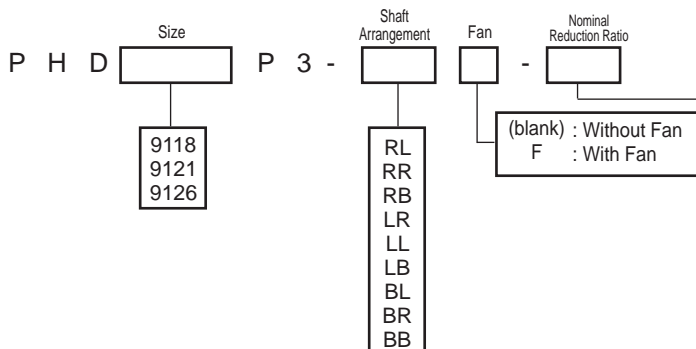
PARAMAX
Horizontal
Split

P

H

D

Nomenclature

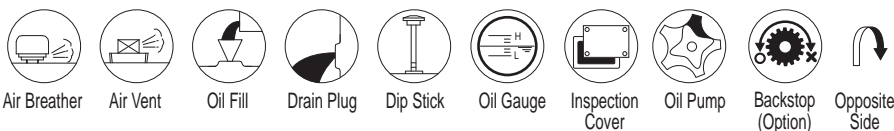


Size	Nominal Reduction Ratio												
	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9118		○		○	○	○	○	○	○	○	○	○	○
9121			○	○	○	○	○	○	○	○	○	○	○
9126			○	○	○	○	○	○	○	○	○	○	○

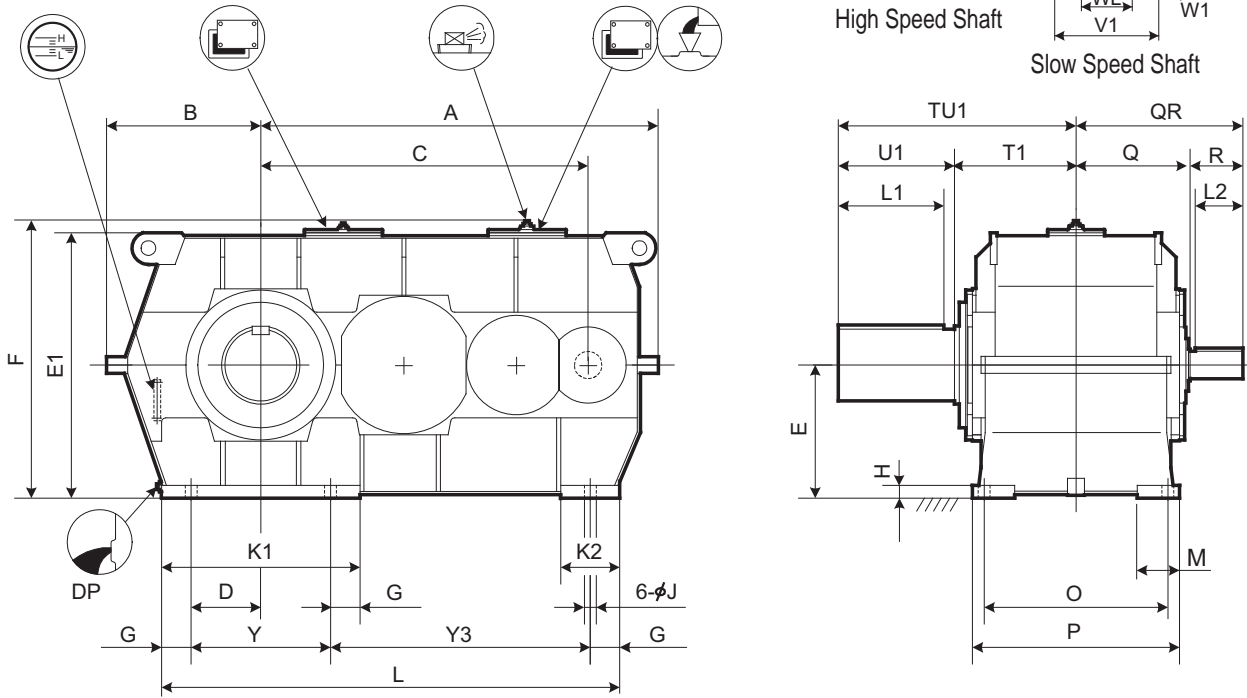
Parallel
Triple
Reduction

P

3



DIMENSIONS Parallel Shaft Triple Reduction Horizontal Mounting 9128 ▶ 9136



Note : Cast iron housing is available.
Consult us when the dimension is required.

Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K1	K2	L	M	O	P	Y	Y3
9128	1720	680	1413	330	600	1194	1241	140	55	66	940	280	1990	170	710	840	660	1050
9131	1882	730	1550	330	630	1256	1303	140	60	66	940	280	2170	200	850	980	660	1230
9136	1882	730	1550	330	630	1256	1303	140	60	66	940	280	2170	200	850	980	660	1230

Size	High Speed Shaft										DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	Key			
9128	470	680	210	100m6	M24/50	28	10	16	190	1 1/2"	7250	390	
9131	540	790	250	130m6	M24/50	32	11	18	225	1 1/2"	9550	550	
9136	540	790	250	130m6	M24/50	32	11	18	225	1 1/2"	9900	540	

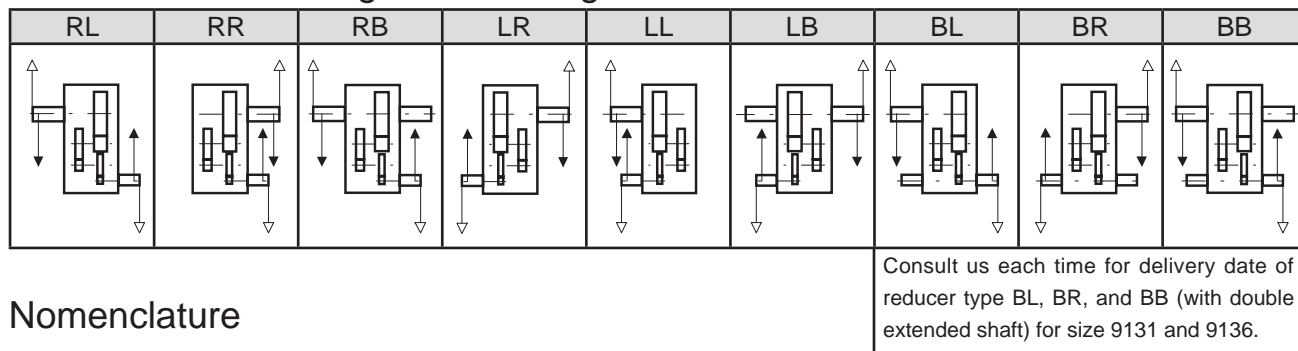
Size	Slow Speed Shaft (Solid)										
	TU1	T1	U1	V1	W1/Depth	WL	X1	Y1	Z1	L1	Key
9128	950	480	470	320m6	M36/70	200	70	22	36	425	
9131	1100	550	550	340m6	M36/70	215	80	25	40	500	
9136	1110	560	550	360m6	M36/70	230	80	25	40	500	

Unit: mm

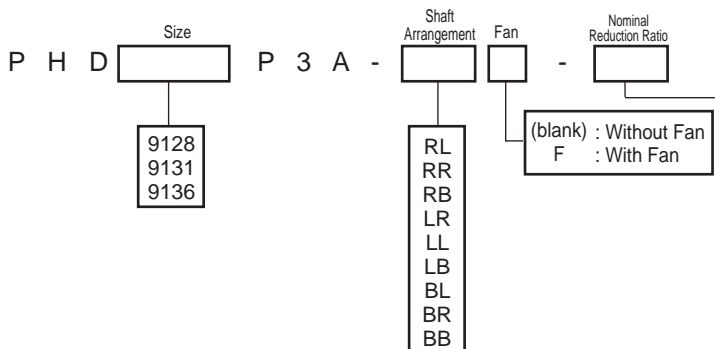
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Consult us for dimensions not shown in these drawings.

DIMENSIONS Parallel Shaft Triple Reduction Horizontal Mounting 9128 ▶ 9136

Standard Shaft Arrangement Configuration

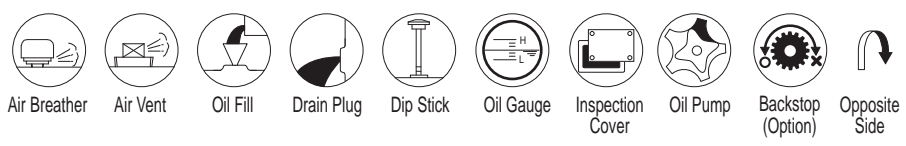


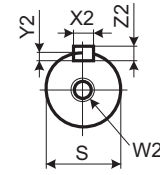
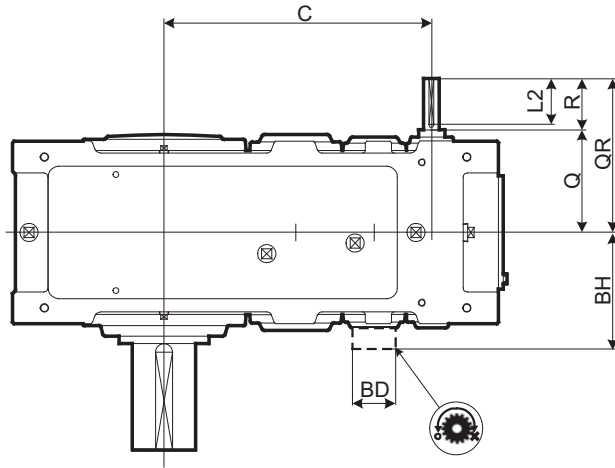
Nomenclature



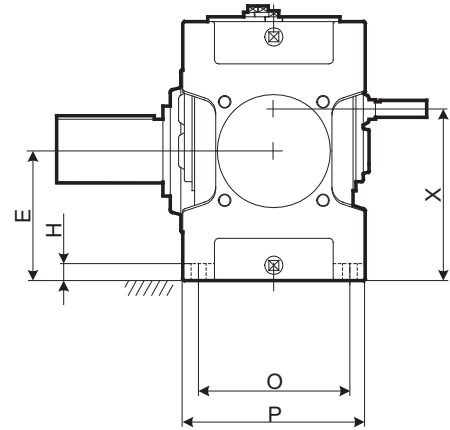
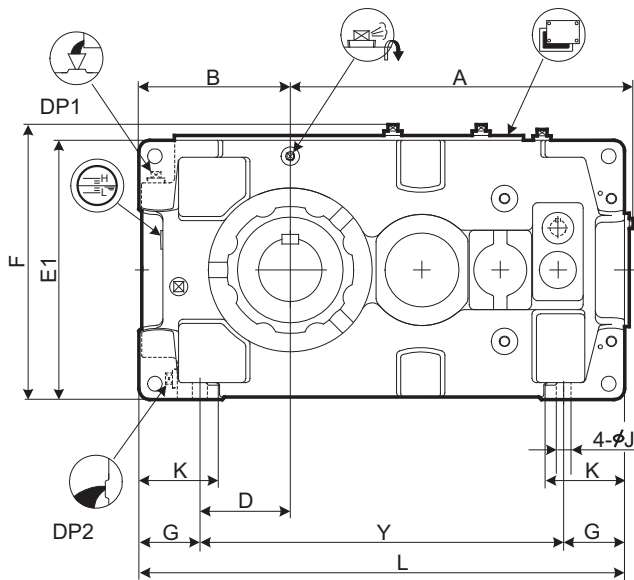
Size	Nominal Reduction Ratio												
	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9128			○	○	○	○	○	○	○	○	○	○	○
9131	○	○	○	○	○	○	○	○	○	○	○		
9136	○	○	○	○	○	○	○	○	○	○	○		

PARAMAX Horizontal Split
 P H D
 9128
9136
 Parallel P
 Triple Reduction 3
 Steel Housing A





High Speed Shaft



Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	X	Y
9030	453	200	343	110	160	320	349	90	28	24	120	640	215	265	223	460
9035	484	219	374	129	185	370	399	90	28	24	120	690	215	265	248	510
9040	540	235	398	120	200	400	431	115	30	28	150	759	255	315	279	529
9045	577	256	437	141	220	440	471	115	30	28	150	819	255	315	299	589
9050	609	255	467	138.5	210	420	451	116.5	32	28	150	848	285	345	289	615
9055	648	286	506	171	245	490	521	115	32	28	150	918	285	345	324	688

Size	High Speed Shaft									Backstop		DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	BD	BH				
9030	159	219	60	25k6	M10/22	8	4	7	50			3/4"	3/4"	210	14
9035	159	219	60	25k6	M10/22	8	4	7	50			3/4"	3/4"	230	17
9040	175	235	60	28k6	M10/22	8	4	7	50			1"	1"	310	25
9045	175	235	60	28k6	M10/22	8	4	7	50			1"	1"	380	28
9050	195	275	80	30k6	M10/22	8	4	7	70	150	263	1"	1"	450	32
9055	195	275	80	30k6	M10/22	8	4	7	70	150	263	1"	1"	510	40

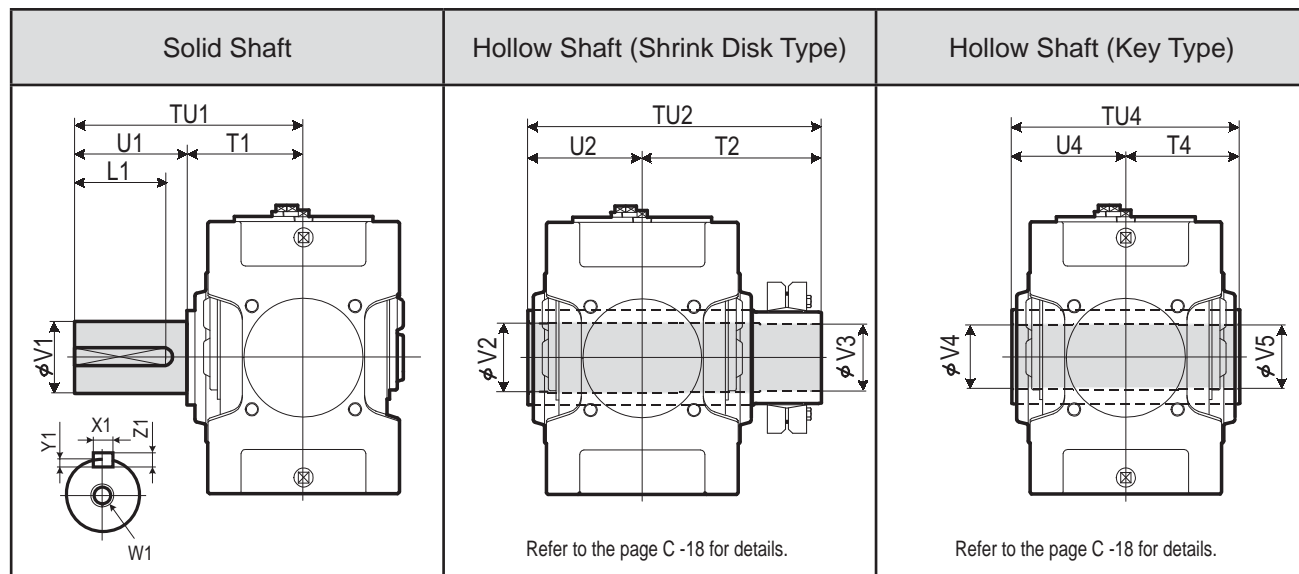
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C -13 for dimensions not shown in these drawings.

4. Refer to the page C -24 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Quadruple Reduction Horizontal Mounting 9030 ▶ 9055

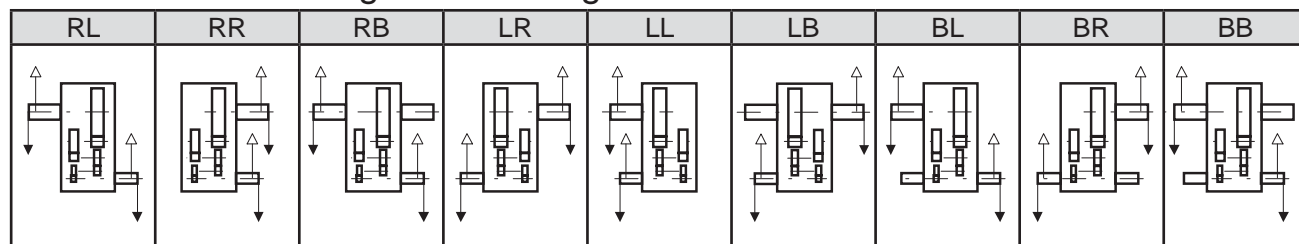
Slow Speed Shaft



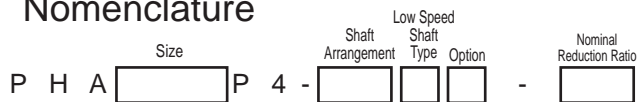
Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
						X1	Y1	Z1	L1											
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

Standard Shaft Arrangement Configuration



Nomenclature

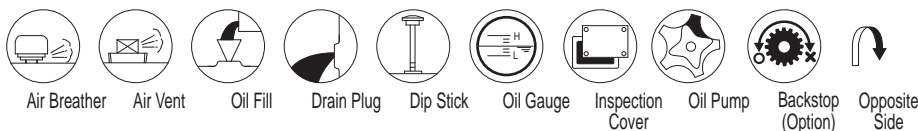


- 9030
- 9035
- 9040
- 9045
- 9050
- 9055

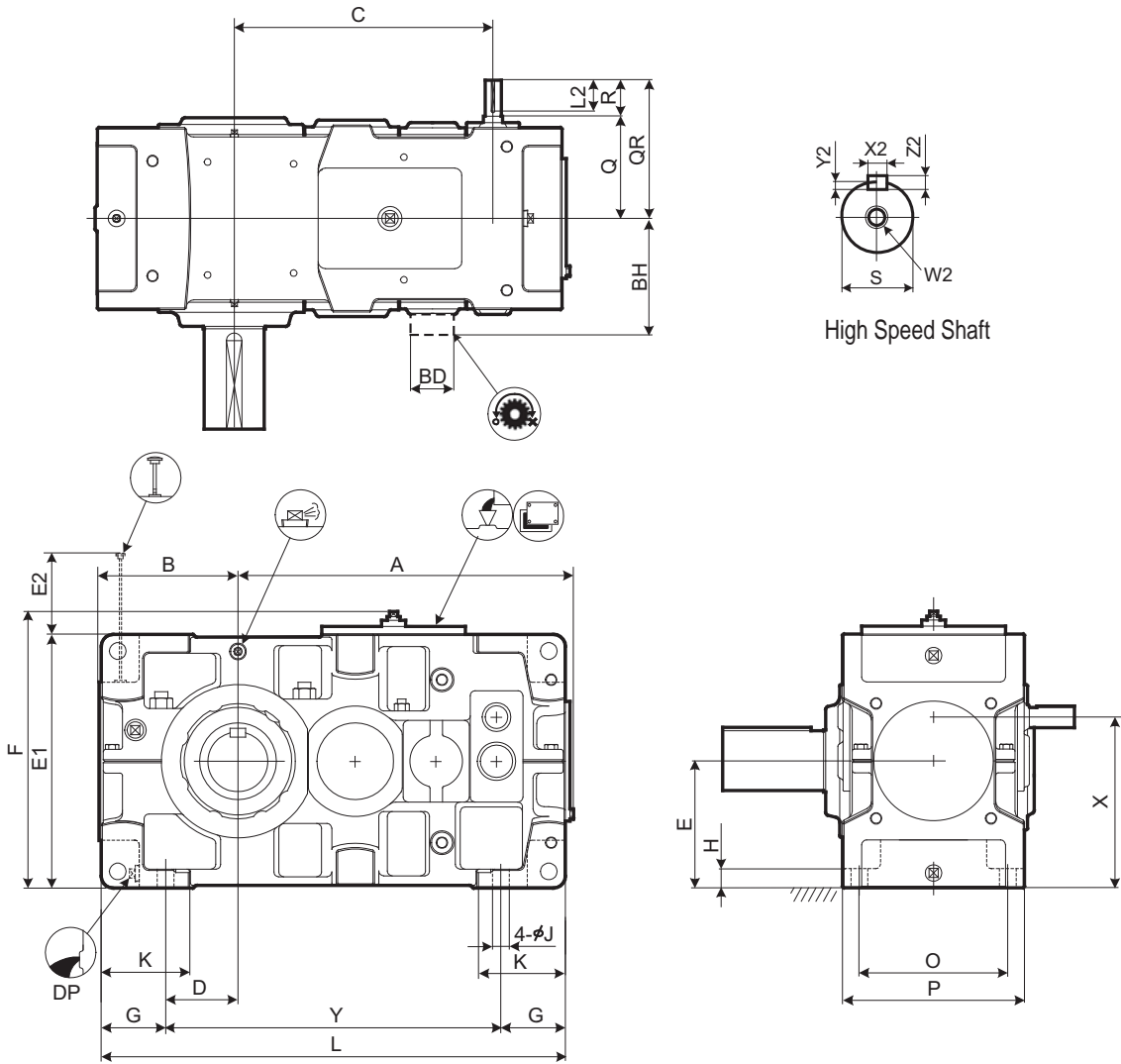
- RL
- RR
- RB
- LR
- LL
- LB
- BL
- BR
- BB

- (blank) : Without Option
- B : With Backstop
- (blank) : Solid Shaft
- T : Hollow Shaft (Shrink Disk type)
- K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio																
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500
9030	○	○	○	○	○	○	○	○	○	○							
9035			○	○	○	○	○	○	○	○	○						
9040			○	○	○	○	○	○	○	○	○	○					
9045			○	○	○	○	○	○	○	○	○	○	○				
9050			○	○	○	○	○	○	○	○	○	○	○	○	○		
9055				○	○	○	○	○	○	○	○	○	○	○	○	○	○



PARAMAX Horizontal Monoblock 9030 9055 Parallel Quadruple Reduction P H A P 4



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K	L	O	P	X	Y
9060	701	299	540	151	265	530	126	578	135	35	35	180	970	310	380	357	700
9065	747	338	586	190	300	600	91	648	135	35	35	180	1055	310	380	392	785
9070	809	336	630	163	300	600	144	648	160	40	42	215	1115	350	430	409	795
9075	862	383	683	210	335	670	109	718	160	52	42	220	1215	350	430	444	895
9080	932	378	725	205	335	670	167	718	160	52	42	220	1275	380	460	461	955
9085	988	422	781	249	375	750	127	798	160	52	42	220	1375	380	460	501	1055

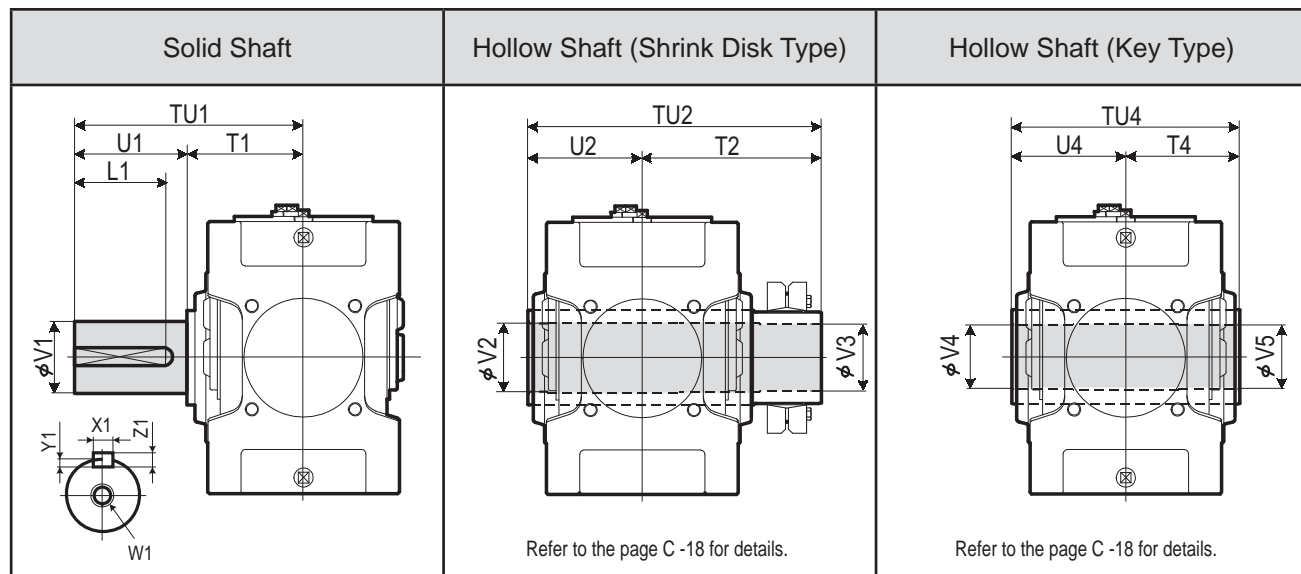
Size	High Speed Shaft										Backstop		DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	BD	BH				
9060	221	301	80	35k6	M12/28	10	5	8	70	175	308	1"	660	37	
9065	221	301	80	35k6	M12/28	10	5	8	70	175	308	1"	815	42	
9070	244	354	110	40k6	M16/36	12	5	8	95	190	330	1"	950	56	
9075	244	354	110	40k6	M16/36	12	5	8	95	190	330	1"	1170	67	
9080	264	374	110	45k6	M16/36	14	5.5	9	95	210	365	1"	1360	73	
9085	264	374	110	45k6	M16/36	14	5.5	9	95	210	365	1"	1620	90	

Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C -15 for dimensions not shown in these drawings.
 4. Refer to the page C -27 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Quadruple Reduction Horizontal Mounting 9060 ▶ 9085

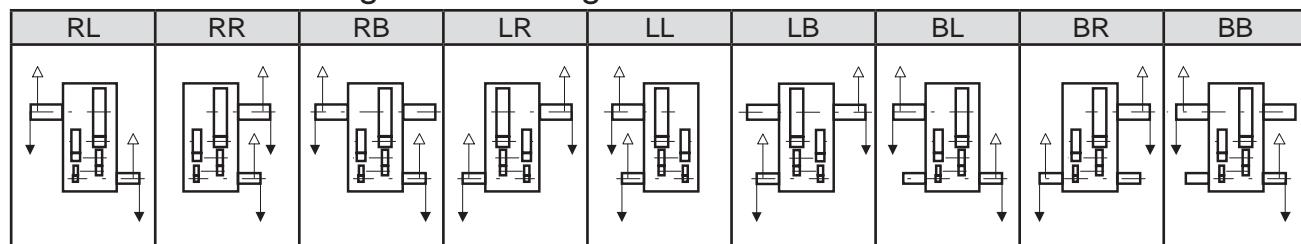
Slow Speed Shaft



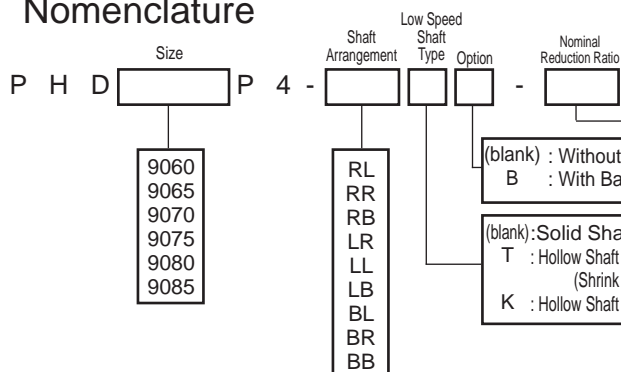
Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

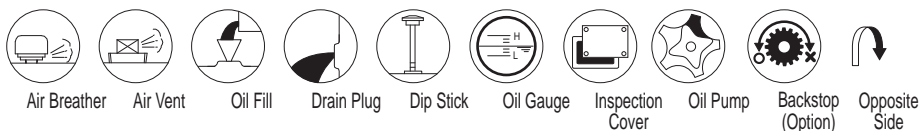
Standard Shaft Arrangement Configuration

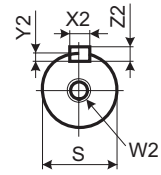
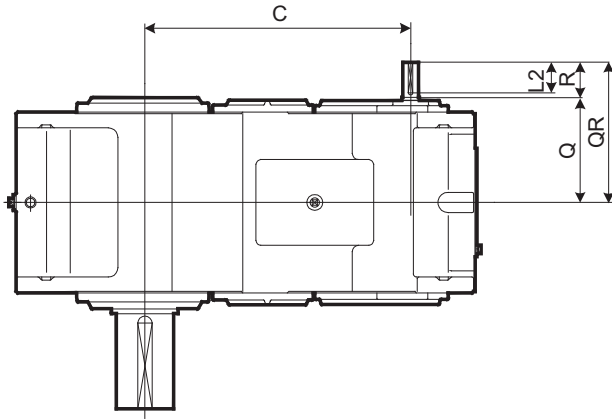


Nomenclature

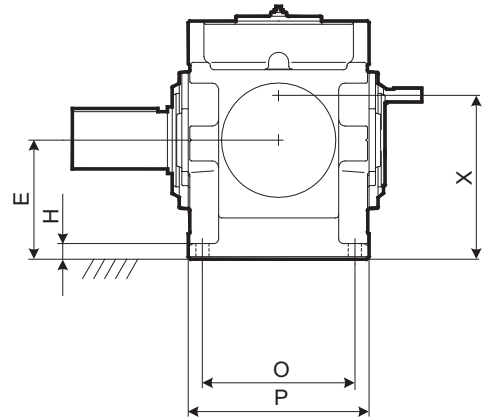
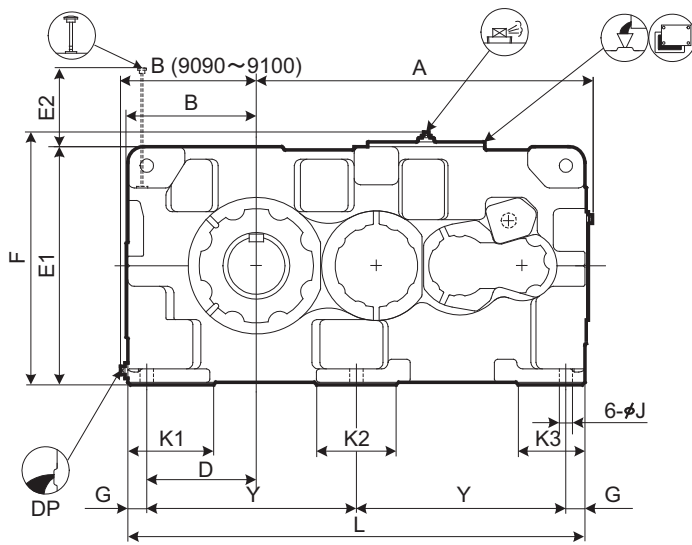


Size	Nominal Reduction Ratio																
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500
9060	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065				○	○	○	○	○	○	○	○	○	○	○	○	○	○
9070	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9075			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○





High Speed Shaft



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K1	K2	K3	L	O	P	X	Y
9090	1060	428	795	345	375	750	194	797	60	50	42	270	250	210	1440	480	570	517	660
9095	1090	458	825	375	400	800	199	847	60	50	42	290	250	210	1500	480	570	542	690
9100	1194	468	901	375	425	850	208	897	70	55	48	300	280	240	1610	560	650	587	735
9105	1228	493	935	410	450	900	213	947	70	55	48	320	280	240	1680	560	650	612	770
9110	1344	508	1001	420	475	950	218	997	75	60	56	340	310	260	1810	610	710	637	830
9115	1393	558	1050	470	500	1000	217	1047	75	60	56	350	310	260	1910	610	710	662	880

Size	High Speed Shaft									DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	Key						
						X2	Y2	Z2	L2			
9090	330	440	110	50k6	M16/36	14	5.5	9	95	1 1/2"	2150	150
9095	330	440	110	50k6	M16/36	14	5.5	9	95	1 1/2"	2400	180
9100	375	515	140	60m6	M20/42	18	7	11	125	1 1/2"	2830	220
9105	375	515	140	60m6	M20/42	18	7	11	125	1 1/2"	3390	260
9110	405	545	140	60m6	M20/42	18	7	11	125	1 1/2"	4060	300
9115	405	545	140	60m6	M20/42	18	7	11	125	1 1/2"	4510	365

Unit: mm

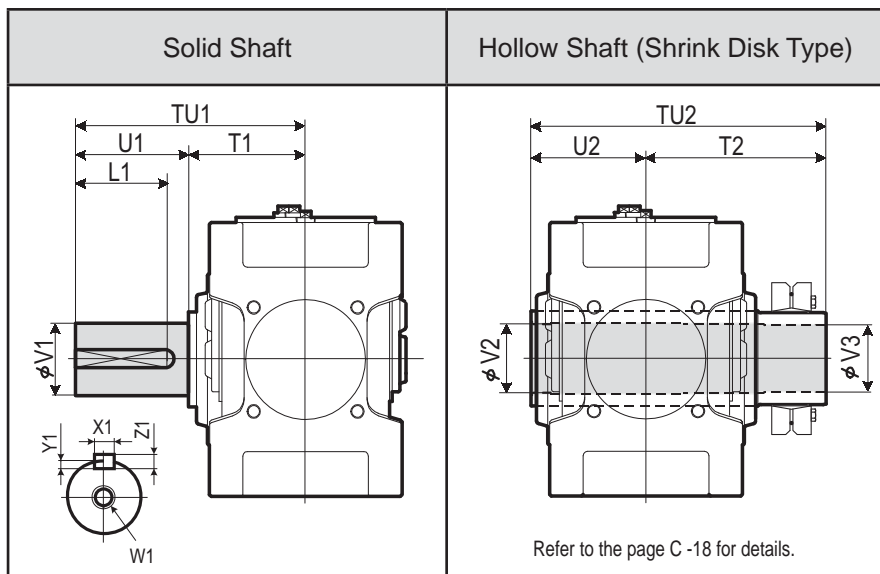
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-16 for dimensions not shown in these drawings.

4. Refer to the page C-30 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Quadruple Reduction Horizontal Mounting 9090 ▶ 9115

PARAMAX Horizontal Split 9090 9115 Parallel Quadruple Reduction P H D P 4

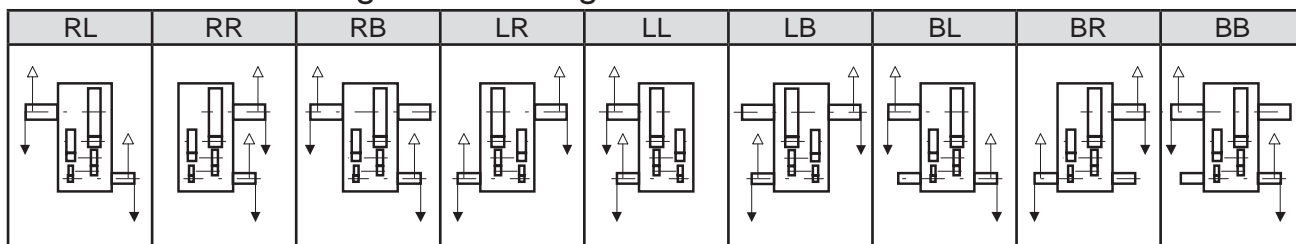
Slow Speed Shaft



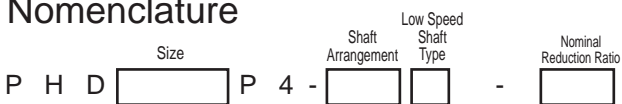
Size	Solid Shaft					Hollow Shaft (Shrink Disk Type)								
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3
						X1	Y1	Z1	L1					
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250

Unit: mm

Standard Shaft Arrangement Configuration



Nomenclature

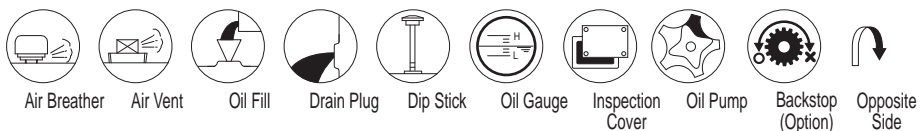


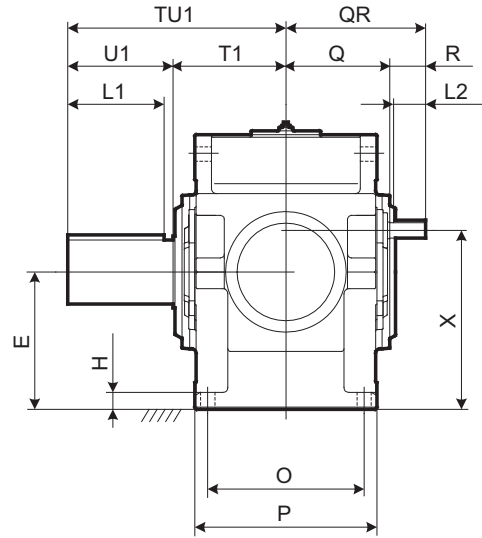
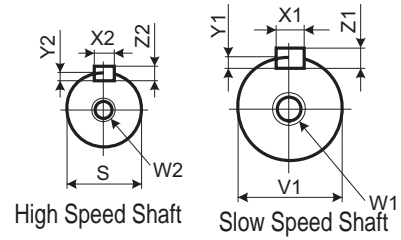
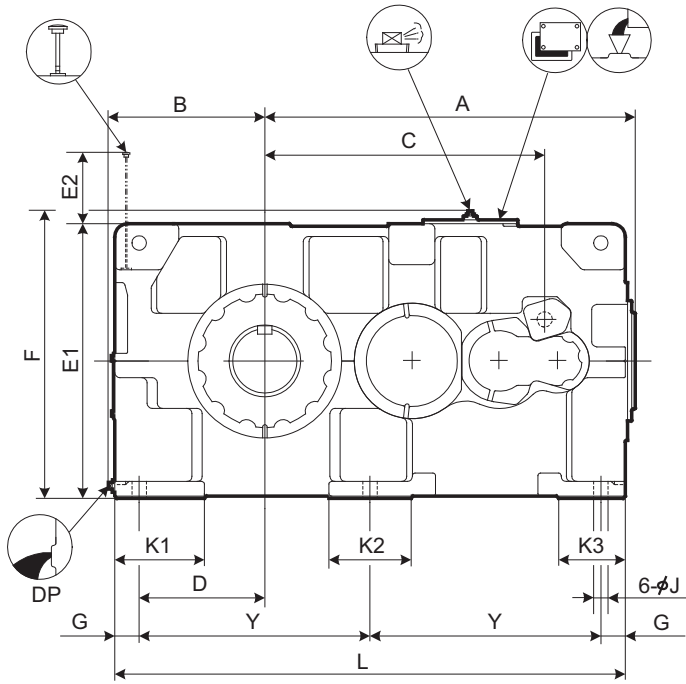
- 9090
- 9095
- 9100
- 9105
- 9110
- 9115

- RL
- RR
- RB
- LR
- LL
- LB
- BL
- BR
- BB

(blank): Solid Shaft
T : Hollow Shaft (Shrink Disk type)

Size	Nominal Reduction Ratio															
	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500
9090	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9095																
9100	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9105																
9110	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9115																





Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	E2	F	G	H	J	K1	K2	K3	L	O	P	X	Y
9118	1434	608	1091	490	535	1070	278	1117	95	65	56	350	320	260	1990	610	710	697	900
9121	1585	663	1290	545	580	1160	277	1207	95	70	56	390	300	270	2180	680	780	777	995
9126	1585	663	1290	545	580	1160	277	1207	95	70	56	390	300	270	2180	680	780	777	995

Size	High Speed Shaft										DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	Key				L2			
9118	405	545	140	60m6	M20/42	X2	Y2	Z2	L2		1 1/2"	5050	390
9121	440	580	140	65m6	M20/42	18	7	11	125		1 1/2"	6100	530
9126	440	580	140	65m6	M20/42	18	7	11	125		1 1/2"	6350	520

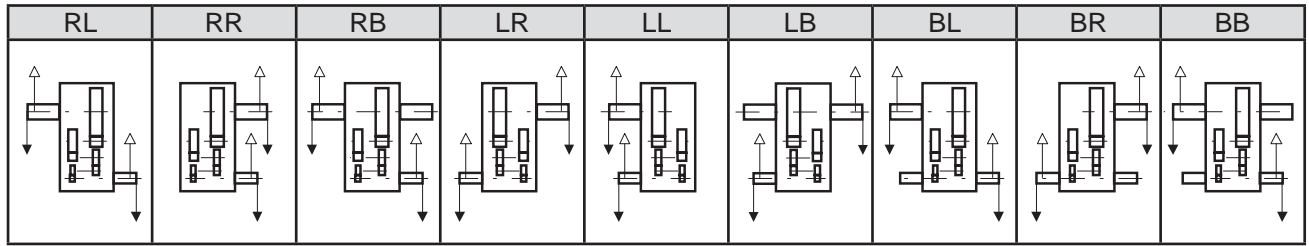
Size	Slow Speed Shaft (Solid)									
	TU1	T1	U1	V1	W1/Depth	Key				L1
9118	850	440	410	260m6	M36/70	X1	Y1	Z1	L1	
9121	935	465	470	280m6	M36/70	56	20	32	375	
9126	935	465	470	300m6	M36/70	63	20	32	425	

Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Consult us for dimensions not shown in these drawings.

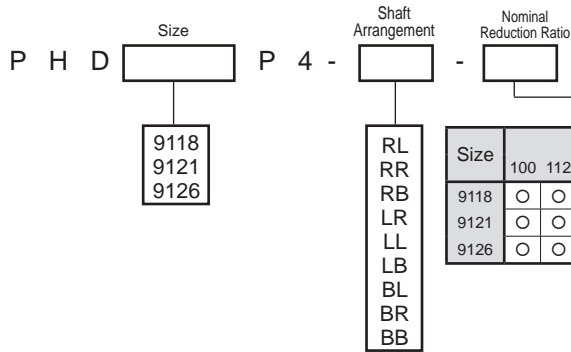
DIMENSIONS Parallel Shaft Quadruple Reduction Horizontal Mounting 9118 ▶ 9126

Standard Shaft Arrangement Configuration

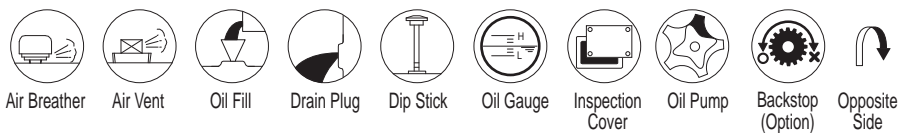


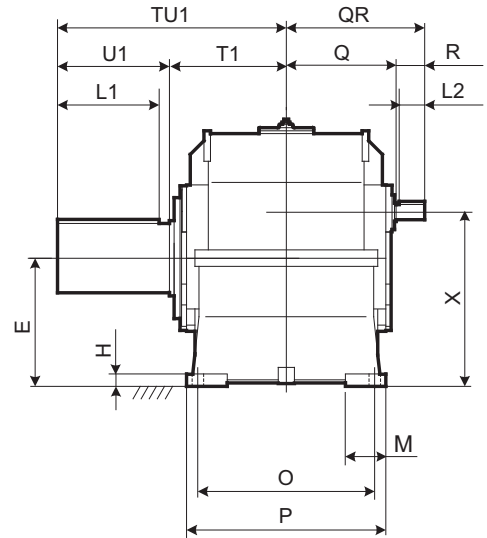
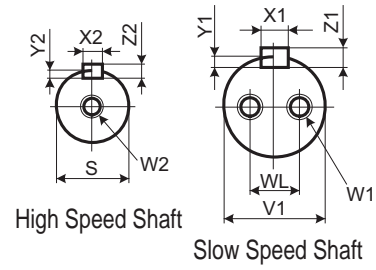
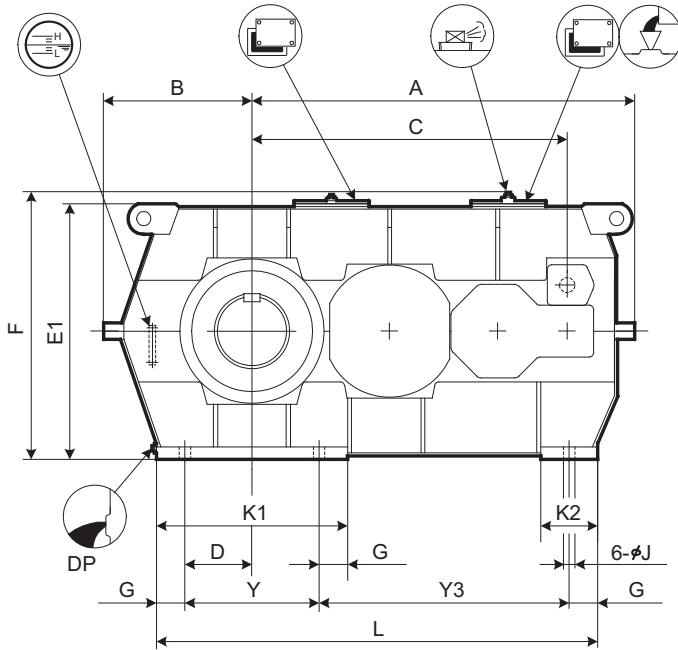
PARAMAX
Horizontal
Split
9118
9126
Parallel
Quadruple
Reduction
P
H
D
P
4

Nomenclature



Size	Nominal Reduction Ratio													
	100	112	125	140	160	180	200	224	250	280	315	355	400	450
9118	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9121	○	○	○	○	○	○	○	○	○	○	○	○	○	
9126	○	○	○	○	○	○	○	○	○	○	○	○	○	





Note : Cast iron housing is available.
Consult us when the dimension is required.

Speed Reducer

Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K1	K2	L	M	O	P	X	Y	Y3
9128	1720	680	1413	330	600	1194	1241	140	55	66	940	280	1990	170	710	840	826	660	1050
9131	1882	730	1550	330	630	1256	1303	140	60	66	940	280	2170	200	850	980	856	660	1230
9136	1882	730	1550	330	630	1256	1303	140	60	66	940	280	2170	200	850	980	856	660	1230

Size	High Speed Shaft										DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	Key			
9128	465	605	140	75m6	M20/42	20	7.5	12	125	1 1/2"	7400	450	
9131	540	680	140	75m6	M20/42	20	7.5	12	125	1 1/2"	9600	650	
9136	540	680	140	75m6	M20/42	20	7.5	12	125	1 1/2"	10000	640	

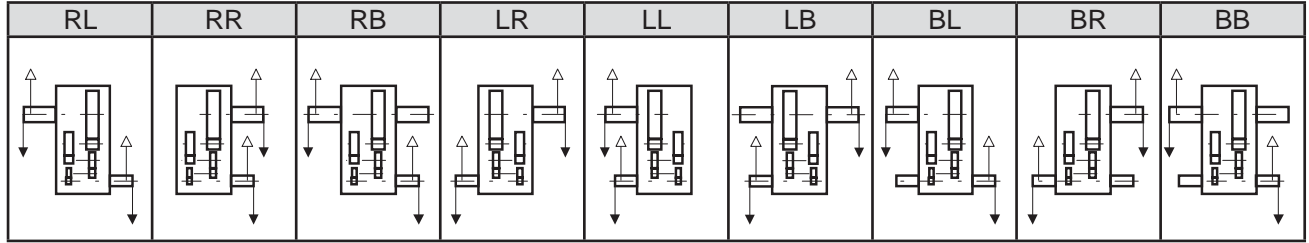
Size	Slow Speed Shaft (Solid)									
	TU1	T1	U1	V1	W1/Depth	WL	X1	Y1	Z1	L1
9128	950	480	470	320m6	M36/70	200	70	22	36	425
9131	1100	550	550	340m6	M36/70	215	80	25	40	500
9136	1110	560	550	360m6	M36/70	230	80	25	40	500

Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Consult us for dimensions not shown in these drawings.

DIMENSIONS Parallel Shaft Quadruple Reduction Horizontal Mounting 9128 ▶ 9136

Standard Shaft Arrangement Configuration



Nomenclature

P H D Size P 4 A - Shaft Arrangement - Nominal Reduction Ratio

9128
9131
9136

RL
RR
RB
LR
LL
LB
BL
BR
BB

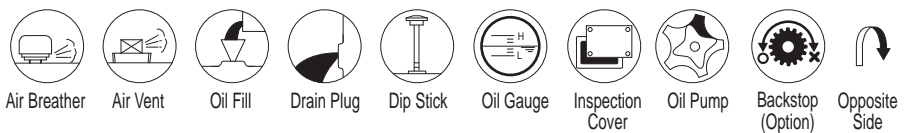
Size	Nominal Reduction Ratio														
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400
9128			○	○	○	○	○	○	○	○	○	○	○	○	○
9131	○	○	○	○	○	○	○	○	○	○	○	○	○		
9136	○	○	○	○	○	○	○	○	○	○	○	○	○		

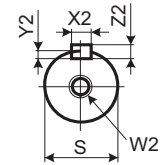
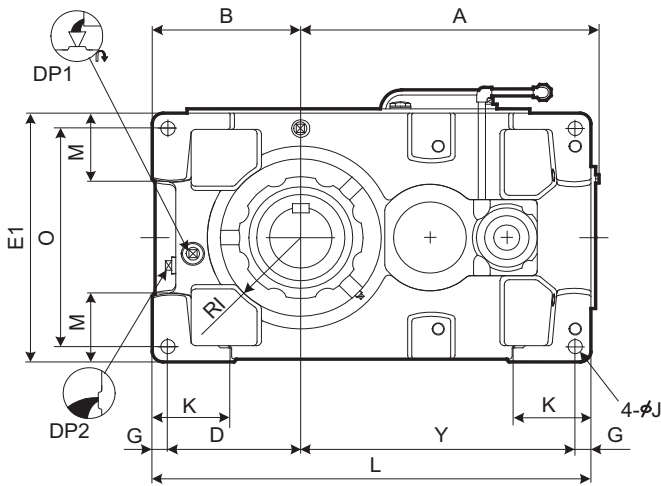
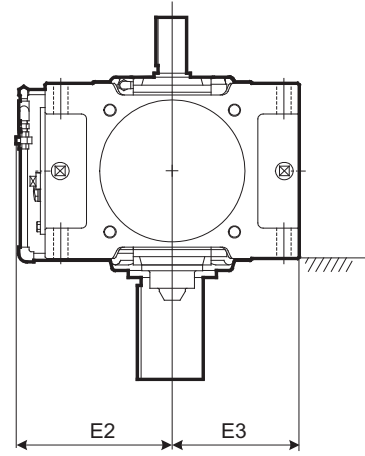
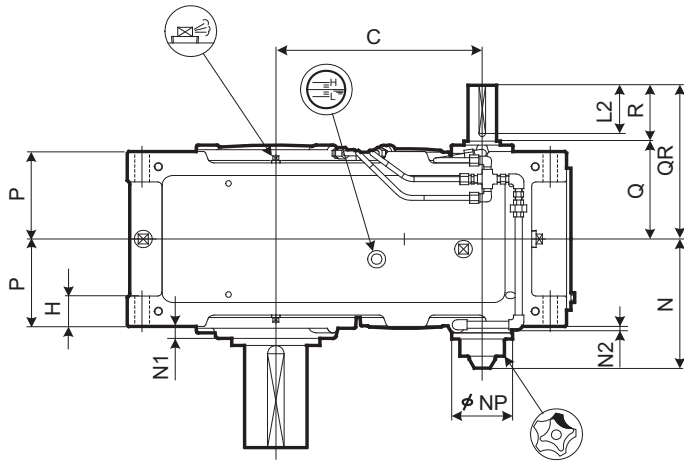
PARAMAX Horizontal Split

9128
9136

Parallel Reduction Housing

P
4
A





High Speed Shaft

Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E1	E2	E3	G	H	RI	J	K	L	M	N	N1	N2	NP	O	P	Y
9015	295	160	194	140	270	195	135	20	35	80	15	95	440	70	186	25	14	100	230	102.5	260
9025	346	175	227	155	310	215	155	20	40	87.5	19	110	505	75	198.5	23	12	100	270	117.5	310
9030	406	200	264	175	320	220	160	25	50	105	24	120	590	85	211	22	9	100	270	132.5	365
9035	437	219	295	194	370	245	185	25	50	120	24	120	640	100	211	22	9	100	320	132.5	396
9040	467	235	306	205	400	246	200	30	60	120	28	150	685	100	237.5	15	2	117	340	157.5	420
9045	506	256	345	226	440	266	220	30	60	140	28	150	745	120	237.5	17.5	2	117	380	157.5	459
9050	537	255	358	225	420	270	210	30	60	140	28	150	775	110	257.5	23	7	117	360	172.5	490
9055	576	286	397	256	490	305	245	30	60	155	28	150	845	135	257.5	23	7	117	430	172.5	529

Size	High Speed Shaft										DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	Key				
9015	131	211	80	30k6	M10/22	8	4	7	70	3/4"	3/4"	100	5	
9025	146	226	80	35k6	M12/28	10	5	8	70	3/4"	3/4"	140	7	
9030	159	269	110	40k6	M16/36	12	5	8	95	3/4"	3/4"	195	9	
9035	159	269	110	40k6	M16/36	12	5	8	95	3/4"	3/4"	215	12	
9040	174	284	110	50k6	M16/36	14	5.5	9	95	1"	1"	285	18	
9045	174	284	110	50k6	M16/36	14	5.5	9	95	1"	1"	345	22	
9050	193	303	110	55m6	M20/42	16	6	10	95	1"	1"	415	22	
9055	193	303	110	55m6	M20/42	16	6	10	95	1"	1"	472	31	

Unit: mm

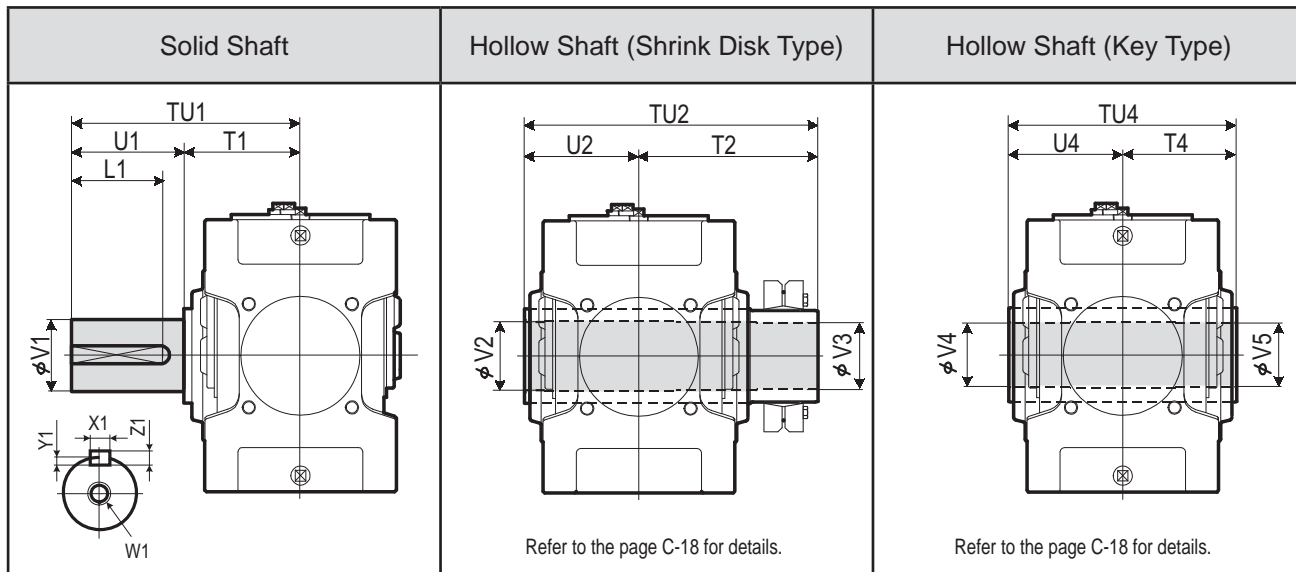
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Refer to the page C-12 for dimensions not shown in these drawings.

4. Refer to the page C-25 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Double Reduction Vertical Mounting 9015 ▶ 9055

PARAMAX Vertical Monoblock 9015 9055 Parallel Double Reduction P V A P 2

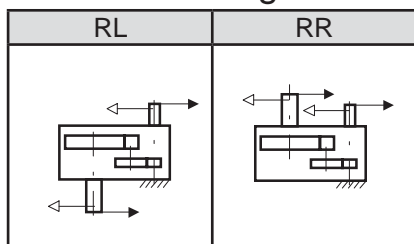
Slow Speed Shaft



Size	Solid Shaft									Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9015	245	135	110	58m6	M20/42	18	7	11	95	328	193	135	63	60	270	135	135	55	55
9025	285	145	140	70m6	M20/42	20	7.5	12	125	358	213	145	73	70	300	150	150	65	65
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115

Unit: mm

Standard Arrangement Configuration



Nomenclature



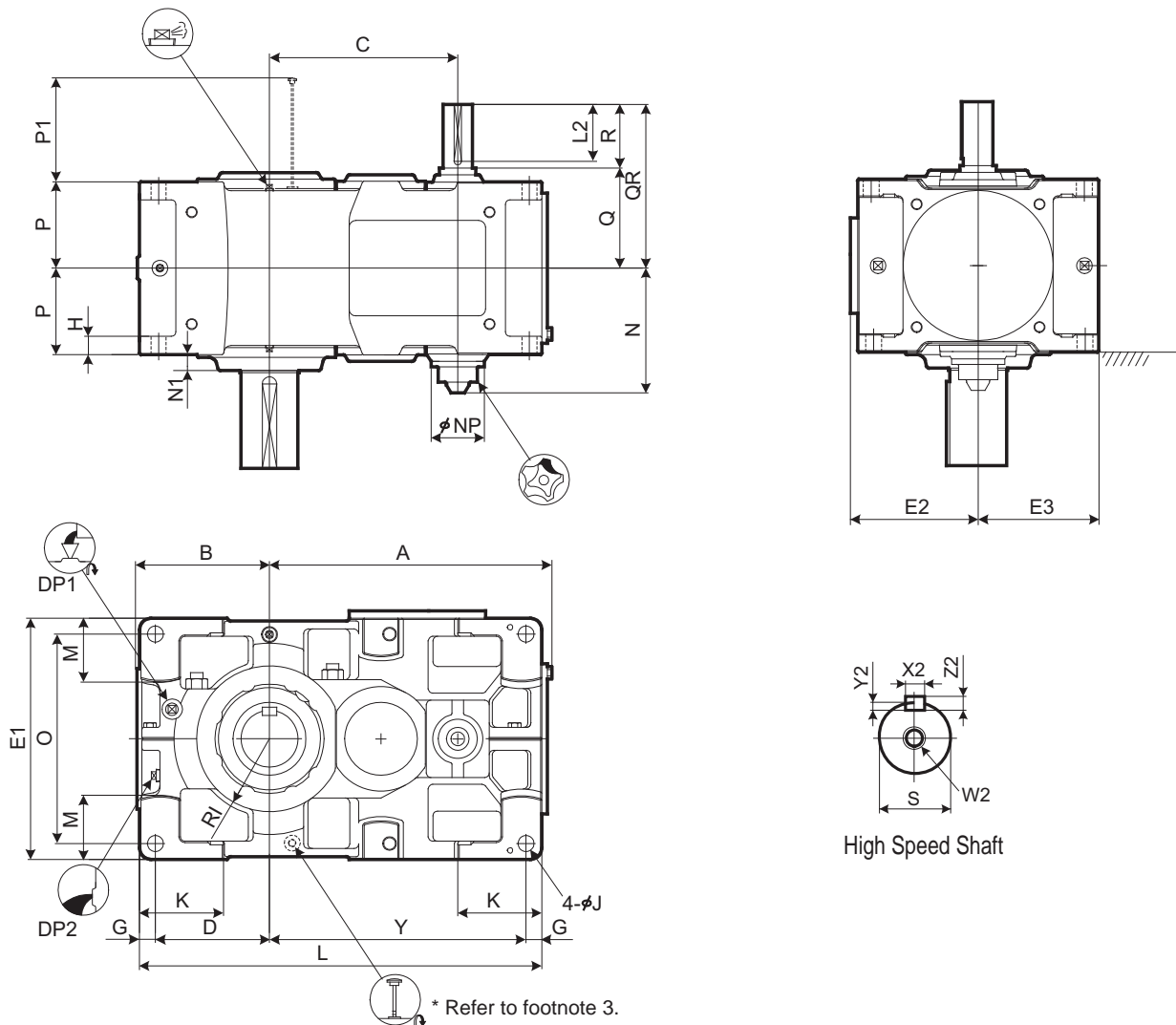
- 9015
- 9025
- 9030
- 9035
- 9040
- 9045
- 9050
- 9055

- RL
- RR
- (blank) : Solid Shaft
- T : Hollow Shaft (Shrink Disk type)
- K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9015	○	○	○	○	○	○	○	○	○	○		
9025	○	○	○	○	○	○	○	○	○	○		
9030	○	○	○	○	○	○	○	○	○	○		
9035			○	○	○	○	○	○	○	○	○	○
9040	○	○	○	○	○	○	○	○	○	○		
9045			○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○		
9055			○	○	○	○	○	○	○	○	○	○

- Air Breather
- Air Vent
- Oil Fill
- Drain Plug
- Dip Stick
- Oil Gauge
- Inspection Cover
- Oil Pump
- Backstop (Option)
- Opposite Side

DIMENSIONS Parallel Shaft Double Reduction Vertical Mounting 9060 ▶ 9085



Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E1	E2	E3	G	H	RI	J	K	L	M	N	N1	NP	O	P	P1	Y
9060	621	299	414	251	530	282	265	35	35	160	35	180	885	140	277.5	35	117	460	190	223	564
9065	667	338	460	290	600	317	300	35	35	175	35	180	970	175	277.5	38	117	530	190	223	610
9070	719	336	482	283	600	317	300	40	40	175	42	215	1020	155	302.5	38	117	520	215	253	657
9075	772	383	535	330	670	352	335	40	52	190	42	220	1120	195	302.5	40	117	590	215	253	710
9080	812	378	556	325	670	352	335	40	52	190	42	220	1155	170	322.5	45	117	590	230	283	750
9085	868	422	612	369	750	392	375	40	52	215	42	220	1255	210	322.5	40	117	670	230	283	806

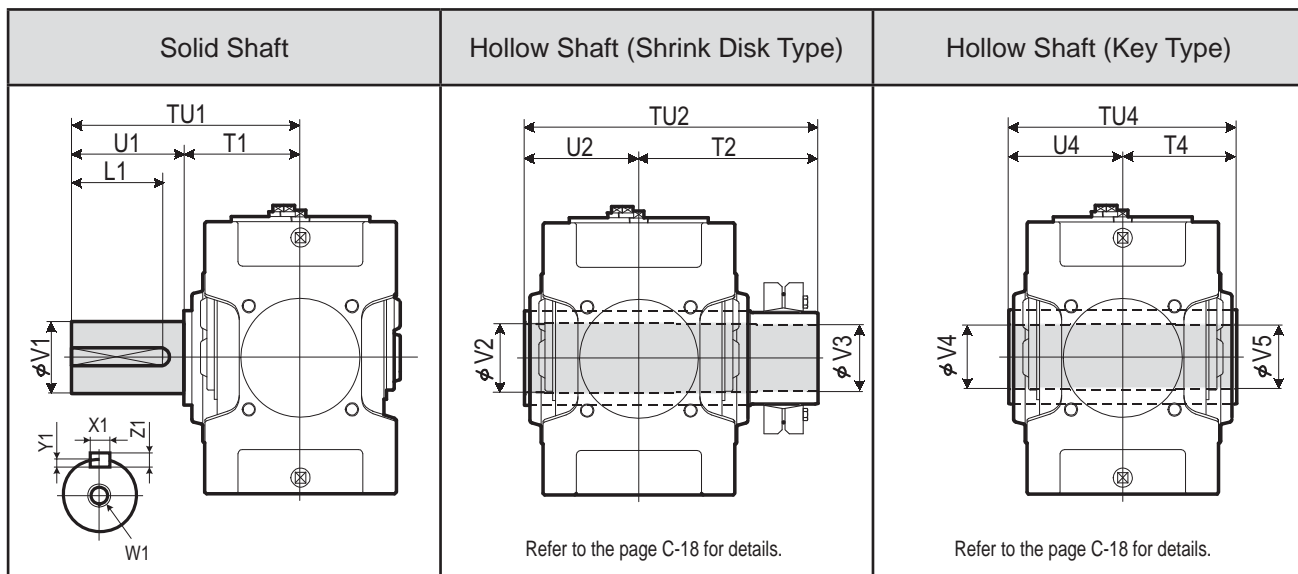
Size	High Speed Shaft										DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2					
9060	220	360	140	65m6	M20/42	18	7	11	125		1"	1"	610	25
9065	220	360	140	65m6	M20/42	18	7	11	125		1"	1"	735	32
9070	245	385	140	75m6	M20/42	20	7.5	12	125		1"	1"	860	39
9075	245	385	140	75m6	M20/42	20	7.5	12	125		1"	1"	1110	49
9080	264	434	170	85m6	M20/42	22	9	14	150		1"	1"	1240	54
9085	264	434	170	85m6	M20/42	22	9	14	150		1"	1"	1500	71

Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Shaft arrangement RR is equipped with visible gauge. Refer to page C-28.
4. Refer to the page C-14 for dimensions not shown in these drawings.
5. Refer to the page C-28 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Double Reduction Vertical Mounting 9060 ▶ 9085

Slow Speed Shaft

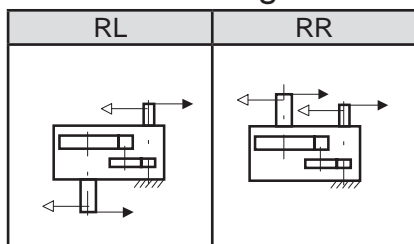


PARAMAX P
 Vertical V
 Split D
 9060
 9085
 Parallel P
 Double Reduction 2

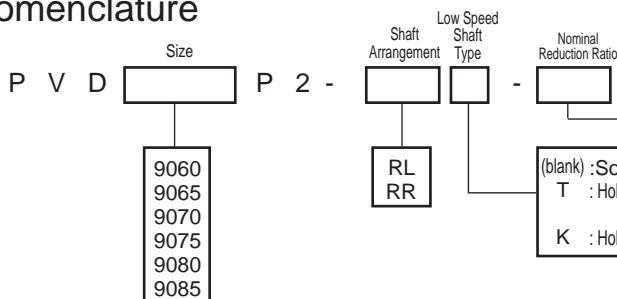
Size	Solid Shaft					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)								
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173

Unit: mm

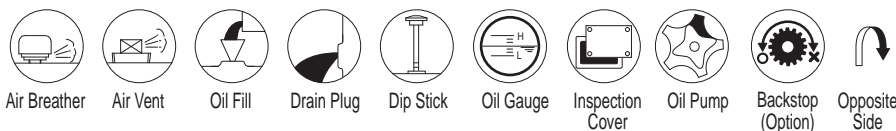
Standard Arrangement Configuration

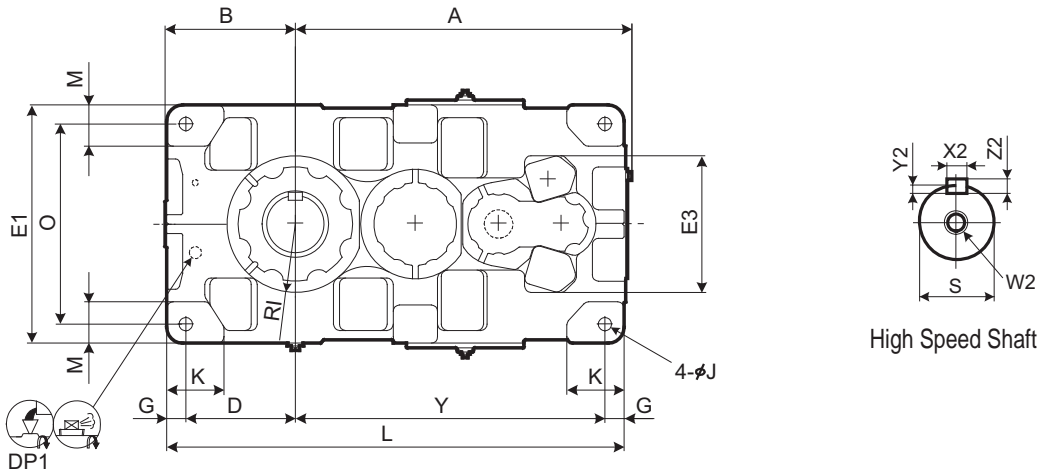
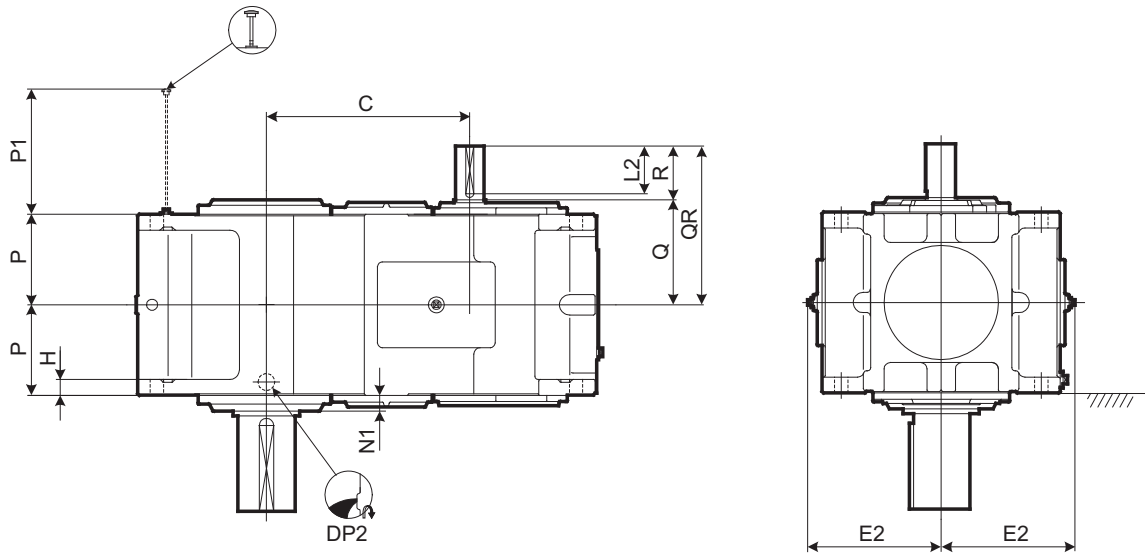


Nomenclature



Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9060	○	○	○	○	○	○	○	○	○	○		
9065			○	○	○	○	○	○	○	○	○	○
9070	○	○	○	○	○	○	○	○	○	○		
9075			○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○		
9085			○	○	○	○	○	○	○	○	○	○





Size	A	B	C	D	E1	E2	E3	G	H	RI	J	K	L	M	N1	O	P	P1	Y
9090	1060	410	640	345	750	421	430	60	50	215	42	180	1440	130	50	630	285	394	975
9095	1090	440	670	375	800	446	430	60	50	235	42	200	1500	140	50	680	285	394	1005
9100	1194	450	724	375	850	471	500	70	55	235	48	200	1610	150	60	710	325	443	1095
9105	1228	485	758	410	900	496	500	70	55	260	48	220	1680	160	60	760	325	443	1130
9110	1344	500	824	420	950	521	500	75	60	265	56	220	1810	170	55	800	355	475	1240
9115	1393	550	873	470	1000	546	500	75	60	280	56	250	1910	180	55	850	355	475	1290

Size	High Speed Shaft										DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	Key				L2				
9090	330	500	170	90m6	M24/50	25	9	14	150	1"	1 1/2"	2070	90	
9095	330	500	170	90m6	M24/50	25	9	14	150	1"	1 1/2"	2330	120	
9100	375	585	210	100m6	M24/50	28	10	16	190	1"	1 1/2"	2820	140	
9105	375	585	210	100m6	M24/50	28	10	16	190	1"	1 1/2"	3300	175	
9110	405	615	210	110m6	M24/50	28	10	16	190	1"	1 1/2"	3950	200	
9115	405	615	210	110m6	M24/50	28	10	16	190	1"	1 1/2"	4470	255	

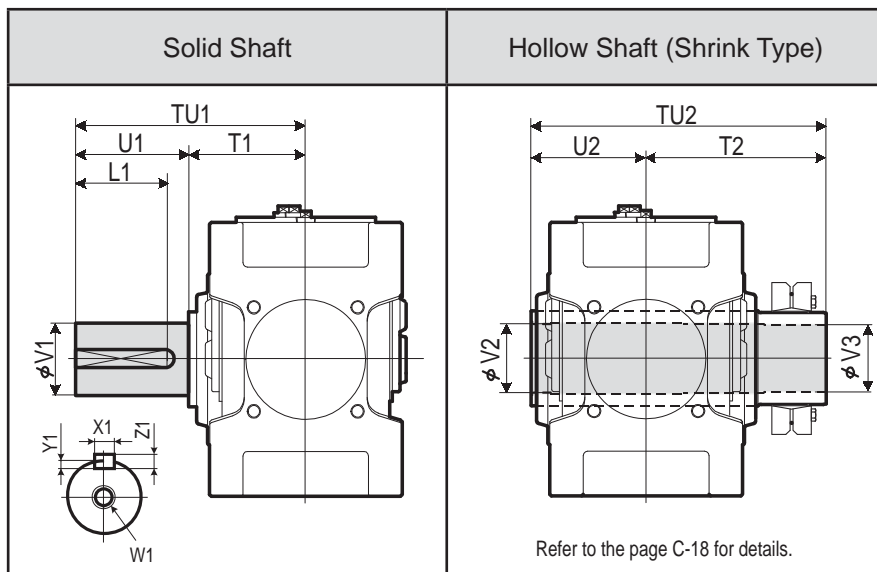
※ 9090 - 9115 are equipped with motor driven pumps. For details consult us. Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement RR is equipped with visible. Refer to page C-31.
 4. Refer to the page C-16 for dimensions not shown in these drawings.
 5. Refer to the page C-31 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Double Reduction Vertical Mounting 9090 ▶ 9115

PARAMAX P
Vertical V
Split D
9090
9115
Parallel P
Double Reduction 2

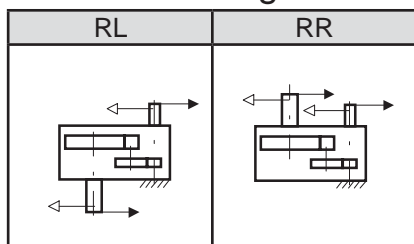
Slow Speed Shaft



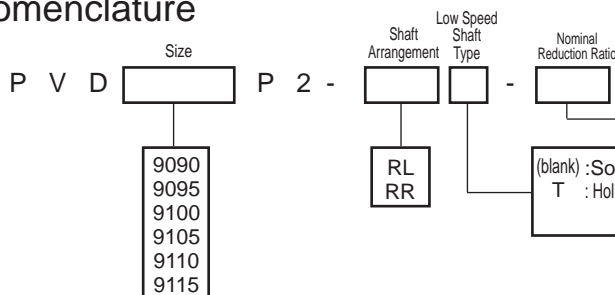
Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	
						X1	Y1	Z1	L1						
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190	
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200	
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210	
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220	
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240	
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250	

Unit: mm

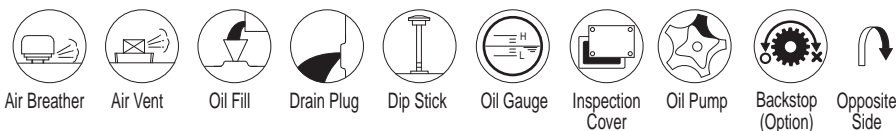
Standard Arrangement Configuration



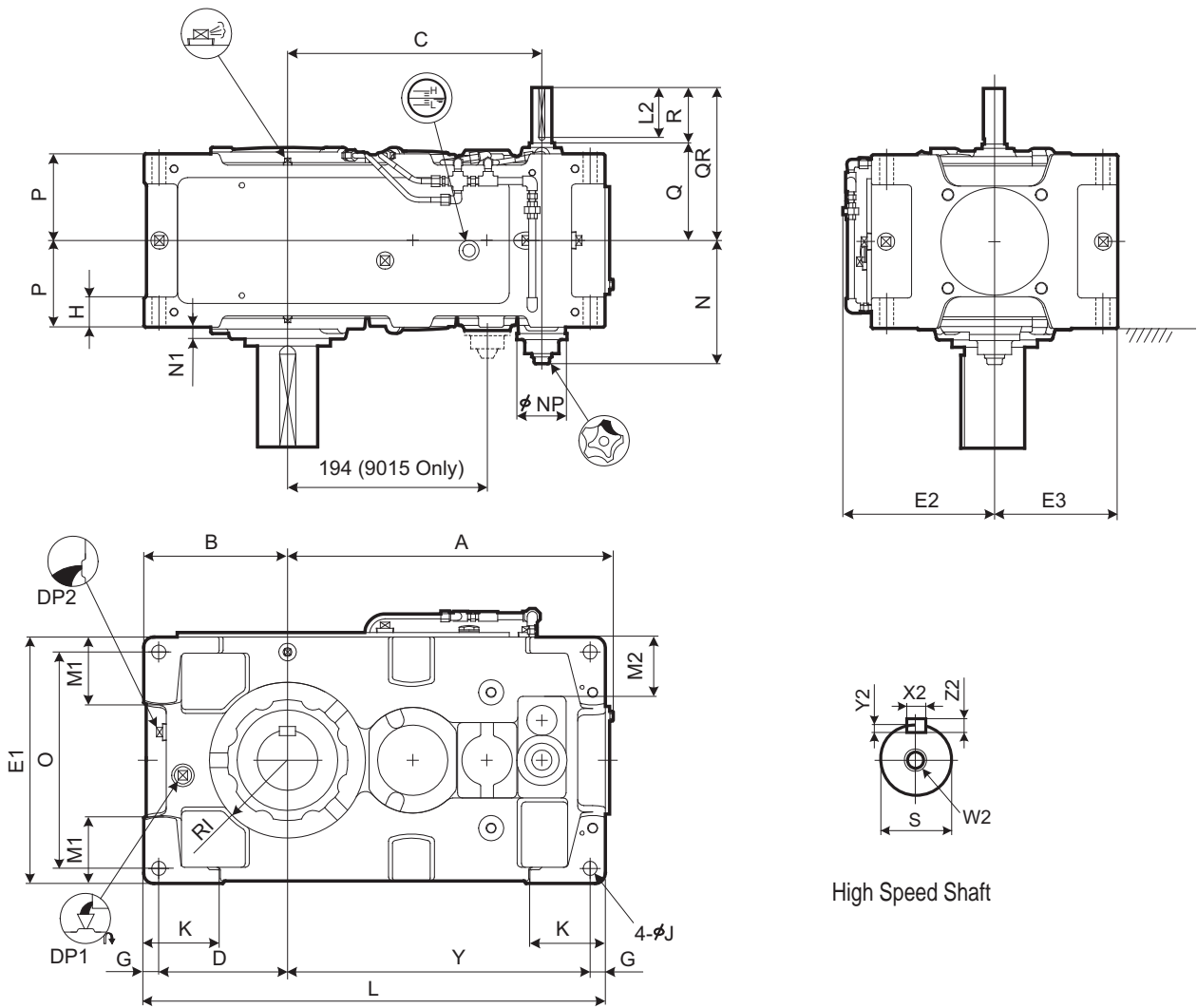
Nomenclature



Size	Nominal Reduction Ratio										
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20
9090	○	○	○	○	○	○	○	○	○	○	
9095		○	○	○	○	○	○	○	○	○	○
9100	○	○	○	○	○	○	○	○	○	○	
9105		○	○	○	○	○	○	○	○	○	○
9110	○	○	○	○	○	○	○	○	○	○	
9115		○	○	○	○	○	○	○	○	○	○



DIMENSIONS Parallel Shaft Triple Reduction Vertical Mounting 9015 ▶ 9055



Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E1	E2	E3	G	H	RI	J	K	L	M1	M2	N	N1	NP	O	P	Y
9015	338	160	257	140	270	195	135	20	35	80	15	95	485	70	80	186	25	100	230	102.5	305
9025	408	175	306	155	310	215	155	20	40	87.5	19	110	570	75	90	198.5	23	100	270	117.5	375
9030	453	200	343	175	320	220	160	25	50	105	24	120	640	85	50	211	22	100	270	132.5	415
9035	484	219	374	194	370	245	185	25	50	120	24	120	690	100	75	211	22	100	320	132.5	446
9040	540	235	398	205	400	260	200	30	60	120	28	150	759	100	70	228.5	15	100	340	157.5	494
9045	577	256	437	226	440	277	220	30	60	140	28	150	819	120	90	228.5	17.5	100	380	157.5	533
9050	609	255	467	225	420	270	210	30	60	140	28	150	848	110	83	248.5	23	100	360	172.5	563
9055	648	286	506	256	490	305	245	30	60	155	28	150	918	135	118	248.5	23	100	430	172.5	602

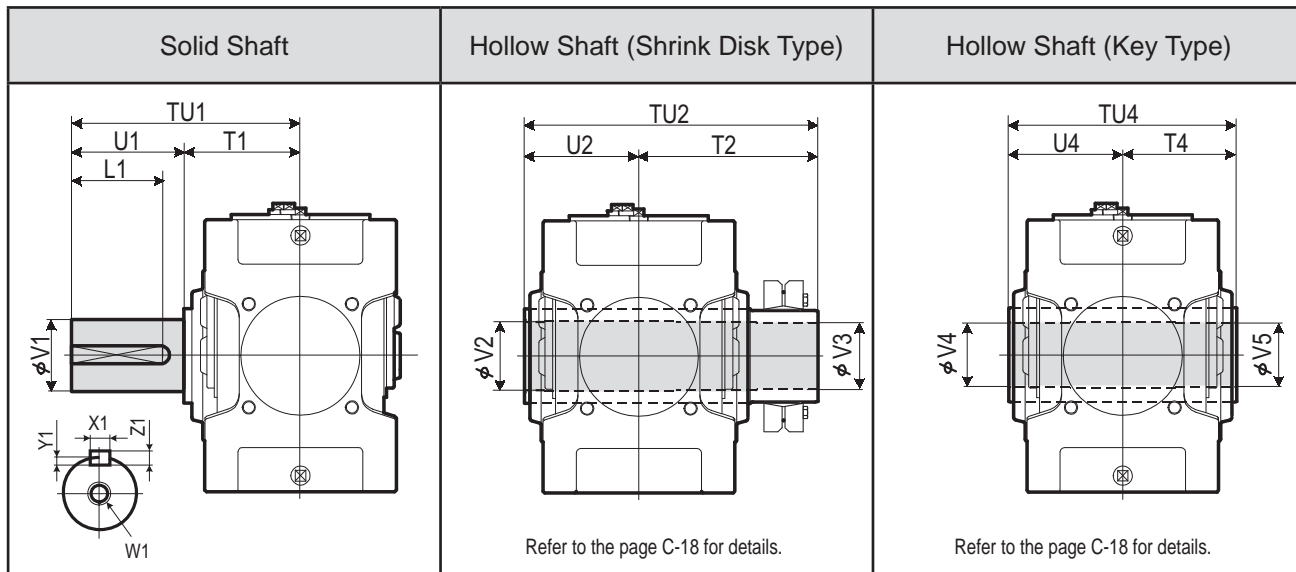
Size	High Speed Shaft										DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	Key				
9015	130	190	60	25k6	M10/22	8	4	7	50	3/4"	3/4"	105	6	
9025	144	204	60	28k6	M10/22	8	4	7	50	3/4"	3/4"	150	8	
9030	161	241	80	30k6	M10/22	8	4	7	70	3/4"	3/4"	205	10	
9035	161	241	80	30k6	M10/22	8	4	7	70	3/4"	3/4"	225	14	
9040	176	256	80	35k6	M12/28	10	5	8	70	1"	1"	305	18	
9045	176	256	80	35k6	M12/28	10	5	8	70	1"	1"	375	22	
9050	194	304	110	40k6	M16/36	12	5	8	95	1"	1"	445	25	
9055	194	304	110	40k6	M16/36	12	5	8	95	1"	1"	505	35	

Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Refer to the page C-13 for dimensions not shown in these drawings.
4. Refer to the page C-25 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Triple Reduction Vertical Mounting 9015 ▶ 9055

Slow Speed Shaft

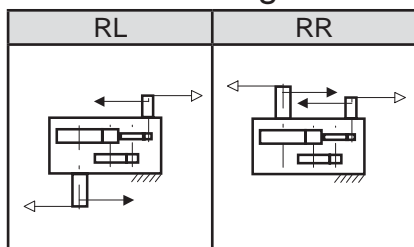


PARAMAX Vertical Monoblock 9015 9055 Parallel Triple Reduction P V A 3

Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9015	245	135	110	58m6	M20/42	18	7	11	95	328	193	135	63	60	270	135	135	55	55	
9025	285	145	140	70m6	M20/42	20	7.5	12	125	358	213	145	73	70	300	150	150	65	65	
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

Standard Arrangement Configuration



Nomenclature



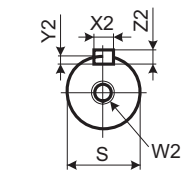
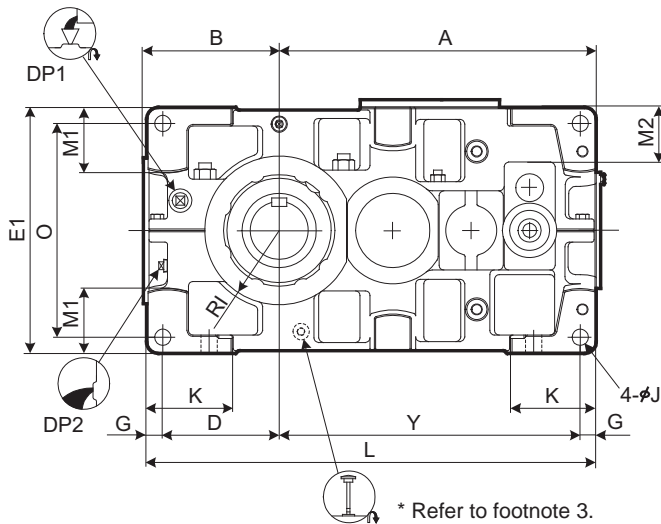
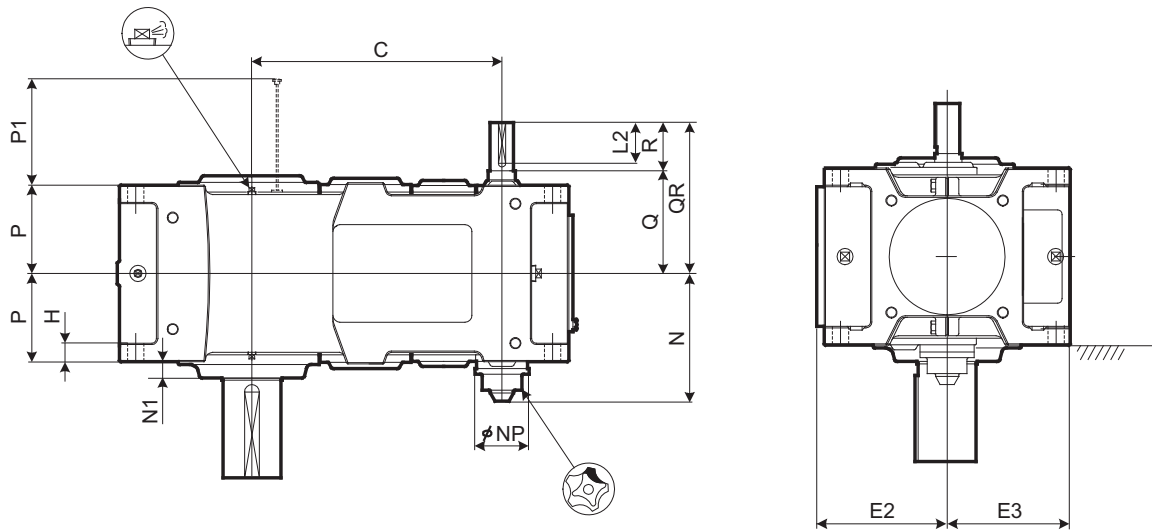
- 9015
- 9025
- 9030
- 9035
- 9040
- 9045
- 9050
- 9055

- RL
- RR
- (blank) : Solid Shaft
- T : Hollow Shaft (Shrink Disk type)
- K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9015	○	○	○	○	○	○	○	○						
9025	○	○	○	○	○	○	○	○						
9030	○	○	○	○	○	○	○	○						
9035			○	○	○	○	○	○	○	○	○	○	○	○
9040	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9045			○	○	○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9055	○	○	○	○	○	○	○	○	○	○	○	○	○	○

- Air Breather
- Air Vent
- Oil Fill
- Drain Plug
- Dip Stick
- Oil Gauge
- Inspection Cover
- Oil Pump
- Backstop (Option)
- Opposite Side

DIMENSIONS Parallel Shaft Triple Reduction Vertical Mounting 9060 ▶ 9085



High Speed Shaft

* Refer to footnote 3.

Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E1	E2	E3	G	H	RI	J	K	L	M1	M2	N	N1	NP	O	P	P1	Y
9060	701	299	540	251	530	282	265	35	35	160	35	180	970	140	118	277.5	35	117	460	190	223	649
9065	747	338	586	290	600	317	300	35	35	175	35	180	1055	175	153	277.5	38	117	530	190	223	695
9070	809	336	630	283	600	317	300	40	40	175	42	215	1115	155	128	302.5	38	117	520	215	253	752
9075	862	383	683	330	670	352	335	40	52	190	42	220	1215	195	163	302.5	40	117	590	215	253	805
9080	932	378	725	325	670	352	335	40	52	190	42	220	1275	170	140	322.5	45	117	590	230	283	870
9085	988	422	781	369	750	392	375	40	52	215	42	220	1375	210	180	322.5	40	117	670	230	283	926

Size	High Speed Shaft										DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	Key				
9060	219	329	110	50k6	M16/36	14	5.5	9	95	1"	1"	660	28	
9065	219	329	110	50k6	M16/36	14	5.5	9	95	1"	1"	815	35	
9070	244	354	110	55m6	M20/42	16	6	10	95	1"	1"	940	44	
9075	244	354	110	55m6	M20/42	16	6	10	95	1"	1"	1160	56	
9080	265	405	140	65m6	M20/42	18	7	11	125	1"	1"	1350	57	
9085	265	405	140	65m6	M20/42	18	7	11	125	1"	1"	1610	79	

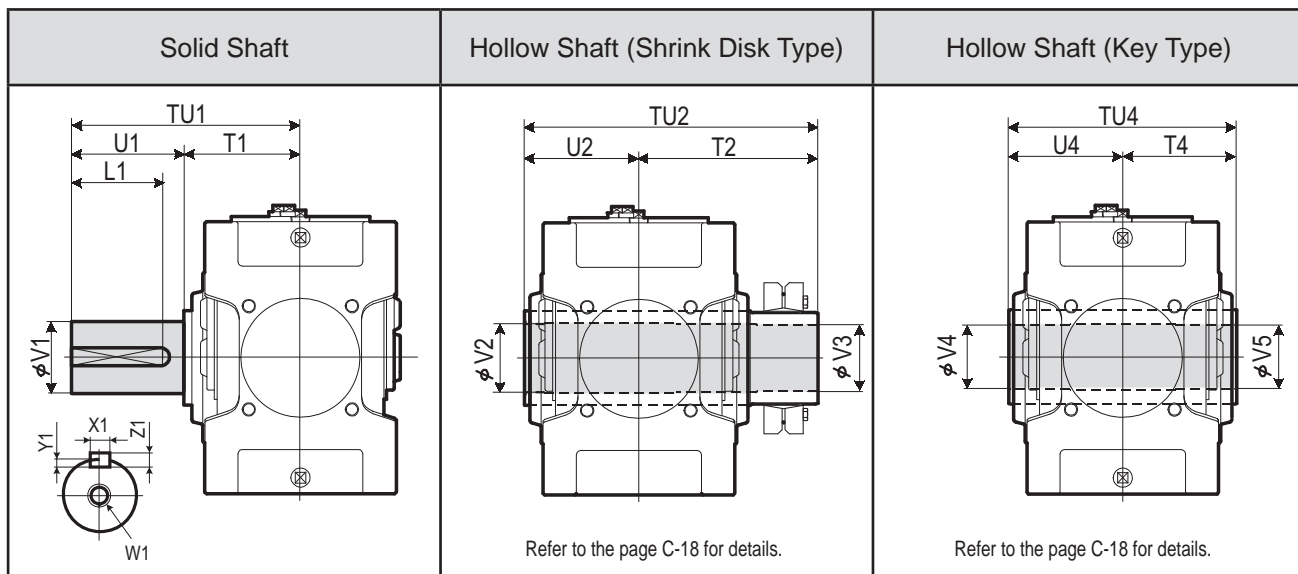
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement RR is equipped with visible gauge. Refer to page C-28.

4. Refer to the page C-15 for dimensions not shown in these drawings.
 5. Refer to the page C-28 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Triple Reduction Vertical Mounting 9060 ▶ 9085

Slow Speed Shaft

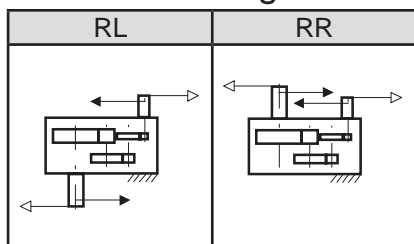


PARAMAX
Vertical
Split
9060
9085
Parallel
Triple
Reduction
P
V
D
P
3

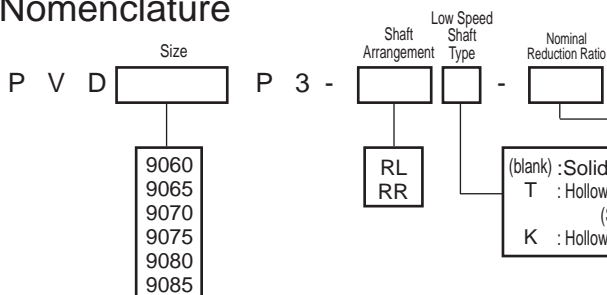
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123	
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143	
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143	
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148	
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163	
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173	

Unit: mm

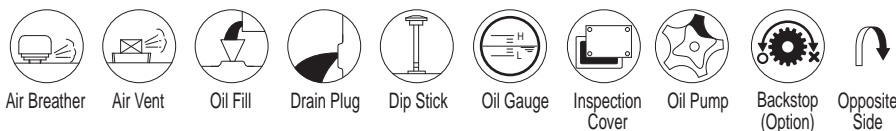
Standard Arrangement Configuration



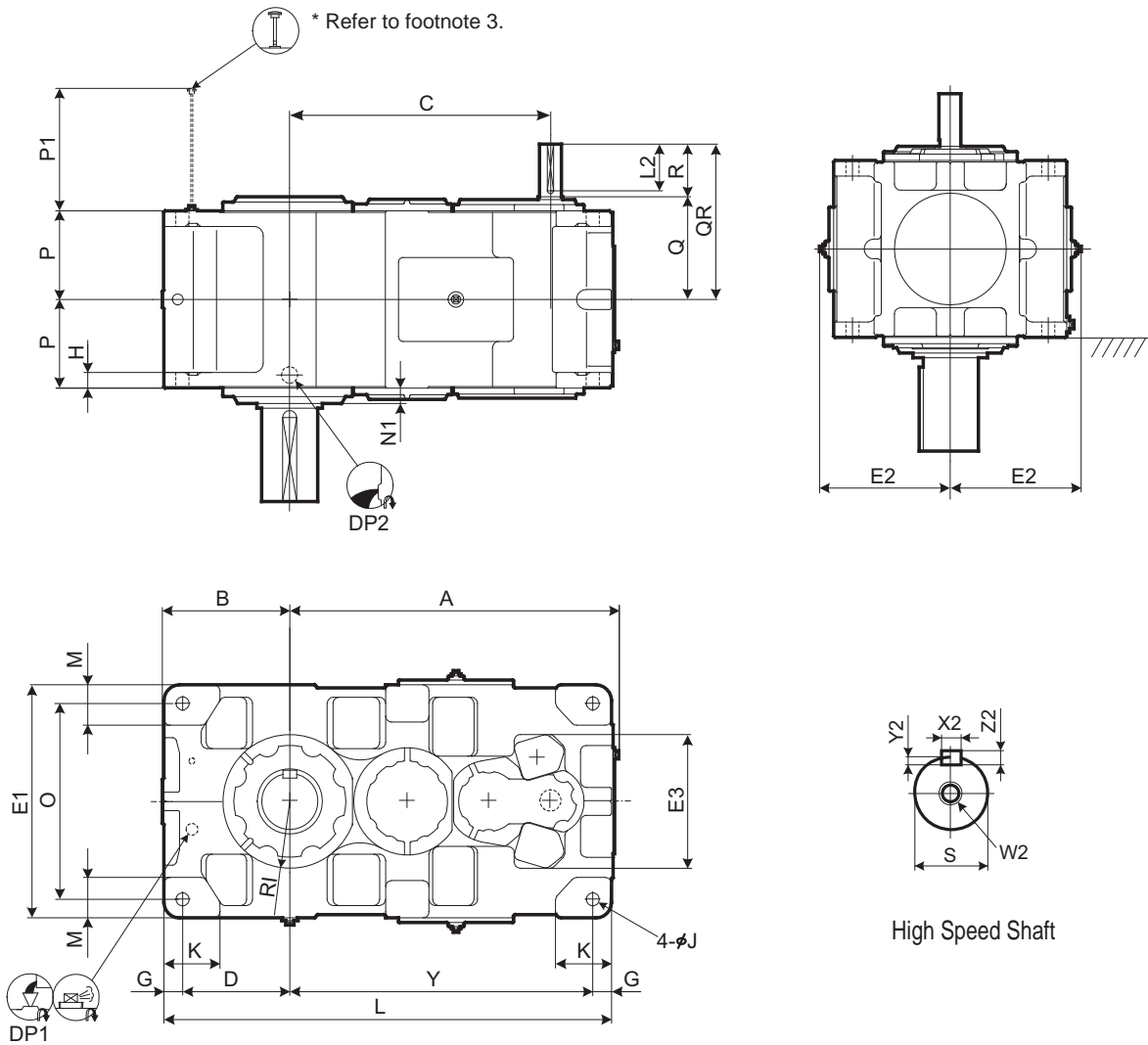
Nomenclature



Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9060	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065			○	○	○	○	○	○	○	○	○	○	○	○
9070	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9075			○	○	○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Parallel Shaft Triple Reduction Vertical Mounting 9090 ▶ 9115



Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E1	E2	E3	G	H	RI	J	K	L	M	N1	O	P	P1	Y
9090	1060	410	837	345	750	421	430	60	50	215	42	180	1440	130	50	630	285	394	975
9095	1090	440	867	375	800	446	430	60	50	235	42	200	1500	140	50	680	285	394	1005
9100	1194	450	950	375	850	471	500	70	55	235	48	200	1610	150	60	710	325	443	1095
9105	1228	485	984	410	900	496	500	70	55	260	48	220	1680	160	60	760	325	443	1130
9110	1344	500	1050	420	950	521	500	75	60	265	56	220	1810	170	55	800	355	475	1240
9115	1393	550	1099	470	1000	546	500	75	60	280	56	250	1910	180	55	850	355	475	1290

Size	High Speed Shaft									DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2				
9090	330	470	140	65m6	M20/42	18	7	11	125	1"	1 1/2"	2120	90
9095	330	470	140	65m6	M20/42	18	7	11	125	1"	1 1/2"	2380	120
9100	375	515	140	75m6	M20/42	20	7.5	12	125	1"	1 1/2"	2870	140
9105	375	515	140	75m6	M20/42	20	7.5	12	125	1"	1 1/2"	3350	175
9110	405	575	170	80m6	M20/42	22	9	14	150	1"	1 1/2"	4000	200
9115	405	575	170	80m6	M20/42	22	9	14	150	1"	1 1/2"	4520	255

※ 9090 ~ 9115 are equipped with motor driven pumps. For details consult us.

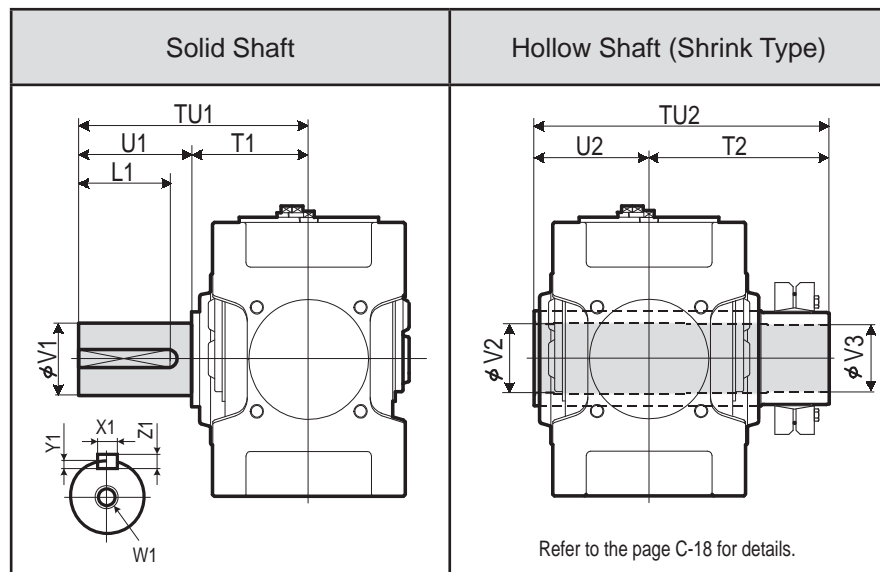
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement RR is equipped with oil gauge. Refer to the page C-31.

4. Refer to the page C -16 for dimensions not shown in these drawings.
 5. Refer to the page C -31 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Triple Reduction Vertical Mounting 9090 ▶ 9115

Slow Speed Shaft

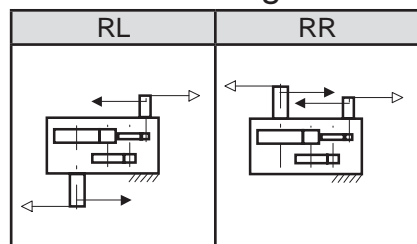


Size	Solid Shaft										Hollow Shaft (Shrink Disk Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	
						X1	Y1	Z1	L1						
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190	
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200	
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210	
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220	
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240	
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250	

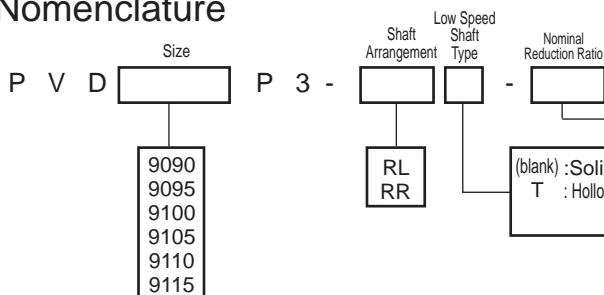
Unit: mm

PARAMAX P
 Vertical V
 Split D
 9090
 9115
 Parallel P
 Triple Reduction 3

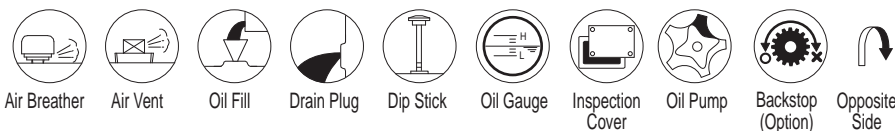
Standard Arrangement Configuration



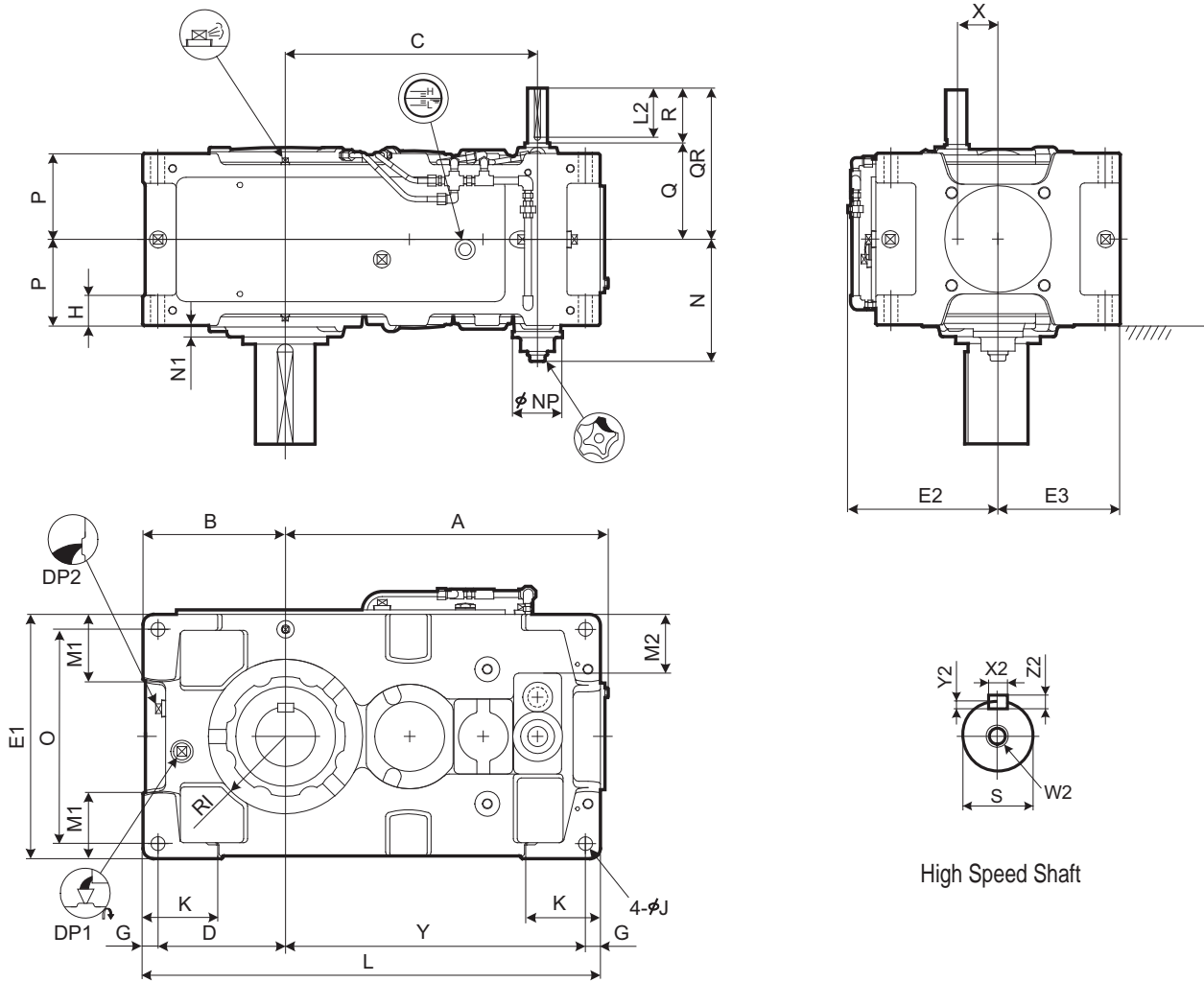
Nomenclature



Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9090	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9095	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9100	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9105	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9110	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9115	○	○	○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Parallel Shaft Quadruple Reduction Vertical Mounting 9030 ▶ 9055



High Speed Shaft

Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E1	E2	E3	G	H	RI	J	K	L	M1	M2	N	N1	NP	O	P	X	Y
9030	453	200	343	175	320	220	160	25	50	105	24	120	640	85	50	211	22	100	270	132.5	63	415
9035	484	219	374	194	370	245	185	25	50	120	24	120	690	100	75	211	22	100	320	132.5	63	446
9040	540	235	398	205	400	260	200	30	60	120	28	150	759	100	70	228.5	15	100	340	157.5	79	494
9045	577	256	437	226	440	277	220	30	60	140	28	150	819	120	90	228.5	17.5	100	380	157.5	79	533
9050	609	255	467	225	420	270	210	30	60	140	28	150	848	110	83	248.5	23	100	360	172.5	79	563
9055	648	286	506	256	490	305	245	30	60	155	28	150	918	135	118	248.5	23	100	430	172.5	79	602

Size	High Speed Shaft										DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	Key				
9030	159	219	60	25k6	M10/22	8	4	7	50	3/4"	3/4"	210	10	
9035	159	219	60	25k6	M10/22	8	4	7	50	3/4"	3/4"	230	14	
9040	175	235	60	28k6	M10/22	8	4	7	50	1"	1"	310	17	
9045	175	235	60	28k6	M10/22	8	4	7	50	1"	1"	380	21	
9050	195	275	80	30k6	M10/22	8	4	7	70	1"	1"	450	23	
9055	195	275	80	30k6	M10/22	8	4	7	70	1"	1"	510	33	

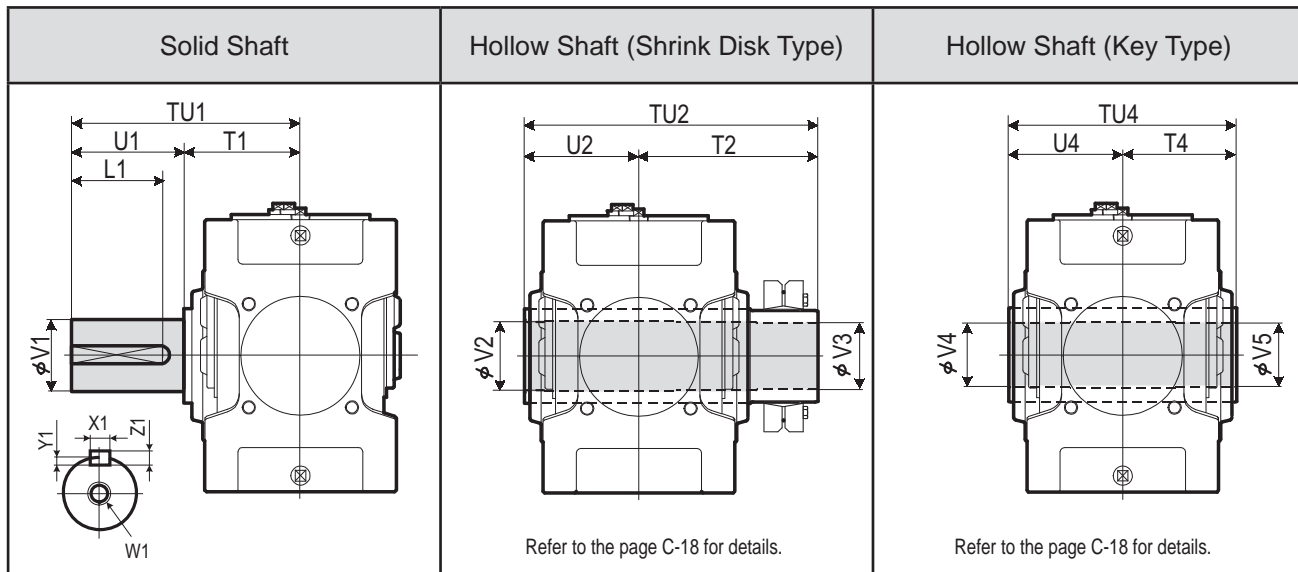
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-13 for dimensions not shown in these drawings.

4. Refer to the page C-25 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Quadruple Reduction Vertical Mounting 9030 ▶ 9055

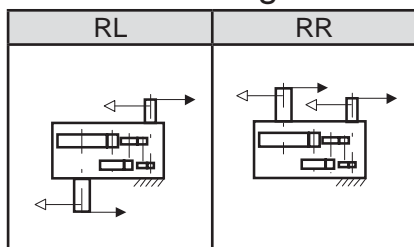
Slow Speed Shaft



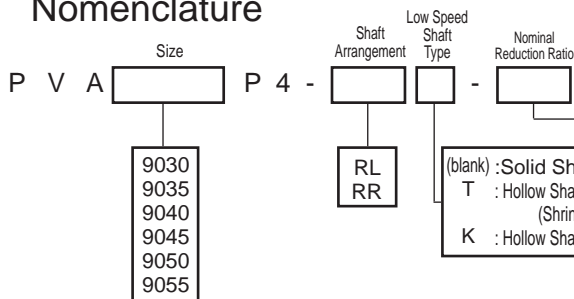
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

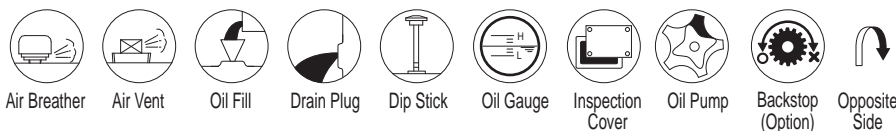
Standard Arrangement Configuration



Nomenclature

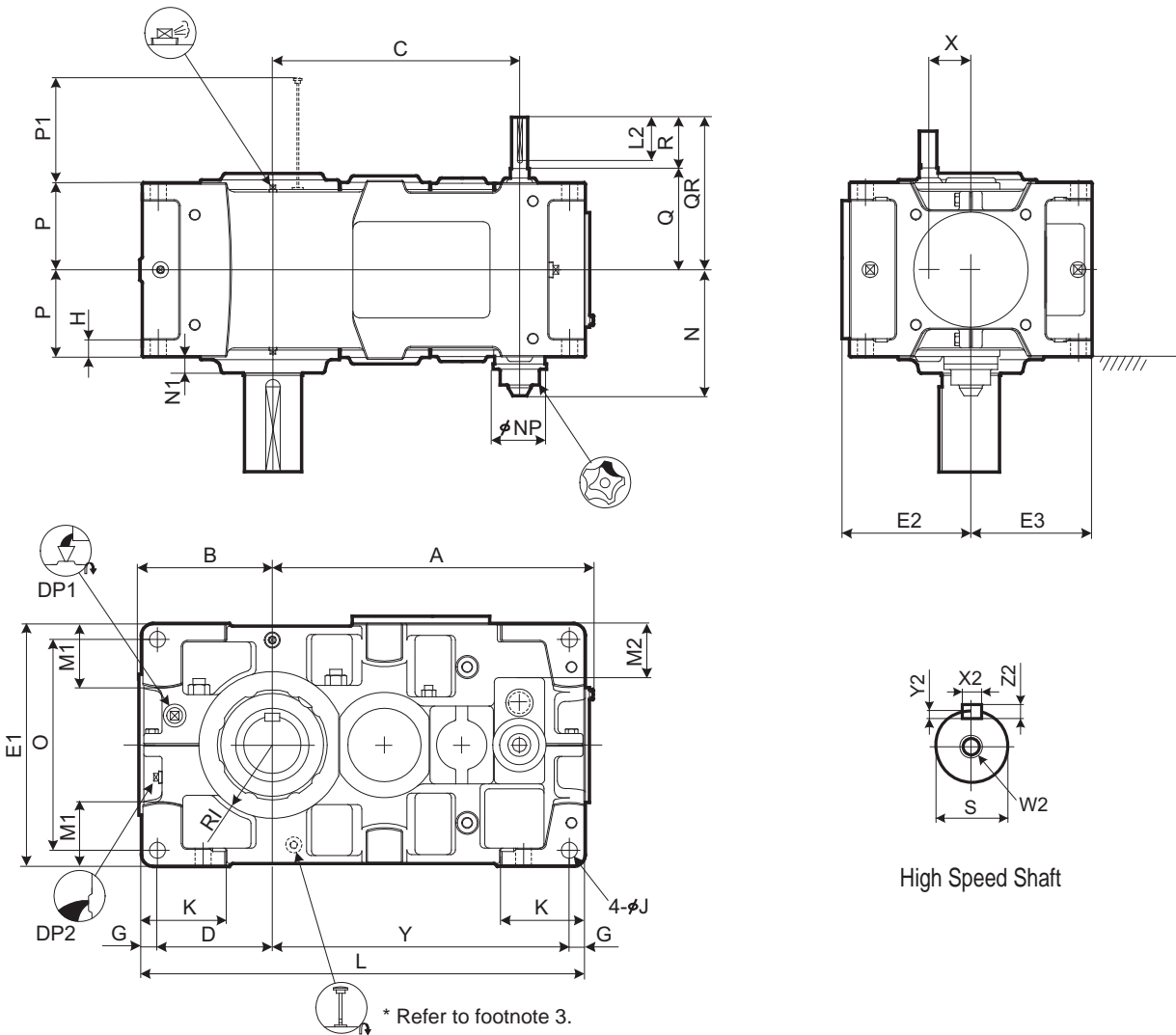


Size	Nominal Reduction Ratio																
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500
9030	○	○	○	○	○	○	○	○	○	○							
9035			○	○	○	○	○	○	○	○							
9040			○	○	○	○	○	○	○	○							
9045			○	○	○	○	○	○	○	○							
9050			○	○	○	○	○	○	○	○							
9055				○	○	○	○	○	○	○							



PARAMAX Vertical Monoblock 9030 9055 Parallel Quadruple Reduction P V A 4

DIMENSIONS Parallel Shaft Quadruple Reduction Vertical Mounting 9060 ▶ 9085



High Speed Shaft

Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E1	E2	E3	G	H	RI	J	K	L	M1	M2	N	N1	NP	O	P	P1	X	Y
9060	701	299	540	251	530	282	265	35	35	160	35	180	970	140	118	277.5	35	117	460	190	213	92	649
9065	747	338	586	290	600	317	300	35	35	175	35	180	1055	175	153	277.5	38	117	530	190	213	92	695
9070	809	336	630	283	600	317	300	40	40	175	42	215	1115	155	128	302.5	38	117	520	215	233	109	752
9075	862	383	683	330	670	352	335	40	52	190	42	220	1215	195	163	302.5	40	117	590	215	233	109	805
9080	932	378	725	325	670	352	335	40	52	190	42	220	1275	170	140	322.5	45	117	590	230	268	126	870
9085	988	422	781	369	750	392	375	40	52	215	42	220	1375	210	180	322.5	40	117	670	230	268	126	926

Size	High Speed Shaft										DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	Key				
9060	221	301	80	35k6	M12/28	10	5	8	70	1"	1"	660	32	
9065	221	301	80	35k6	M12/28	10	5	8	70	1"	1"	815	40	
9070	244	354	110	40k6	M16/36	12	5	8	95	1"	1"	950	53	
9075	244	354	110	40k6	M16/36	12	5	8	95	1"	1"	1170	67	
9080	264	374	110	45k6	M16/36	14	5.5	9	95	1"	1"	1360	65	
9085	264	374	110	45k6	M16/36	14	5.5	9	95	1"	1"	1620	89	

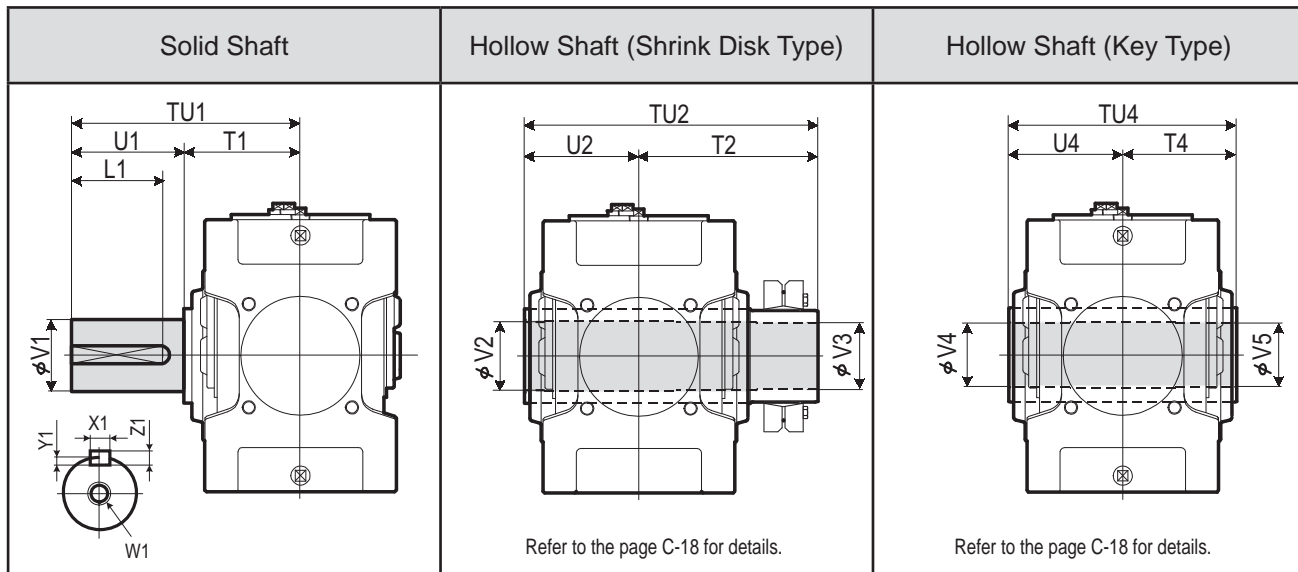
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement RR is equipped with visible gauge. Refer to page C-28.

4. Refer to the page C-15 for dimensions not shown in these drawings.
 5. Refer to the page C-28 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Quadruple Reduction Vertical Mounting 9060 ▶ 9085

Slow Speed Shaft

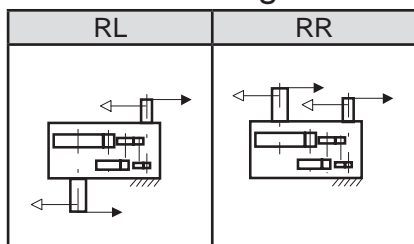


Size	Solid Shaft					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)								
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173

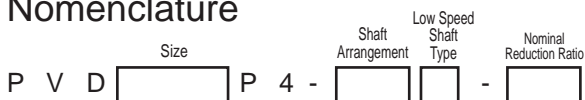
Unit: mm

PARAMAX P
 Vertical V
 Split D
 9060
 9085
 Parallel P
 Quadruple Reduction 4

Standard Arrangement Configuration



Nomenclature



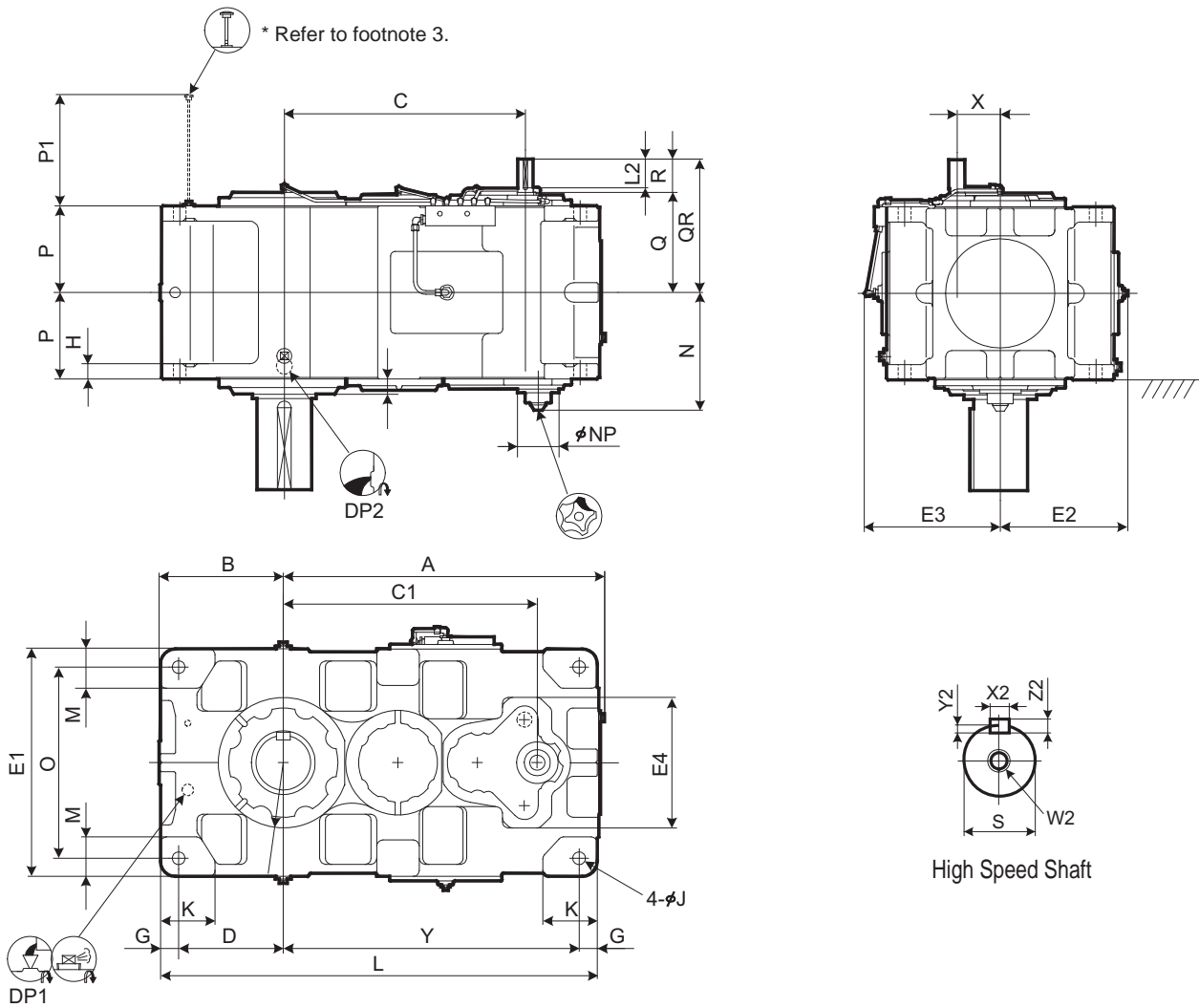
- 9060
- 9065
- 9070
- 9075
- 9080
- 9085

- RL
 - RR
- (blank) : Solid Shaft
 T : Hollow Shaft (Shrink Disk type)
 K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio																
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500
9060	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065				○	○	○	○	○	○	○	○	○	○	○	○	○	○
9070					○	○	○	○	○	○	○	○	○	○	○	○	○
9075						○	○	○	○	○	○	○	○	○	○	○	○
9080							○	○	○	○	○	○	○	○	○	○	○
9085								○	○	○	○	○	○	○	○	○	○

- Air Breather
- Air Vent
- Oil Fill
- Drain Plug
- Dip Stick
- Oil Gauge
- Inspection Cover
- Oil Pump
- Backstop (Option)
- Opposite Side

DIMENSIONS Parallel Shaft Quadruple Reduction Vertical Mounting 9090 ▶ 9115



Size	A	B	C	C1	D	E1	E2	E3	E4	G	H	RI	J	K	L	M	N	NP	N1	O	P	P1	X	Y
9090	1060	410	795	837	345	750	421	449	430	60	50	215	42	180	1440	130	381	137	50	630	285	367	142	975
9095	1090	440	825	867	375	800	446	474	430	60	50	235	42	200	1500	140	381	137	50	680	285	367	142	1005
9100	1194	450	901	950	375	850	471	499	500	70	55	235	48	200	1610	150	421	137	60	710	325	409	162	1095
9105	1228	485	935	984	410	900	496	524	500	70	55	260	48	220	1680	160	421	137	60	760	325	409	162	1130
9110	1344	500	1001	1050	420	950	521		500	75	60	265	56	220	1810	170			55	800	355	442	162	1240
9115	1393	550	1050	1099	470	1000	546		500	75	60	280	56	250	1910	180			55	850	355	442	162	1290

Size	High Speed Shaft										DP1	DP2	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	Key				
9090	330	440	110	50k6	M16/36	14	5.5	9	95		1"	1 1/2"	2170	110
9095	330	440	110	50k6	M16/36	14	5.5	9	95		1"	1 1/2"	2430	140
9100	375	515	140	60m6	M20/42	18	7	11	125		1"	1 1/2"	2920	170
9105	375	515	140	60m6	M20/42	18	7	11	125		1"	1 1/2"	3400	210
9110	405	545	140	60m6	M20/42	18	7	11	125		1"	1 1/2"	4050	240
9115	405	545	140	60m6	M20/42	18	7	11	125		1"	1 1/2"	4570	295

※ 9110 ~ 9115 are equipped with motor driven pumps. For details consult us.

Unit: mm

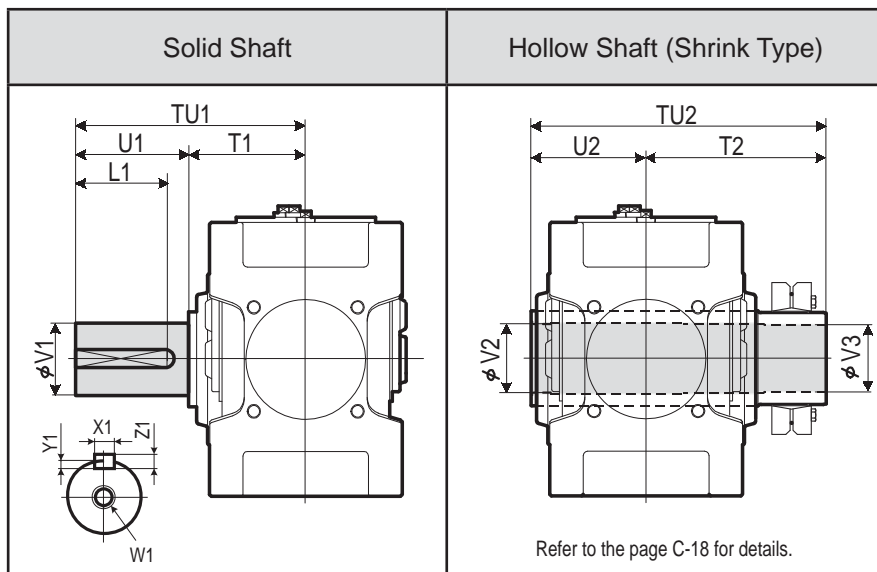
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Shaft arrangement RR is equipped with oil gauge. Refer to the page C-31.

4. Refer to the page C-16 for dimensions not shown in these drawings.
 5. Refer to the page C-31 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Quadruple Reduction Vertical Mounting 9090 ▶ 9115

PARAMAX P
Vertical V
Split D
9090
9115
Parallel P
Quadruple Reduction 4

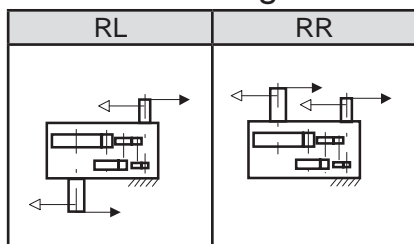
Slow Speed Shaft



Size	Solid Shaft					Hollow Shaft (Shrink Disk Type)								
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3
						X1	Y1	Z1	L1					
9090	650	350	300	180m6	M30/60	45	15	25	270	844	494	350	193	190
9095	700	350	350	190m6	M30/60	45	15	25	320	859	509	350	203	200
9100	740	390	350	200m6	M30/60	45	15	25	320	934	544	390	213	210
9105	740	390	350	220m6	M30/60	50	17	28	320	949	559	390	223	220
9110	770	420	350	220m6	M30/60	50	17	28	320	1030	610	420	243	240
9115	830	420	410	240m6	M30/60	56	20	32	375	1065	645	420	253	250

Unit: mm

Standard Arrangement Configuration

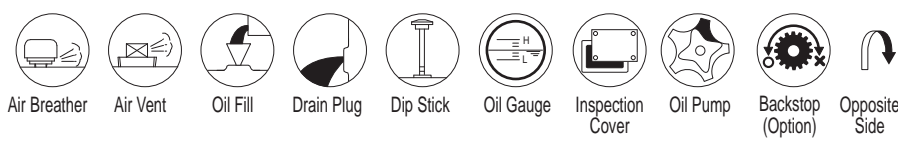


Nomenclature

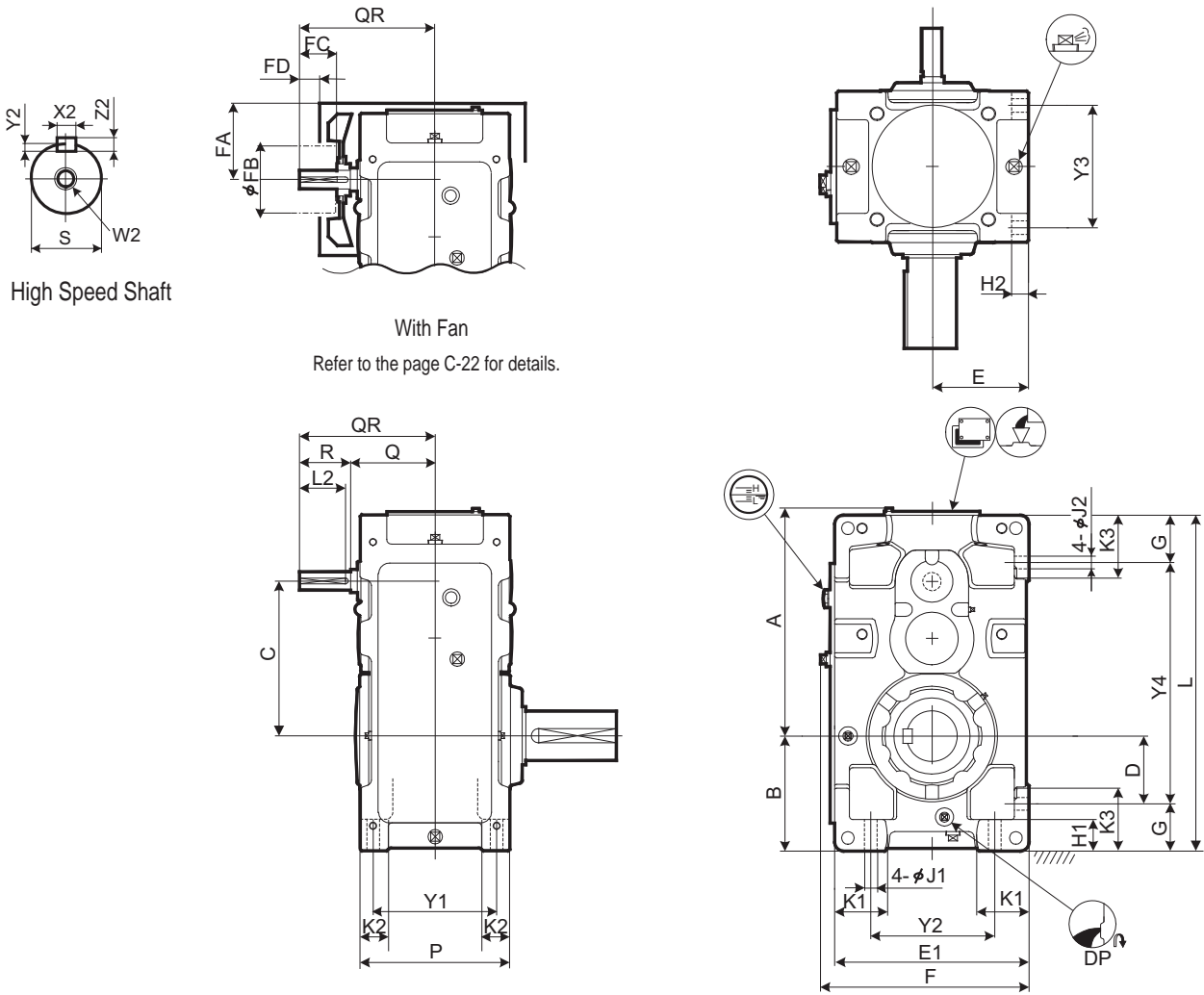
P V D Size P 4 - Shaft Arrangement Low Speed Shaft Type - Nominal Reduction Ratio

Size: 9090, 9095, 9100, 9105, 9110, 9115
 Shaft Arrangement: RL, RR
 Shaft Type: (blank) : Solid Shaft, T : Hollow Shaft (Shrink Disk type)

Size	Nominal Reduction Ratio															
	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	
9090	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
9095		○	○	○	○	○	○	○	○	○	○	○	○	○	○	
9100	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
9105		○	○	○	○	○	○	○	○	○	○	○	○	○	○	
9110	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
9115		○	○	○	○	○	○	○	○	○	○	○	○	○	○	



DIMENSIONS Parallel Shaft Double Reduction Upright Mounting 9015 ▶ 9055



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H1	H2	J1	J2	K1	K2	K3	L	P	Y1	Y2	Y3	Y4
9015	296	160	194	90	135	270	298	70	50	22	15	15	70	35	95	440	205	170	180	170	300
9025	347	175	227	95	155	310	338	80	55	25	19	19	75	40	110	505	235	195	210	195	345
9030	407	200	264	110	160	320	348	90	60	28	24	24	85	50	120	590	265	215	200	215	410
9035	438	219	295	129	185	370	398	90	60	28	24	24	100	50	120	640	265	215	250	215	460
9040	468	235	306	120	200	400	430	115	75	30	28	28	100	60	150	685	315	255	260	255	455
9045	507	256	345	141	220	440	470	115	75	30	28	28	120	60	150	745	315	255	300	255	515
9050	538	255	358	138.5	210	420	450	116.5	75	32	28	28	110	60	150	775	345	285	280	285	542
9055	577	286	397	171	245	490	520	115	75	32	28	28	135	60	150	845	345	285	350	285	615

Size	High Speed Shaft					Key				Fan				DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC	FD			
9015	131	211	80	30k6	M10/22	8	4	7	70	129	125	50	30	3/4"	100	9
9025	146	226	80	35k6	M12/28	10	5	8	70	143	140	50	30	3/4"	140	13
9030	159	269	110	40k6	M16/36	12	5	8	95	169	140	80	52	3/4"	195	16
9035	159	269	110	40k6	M16/36	12	5	8	95	169	140	80	52	3/4"	215	22
9040	174	284	110	50k6	M16/36	14	5.5	9	95	188	160	80	52	1"	285	29
9045	174	284	110	50k6	M16/36	14	5.5	9	95	188	160	80	52	1"	345	36
9050	193	303	110	55m6	M20/42	16	6	10	95	208	160	80	52	1"	415	36
9055	193	303	110	55m6	M20/42	16	6	10	95	208	160	80	52	1"	475	47

Unit: mm

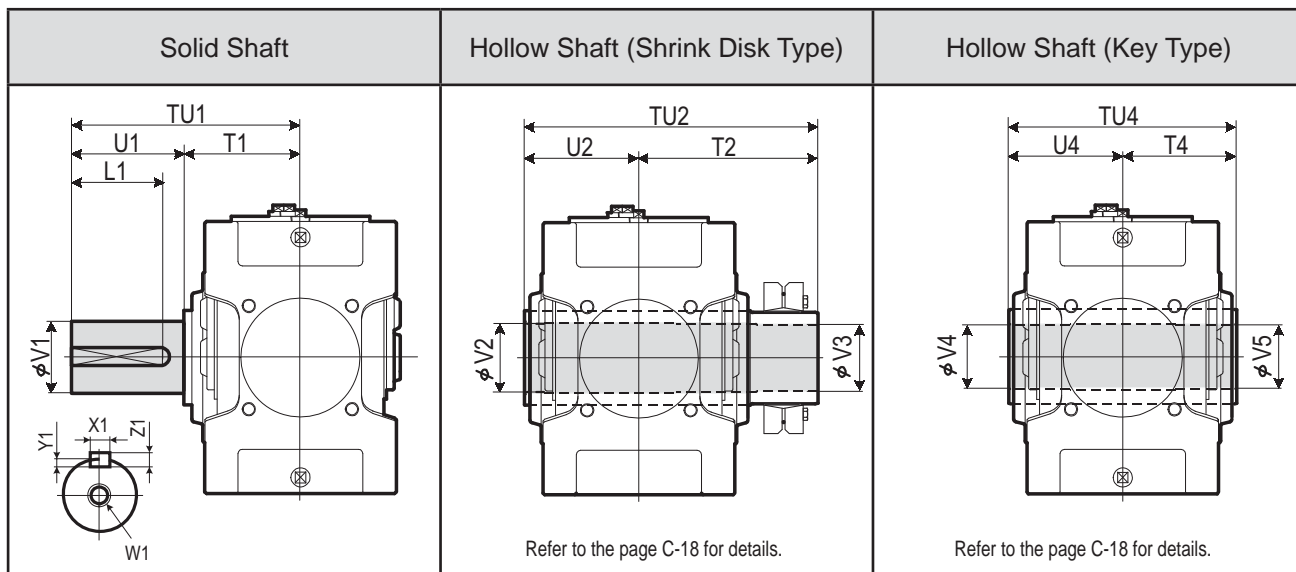
1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Always remove fan hood when tightening mounting bolt.

4. Refer to the page C-12 for dimensions not shown in these drawings.
5. Refer to the page C-26 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Double Reduction Upright Mounting 9015 ▶ 9055

PARAMAX Upright Monoblock 9015 9055 Parallel Double Reduction P W A P 2

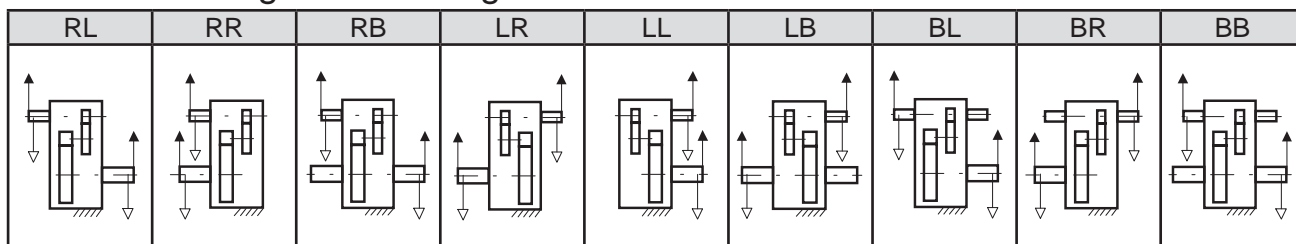
Slow Speed Shaft



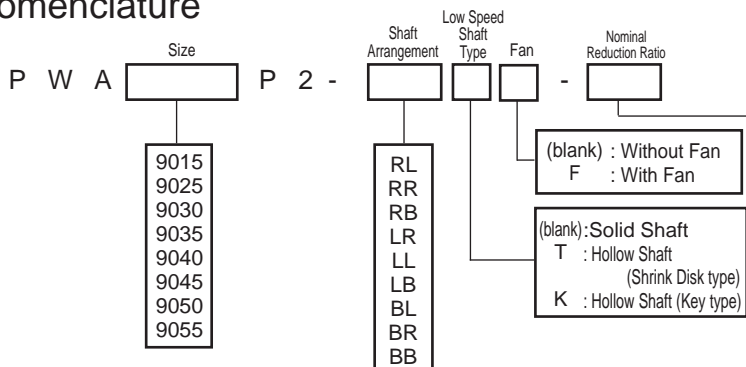
Size	Solid Shaft									Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	Key				TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9015	245	135	110	58m6	M20/42	18	7	11	95	328	193	135	63	60	270	135	135	55	55
9025	285	145	140	70m6	M20/42	20	7.5	12	125	358	213	145	73	70	300	150	150	65	65
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115

Unit: mm

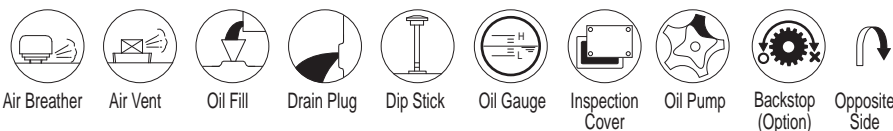
Standard Arrangement Configuration

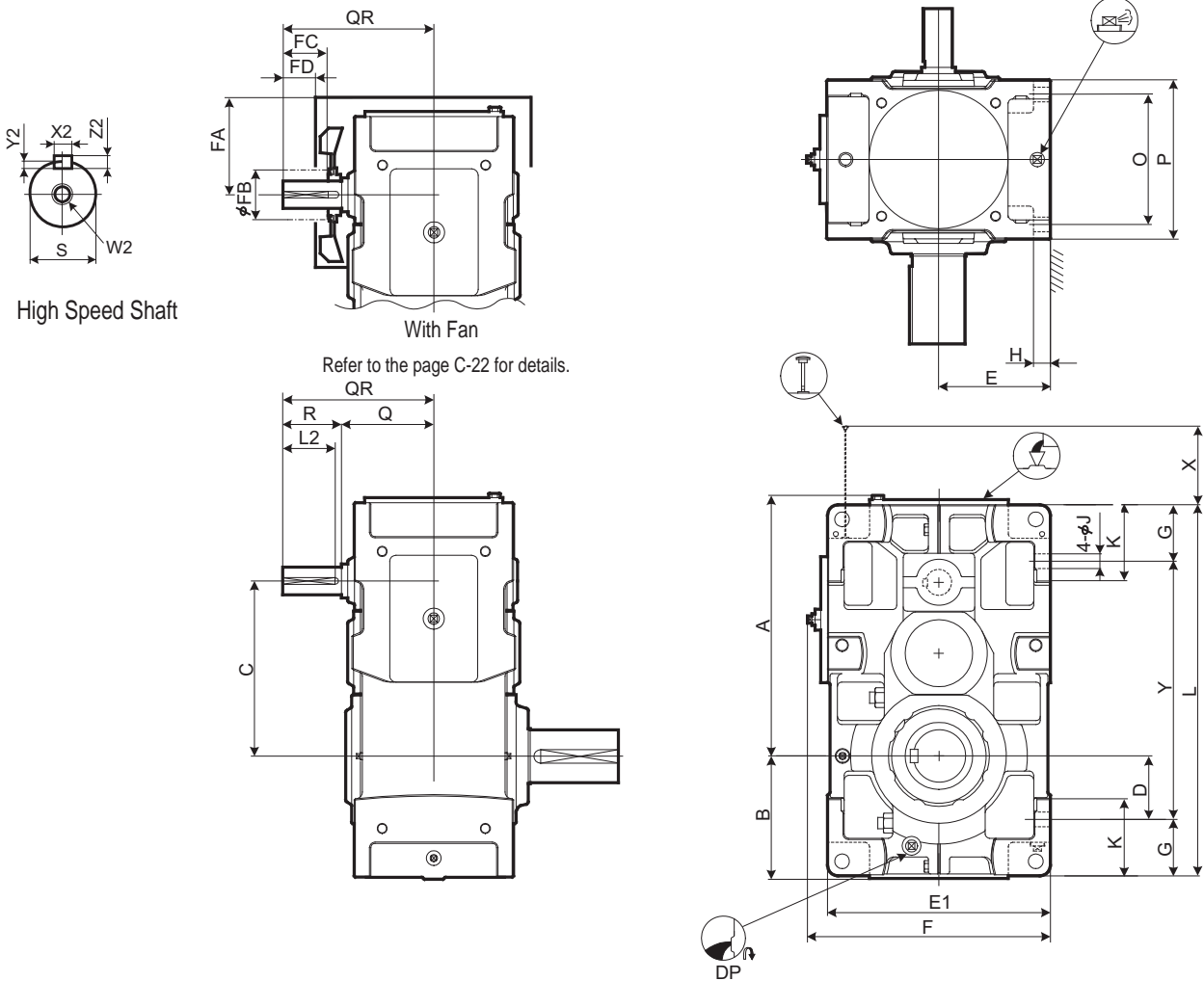


Nomenclature



Size	Nominal Reduction Ratio											
	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9015	○	○	○	○	○	○	○	○	○	○		
9025	○	○	○	○	○	○	○	○	○	○		
9030	○	○	○	○	○	○	○	○	○	○		
9035			○	○	○	○	○	○	○	○	○	○
9040	○	○	○	○	○	○	○	○	○	○		
9045			○	○	○	○	○	○	○	○	○	○
9050	○	○	○	○	○	○	○	○	○	○		
9055			○	○	○	○	○	○	○	○	○	○





Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	X	Y
9060	622	299	414	151	265	530	577	135	35	35	180	885	310	380	133	615
9065	668	338	460	190	300	600	647	135	35	35	180	970	310	380	133	700
9070	720	336	482	163	300	600	647	160	40	42	215	1020	350	430	138	700
9075	773	383	535	210	335	670	717	160	52	42	220	1120	350	430	138	800
9080	813	378	556	205	335	670	717	160	52	42	220	1155	380	460	169	835
9085	869	422	612	249	375	750	797	160	52	42	220	1255	380	460	169	935

Size	High Speed Shaft										Fan				DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC	FD				
9060	220	360	140	65m6	M20/42	18	7	11	125	240	200	105	65	1"	610	53	
9065	220	360	140	65m6	M20/42	18	7	11	125	240	200	105	65	1"	735	67	
9070	245	385	140	75m6	M20/42	20	7.5	12	125	274	225	105	65	1"	860	84	
9075	245	385	140	75m6	M20/42	20	7.5	12	125	274	225	105	65	1"	1110	100	
9080	264	434	170	85m6	M20/42	22	9	14	150	296	225	135	95	1"	1240	109	
9085	264	434	170	85m6	M20/42	22	9	14	150	296	225	135	95	1"	1500	137	

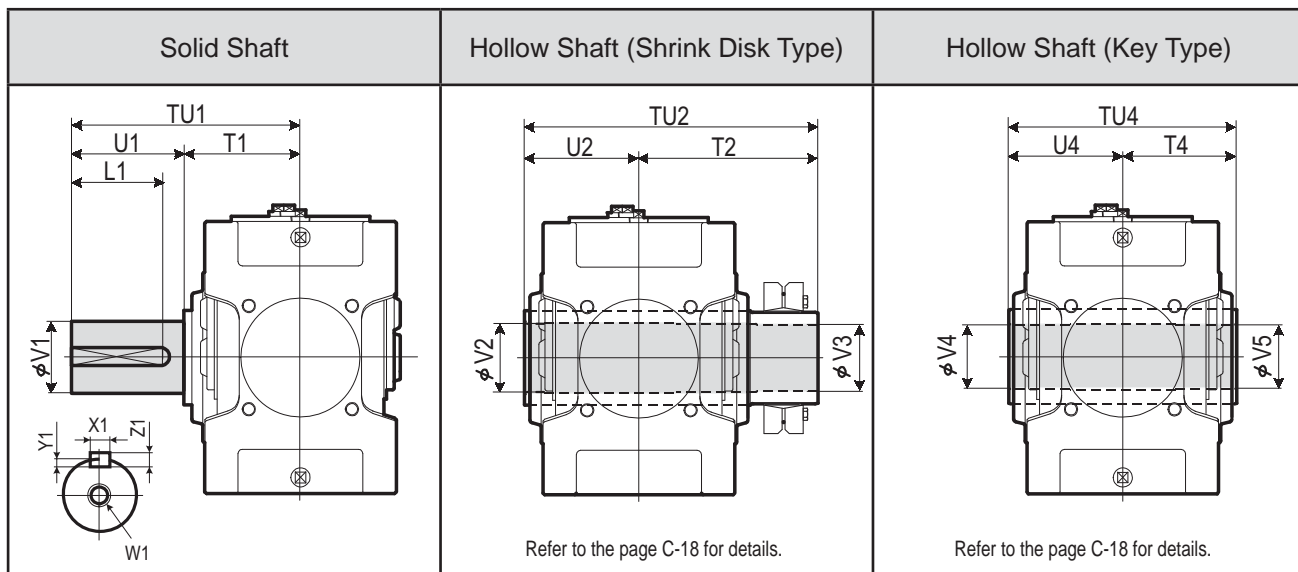
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Always remove fan hood when tightening mounting bolt.

4. Refer to the page C-14 for dimensions not shown in these drawings.
 5. Refer to the page C-29 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Double Reduction Upright Mounting 9060 ▶ 9085

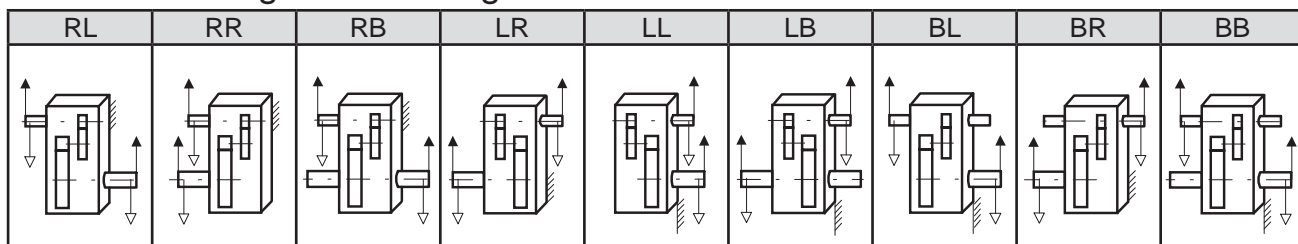
Slow Speed Shaft



Size	Solid Shaft					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)								
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173

Unit: mm

Standard Arrangement Configuration



Nomenclature

P W D Size P 2 W - Shaft Arrangement Low Speed Shaft Type Fan - Nominal Reduction Ratio

Size

- 9060
- 9065
- 9070
- 9075
- 9080
- 9085

Shaft Arrangement

- RL
- RR
- RB
- LR
- LL
- LB
- BL
- BR
- BB

Low Speed Shaft Type

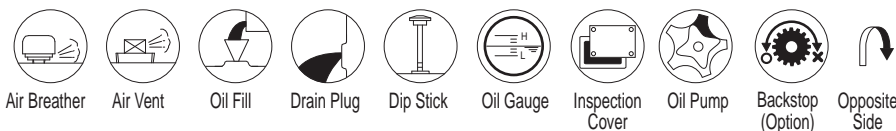
- (blank): Without Fan
- F : With Fan

Nominal Reduction Ratio

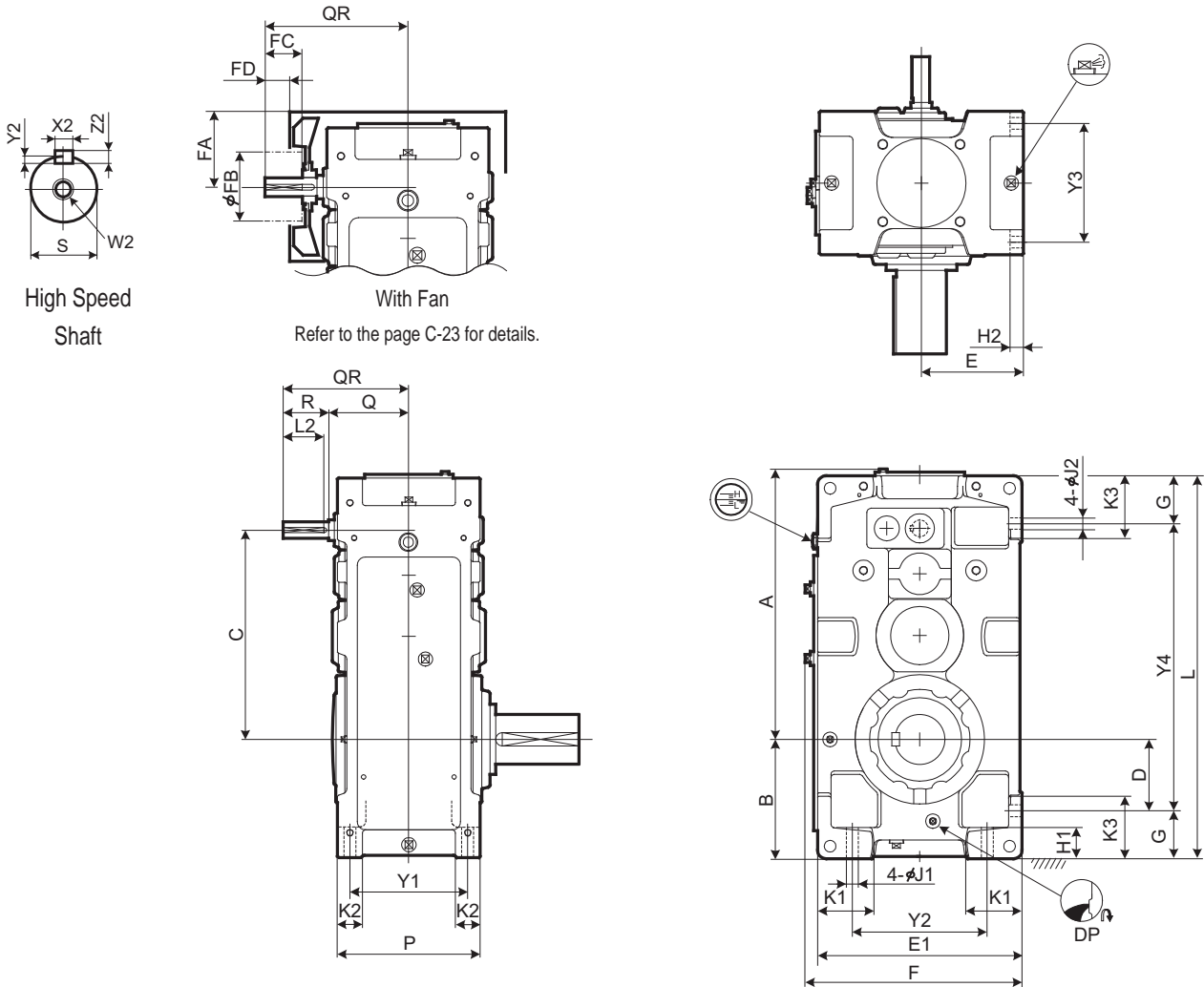
Size	6.3	7.1	8	9	10	11.2	12.5	14	16	18	20	22.4
9060	○	○	○	○	○	○	○	○	○	○	○	○
9065			○	○	○	○	○	○	○	○	○	○
9070	○	○	○	○	○	○	○	○	○	○	○	○
9075			○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○
9085			○	○	○	○	○	○	○	○	○	○

Nominal Reduction Ratio

- (blank) : Solid Shaft
- T : Hollow Shaft (Shrink Disk type)
- K : Hollow Shaft (Key type)



DIMENSIONS Parallel Shaft Triple Reduction Upright Mounting 9015 ▶ 9055



Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	F	G	H1	H2	J1	J2	K1	K2	K3	L	P	Y1	Y2	Y3	Y4
9015	339	160	257	90	135	270	298	70	50	22	15	15	70	35	95	485	205	170	180	170	345
9025	409	175	306	95	155	310	338	80	55	25	19	19	75	40	110	570	235	195	210	195	410
9030	454	200	343	110	160	320	348	90	60	28	24	24	85	50	120	640	265	215	200	215	460
9035	485	219	374	129	185	370	398	90	60	28	24	24	100	50	120	690	265	215	250	215	510
9040	541	235	398	120	200	400	430	115	75	30	28	28	100	60	150	759	315	255	260	255	529
9045	577	256	437	141	220	440	470	115	75	30	28	28	120	60	150	819	315	255	300	255	589
9050	610	255	467	138.5	210	420	450	116.5	75	32	28	28	110	60	150	848	345	285	280	285	615
9055	649	286	506	171	245	490	520	115	75	32	28	28	135	60	150	918	345	285	350	285	688

Size	High Speed Shaft								Fan				DP	Wt. kg	Oil Qty. L	
	Q	QR	R	S	W2/Depth	X2	Y2	Z2	L2	FA	FB	FC				FD
9015	130	190	60	25k6	M10/22	8	4	7	50	111	125	30	10	3/4"	105	11
9025	144	204	60	28k6	M10/22	8	4	7	50	129	125	30	10	3/4"	150	15
9030	161	241	80	30k6	M10/22	8	4	7	70	140	125	50	30	3/4"	205	20
9035	161	241	80	30k6	M10/22	8	4	7	70	150	140	50	22	3/4"	225	25
9040	176	256	80	35k6	M12/28	10	5	8	70	170	140	50	22	1"	305	35
9045	176	256	80	35k6	M12/28	10	5	8	70	170	140	50	22	1"	375	43
9050	194	304	110	40k6	M16/36	12	5	8	95	172	140	80	52	1"	445	45
9055	194	304	110	40k6	M16/36	12	5	8	95	172	140	80	52	1"	505	59

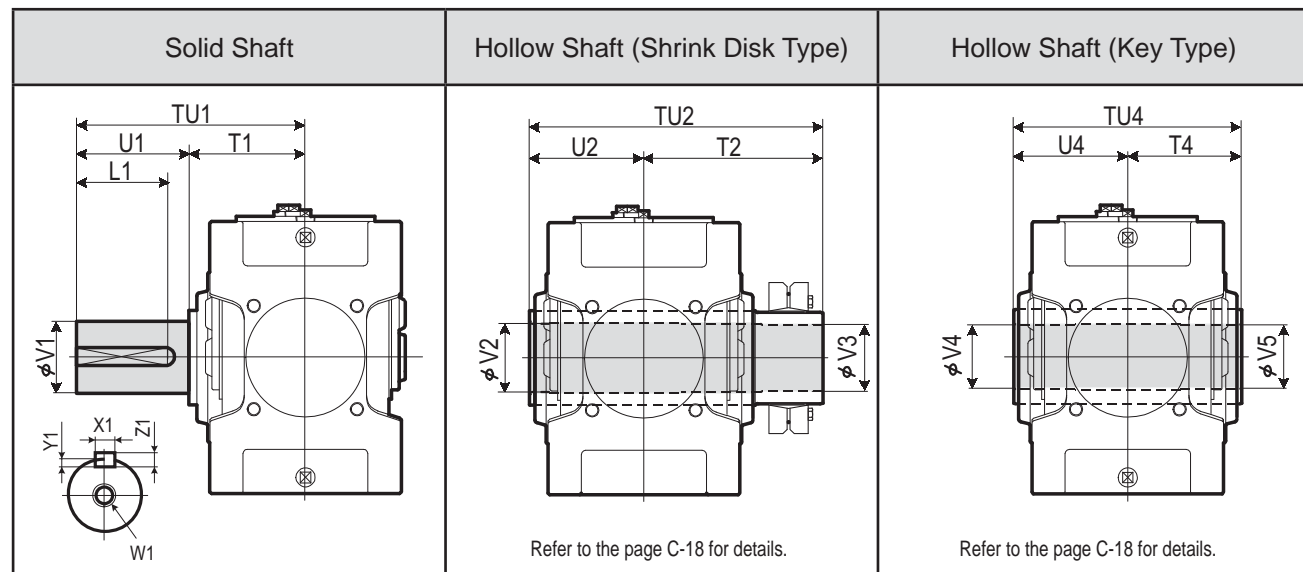
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
3. Always remove fan hood when tightening mounting bolt.

4. Refer to the page C-13 for dimensions not shown in these drawings.
5. Refer to the page C-26 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Triple Reduction Upright Mounting 9015 ▶ 9055

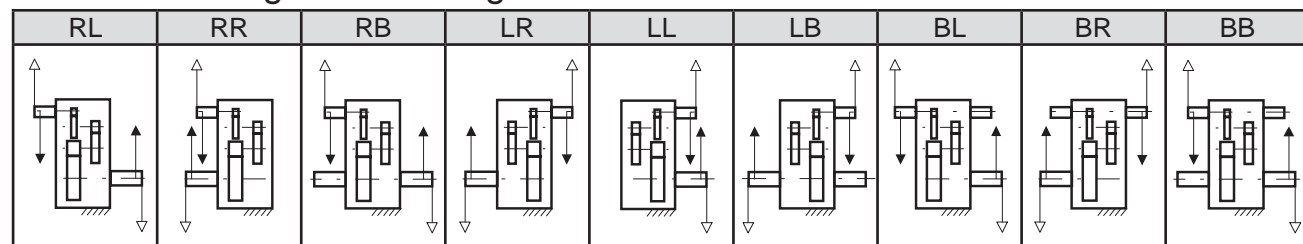
Slow Speed Shaft



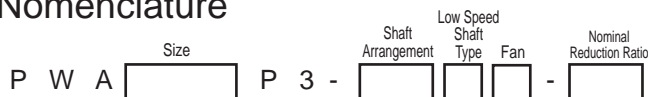
Size	Solid Shaft									Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9015	245	135	110	58m6	M20/42	18	7	11	95	328	193	135	63	60	270	135	135	55	55
9025	285	145	140	70m6	M20/42	20	7.5	12	125	358	213	145	73	70	300	150	150	65	65
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115

Unit: mm

Standard Arrangement Configuration



Nomenclature



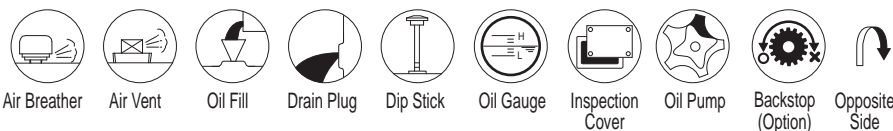
- 9015
- 9025
- 9030
- 9035
- 9040
- 9045
- 9050
- 9055

- RL
- RR
- RB
- LR
- LL
- LB
- BL
- BR
- BB

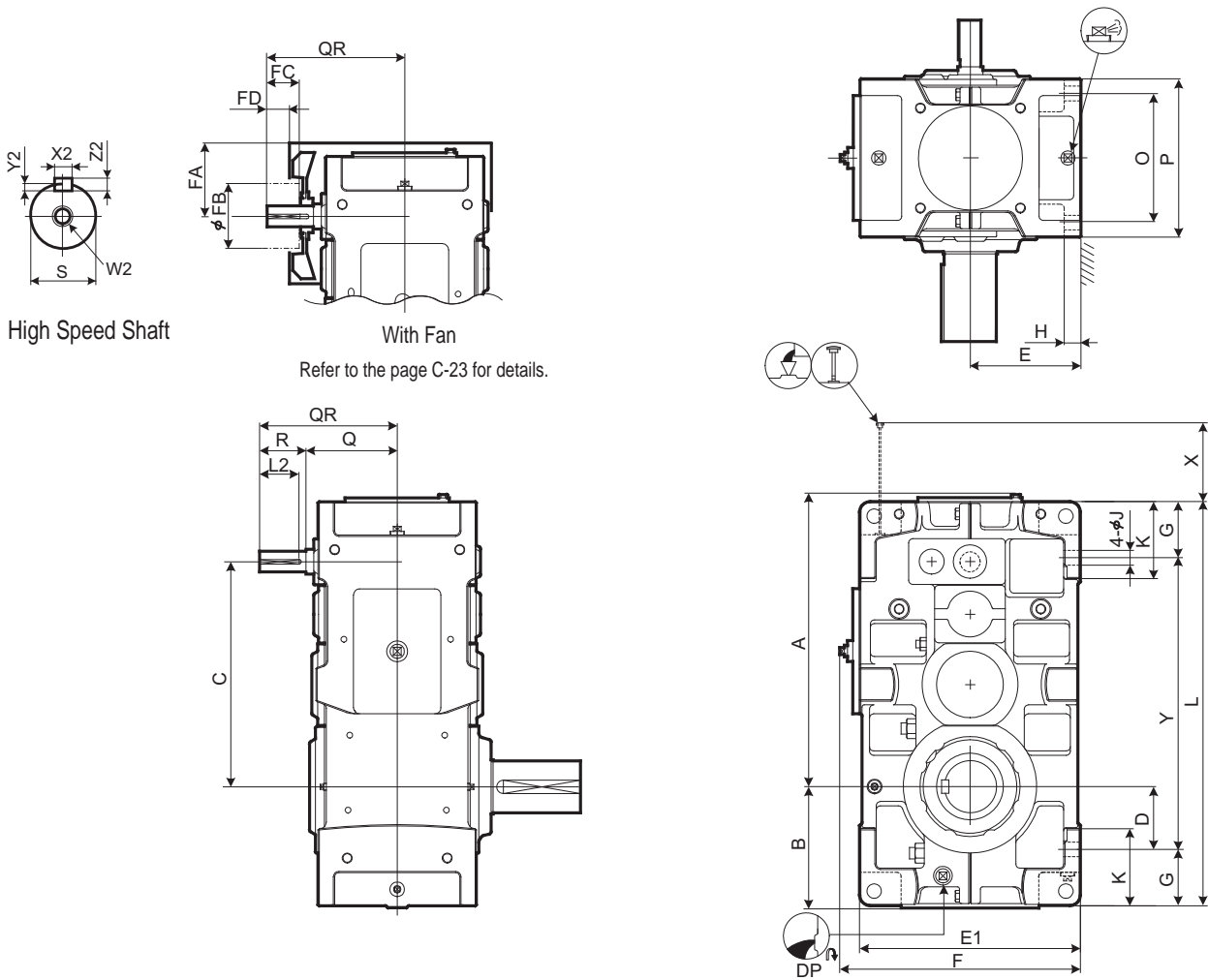
(blank) : Without Fan
F : With Fan

(blank) : Solid Shaft
T : Hollow Shaft (Shrink Disk type)
K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9015	○	○	○	○	○	○	○	○						
9025	○	○	○	○	○	○	○	○						
9030	○	○	○	○	○	○	○	○	○	○	○			
9035			○	○	○	○	○	○	○	○	○	○	○	○
9040	○	○	○	○	○	○	○	○	○	○	○	○	○	
9045			○	○	○	○	○	○	○	○	○	○	○	
9050	○	○	○	○	○	○	○	○	○	○	○	○	○	
9055			○	○	○	○	○	○	○	○	○	○	○	



DIMENSIONS Parallel Shaft Triple Reduction Upright Mounting 9060 ▶ 9085



Refer to the page C-23 for details.

Speed Reducer
Selection Tables
Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	X	Y
9060	702	299	540	151	265	530	577	135	35	35	180	970	310	380	216	700
9065	748	338	586	190	300	600	647	135	35	35	180	1055	310	380	216	785
9070	810	336	630	163	300	600	647	160	40	42	215	1115	350	430	233	795
9075	863	383	683	210	335	670	717	160	52	42	220	1215	350	430	233	895
9080	933	378	725	205	335	670	717	160	52	42	220	1275	380	460	285	955
9085	989	422	781	249	375	750	797	160	52	42	220	1375	380	460	285	1055

Size	High Speed Shaft										Fan				DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	Key				FA	FB	FC	FD				
						X2	Y2	Z2	L2								
9060	219	329	110	50k6	M16/36	14	5.5	9	95	199	160	80	52	1"	660	68	
9065	219	329	110	50k6	M16/36	14	5.5	9	95	199	160	80	52	1"	815	85	
9070	244	354	110	55m6	M20/42	16	6	10	95	221	160	80	52	1"	940	106	
9075	244	354	110	55m6	M20/42	16	6	10	95	221	160	80	52	1"	1160	120	
9080	265	405	140	65m6	M20/42	18	7	11	125	247	200	105	65	1"	1350	130	
9085	265	405	140	65m6	M20/42	18	7	11	125	247	200	105	65	1"	1610	176	

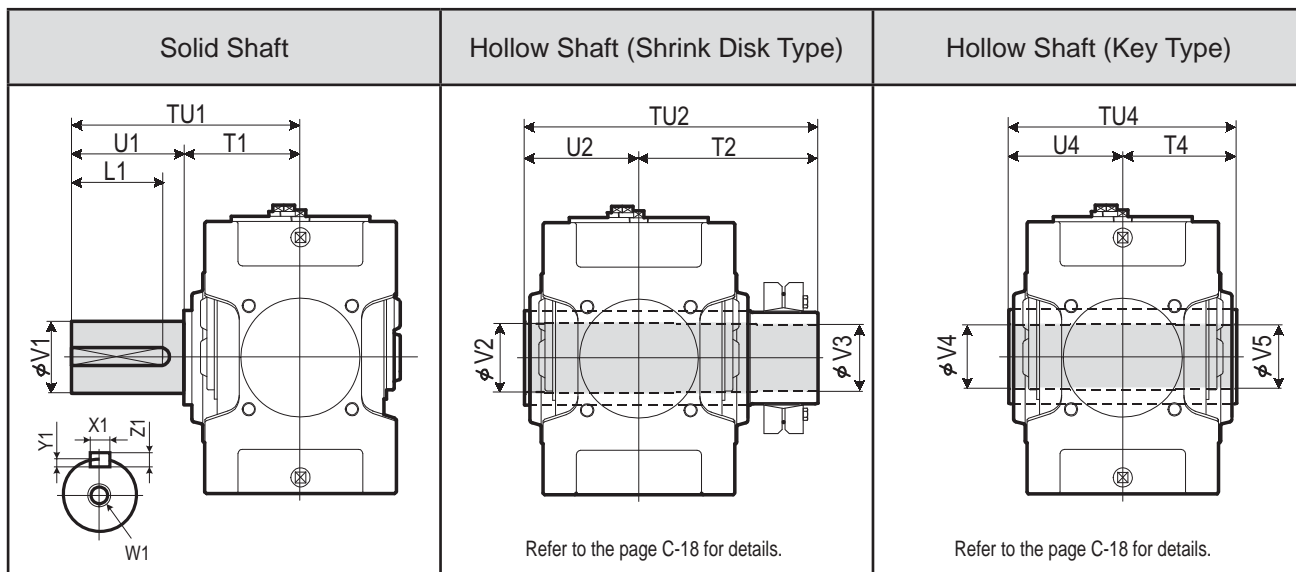
Unit: mm

- Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
- The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
- Always remove fan hood when tightening mounting bolt.
- Refer to the page C-15 for dimensions not shown in these drawings.
- Refer to the page C-29 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Triple Reduction Upright Mounting 9060 ▶ 9085

PARAMAX P
 Upright W
 Split D
 9060 9085
 Parallel P
 Triple Reduction 3
 Wall Mount W

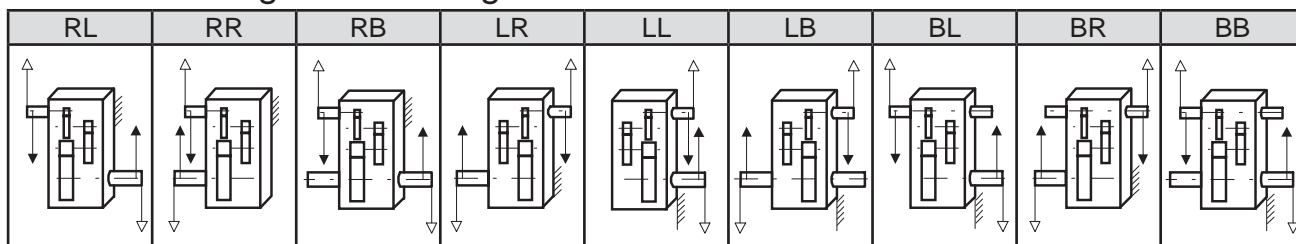
Slow Speed Shaft



Size	Solid Shaft					Key				Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173

Unit: mm

Standard Arrangement Configuration

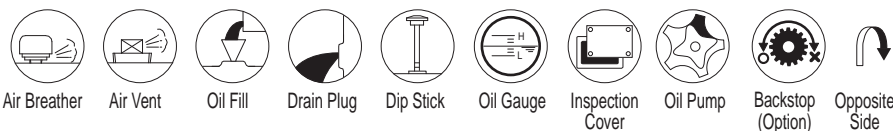


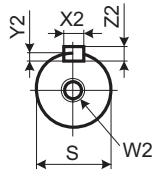
Nomenclature

P W D P 3 W - -

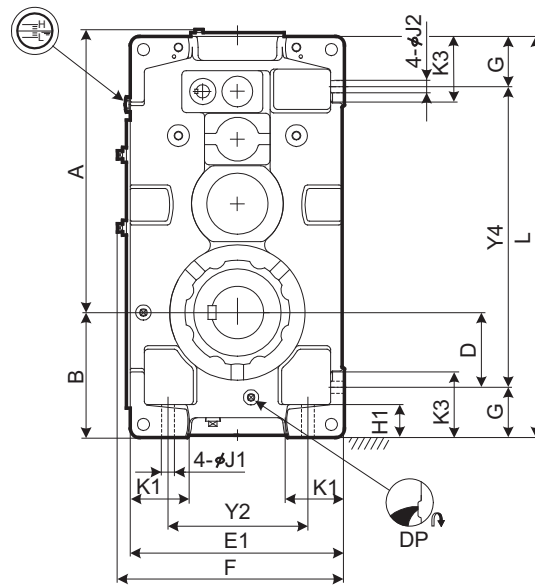
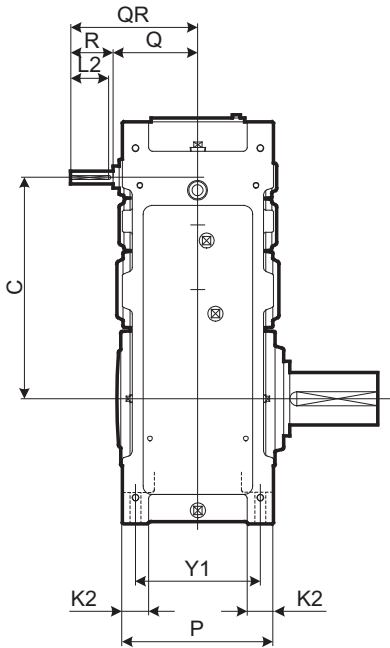
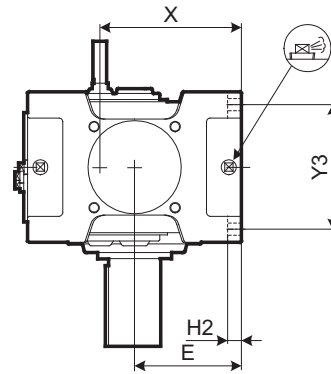
Size: 9060, 9065, 9070, 9075, 9080, 9085
 Shaft Arrangement: RL, RR, RB, LR, LL, LB, BL, BR, BB
 Low Speed Shaft Type: (blank) : Without Fan, F : With Fan
 Fan: (blank) : Solid Shaft, T : Hollow Shaft (Shrink Disk type), K : Hollow Shaft (Key type)
 Nominal Reduction Ratio: 20, 22.4, 25, 28, 31.5, 35.5, 40, 45, 50, 56, 63, 71, 80, 90

Size	Nominal Reduction Ratio													
	20	22.4	25	28	31.5	35.5	40	45	50	56	63	71	80	90
9060	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065														
9070	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9075														
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085														





High Speed Shaft



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H1	H2	J1	J2	K1	K2	K3	L	P	X	Y1	Y2	Y3	Y4
9030	454	200	343	110	160	320	348	90	60	28	24	24	85	50	120	640	265	223	215	200	215	460
9035	485	219	374	129	185	370	398	90	60	28	24	24	100	50	120	690	265	248	215	250	215	510
9040	541	235	398	120	200	400	430	115	75	30	28	28	100	60	150	759	315	279	255	260	255	529
9045	577	256	437	141	220	440	470	115	75	30	28	28	120	60	150	819	315	299	255	300	255	589
9050	610	255	467	138.5	210	420	450	116.5	75	32	28	28	110	60	150	848	345	289	285	280	285	615
9055	649	286	506	171	245	490	520	115	75	32	28	28	135	60	150	918	345	324	285	350	285	688

Size	High Speed Shaft										DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	Key							
						X2	Y2	Z2	L2				
9030	159	219	60	25k6	M10/22	8	4	7	50	3/4"	210	20	
9035	159	219	60	25k6	M10/22	8	4	7	50	3/4"	230	25	
9040	175	135	60	28k6	M10/22	8	4	7	50	1"	310	35	
9045	175	235	60	28k6	M10/22	8	4	7	50	1"	380	43	
9050	195	275	80	30k6	M10/22	8	4	7	70	1"	450	46	
9055	195	275	80	30k6	M10/22	8	4	7	70	1"	510	59	

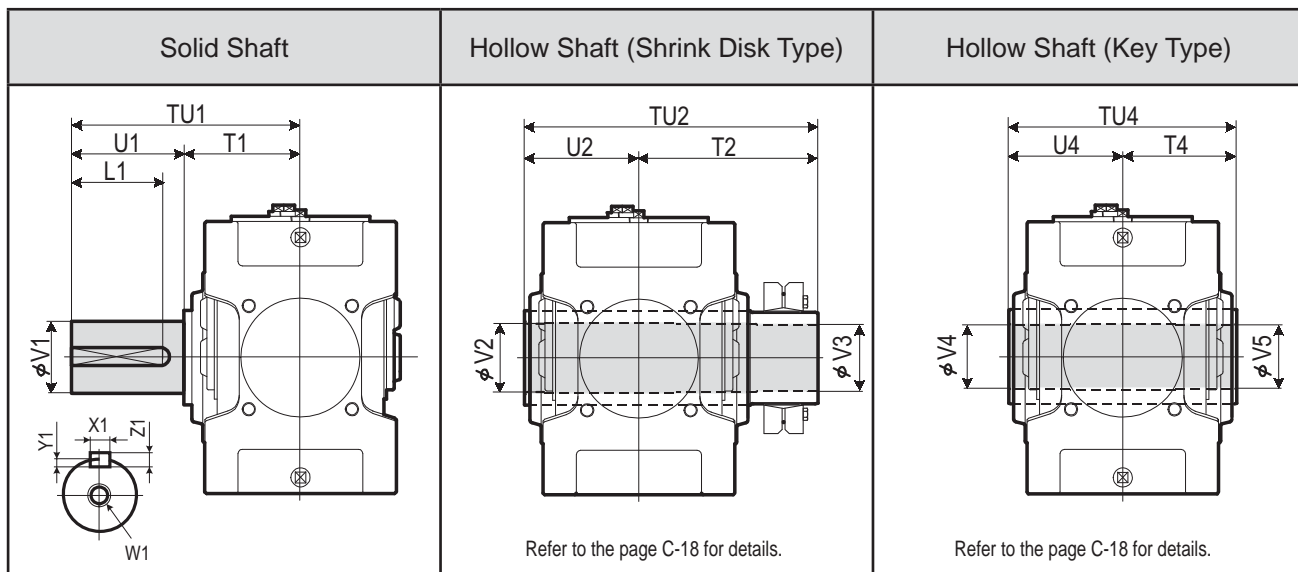
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-13 for dimensions not shown in these drawings.

4. Refer to the page C-26 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Quadruple Reduction Upright Mounting 9030 ▶ 9055

Slow Speed Shaft

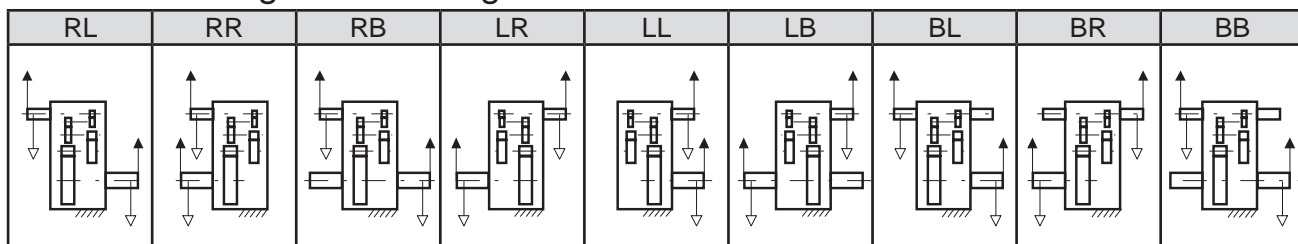


PARAMAX P
 Upright W
 Monoblock A
 9030
 9055
 Parallel P
 Quadruple Reduction 4

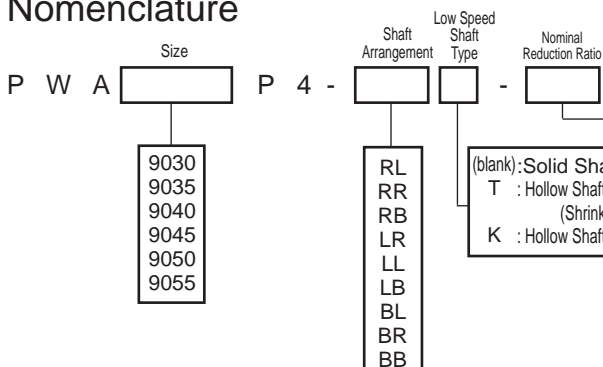
Size	Solid Shaft					Key					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)				
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5	
9030	330	160	170	80m6	M20/42	22	9	14	150	393	233	160	83	80	330	165	165	75	75	
9035	330	160	170	90m6	M20/42	25	9	14	150	403	243	160	88	85	330	165	165	85	85	
9040	349	179	170	95m6	M24/50	25	9	14	150	448	268	180	98	95	360	180	180	90	90	
9045	391	181	210	105m6	M24/50	28	10	16	190	463	283	180	108	105	370	185	185	105	105	
9050	411	201	210	110m6	M24/50	28	10	16	190	503	303	200	108	105	410	205	205	105	105	
9055	411	201	210	120m6	M24/50	32	11	18	185	528	323	205	123	120	410	205	205	115	115	

Unit: mm

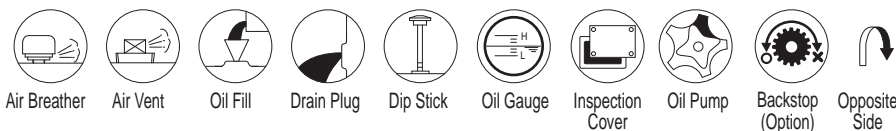
Standard Arrangement Configuration



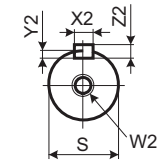
Nomenclature



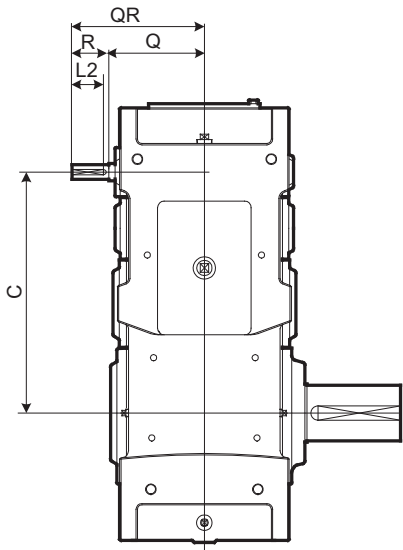
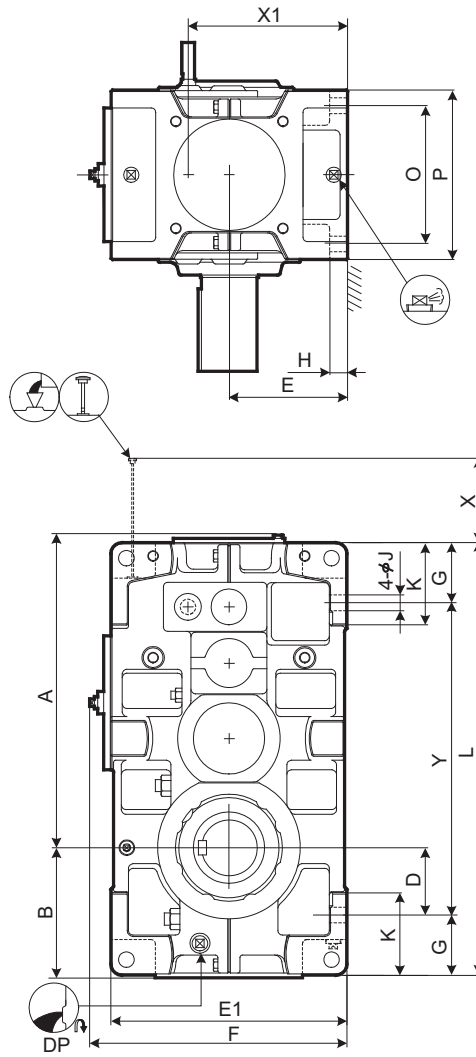
Size	Nominal Reduction Ratio																
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500
9030	○	○	○	○	○	○	○	○	○	○							
9035			○	○	○	○	○	○	○	○	○						
9040	○	○	○	○	○	○	○	○	○	○							
9045	○	○	○	○	○	○	○	○	○	○	○						
9050	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
9055			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○



DIMENSIONS Parallel Shaft Quadruple Reduction Upright Mounting 9060 ▶ 9085



High Speed Shaft



Speed Reducer

Selection Tables

Dimension Tables

Size	A	B	C	D	E	E1	F	G	H	J	K	L	O	P	X	X1	Y
9060	702	299	540	151	265	530	577	135	35	35	180	970	310	380	73	357	700
9065	748	338	586	190	300	600	647	135	35	35	180	1055	310	380	73	392	785
9070	810	336	630	163	300	600	647	160	40	42	215	1115	350	430	67	409	795
9075	863	383	683	210	335	670	717	160	52	42	220	1215	350	430	67	444	895
9080	933	378	725	205	335	670	717	160	52	42	220	1275	380	460	93	461	955
9085	989	422	781	249	375	750	797	160	52	42	220	1375	380	460	93	501	1055

Size	High Speed Shaft									DP	Wt. kg	Oil Qty. L
	Q	QR	R	S	W2/Depth	Key						
						X2	Y2	Z2	L2			
9060	221	301	80	35k6	M12/28	10	5	8	70	1"	660	69
9065	221	301	80	35k6	M12/28	10	5	8	70	1"	815	86
9070	244	354	110	40k6	M16/36	12	5	8	95	1"	950	108
9075	244	354	110	40k6	M16/36	12	5	8	95	1"	1170	122
9080	264	374	110	45k6	M16/36	14	5.5	9	95	1"	1360	130
9085	264	374	110	45k6	M16/36	14	5.5	9	95	1"	1620	175

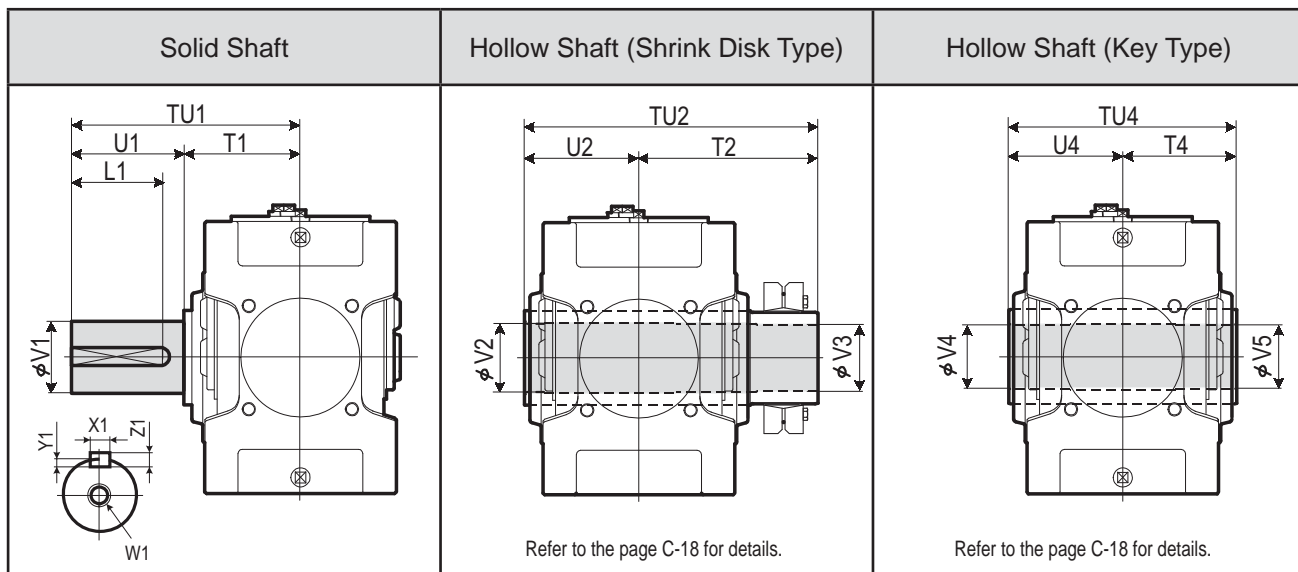
Unit: mm

1. Key and keyways are based on ISO R773-1969 Close keys (JIS B1301-1996 Parallel key in fastening type)
 2. The oil quantity is approximate. Oil shall be supplied within the range shown on the oil gauge.
 3. Refer to the page C-15 for dimensions not shown in these drawings.

4. Refer to the page C-29 for the dimension of optional parts.

DIMENSIONS Parallel Shaft Quadruple Reduction Upright Mounting 9060 ▶ 9085

Slow Speed Shaft

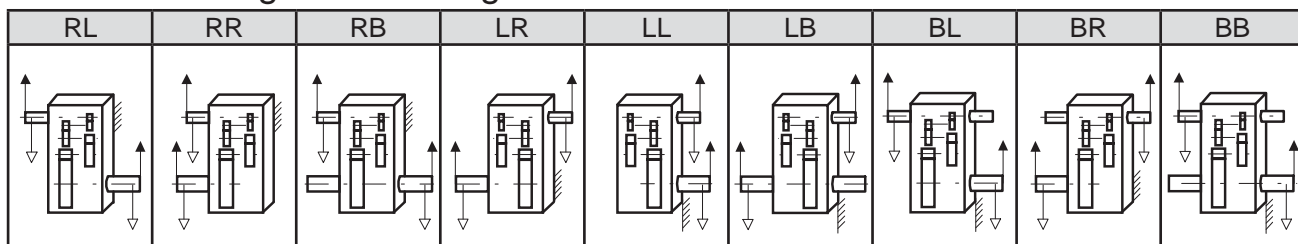


Size	Solid Shaft					Hollow Shaft (Shrink Disk Type)					Hollow Shaft (Key Type)								
	TU1	T1	U1	V1	W1/Depth	X1	Y1	Z1	L1	TU2	T2	U2	V2	V3	TU4	T4	U4	V4	V5
9060	440	230	210	125m6	M24/50	32	11	18	185	583	353	230	128	125	470	235	235	125	123
9065	484	234	250	140m6	M30/60	36	12	20	225	594	359	235	143	140	480	240	240	145	143
9070	509	259	250	145m6	M30/60	36	12	20	225	644	384	260	148	145	530	265	265	145	143
9075	562	262	300	160m6	M30/60	40	13	22	275	651	386	265	158	155	530	265	265	150	148
9080	582	282	300	165m6	M30/60	40	13	22	275	714	429	285	173	170	570	285	285	165	163
9085	585	285	300	175m6	M30/60	45	15	25	270	714	429	285	183	180	570	285	285	175	173

Unit: mm

PARAMAX P
 Upright W
 Split D
 9060 9085
 Parallel P
 Quadruple 4
 Reduction
 Wall Mount W

Standard Arrangement Configuration



Nomenclature



- Size
- 9060
 - 9065
 - 9070
 - 9075
 - 9080
 - 9085

- Shaft Arrangement
- RL
 - RR
 - RB
 - LR
 - LL
 - LB
 - BL
 - BR
 - BB

- Low Speed Shaft Type
- (blank): Solid Shaft
 - T : Hollow Shaft (Shrink Disk type)
 - K : Hollow Shaft (Key type)

Size	Nominal Reduction Ratio																
	80	90	100	112	125	140	160	180	200	224	250	280	315	355	400	450	500
9060	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9065				○	○	○	○	○	○	○	○	○	○	○	○	○	○
9070	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9075				○	○	○	○	○	○	○	○	○	○	○	○	○	○
9080	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9085				○	○	○	○	○	○	○	○	○	○	○	○	○	○

- Air Breather
- Air Vent
- Oil Fill
- Drain Plug
- Dip Stick
- Oil Gauge
- Inspection Cover
- Oil Pump
- Backstop (Option)
- Opposite Side



C

TECHNICAL DATA

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TECHNICAL DATA Lubricant, Installation

Lubricant

The following table shows appropriate viscosity of oil based on ISO and AGMA for respective ambient temperatures and slow speed shaft r/min.

Operation Condition / Application	Output Speed		Ambient Temperature °C		
			-10 to 15	0 to 30	10 to 50
Continuous Operation	Over 100r/min	ISO* AGMA	VG68 2EP	VG150 4EP	VG220 5EP
	Under 100r/min	ISO* AGMA	VG100 3EP	VG220 5EP	VG320 6EP
Intermittent Operation (ex. Crane Drive)	All	ISO* AGMA	VG68 2EP	VG150 4EP	VG220 5EP

* Kinetic Viscosity (mm²/s) at ISO 40°C

Note 1. When the ambient temperature is lower than -10 deg or higher than +50 deg, a heating or cooling unit is necessary, in general.

2. PARAMAX DRIVE is shipped without lubrication oil.

Supply oil within the range shown on the dip stick before operation.

Recommended Lubricants

Brand	BP	CASTROL			CHEVRON TEXACO		EXXON MOBIL		SHELL	TOTAL	
Gear Oil	ISO VG68 AGMA 2EP	ENERGOL GR-XP-68	ALPHA SP68	OPTIGEAR BM68	TRIBOL 1100/68	GEAR COMPOUNDS EP68	MEROPA WM68	SPARTAN EP68	MOBIL- GEAR 626	Shell Omala S2 G 68	CARTER EP68
	ISO VG100 AGMA 3EP	ENERGOL GR-XP-100	ALPHA SP100	OPTIGEAR BM100	TRIBOL 1100/100	GEAR COMPOUNDS EP100	MEROPA WM100	SPARTAN EP100	MOBIL- GEAR 627	Shell Omala S2 G 100	CARTER EP100
	ISO VG150 AGMA 4EP	ENERGOL GR-XP-150	ALPHA SP150	OPTIGEAR BM150	TRIBOL 1100/150	GEAR COMPOUNDS EP150	MEROPA WM150	SPARTAN EP150	MOBIL- GEAR 629	Shell Omala S2 G 150	CARTER EP150
	ISO VG220 AGMA 5EP	ENERGOL GR-XP-220	ALPHA SP220	OPTIGEAR BM220	TRIBOL 1100/220	GEAR COMPOUNDS EP220	MEROPA WM220	SPARTAN EP220	MOBIL- GEAR 630	Shell Omala S2 G 220	CARTER EP220
	ISO VG320 AGMA 6EP	ENERGOL GR-XP-320	ALPHA SP320	OPTIGEAR BM320	TRIBOL 1100/320	GEAR COMPOUNDS EP320	MEROPA WM320	SPARTAN EP320	MOBIL- GEAR 632	Shell Omala S2 G 320	CARTER EP320
Bearing grease	ENER- GREASE LS EP2	SPHEEROL AP3	Olista Long- time 3EP	TRIBOL 3020/ 1000-2	DURALITH GREASE 68	MULTI- FAK EP2	BEACON EP2	MOBIL- PLEX 48	Shell Gadus S2 V 220 2	MULTIS EP2	

Installation

- Consult us when PARAMAX DRIVE is to be installed on an inclined surface or on a ceiling.
Additional lubrication system may be necessary.
- Install PARAMAX DRIVE horizontally on a sufficiently rigid base.
When the unit is made for inclined installation according to your specification,
do not install it at any other angle other than the specified angle.
- Installation bolts for PARAMAX DRIVE shall be equivalent to JIS strength classification 10.9.
Consult us when the force that pushes up PARAMAX DRIVE is to be applied.
- Refer to the maintenance manual attached to the unit for other installation notes.

Technical

Common
Option

TECHNICAL DATA Painting Specifications, Rust Proof Standard

Painting Specifications

Painting Area	Surface Conditioning	Kind of Painting		Painting Specification of				Application
		Class	Painting of Finish Coat	Type	Coating	Thickness μ	Type of Coating	
Outside Painting	Cast Iron Class 1	Standard painting	Acrylic modified phthalic	Under	1	20 ~ 40	Modified alkyd resin	Standard under coat
				Finish	1	15 ~ 30	Acrylic modified alkyd resin	Standard finish coat
		Standard export painting	Acrylic modified phthalic	Under	2	40 ~ 80	Modified alkyd resin	Export standard
				Finish	1	15 ~ 30	Acrylic modified alkyd resin	
		Special painting (Including rust-proof and heat resisting painting) One layer of Unigrand PTC Primer as the first primer	Acrylic modified phthalic	Under	2	40 ~ 80	Modified alkyd resin	Moderate corrosive atmosphere, seaside, outdoor humid atmosphere, chemical plant area, ... etc.
				Finish	2	30 ~ 60	Acrylic modified alkyd resin	
			Long of oil phthalic	Under	2	40 ~ 80	Modified alkyd resin	Ocean-going vessel & boat, bridge, seaside, outdoor humid atmosphere, ... etc.
				Finish	2	30 ~ 60	Synthetics resin paint	
			Chloride rubber	Under	2	40 ~ 80	Modified alkyd resin	Ocean-going vessel & boat, bridge, seaside, outdoor humid atmosphere, ... etc.
				Second	1	20 ~ 40	Phenol M.I.O paint	
			Phenol	Under	2	40 ~ 80	Modified alkyd resin	In-and-outdoor of acid treating plant and chemical plant etc...
				Finish	2	30 ~ 60	Phenol resin enamel	
	Heat-proof silver	Under	1	20 ~ 40	Modified alkyd resin	Heating furnace (120 deg), ... etc.		
		Finish	1	15 ~ 30	Aluminum paint			
	Steel Plate Class 2	Extra rust-proof painting	Epoxy	Under	2	40 ~ 80	Special permeability epoxy aluminium paint	Indoor anti-corrosion area, Chemical plant
				Finish	3	120 ~ 240	Polyamide epoxy	
Polyurethane		Under	2	40 ~ 80	Special permeability epoxy aluminium paint	Outdoor anti-corrosion area, Chemical plant		
		Finish	3	45 ~ 90	Polyisocyanate urethane resin paint			
Extra rust-proof painting (Sand blast under coating)	Thick film epoxy		5	250 ~ 350	Thick film type modified epoxy resin paint	Submersible equipment, marine structure, ... etc.		
Inside Painting	Cast Iron Class 1 Steel Plate Class 3	Standard painting			1	20 ~ 40	Modified alkyd resin	Standard inside painting

Note : SUMITOMO standard color is Donau Blue (equivalent Munsell color: 6.5PB 3.6 / 8.2)

Rust Proof Standard

Rust proofing treatment has been conducted on all completely assembled models, prior to shipment.

1. Standard rust proofing specifications

(1) Outside rust proofing

Rust proofing oil has been applied to products before shipment.

Check the rust proofing conditions every 6 months after shipment, and conduct rust proofing treatment, as necessary.

Rust proofing period	6 months
Storage condition	Generally to be stored inside the shop or warehouse, relatively free of humidity, dust, extreme temperature fluctuation, corrosive gas, and similar atmosphere. After shipment, the product shall be operated 5-10 minutes every 2-3 months with recommended lubricants.

2. Export rust proofing specifications

Consult us for export proofing when export specifications or severe specifications are required.

TECHNICAL DATA Moment of Inertia Right Angle Shaft

Right Angle Shaft Double Reduction Moment of Inertia at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
6.3	0.00423	0.00805	0.0157		0.0333		0.0662		0.146		0.301		0.502	
7.1	0.00400	0.00750	0.0153		0.0313		0.0621		0.135		0.281		0.475	
8	0.00288	0.00508	0.0137	0.0181	0.0283	0.0374	0.0603	0.0745	0.130	0.166	0.253	0.337	0.480	0.562
9	0.00275	0.00475	0.0134	0.0175	0.0269	0.0346	0.0577	0.0681	0.124	0.149	0.242	0.311	0.464	0.524
10	0.00218	0.00488	0.0111	0.0152	0.0201	0.0311	0.0492	0.0653	0.0981	0.1426	0.203	0.274	0.398	0.516
11.2	0.00210	0.00468	0.0109	0.0149	0.0193	0.0292	0.0475	0.0614	0.0939	0.1319	0.196	0.259	0.387	0.493
12.5	0.00188	0.00390	0.00843	0.0120	0.0138	0.0217	0.0357	0.0525	0.0691	0.1056	0.139	0.216	0.268	0.422
14	0.00183	0.00375	0.00830	0.0118	0.0133	0.0206	0.0345	0.0499	0.0664	0.0990	0.135	0.207	0.261	0.407
16	0.00133	0.00258	0.00583	0.00908	0.0107	0.0149	0.0243	0.0379	0.0514	0.0739	0.102	0.147	0.194	0.282
18	0.00130	0.00250	0.00575	0.00890	0.0104	0.0142	0.0237	0.0362	0.0497	0.0697	0.0987	0.141	0.190	0.273
20				0.00620		0.0114		0.0257		0.0546		0.107		0.203
22.4				0.00610		0.0109		0.0246		0.0518		0.103		0.198

Right Angle Shaft Triple Reduction Moment of Inertia at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
20			0.00378		0.00693		0.0140		0.0289		0.0590		0.121	
22.4			0.00373		0.00670		0.0136		0.0278		0.0571		0.118	
25			0.00338	0.00403	0.00608	0.00735	0.0115	0.0149	0.0237	0.0310	0.0515	0.0624	0.106	0.126
28			0.00333	0.00395	0.00595	0.00705	0.0112	0.0142	0.0230	0.0292	0.0503	0.0600	0.104	0.123
31.5			0.00193	0.00353	0.00433	0.00635	0.00835	0.0120	0.0183	0.0248	0.0359	0.0537	0.0700	0.110
35.5			0.00190	0.00350	0.00425	0.00618	0.00818	0.0116	0.0178	0.0238	0.0351	0.0521	0.0689	0.108
40			0.00178	0.00203	0.00403	0.00450	0.00738	0.00868	0.0161	0.0191	0.0328	0.0373	0.0644	0.0722
45			0.00175	0.00200	0.00398	0.00440	0.00730	0.00843	0.0159	0.0184	0.0323	0.0363	0.0636	0.0708
50			0.00118	0.00183	0.00233	0.00413	0.00555	0.00758	0.0120	0.0166	0.0239	0.0337	0.0484	0.0659
56			0.00115	0.00183	0.00230	0.00405	0.00550	0.00743	0.0118	0.0162	0.0236	0.0331	0.0479	0.0649
63			0.00110	0.00120	0.00220	0.00240	0.00423	0.00568	0.00893	0.01230	0.0173	0.0245	0.0349	0.0493
71			0.00110	0.00120	0.00218	0.00235	0.00418	0.00558	0.00883	0.01203	0.0171	0.0241	0.0346	0.0487
80					0.00113		0.00225		0.00430		0.00910		0.0176	0.0355
90					0.00113		0.00223		0.00423		0.00895		0.0174	0.0351
100														

Right Angle Shaft Quadruple Reduction Moment of Inertia at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
63														
71														
80					0.00295		0.00283		0.00553		0.0113		0.0229	
90					0.00293		0.00280		0.00548		0.0112		0.0227	
100					0.00215	0.00298	0.00268	0.00288	0.00523	0.00565	0.0108	0.0115	0.0219	0.0233
112					0.00215	0.00295	0.00265	0.00283	0.00518	0.00555	0.0107	0.0114	0.0218	0.0230
125					0.00203	0.00218	0.00243	0.00270	0.00473	0.00530	0.00923	0.0110	0.0188	0.0222
140					0.00203	0.00215	0.00243	0.00268	0.00470	0.00523	0.00918	0.0109	0.0188	0.0220
160						0.00205	0.00120	0.00245	0.00243	0.00475	0.00480	0.00930	0.00993	0.0190
180						0.00203	0.00120	0.00243	0.00240	0.00473	0.00478	0.00925	0.00990	0.0189
200						0.00118	0.00123	0.00235	0.00245	0.00468		0.00970	0.0100	
224						0.00118	0.00120	0.00233	0.00243	0.00465	0.00483	0.00968	0.0100	
250						0.00110	0.00118	0.00223	0.00235	0.00428	0.00473	0.00893	0.00978	
280						0.00110	0.00118	0.00220	0.00235	0.00425	0.00470	0.00893	0.00973	
315						0.00110	0.00113	0.00220	0.00223	0.00420	0.00430	0.00885	0.00898	
355						0.00108	0.00110	0.00215	0.00223	0.00418	0.00428	0.00868	0.00895	
400							0.00110		0.00220		0.00423		0.00885	
450							0.00108		0.00218		0.00418		0.00868	
500														

Technical

Common

Option

TECHNICAL DATA Moment of Inertia Right Angle Shaft

Unit: kg-m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
												6.3
												7.1
												8
	1.18		2.23		4.16							9
	1.16		2.20		3.98							10
	0.871		1.68		3.10							11.2
	0.858		1.65		2.99							12.5
	0.638		1.22		2.28							14
	0.630		1.20		2.21							16
	0.464		0.894		1.68							18
	0.459		0.884		1.63							20
												22.4

Unit: kg-m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
0.240		0.460		0.889								20
0.237	0.249	0.453	0.476	0.866	0.926							22.4
0.212	0.245	0.401	0.470	0.774	0.896	0.959						25
0.210	0.218	0.397	0.412	0.759	0.798		2.18	2.21		4.48	4.53	28
0.141	0.215	0.264	0.408	0.454	0.779	0.701	2.12	2.15		4.24	4.28	31.5
0.140	0.144	0.262	0.271	0.445	0.468	0.731	1.29	1.31	2.39	3.31	3.34	35.5
0.129	0.143	0.241	0.268	0.409	0.456	0.615	1.25	1.27	2.33	3.16	3.18	40
0.129	0.132	0.239	0.245	0.403	0.418	0.559	0.939	0.952	1.78	2.41	2.43	45
0.0931	0.131	0.175	0.244	0.311	0.411	0.443	0.917	0.928	1.74	2.32	2.33	50
0.0927	0.0945	0.174	0.178	0.307	0.317	0.408	0.683	0.691	1.28	1.76	1.77	56
0.0664	0.0940	0.127	0.177	0.225	0.312	0.322	0.668	0.675	1.26	1.70	1.71	63
0.0661	0.0673	0.126	0.129	0.223	0.229	0.300	0.509	0.515	0.934			71
0.0642	0.0669	0.121	0.128	0.211	0.226	0.232	0.500	0.505	0.919			80
	0.0648		0.123		0.214	0.218						90
												100

Unit: kg-m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
										0.979	0.987	63
										0.819	0.825	71
												80
0.0467		0.0962		0.108			0.235	0.238	0.502	0.713	0.718	90
0.0452	0.0472	0.0930	0.0972	0.102	0.110	0.139	0.230	0.233	0.492	0.688	0.692	100
0.0451	0.0455	0.0927	0.0937	0.101	0.104	0.123	0.199	0.201	0.429	0.505	0.508	112
0.0409	0.0454	0.0846	0.0934	0.0908	0.102	0.105	0.196	0.198	0.423	0.489	0.492	125
0.0408	0.0411	0.0844	0.0850	0.0902	0.0918	0.100	0.152	0.154	0.281	0.448	0.450	140
0.0243	0.0410	0.0493	0.0849	0.0527	0.0910	0.0927	0.150	0.151	0.277	0.438	0.439	160
0.0242	0.0244	0.0492	0.0496	0.0523	0.0533	0.0890	0.137	0.138	0.252	0.326	0.327	180
0.0183	0.0244	0.0370	0.0495	0.0393	0.0528	0.0693	0.136	0.136	0.250	0.319	0.320	200
0.0183	0.0184	0.0369	0.0371	0.0391	0.0397	0.0544	0.0978	0.0983	0.143	0.234	0.235	224
0.0172	0.0183	0.0349	0.0371	0.0364	0.0394	0.0516	0.0969	0.0974	0.141	0.230	0.231	250
0.0172	0.0172	0.0348	0.0350	0.0363	0.0367	0.0501	0.0693	0.0696	0.131	0.217	0.217	280
0.0171	0.0172	0.0345	0.0350	0.0355	0.0365	0.0477	0.0688	0.0690	0.130			315
0.0163	0.0171	0.0334	0.0346	0.0341	0.0357	0.0360	0.0664	0.0667	0.125			355
	0.0164		0.0334		0.0343	0.0345						400
												450
												500

TECHNICAL DATA GD² Right Angle Shaft

Right Angle Shaft Double Reduction GD² at high speed shaft

Nominal reduction ratio	Size of Reducer														
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	
6.3	0.0169	0.0322	0.0629		0.133		0.265		0.584		1.20		2.01		
7.1	0.0160	0.0300	0.0610		0.125		0.248		0.541		1.13		1.90		
8	0.0115	0.0203	0.0548	0.0723	0.113	0.150	0.241	0.298	0.522	0.663	1.01	1.35	1.92	2.25	
9	0.0110	0.0190	0.0536	0.0699	0.108	0.138	0.231	0.272	0.495	0.594	0.968	1.24	1.86	2.10	
10	0.0087	0.0195	0.0443	0.0609	0.0805	0.1242	0.197	0.261	0.392	0.570	0.812	1.10	1.59	2.06	
11.2	0.0084	0.0187	0.0436	0.0594	0.0772	0.1167	0.190	0.246	0.376	0.528	0.783	1.04	1.55	1.97	
12.5	0.0075	0.0156	0.0337	0.0481	0.0553	0.0869	0.143	0.210	0.276	0.423	0.556	0.865	1.07	1.69	
14	0.0073	0.0150	0.0332	0.0472	0.0532	0.0825	0.138	0.200	0.266	0.396	0.538	0.827	1.04	1.63	
16	0.0053	0.0103	0.0233	0.0363	0.0428	0.0594	0.0972	0.152	0.206	0.296	0.407	0.590	0.777	1.13	
18	0.0052	0.0100	0.0230	0.0356	0.0414	0.0566	0.0946	0.145	0.199	0.279	0.395	0.566	0.759	1.09	
20					0.0248		0.0455		0.103		0.218		0.429		0.814
22.4					0.0244		0.0437		0.0985		0.207		0.413		0.790

Right Angle Shaft Triple Reduction GD² at high speed shaft

Nominal reduction ratio	Size of Reducer														
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085	
20			0.0151		0.0277		0.0559		0.116		0.236		0.482		
22.4			0.0149		0.0268		0.0542		0.111		0.229		0.471		
25			0.0135	0.0161	0.0243	0.0294	0.0459	0.0594	0.0946	0.1238	0.206	0.250	0.425	0.505	
28			0.0133	0.0158	0.0238	0.0282	0.0449	0.0567	0.0919	0.1167	0.201	0.240	0.418	0.491	
31.5			0.0077	0.0141	0.0173	0.0254	0.0334	0.0479	0.0730	0.0993	0.144	0.215	0.280	0.440	
35.5			0.0076	0.0140	0.0170	0.0247	0.0327	0.0464	0.0712	0.0952	0.141	0.208	0.276	0.431	
40			0.0071	0.0081	0.0161	0.0180	0.0295	0.0347	0.0645	0.0764	0.131	0.149	0.257	0.289	
45			0.0070	0.0080	0.0159	0.0176	0.0292	0.0337	0.0635	0.0735	0.129	0.145	0.255	0.283	
50			0.0047	0.0073	0.0093	0.0165	0.0222	0.0303	0.0480	0.0665	0.0957	0.135	0.193	0.264	
56			0.0046	0.0073	0.0092	0.0162	0.0220	0.0297	0.0473	0.0648	0.0945	0.132	0.192	0.260	
63			0.0044	0.0048	0.0088	0.0096	0.0169	0.0227	0.0357	0.0492	0.0690	0.0979	0.140	0.197	
71			0.0044	0.0048	0.0087	0.0094	0.0167	0.0223	0.0353	0.0481	0.0682	0.0963	0.139	0.195	
80					0.0045		0.0090		0.0172		0.0364		0.0704		0.142
90					0.0045		0.0089		0.0169		0.0358		0.0694		0.141
100															

Right Angle Shaft Quadruple Reduction GD² at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
63														
71														
80					0.0118		0.0113		0.0221		0.0452		0.0914	
90					0.0117		0.0112		0.0219		0.0447		0.0907	
100					0.0086	0.0119	0.0107	0.0115	0.0209	0.0226	0.0432	0.0461	0.0877	0.0930
112					0.0086	0.0118	0.0106	0.0113	0.0207	0.0222	0.0429	0.0455	0.0872	0.0920
125					0.0081	0.0087	0.0097	0.0108	0.0189	0.0212	0.0369	0.0438	0.0753	0.0887
140					0.0081	0.0086	0.0097	0.0107	0.0188	0.0209	0.0367	0.0434	0.0751	0.0881
160						0.0082	0.0048	0.0098	0.0097	0.0190	0.0192	0.0372	0.0397	0.0759
180						0.0081	0.0048	0.0097	0.0096	0.0189	0.0191	0.0370	0.0396	0.0756
200							0.0047	0.0049	0.0094	0.0098	0.0187	0.0195	0.0388	0.0401
224							0.0047	0.0048	0.0093	0.0097	0.0186	0.0193	0.0387	0.0399
250							0.0044	0.0047	0.0089	0.0094	0.0171	0.0189	0.0357	0.0391
280							0.0044	0.0047	0.0088	0.0094	0.0170	0.0188	0.0357	0.0389
315							0.0044	0.0045	0.0088	0.0089	0.0168	0.0172	0.0354	0.0359
355							0.0043	0.0044	0.0086	0.0089	0.0167	0.0171	0.0347	0.0358
400								0.0044		0.0088		0.0169		0.0354
450								0.0043		0.0087		0.0167		0.0347
500														

Technical
Common
Option

TECHNICAL DATA GD² Right Angle ShaftUnit: kgf-m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
												6.3
												7.1
												8
	4.72		8.94		16.6							9
	4.63		8.78		15.9							10
	3.48		6.70		12.4							11.2
	3.43		6.61		12.0							12.5
	2.55		4.88		9.14							14
	2.52		4.82		8.85							16
	1.86		3.57		6.71							18
	1.84		3.54		6.53							20
												22.4

Unit: kgf-m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
0.960		1.84		3.56								20
0.949	0.994	1.81	1.91	3.47	3.70							22.4
0.848	0.981	1.60	1.88	3.10	3.59	3.84						25
0.842	0.870	1.59	1.65	3.04	3.19		8.71	8.84		17.9	18.1	28
0.563	0.862	1.06	1.63	1.81	3.12	2.80	8.48	8.59		17.0	17.1	31.5
0.559	0.578	1.05	1.08	1.78	1.87	2.92	5.16	5.24	9.58	13.2	13.4	35.5
0.518	0.572	0.964	1.07	1.64	1.83	2.46	5.01	5.08	9.34	12.6	12.7	40
0.515	0.527	0.958	0.982	1.61	1.67	2.24	3.76	3.81	7.10	9.65	9.73	45
0.372	0.523	0.699	0.975	1.24	1.64	1.77	3.67	3.71	6.95	9.27	9.33	50
0.371	0.378	0.695	0.710	1.23	1.27	1.63	2.73	2.76	5.13	7.04	7.09	56
0.266	0.760	0.507	0.706	0.900	1.25	1.29	2.67	2.70	5.03	6.79	6.83	63
0.265	0.269	0.505	0.514	0.890	0.915	1.20	2.04	2.06	3.73			71
0.257	0.268	0.485	0.512	0.845	0.903	0.928	2.00	2.02	3.67			80
	0.259		0.491		0.854	0.872						90
												100

Unit: kgf-m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
										3.91	3.95	63
										3.28	3.30	71
0.187		0.385		0.431			0.941	0.954	2.01	2.85	2.87	80
0.181	0.189	0.372	0.389	0.409	0.439	0.554	0.920	0.930	1.97	2.75	2.77	90
0.180	0.182	0.371	0.375	0.405	0.415	0.490	0.797	0.805	1.72	2.02	2.03	100
0.163	0.182	0.338	0.374	0.363	0.410	0.420	0.784	0.790	1.69	1.96	1.97	112
0.163	0.164	0.338	0.340	0.361	0.367	0.398	0.609	0.614	1.12	1.79	1.80	125
0.0970	0.164	0.197	0.339	0.211	0.364	0.371	0.600	0.605	1.11	1.75	1.76	140
0.0969	0.0976	0.197	0.198	0.209	0.213	0.356	0.548	0.552	1.01	1.30	1.31	160
0.0731	0.0974	0.148	0.198	0.157	0.211	0.277	0.542	0.545	0.998	1.28	1.28	180
0.0730	0.0734	0.148	0.149	0.156	0.159	0.217	0.391	0.393	0.571	0.936	0.940	200
0.0687	0.0733	0.140	0.148	0.146	0.157	0.206	0.388	0.389	0.565	0.920	0.923	224
0.0687	0.0689	0.139	0.140	0.145	0.147	0.200	0.277	0.279	0.525	0.867	0.868	250
0.0682	0.0689	0.138	0.140	0.142	0.146	0.191	0.275	0.276	0.521			280
0.0653	0.0683	0.133	0.138	0.137	0.143	0.144	0.266	0.267	0.498			315
	0.0654		0.134		0.137	0.138						355
												400
												450
												500

TECHNICAL DATA Moment of Inertia Parallel shaft

Parallel Shaft Double Reduction

Moment of Inertia at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
6.3	0.00238	0.00508	0.0110		0.0211		0.0416		0.109		0.226		0.447	
7.1	0.00215	0.00455	0.0105		0.0188		0.0376		0.0977		0.207		0.420	
8	0.00185	0.00433	0.00913	0.0135	0.0158	0.0257	0.0336	0.0496	0.0787	0.128	0.167	0.262	0.326	0.502
9	0.00170	0.00398	0.00880	0.0129	0.0144	0.0226	0.0309	0.0434	0.0721	0.111	0.155	0.236	0.309	0.466
10	0.00133	0.00305	0.00718	0.0107	0.0136	0.0186	0.0267	0.0389	0.0619	0.0909	0.132	0.188	0.256	0.360
11.2	0.00125	0.00283	0.00698	0.0103	0.0126	0.0167	0.0251	0.0348	0.0576	0.0803	0.124	0.173	0.245	0.337
12.5	0.00100	0.00218	0.00463	0.00820	0.00933	0.0154	0.0210	0.0300	0.0443	0.0699	0.0898	0.147	0.165	0.279
14	0.00095	0.00205	0.00450	0.00795	0.00878	0.0142	0.0200	0.0275	0.0415	0.0629	0.0851	0.136	0.158	0.264
16	0.00078	0.00173	0.00365	0.00523	0.00725	0.0104	0.0149	0.0232	0.0312	0.0493	0.0708	0.0984	0.129	0.179
18	0.00073	0.00163	0.00355	0.00508	0.00690	0.00965	0.0142	0.0215	0.0296	0.0449	0.0678	0.0922	0.124	0.169
20				0.00403		0.00795		0.0161		0.0342		0.0764		0.138
22.4				0.00393		0.00748		0.0151		0.0316		0.0724		0.132

Parallel Shaft Triple Reduction

Moment of Inertia at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
20	0.00085	0.00210	0.00288		0.00558		0.0135		0.0303		0.0588		0.121	
22.4	0.00083	0.00205	0.00280		0.00538		0.0131		0.0291		0.0570		0.118	
25	0.00073	0.00190	0.00248	0.00310	0.00478	0.00600	0.0109	0.0144	0.0249	0.0324	0.0514	0.0622	0.106	0.127
28	0.00073	0.00188	0.00245	0.00305	0.00463	0.00573	0.0107	0.0137	0.0242	0.0306	0.0502	0.0598	0.104	0.123
31.5	0.00048	0.00115	0.00153	0.00263	0.00335	0.00505	0.00763	0.0115	0.0164	0.0261	0.0317	0.0536	0.0690	0.110
35.5	0.00048	0.00115	0.00153	0.00260	0.00328	0.00485	0.00743	0.0111	0.0159	0.0251	0.0309	0.0520	0.0679	0.108
40	0.00043	0.00108	0.00138	0.00163	0.00303	0.00353	0.00658	0.00798	0.0142	0.0172	0.0287	0.0331	0.0632	0.0714
45	0.00043	0.00108	0.00138	0.00160	0.00298	0.00343	0.00648	0.00770	0.0140	0.0165	0.0282	0.0321	0.0624	0.0699
50			0.00090	0.00145	0.00190	0.00315	0.00433	0.00680	0.00868	0.0147	0.0175	0.0296	0.0347	0.0648
56			0.00088	0.00143	0.00188	0.00308	0.00425	0.00663	0.00850	0.0143	0.0172	0.0289	0.0343	0.0637
63			0.00083	0.00093	0.00178	0.00198	0.00393	0.00448	0.00788	0.00900	0.0164	0.0180	0.0325	0.0356
71			0.00083	0.00093	0.00175	0.00193	0.00390	0.00435	0.00778	0.00873	0.0162	0.0177	0.0323	0.0350
80				0.00085		0.00183		0.00400		0.00805		0.0167		0.0331
90				0.00085		0.00180		0.00395		0.00790		0.0165		0.0328

Parallel Shaft Quadruple Reduction

Moment of Inertia at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
63														
71														
80			0.00078		0.00200		0.00278		0.00618		0.0124		0.0248	
90			0.00078		0.00200		0.00275		0.00610		0.0123		0.0246	
100			0.00075	0.00080	0.00195	0.00203	0.00263	0.00283	0.00585	0.00630	0.0119	0.0126	0.0238	0.0252
112			0.00075	0.00078	0.00195	0.00200	0.00260	0.00278	0.00580	0.00620	0.0118	0.0125	0.0237	0.0249
125			0.00068	0.00075	0.00183	0.00198	0.00238	0.00265	0.00533	0.00593	0.0103	0.0121	0.0207	0.0241
140			0.00068	0.00075	0.00183	0.00195	0.00238	0.00263	0.00530	0.00585	0.0103	0.0120	0.0207	0.0239
160			0.00043	0.00068	0.00110	0.00185	0.00103	0.00240	0.00220	0.00538	0.00493	0.0104	0.00883	0.0209
180			0.00043	0.00068	0.00110	0.00183	0.00103	0.00238	0.00218	0.00533	0.00490	0.0104	0.00878	0.0208
200			0.00040	0.00043	0.00105	0.00110	0.00098	0.00105	0.00213	0.00223	0.00480	0.00498	0.00860	0.00893
224			0.00040	0.00043	0.00105	0.00110	0.00098	0.00103	0.00210	0.00220	0.00478	0.00495	0.00858	0.00888
250				0.00040		0.00105	0.00093	0.00100	0.00200	0.00213	0.00440	0.00483	0.00783	0.00865
280				0.00040		0.00105	0.00093	0.00100	0.00198	0.00213	0.00438	0.00480	0.00780	0.00863
315							0.00093	0.00093	0.00198	0.00200	0.00433	0.00440	0.00773	0.00785
355							0.00088	0.00093	0.00193	0.00200	0.00430	0.00440	0.00755	0.00783
400							0.00080	0.00093	0.00163	0.00198	0.00353	0.00435	0.00685	0.00775
450								0.00090		0.00193		0.00430		0.00758
500								0.00080		0.00165		0.00353		0.00685

Technical

Common

Option

TECHNICAL DATA Moment of Inertia Parallel shaft

Unit: kg·m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
0.865		1.78		3.33								6.3
0.840	0.950	1.72	1.95	3.10	3.70							7.1
0.693	0.918	1.32	1.89	2.48	3.40							8
0.675	0.748	1.28	1.42	2.34	2.70							9
0.490	0.725	1.02	1.39	1.91	2.53							10
0.480	0.523	0.990	1.09	1.81	2.05							11.2
0.323	0.510	0.658	1.06	1.29	1.94							12.5
0.318	0.345	0.640	0.700	1.23	1.38							14
0.253	0.338	0.510	0.683	1.01	1.31							16
0.250	0.268	0.500	0.538	0.968	1.06							18
	0.263		0.528		1.02							20
												22.4

Unit: kg·m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
0.239		0.508		0.720								20
0.237	0.248	0.500	0.523	0.698	0.755					4.58	4.66	22.4
0.212	0.245	0.450	0.518	0.610	0.728	0.787				4.19	4.25	25
0.210	0.217	0.445	0.460	0.595	0.633		1.20	1.23	2.34	3.36	3.41	28
0.139	0.215	0.300	0.458	0.398	0.615	0.654	1.15	1.17	2.24	3.13	3.16	31.5
0.138	0.143	0.298	0.308	0.388	0.413	0.567	0.941	0.962	1.72	2.32	2.35	35.5
0.128	0.142	0.275	0.305	0.350	0.400	0.426	0.906	0.923	1.65	2.16	2.18	40
0.127	0.130	0.275	0.280	0.345	0.360	0.418	0.630	0.643	1.14	1.73	1.75	45
0.0695	0.129	0.138	0.278	0.178	0.353	0.370	0.609	0.619	1.10	1.63	1.65	50
0.0693	0.0710	0.137	0.141	0.174	0.184	0.333	0.486	0.494	0.810	1.34	1.36	56
0.0653	0.0705	0.128	0.140	0.159	0.179	0.216	0.473	0.479	0.786	1.28	1.29	63
0.0650	0.0660	0.127	0.130	0.157	0.163	0.194	0.367	0.372	0.626	1.02	1.03	71
0.0630	0.0658	0.122	0.129	0.145	0.160	0.166	0.358	0.362	0.610			80
	0.0638		0.124		0.147	0.152	0.309	0.312	0.491			90

Unit: kg·m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
												63
												71
										0.713	0.719	80
0.0675		0.108		0.123						0.611	0.616	90
0.0658	0.0680	0.105	0.109	0.118	0.125	0.147	0.250	0.253	0.517	0.588	0.592	100
0.0658	0.0663	0.105	0.106	0.117	0.119	0.138	0.221	0.223	0.447	0.525	0.528	112
0.0613	0.0660	0.0963	0.105	0.106	0.118	0.121	0.218	0.219	0.441	0.469	0.471	125
0.0613	0.0615	0.0963	0.0968	0.106	0.107	0.115	0.199	0.200	0.291	0.368	0.371	140
0.0193	0.0615	0.0398	0.0965	0.0678	0.107	0.108	0.189	0.190	0.287	0.331	0.332	160
0.0193	0.0194	0.0395	0.0400	0.0673	0.0683	0.105	0.164	0.165	0.261	0.260	0.261	180
0.0189	0.0194	0.0388	0.0398	0.0425	0.0678	0.0688	0.158	0.159	0.258	0.237	0.238	200
0.0189	0.0190	0.0388	0.0390	0.0423	0.0428	0.0665	0.113	0.114	0.158	0.232	0.233	224
0.0178	0.0189	0.0368	0.0390	0.0398	0.0425	0.0431	0.110	0.110	0.156	0.171	0.172	250
0.0178	0.0179	0.0368	0.0370	0.0395	0.0400	0.0621	0.0830	0.0833	0.146	0.168	0.169	280
0.0177	0.0179	0.0365	0.0368	0.0388	0.0398	0.0597	0.0805	0.0808	0.145	0.141	0.141	315
0.0170	0.0177	0.0353	0.0365	0.0375	0.0390	0.0392	0.0801	0.0803	0.112			355
0.0156	0.0170	0.0295	0.0355	0.0313	0.0375	0.0378	0.0626	0.0628	0.111			400
	0.0156		0.0295		0.0313	0.0315						450
												500

TECHNICAL DATA GD² Parallel shaft

Parallel Shaft Double Reduction

GD² at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
6.3	0.0095	0.0203	0.0440		0.0845		0.166		0.434		0.906		1.79	
7.1	0.0086	0.0182	0.0419		0.0753		0.150		0.391		0.830		1.68	
8	0.0074	0.0173	0.0365	0.0541	0.0633	0.1027	0.134	0.199	0.315	0.513	0.666	1.05	1.30	2.01
9	0.0068	0.0159	0.0352	0.0515	0.0577	0.0903	0.124	0.174	0.288	0.444	0.620	0.946	1.24	1.86
10	0.0053	0.0122	0.0287	0.0426	0.0542	0.0743	0.107	0.156	0.248	0.364	0.529	0.751	1.02	1.44
11.2	0.0050	0.0113	0.0279	0.0410	0.0505	0.0668	0.100	0.139	0.230	0.321	0.497	0.690	0.978	1.35
12.5	0.0040	0.0087	0.0185	0.0328	0.0373	0.0616	0.0841	0.120	0.177	0.280	0.359	0.587	0.658	1.12
14	0.0038	0.0082	0.0180	0.0318	0.0351	0.0566	0.0798	0.110	0.166	0.252	0.340	0.545	0.631	1.06
16	0.0031	0.0069	0.0146	0.0209	0.0290	0.0415	0.0594	0.0926	0.125	0.197	0.283	0.394	0.514	0.714
18	0.0029	0.0065	0.0142	0.0203	0.0276	0.0386	0.0569	0.0860	0.119	0.180	0.271	0.369	0.496	0.678
20					0.0161		0.0318		0.0643		0.137		0.305	0.552
22.4					0.0157		0.0299		0.0605		0.126		0.290	0.527

Parallel Shaft Triple Reduction

GD² at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
20	0.0034	0.0084	0.0115		0.0223		0.0539		0.121		0.235		0.483	
22.4	0.0033	0.0082	0.0112		0.0215		0.0522		0.117		0.228		0.472	
25	0.0029	0.0076	0.0099	0.0124	0.0191	0.0240	0.0437	0.0574	0.0996	0.130	0.206	0.249	0.425	0.507
28	0.0029	0.0075	0.0098	0.0122	0.0185	0.0229	0.0427	0.0547	0.0969	0.122	0.201	0.239	0.418	0.492
31.5	0.0019	0.0046	0.0061	0.0105	0.0134	0.0202	0.0305	0.0458	0.0655	0.105	0.127	0.214	0.276	0.441
35.5	0.0019	0.0046	0.0061	0.0104	0.0131	0.0194	0.0297	0.0442	0.0637	0.100	0.124	0.208	0.272	0.431
40	0.0017	0.0043	0.0055	0.0065	0.0121	0.0141	0.0263	0.0319	0.0568	0.0689	0.115	0.132	0.253	0.285
45	0.0017	0.0043	0.0055	0.0064	0.0119	0.0137	0.0259	0.0308	0.0558	0.0659	0.113	0.128	0.250	0.279
50			0.0036	0.0058	0.0076	0.0126	0.0173	0.0272	0.0347	0.0588	0.0700	0.118	0.139	0.259
56			0.0035	0.0057	0.0075	0.0123	0.0170	0.0265	0.0340	0.0571	0.0689	0.116	0.137	0.255
63			0.0033	0.0037	0.0071	0.0079	0.0157	0.0179	0.0315	0.0360	0.0655	0.0721	0.130	0.142
71			0.0033	0.0037	0.0070	0.0077	0.0156	0.0174	0.0311	0.0349	0.0647	0.0706	0.129	0.140
80					0.0034		0.0073		0.0160		0.0322		0.0668	0.133
90					0.0034		0.0072		0.0158		0.0316		0.0659	0.131

Parallel Shaft Quadruple Reduction

GD² at high speed shaft

Nominal reduction ratio	Size of Reducer													
	9015	9025	9030	9035	9040	9045	9050	9055	9060	9065	9070	9075	9080	9085
63														
71														
80			0.0031		0.0080		0.0111		0.0247		0.0496		0.0990	
90			0.0031		0.0080		0.0110		0.0244		0.0491		0.0983	
100			0.0030	0.0032	0.0078	0.0081	0.0105	0.0113	0.0234	0.0252	0.0476	0.0505	0.0953	0.101
112			0.0030	0.0031	0.0078	0.0080	0.0104	0.0111	0.0232	0.0248	0.0473	0.0499	0.0948	0.0996
125			0.0027	0.0030	0.0073	0.0079	0.0095	0.0106	0.0213	0.0237	0.0413	0.0482	0.0829	0.0963
140			0.0027	0.0030	0.0073	0.0078	0.0095	0.0105	0.0212	0.0234	0.0411	0.0478	0.0827	0.0957
160			0.0017	0.0027	0.0044	0.0074	0.0041	0.0096	0.0088	0.0215	0.0197	0.0416	0.0353	0.0835
180			0.0017	0.0027	0.0044	0.0073	0.0041	0.0095	0.0087	0.0213	0.0196	0.0414	0.0351	0.0832
200			0.0016	0.0017	0.0042	0.0044	0.0039	0.0042	0.0085	0.0089	0.0192	0.0199	0.0344	0.0357
224			0.0016	0.0017	0.0042	0.0044	0.0039	0.0041	0.0084	0.0088	0.0191	0.0198	0.0343	0.0355
250				0.0016		0.0042	0.0037	0.0040	0.0080	0.0085	0.0176	0.0193	0.0313	0.0346
280				0.0016		0.0042	0.0037	0.0040	0.0079	0.0085	0.0175	0.0192	0.0312	0.0345
315							0.0037	0.0037	0.0079	0.0080	0.0173	0.0176	0.0309	0.0314
355							0.0035	0.0037	0.0077	0.0080	0.0172	0.0176	0.0302	0.0313
400							0.0032	0.0037	0.0065	0.0079	0.0141	0.0174	0.0274	0.0310
450								0.0036		0.0077		0.0172		0.0303
500								0.0032		0.0066		0.0141		0.0274

Technical

Common

Option

TECHNICAL DATA GD² Parallel shaftUnit: kgf·m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
3.46		7.10		13.3								6.3
3.36	3.80	6.86	7.79	12.4	14.8							7.1
2.77	3.67	5.28	7.54	9.91	13.6							8
2.70	2.99	5.12	5.69	9.37	10.8							9
1.96	2.90	4.06	5.54	7.62	10.1							10
1.92	2.09	3.96	4.34	7.25	8.21							11.2
1.29	2.04	2.63	4.24	5.16	7.74							12.5
1.27	1.38	2.56	2.80	4.93	5.52							14
1.01	1.35	2.04	2.73	4.02	5.23							16
0.998	1.07	2.00	2.15	3.87	4.25							18
	1.05		2.11		4.06							20
												22.4

Unit: kgf·m²

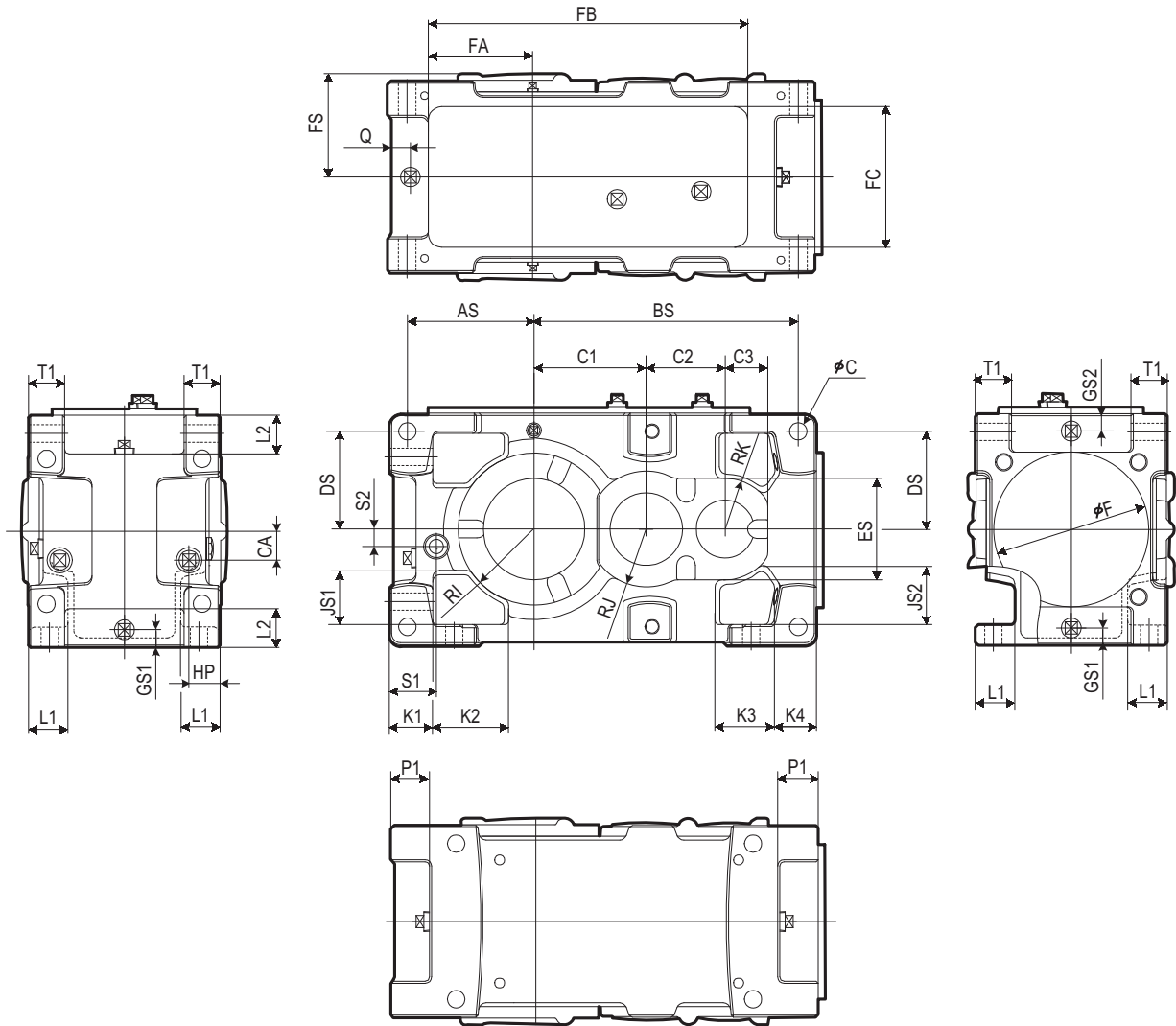
Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
0.957		2.03		2.88								20
0.946	0.991	2.00	2.09	2.79	3.02					18.3	18.7	22.4
0.846	0.978	1.80	2.07	2.44	2.91	3.15				16.7	17.0	25
0.839	0.868	1.78	1.84	2.38	2.53		4.80	4.92	9.35	13.4	13.6	28
0.557	0.859	1.20	1.83	1.59	2.46	2.62	4.58	4.69	8.96	12.5	12.7	31.5
0.553	0.571	1.19	1.23	1.55	1.65	2.27	3.77	3.85	6.86	9.26	9.40	35.5
0.510	0.566	1.10	1.22	1.40	1.60	1.70	3.62	3.69	6.62	8.63	8.73	40
0.508	0.520	1.10	1.12	1.38	1.44	1.67	2.52	2.57	4.57	6.93	7.01	45
0.278	0.516	0.551	1.11	0.711	1.41	1.48	2.43	2.48	4.41	6.54	6.60	50
0.277	0.284	0.547	0.562	0.696	0.735	1.33	1.95	1.98	3.24	5.37	5.42	56
0.261	0.282	0.512	0.558	0.636	0.716	0.863	1.89	1.92	3.14	5.11	5.15	63
0.260	0.264	0.509	0.519	0.626	0.651	0.776	1.47	1.49	2.51	4.08	4.11	71
0.252	0.263	0.489	0.517	0.578	0.639	0.666	1.43	1.45	2.44			80
	0.255		0.495		0.587	0.607	1.24	1.25	1.96			90

Unit: kgf·m²

Size of Reducer											Nominal reduction ratio	
9090	9095	9100	9105	9110	9115	9118	9121	9126	9128	9131	9136	
												63
												71
										2.85	2.88	80
0.270		0.432		0.493						2.45	2.47	90
0.263	0.272	0.419	0.436	0.471	0.501	0.589	1.00	1.01	2.07	2.35	2.37	100
0.263	0.265	0.418	0.422	0.467	0.477	0.552	0.884	0.892	1.79	2.10	2.11	112
0.245	0.264	0.385	0.421	0.425	0.472	0.482	0.871	0.878	1.77	1.88	1.88	125
0.245	0.246	0.385	0.387	0.423	0.429	0.460	0.795	0.800	1.16	1.47	1.48	140
0.0771	0.246	0.159	0.386	0.271	0.426	0.433	0.758	0.762	1.15	1.32	1.33	160
0.0770	0.0777	0.158	0.160	0.269	0.273	0.418	0.657	0.661	1.04	1.04	1.04	180
0.0755	0.0775	0.155	0.159	0.170	0.271	0.275	0.632	0.634	1.03	0.948	0.952	200
0.0754	0.0758	0.155	0.156	0.169	0.171	0.266	0.454	0.455	0.631	0.930	0.933	224
0.0713	0.0757	0.147	0.156	0.159	0.170	0.173	0.438	0.440	0.625	0.685	0.688	250
0.0712	0.0715	0.147	0.148	0.158	0.160	0.249	0.332	0.333	0.583	0.673	0.675	280
0.0707	0.0714	0.146	0.147	0.155	0.159	0.239	0.322	0.323	0.579	0.562	0.564	315
0.0680	0.0709	0.141	0.146	0.150	0.156	0.157	0.320	0.321	0.448			355
0.0622	0.0681	0.118	0.142	0.125	0.150	0.151	0.251	0.251	0.445			400
	0.0623		0.118		0.125	0.126						450
												500

TECHNICAL DATA Supplementary Dimension Drawing

9015 ▶ 9055 / Right Angle Double, Triple / Parallel double
/ Horizontal, Vertical, Upright



Size	FS	FA	FB	FC	AS	BS	C	CA	HP	DS	GS1	GS2	JS1	JS2	K1	K2	K3	K4
9015	118	110	325	175	140	260	15	25	38	115	23	23	60	58	50	75	85	50
9025	130	125	385	190	155	310	19	30	41	135	24	24	70	65	55	90	110	55
9030	143	147	445	200	175	365	24	40	43	135	24	24	75	81	60	105	80	60
9035	143	166	495	200	194	396	24	40	43	160	24	24	90	106	60	105	80	60
9040	165	168	510	240	205	420	28	48	55	170	28	28	95	107	75	125	100	75
9045	165	189	570	240	226	459	28	48	55	190	28	28	115	127	75	125	100	75
9050	185	188	590	250	225	490	28	55	50	180	29	29	95	103	75	135	100	75
9055	185	219	660	250	256	529	28	55	50	215	29	29	120	138	75	135	100	75

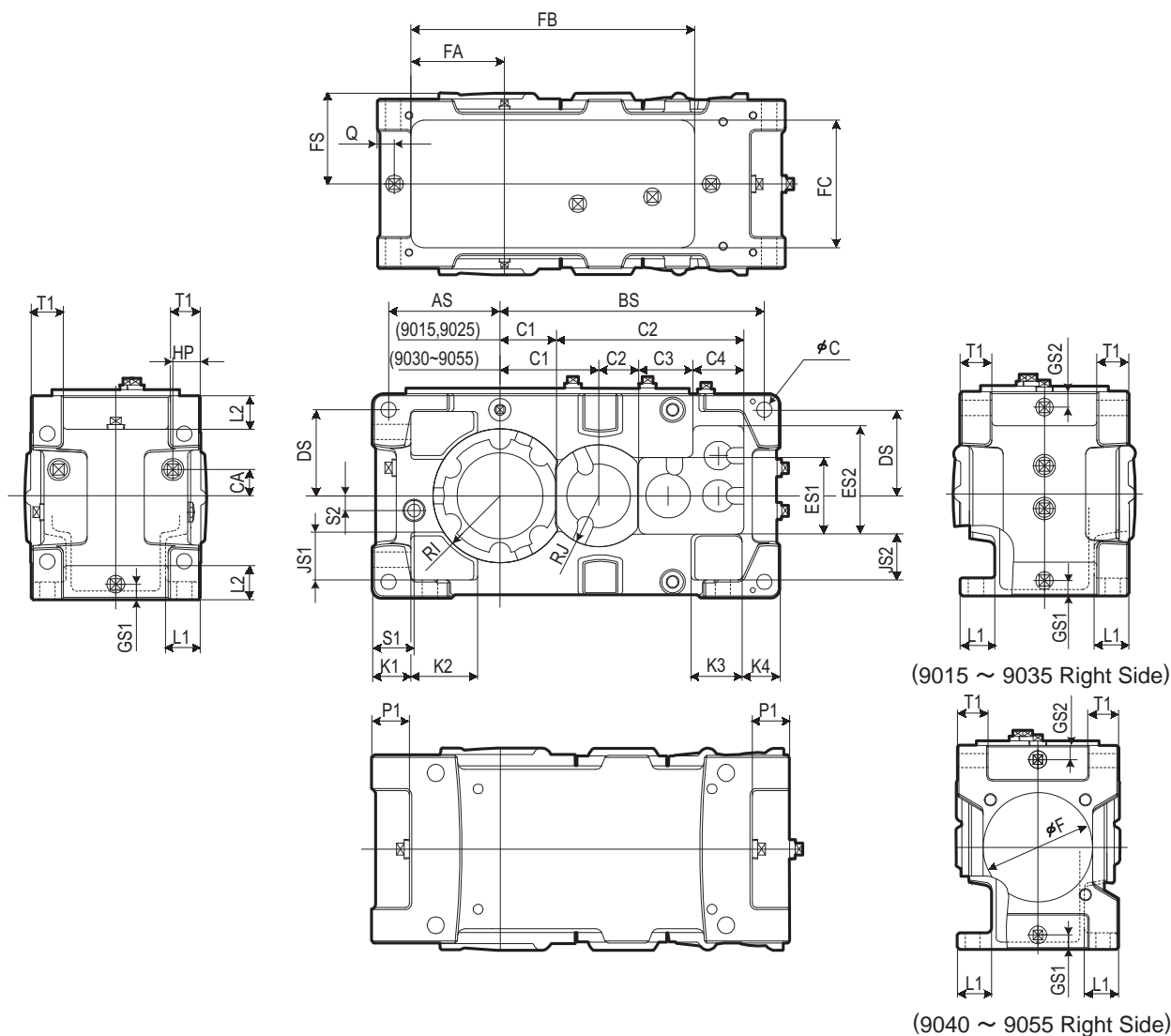
Size	L1	L2	P1	Q	T1	S1	S2	RI	RJ	RK	F	C1	C2	C3	ES
9015	38	47	50	25	35	53	23	80	65		175	115	79	55	110
9025	45	50	50	26	40	58	26	87.5	75		200	135	92	60	130
9030	54	53	53	27	50	65	24	105	80	70	214	155	109	59	140
9035	54	60	53	27	50	65	24	120	80	70	214	186	109	59	140
9040	66	67	67	30	60	70	28	120	90	72.5	250	180	126	72.5	145
9045	66	87	67	30	60	70	28	140	90	72.5	250	219	126	72.5	145
9050	68	67	67	31	60	78	32	140	105		280	210	148	59	150
9055	68	80	67	31	60	78	32	155	105		280	249	148	59	150

Technical
Common

Option

TECHNICAL DATA Supplementary Dimension Drawing

9015 ▶ 9055 / Right Angle Quadruple / Parallel Triple, Quadruple / Horizontal, Vertical, Upright

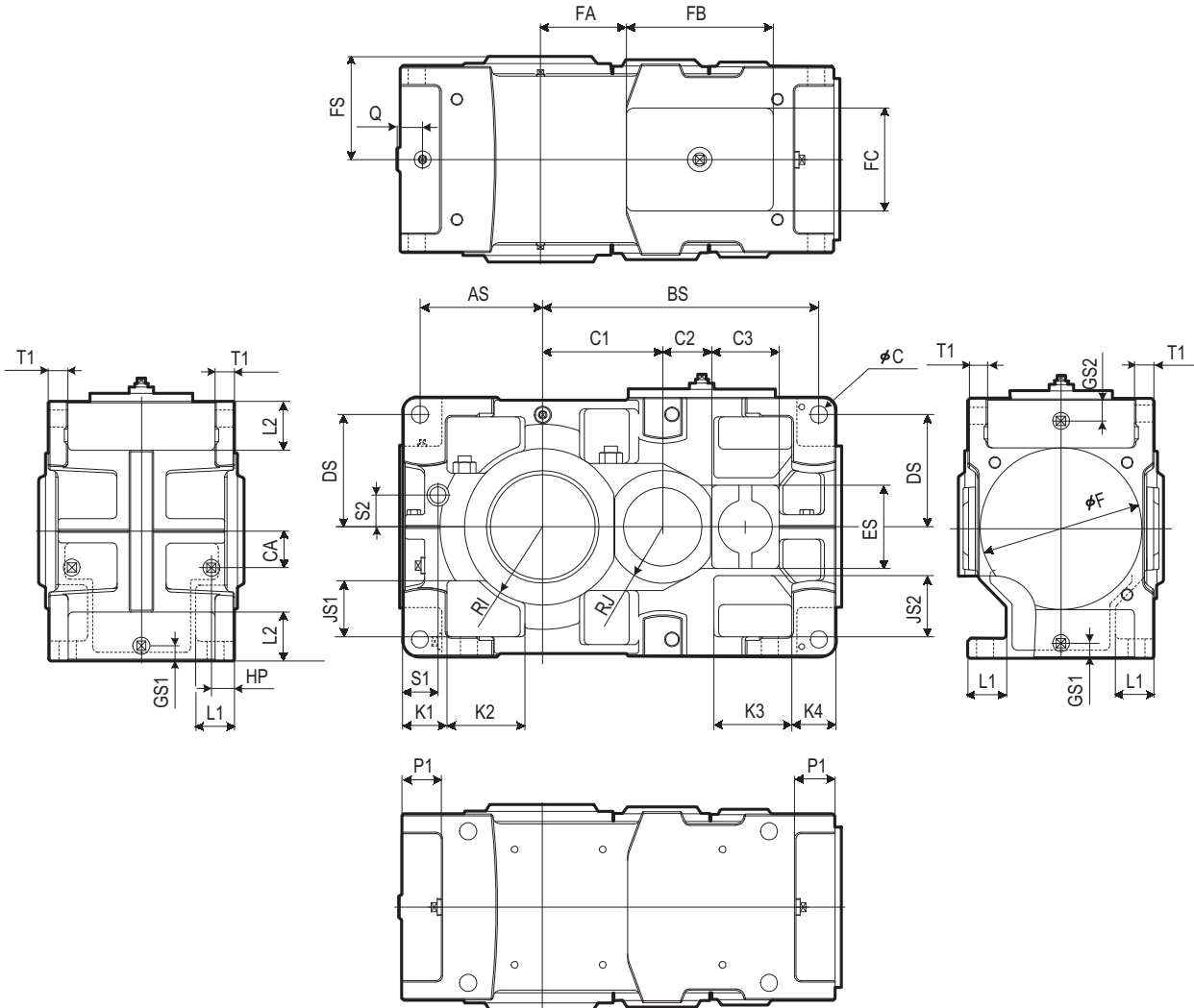


Size	FS	FA	FB	FC	AS	BS	C	CA	HP	DS	GS1	GS2	JS1	JS2	K1	K2	K3	K4
9015	118	110	325	175	140	305	15	25	38	115	23	23	60	58	50	75	65	50
9025	130	125	385	190	155	375	19	23	41	135	24	24	70	65	55	90	85	55
9030	143	147	445	200	175	415	24	44	43	135	24	24	75	72	60	105	80	60
9035	143	166	495	200	194	446	24	44	43	160	24	24	90	97	60	105	80	60
9040	165	168	510	240	205	494	28	56	55	170	28	28	95	100	75	125	100	75
9045	165	189	570	240	226	533	28	56	55	190	28	28	115	120	75	125	100	75
9050	185	188	590	250	225	563	28	56	50	180	29	29	95	103	75	135	100	75
9055	185	219	660	250	256	602	28	56	50	215	29	29	120	138	75	135	100	75

Size	L1	L2	P1	Q	T1	S1	S2	RI	RJ	F	C1	C2	C3	C4	ES1	ES2
9015	38	47	50	25	35	53	19	80			70	20			110	
9025	45	50	50	26	40	58	23	87.5			82.5	281			130	
9030	54	53	53	27	50	65	23	105	80		155	63	85	80	120	170
9035	54	60	53	27	50	65	23	120	80		186	63	85	80	120	170
9040	66	67	67	30	60	70	24	120	90	214	180	74	99	90	140	200
9045	66	87	67	30	60	70	24	140	90	170	219	74	99	90	140	200
9050	68	67	67	31	60	78	24	140	105	214	210	89	118	96	150	202
9055	68	80	67	31	60	78	24	155	105	214	249	89	118	96	150	202

TECHNICAL DATA Supplementary Dimension Drawing

9060 ▶ 9085 / Right Angle Double, Triple / Parallel Double
/ Horizontal, Vertical, Upright



Size	FS	FA	FB	FC	AS	BS	C	CA	HP	DS	GS1	GS2	JS1	JS2	K1	K2	K3	K4
9060	210	175	300	210	251	564	35	75	47	230	31	45	105	120	90	160	160	90
9065	210	221	300	210	290	610	35	75	47	265	31	45	140	155	90	160	160	90
9070	235	185	370	270	283	657	42	85	47	260	33	45	125	135	105	190	190	105
9075	235	238	370	270	330	710	42	85	47	295	33	45	148	158	105	190	190	105
9080	255	275	370	270	325	750	42	100	47	295	34	45	138	148	105	190	190	105
9085	265	331	370	270	369	806	42	100	47	335	34	45	168	188	105	190	190	105

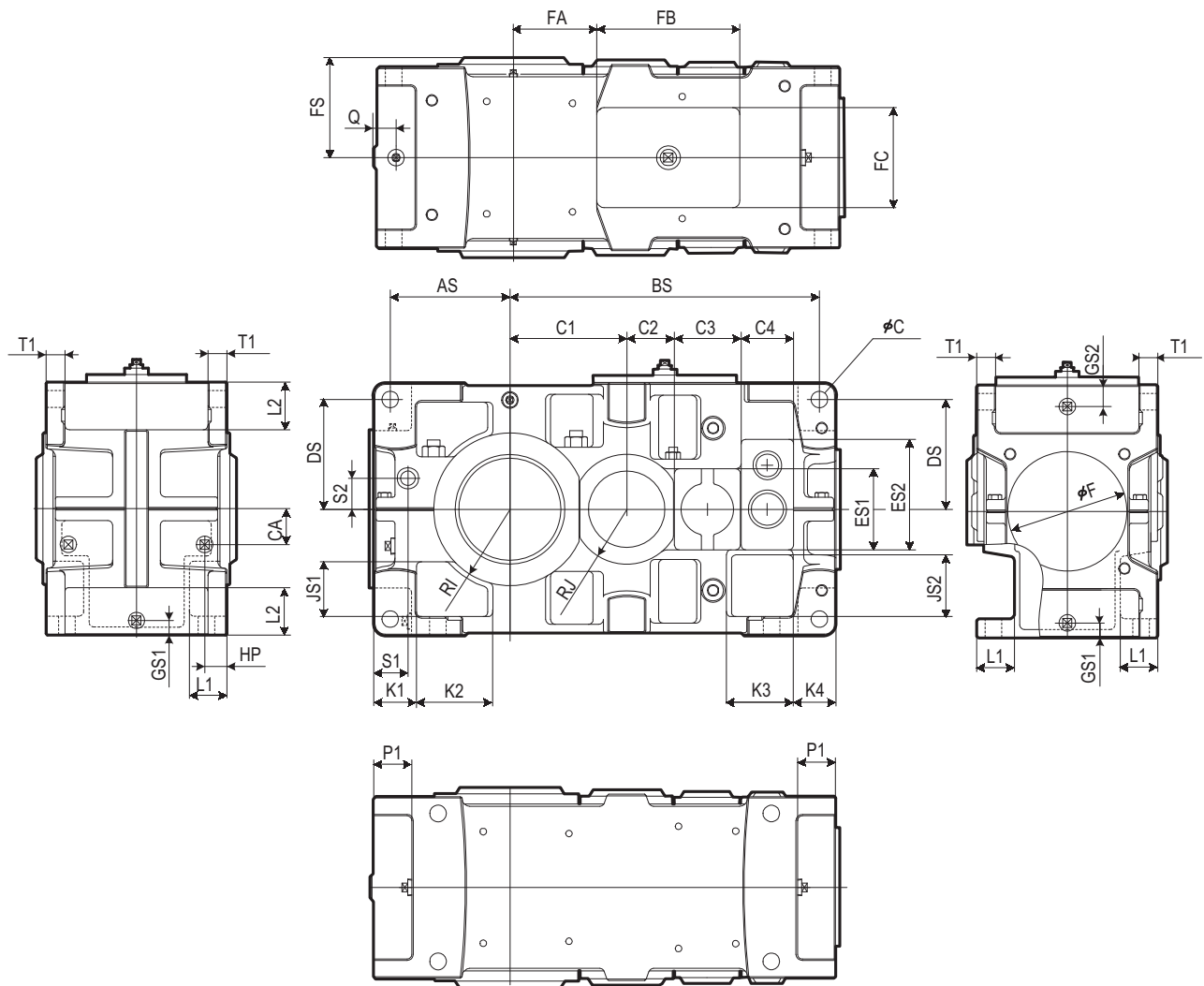
Size	L1	L2	P1	Q	T1	S1	S2	RI	RJ	F	C1	C2	C3	ES
9060	79	100	80	40	35	72	65	160	115	330	245	100	138	170
9065	79	135	80	40	35	72	65	175	115	330	291	100	138	170
9070	94	110	95	40	40	72	75	175	138	380	285	94.5	203	200
9075	94	145	95	40	52	72	75	190	138	380	338	94.5	203	200
9080	96	120	95	45	52	82	85	190	160	420	330	132	188	220
9085	96	160	95	45	52	82	85	215	160	420	386	132	188	220

Technical
Common

Option

TECHNICAL DATA Supplementary Dimension Drawing

9060 ▶ 9085 / Right Angle Quadruple / Parallel Triple, Quadruple
/ Horizontal, Vertical, Upright

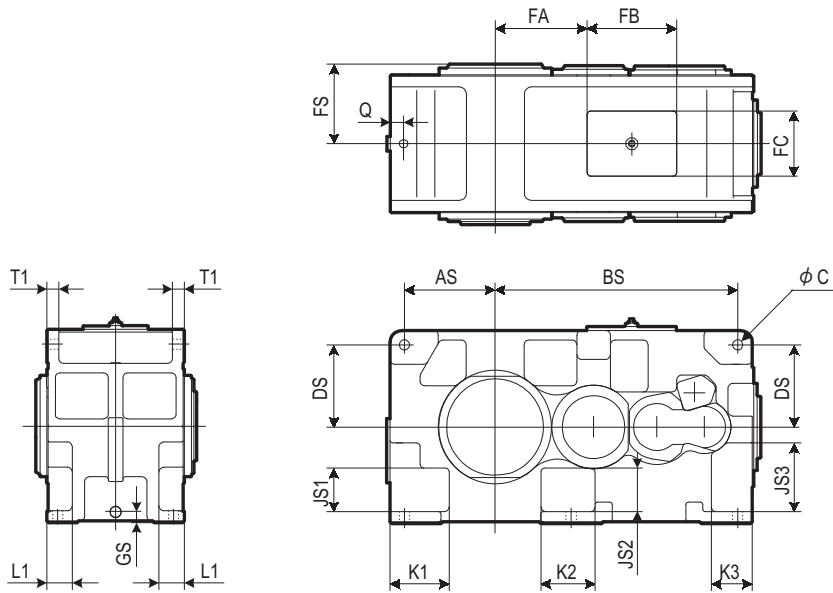


Size	FS	FA	FB	FC	AS	BS	C	CA	HP	DS	GS1	GS2	JS1	JS2	K1	K2	K3	K4
9060	210	175	300	210	251	649	35	75	47	230	31	45	105	145	90	160	140	90
9065	210	221	300	210	290	695	35	75	47	265	31	45	140	180	90	160	140	90
9070	235	185	370	270	283	752	42	85	47	260	33	45	125	165	105	190	165	105
9075	235	238	370	270	330	805	42	85	47	295	33	45	148	188	105	190	165	105
9080	255	275	370	270	325	870	42	100	47	295	34	45	138	173	105	190	190	105
9085	265	331	370	270	369	926	42	100	47	335	34	45	168	213	105	190	190	105

Size	L1	L2	P1	Q	T1	S1	S2	RI	RJ	F	C1	C2	C3	C4	ES1	ES2
9060	79	100	80	40	35	72	65	160	115	250	245	100	138	110	170	232
9065	79	135	80	40	35	72	65	175	115	250	291	100	138	110	170	232
9070	94	110	95	40	40	72	75	175	138	280	285	94.5	203	120	200	267
9075	94	145	95	40	52	72	75	190	138	280	338	94.5	203	120	200	267
9080	96	120	95	45	52	82	85	190	160	330	330	132	188	146	220	305
9085	96	160	95	45	52	82	85	215	160	330	386	132	188	146	220	305

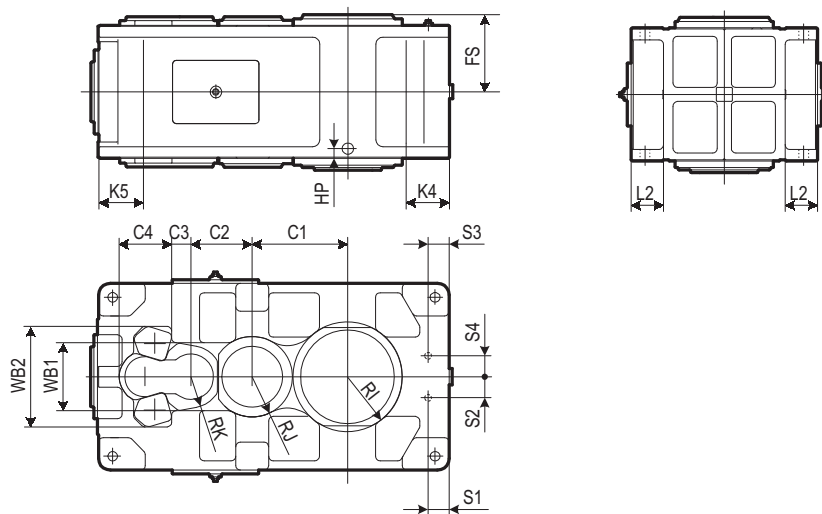
TECHNICAL DATA Supplementary Dimension Drawing

9090 ▶ 9115/ Parallel Double, Triple, Quadruple / Horizontal
 / Right Angle Double, Triple, Quadruple / Horizontal



Size	FS	FA	FB	FC	AS	BS	C	DS	GS	JS1	JS2	JS3	K1	K2	K3	L1	Q	T1
9090	330	350	370	270	345	975	42	315	45	155	152	260	230	240	170	96	45	50
9095	330	380	370	270	375	1005	42	340	45	180	177	285	245	225	170	106	45	50
9100	375	435	370	270	375	1095	48	355	46	185	170	305	265	290	190	110	45	55
9105	375	470	370	270	410	1130	48	380	46	210	195	330	270	260	190	120	45	55
9110	407	525	370	270	420	1240	56	400	48	230	202	350	285	325	310	119	45	60
9115	407	575	370	270	470	1290	56	425	48	255	227	375	315	305	310	129	45	60

9090 ▶ 9115/ Parallel Double, Triple, Quadruple / Vertical
 / Right Angle Double, Triple, Quadruple/Vertical



Size	FS	HP	K4	K5	L2	RI	RJ	RK	S1	S2	S3	S4	C1	C2	C3	C4	WB1	WB2
9090	330	42	170	190	130	215	173	133	90	130	90	90	378	262	82	225	290	430
9095	330	42	185	215	140	235	173	133	80	140	90	90	408	262	82	225	290	430
9100	375	43	190	220	150	235	200	145	85	145	90	100	425	299	91	260	370	500
9105	375	43	215	240	160	260	200	145	80	155	90	100	459	299	91	260	370	500
9110	407	44	210	240	170	265	213	160	90	150	105	100	483	341	90	261	370	500
9115	407	44	235	270	180	280	213	160	85	150	105	100	532	341	90	261	370	500

Technical

Common

Option

TECHNICAL DATA Supplementary Matters to Hollow Shaft

Feature and Benefits

PARAMAX DRIVE units have a number of outstanding features compared to conventional solid shaft speed reducers.

1. There is no necessity for a large sized coupling, permitting substantial cost reduction.
2. It can be directly mounted onto the driven shaft, eliminating the necessity for foundation working for speed reducer installation and alignment operation.
3. Any unit is designed for compactness and ease of operation.

How to Install Unit

a. Torque Arm (Option)

The hollow shaft type PARAMAX DRIVE is secured with the torque arm to prevent it from being turned by the counter force.

A torque arm is subjected to a compression or tensile load depending upon the direction of rotation of the slow speed shaft, and it must have a sufficient strength against shock loading at the start and during operation. Being prepared as an optional accessory, the torque arm is designed in consideration of such loading conditions.

Please order us, if it is necessary.

The construction and strength of the torque arm mounting legs must be determined in consideration of impact load.

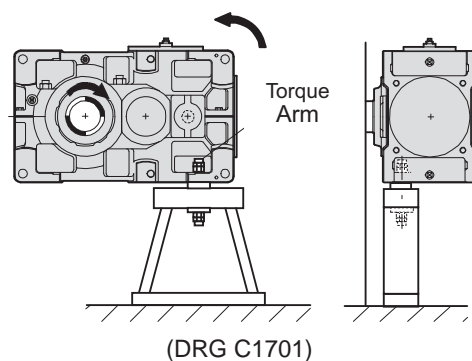
b. How to Use Torque Arm

- (1) When the torque arm is used with the speed reducer housing

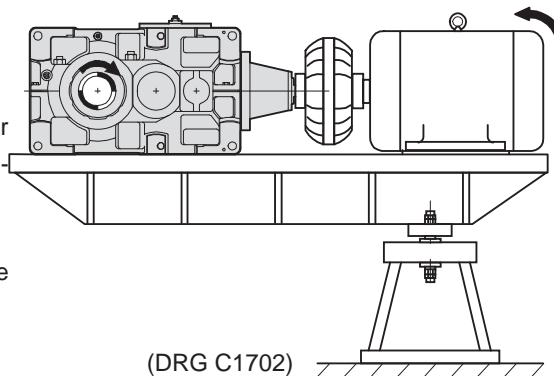
The torque arm must be mounted in an installation hole closer to the application machine. (For torque arm mounting dimensions, refer to the dimension drawing.)

- (2) When the torque arm is used with the common base plate

The torque arm must be mounted in a position as far from the low speed shaft as possible.

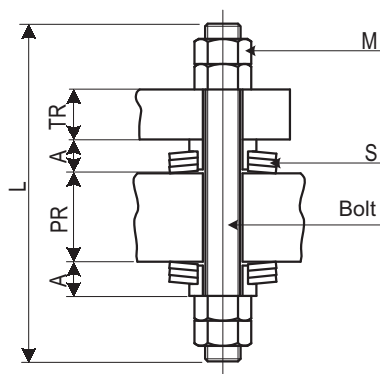


(DRG C1701)



(DRG C1702)

Torque Arm Dimensions



(DRG C1703)

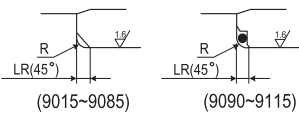
Use bolt and nut classified as JIS strength class 8.8

Size	A	L	M (nut)	PR max	TR	S (belleville spring)	
						DIN2093(nom.)	Qty
9015	13.1	140	M12	35	22	A50	2X2
9025	16.1	170	M16	40	25	A50	2X3
9030	18.9	200	M20	50	28	A63	2X3
9035	18.9	200	M20	50	28	A63	2X3
9040	21.7	240	M24	60	30	A80	2X2
9045	21.7	240	M24	60	30	A80	2X2
9050	21.7	240	M24	60	32	A80	2X2
9055	21.7	240	M24	60	32	A80	2X2
9060	32.2	310	M30	85	35	A100	2X3
9065	32.2	310	M30	85	35	A100	2X3
9070	38.2	370	M36	95	40	A100	2X4
9075	38.2	370	M36	95	52	A100	2X4
9080	38.2	370	M36	95	52	A100	2X4
9085	38.2	370	M36	95	52	A100	2X4
9090	38.6	370	M36	95	50	A125	2X3
9095	38.6	370	M36	95	50	A125	2X3
9100	47.6	420	M42	100	55	A125	2X4
9105	47.6	420	M42	100	55	A125	2X4
9110	48.5	460	M48	110	60	A160	2X3
9115	48.5	460	M48	110	60	A160	2X3

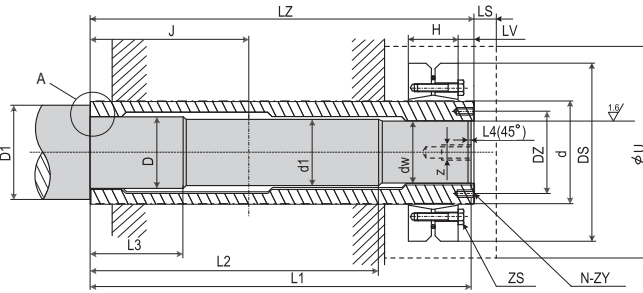
TECHNICAL DATA Hollow Shaft Related Dimensions

1. Hollow Shaft Dimensions

Shrink Disk Coupling



Detail A
(DRG C1801)

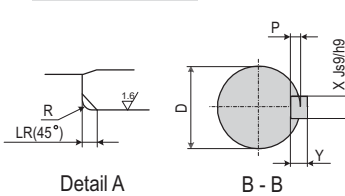


Unit: mm

Size	Shrink Disk						Hollow Shaft							Driven Shaft										
	MODEL (note 1)	d	DS	H	ZS	TA N·m	J	LZ	LR	LV	N-ZY	DZ	LS	U	dw	d1	D h7	D1 min	L1	L2	L3	L4	R	Z (Thread depth)
9015	TAS3091.4-080	80	145	38	M8	35	135	328	3	14	4-M6	70	15	159	60h6	61	63	78	325	240	80	3	2.5	M20(30)
9025	TAS3081.-090	90	155	39	M8	35	145	358	3	14	4-M6	80	17	174	70h6	71	73	88	355	270	80	3	2.5	M20(30)
9030	TAS3091.1-100	100	170	54	M10	59	160	393	3	14	4-M6	90	20	207	80h6	81	83	98	390	295	90	3	2.5	M20(30)
9035	TAS3093.-110	110	185	60	M10	70	160	403	3	14	4-M6	97	20	237	85h6	86	88	103	400	295	90	3	2.5	M24(35)
9040	TAS3081.-125	125	215	54	M10	70	180	448	3	20	4-M8	110	17	237	95h6	96	98	113	445	335	110	3	2.5	M24(35)
9045	TAS3093.-140	140	230	74	M12	120	180	463	3	20	4-M10	124	17	277	105h6	106	108	123	460	355	110	3	2.5	M24(35)
9050	TAS3093.-140	140	230	74	M12	120	200	503	3	22	4-M10	124	17	277	105h6	106	108	123	500	380	110	3	2.5	M24(35)
9055	TAS3091.-165	165	290	88	M16	250	205	528	3	27	4-M12	146	17	307	120h6	121	123	138	525	385	120	3	2.5	M24(35)
9060	TAS3091.-165	165	290	88	M16	250	230	583	4.5	27	4-M12	146	17	319	125h6	126	128	143	580	435	130	3	3	M24(35)
9065	TAS3091.-175	175	300	88	M16	250	235	594	4.5	26	4-M12	157.5	21	349	140h6	141	143	158	589	450	130	5	3	M30(45)
9070	TAS3081.-185	185	330	86	M16	290	260	644	4.5	26	4-M12	167	21	349	145h6	146	148	163	640	475	160	5	3	M30(45)
9075	TAS3081.-200	200	350	86	M16	290	265	651	4.5	26	4-M12	177	21	379	155h6	156	158	173	646	475	160	5	3	M30(45)
9080	TAS3081.-220	220	370	104	M16	290	285	714	4.5	26	4-M12	195	21	399	170g6	171	173	192	709	520	190	5	3	M30(45)
9085	TAS3081.-240	240	405	109	M20	570	285	714	4.5	27	4-M12	210	21	429	180g6	181	183	198	709	520	190	5	3	M30(45)
9090	TAS3081.-240	240	405	109	M20	570	350	844	6	27	6-M12	215	21	451	190g6	191	193	212	840	635	200	5	4.5	M36(55)
9095	TAS3081.1-260	260	440	120	M20	535	350	859	6	27	6-M12	230	14	450	200g6	201	203	222	855	640	205	5	4.5	M36(55)
9100	TAS3081.1-260	260	440	120	M20	535	390	934	6	27	6-M12	235	21	491	210g6	211	213	234	930	705	215	5	4.5	M36(55)
9105	TAS3081.1-280	280	460	134	M20	535	390	949	6	27	6-M12	250	19	480	220g6	221	223	244	945	715	225	5	4.5	M36(55)
9110	TAS3081.1-300	300	485	142	M20	535	420	1030	6	32	6-M16	270	15	551	240g6	241	243	263	1025	770	245	5	4.5	M36(55)
9115	TAS3091.-320	320	520	184	M20	490	420	1065	6	32	6-M16	285	15	550	250g6	251	253	273	1060	785	245	5	4.5	M36(55)

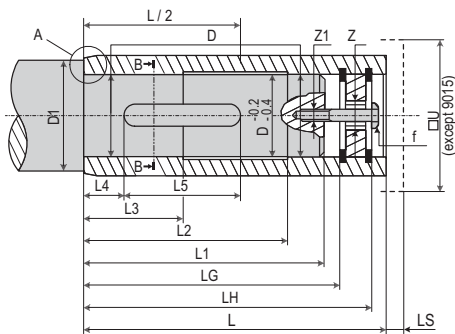
Note: 1 Shrink disc (manufactured by SCHÄFER) type code.
2 Mount a thrust washer on a vertical reducer to prevent the reducer from moving when locking bolts(ZS) is loosened.

Key Coupling

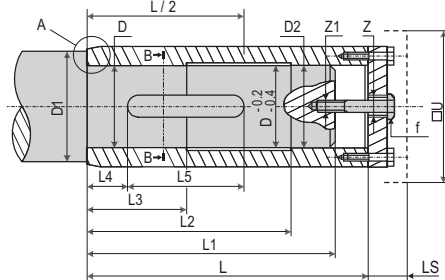


(DRG C1802)

9015~9055



9060~9085



Unit: mm

Size	Hollow Shaft							Driven Shaft													Locking Thread Length	Screw Size X Body DRG C1802(f)	Locking Distance Ring O.D. X W DRG C1906,1910(h)
	L	LG	LH	LR	Z	LS	U	D j6	D1 min	D2 j6	L1	L2	L3	L4	L5 min	X	Y	P	R	Z1 (Thread depth)			
9015	270	240	258	3	M24	7.5	phi161	55	70		235	200	70	30	115	16	10	6	2.5	M20(30)	M20X50	phi 55X5	
9025	300	265	286	3	M24	10	190	65	80		260	220	80	35	125	18	11	7	2.5	M20(30)	M20X50	phi 65X5	
9030	330	290	314	3	M24	9.5	230	75	90		285	240	90	35	145	22	14	9	2.5	M20(30)	M20X55	phi 75X5	
9035	330	290	315	3	M24	10	260	85	100		285	240	90	35	160	22	14	9	2.5	M20(30)	M20X55	phi 85X5	
9040	360	314	340	3	M30	10	260	90	105		310	260	100	40	180	25	14	9	2.5	M24(35)	M24X60	phi 90X4	
9045	370	316	348	3	M30	10	300	105	120		310	260	100	40	180	28	16	10	2.5	M24(35)	M24X65	phi 105X6	
9050	410	356	388	3	M30	10	300	105	120		350	300	110	45	220	28	16	10	2.5	M24(35)	M24X65	phi 105X6	
9055	410	356	388	3	M30	10	330	115	130		350	300	110	45	220	32	18	11	2.5	M24(35)	M24X65	phi 115X6	
9060	470			4.5	M30	47	340	125	140	123	445	395	90	5	260	32	18	11	3	M24(35)	M24X80	phi 125X25	
9065	480			4.5	M36	54	350	145	160	143	455	405	100	5	265	36	20	12	3	M30(45)	M30X100	phi 145X30	
9070	530			4.5	M36	54	370	145	160	143	500	445	120	5	310	36	20	12	3	M30(45)	M30X100	phi 145X30	
9075	530			4.5	M36	54	400	150	165	148	500	445	120	5	365	40	22	13	3	M30(45)	M30X100	phi 150X30	
9080	570			4.5	M36	54	400	165	180	163	540	480	125	5	370	40	22	13	3	M30(45)	M30X100	phi 165X30	
9085	570			4.5	M36	54	450	175	190	173	540	480	125	5	385	45	25	15	3	M30(45)	M30X100	phi 175X30	

Note: 1 The key and keyway conform to JIS B 1301-1996(ISO) "Sunk keys and keyways" parallel keys (regular class)
2 The locking screw and distance ring will not be supplied. Please prepare, if they are necessary.
3 Dimension from center of housing to shaft end is L/2.

Technical

Common

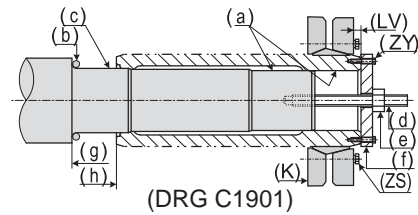
Option

TECHNICAL DATA Hollow Shaft Related Dimensions

2. Shrink Disk Coupling / Mounting & Removal Procedure

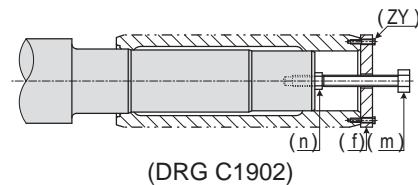
Mounting Procedure (DRG C1901)

- (1) Clean and degrease contact surface (a) and (c).
- (2) Smear surface (c) with "Molykote 321" or its equivalent.
However, keep surface (a) as clean as possible (no grease).
- (3) Slide O-ring (b) onto the shaft.(Size 9090 to 9115)
- (4) Mount the reducer on the driven shaft and screw nuts (e) until faces (g) and (h) make contact.
- (5) Set the shrink disk (k) at dimensions (LV). Tighten locking bolt (ZS) at specified torque (TA) (using a torque wrench).



Removal Procedure (DRG C1902)

- (1) Loosen locking bolt (ZS) and remove shrink disk (k).
 - (2) Set thrust washer (f) and hexagon head bolt (n).
Remove the reducer from the driven shaft using bolt (m).
- Note: Parts (d), (e), (f), (ZY), (m) and (n) are optional.
Order these as required.

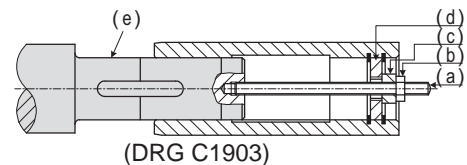


3. Key Coupling / Mounting & Removal Procedure

Size 9015 to 9055

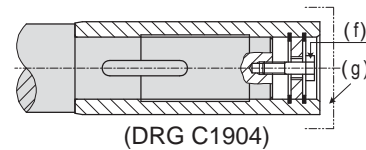
Mounting Procedure (DRG C1903)

- The Hollow shaft bore is provided with retaining ring (d).
Ring (d) is the essential component for mounting, securing, and removing the unit.
- (1) Smear surface of the shaft (e) with "molykote 321" or its equivalent.
 - (2) Turn nut (b) and slide the reducer over the driven shaft.
Use plain washer (c), if they are necessary.



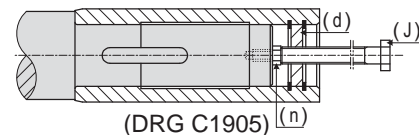
Securing (DRG C1904)

- (1) After mounting the reducer on the driven shaft, fix bolt (f). (Bolt (f) is not supplied with the unit.)
- (2) The bore should be protected by cover (g).



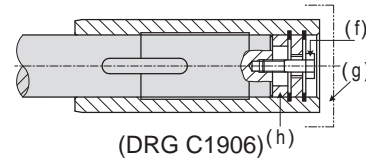
Removal Procedure (DRG C1905)

- (1) Remove ring (d), mount bolt (n), and reset ring (d).
Attach bolt (J) to ring (d), and turn bolt (J) to disconnect the hollow shaft from the driven shaft.
Screw size, refer to the lower table (Z) of the page C-18.



Special Cases (DRG C1906)

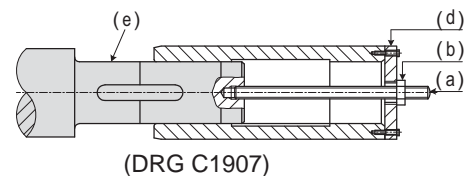
- (1) If the driven shaft has no shoulder (DRG C1906) when mounting, provide a distance ring (h) for fixing in place. (Ring (h) is not supplied with the unit).



Size 9060 to 9085

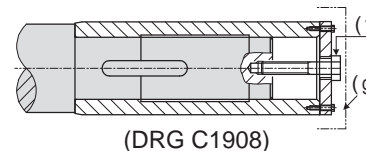
Mounting Procedure (DRG C1907)

- The Hollow shaft end is provided with thrust washer (d).
Thrust washer (d) is the essential component for mounting, securing, and removing the unit.
- (1) Smear surface of the shaft (e) with "molykote 321" or its equivalent.
 - (2) Turn nut (b) and slide the reducer over the driven shaft.



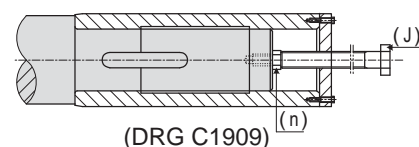
Securing (DRG C1908)

- (1) After mounting the reducer on the driven shaft, fix bolt (f). Bolt (f) is not supplied with the unit.)
- (2) The bore should be protected by cover (g)



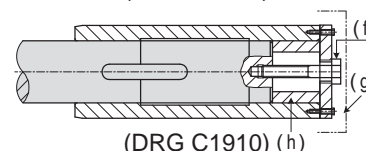
Removal Procedure (DRG C1909)

- (1) Remove thrust washer (d), mount bolt (n), and reset thrust washer (d).
Attach bolt (J) to thrust washer (d), and turn bolt (J) to disconnect the hollow shaft from the driven shaft.
Screw size, refer to the lower table (Z) of the page C-18.



Special Cased (DRG C1910)

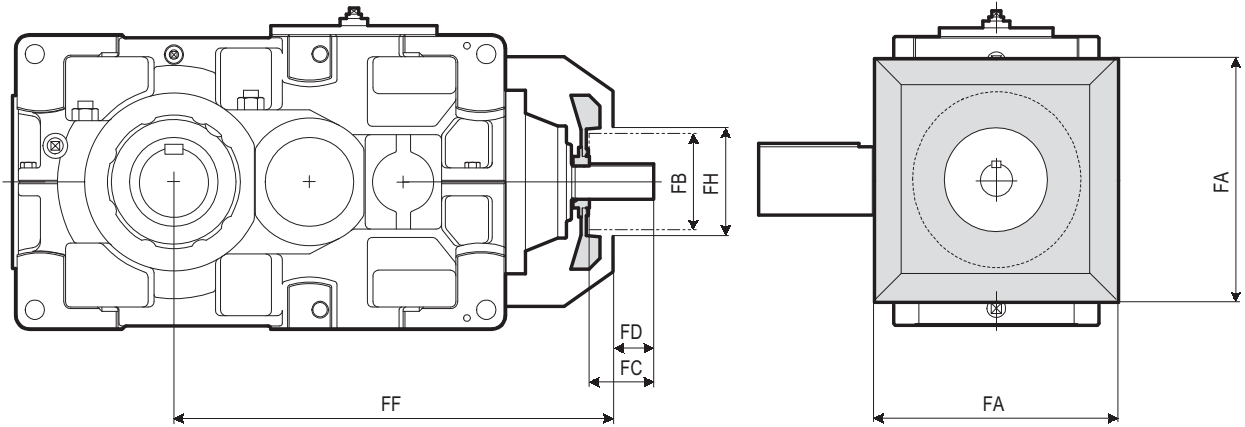
- (1) If the driven shaft has no shoulder (DRG D1906) when mounting, provide a distance ring (h) for fixing in place.(Ring (h) is not supplied with the unit.)
Distance ring dimension, refer to the lower table of the page C-18.



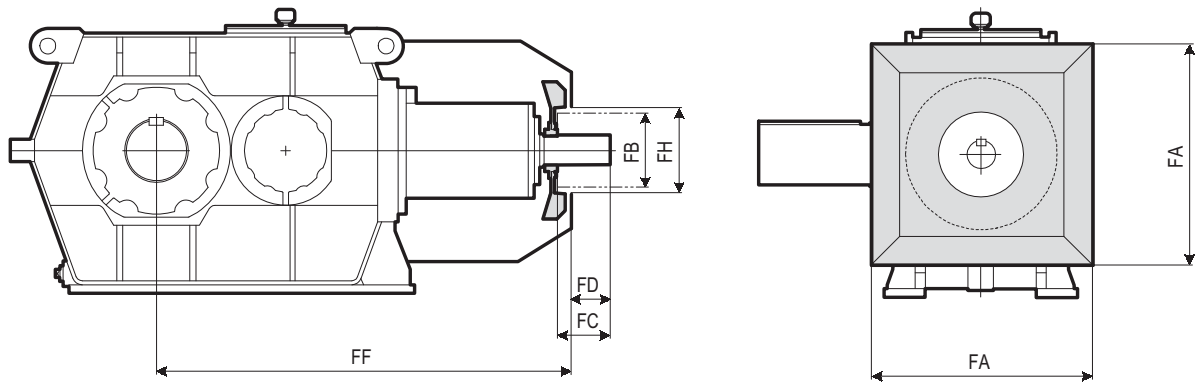
Note : Parts (a),(b),(c),(n) and (J) are optional. Order these as required.

TECHNICAL DATA Cooling Fan Dimension

9015 ▶ 9085 Right Angle Double Reduction



9090 ▶ 9115 Right Angle Double Reduction



Size	FA	FB	FC	FD	FF	FH
9015	250	125	50	30	477	145
9025	270	140	50	30	515	160
9030	300	140	80	52	593	160
9035	300	140	80	52	624	160
9040	340	160	80	52	653	180
9045	340	160	80	52	692	180
9050	380	160	80	52	703	180
9055	380	160	80	52	742	180
9060	440	160	105	65	800	180
9065	440	160	105	65	846	180
9070	490	200	105	65	900	220
9075	490	200	105	65	953	220
9080	540	225	105	60	1020	245
9085	540	225	105	60	1076	245

Size	FA	FB	FC	FD	FF	FH
9095	680	250	135	90	1303	270
9105	760	250	175	130	1459	270
9115	820	250	175	130	1672	270

- Sufficient space must be allowed for air intake when mounting the safety guards for the coupling or other component.
- The split fan hood is prepared as an optional accessory for conducting maintenance work on a large coupling. 【Refer to the "PARAMAX 9000 Series Option Catalog No.G2052E".】

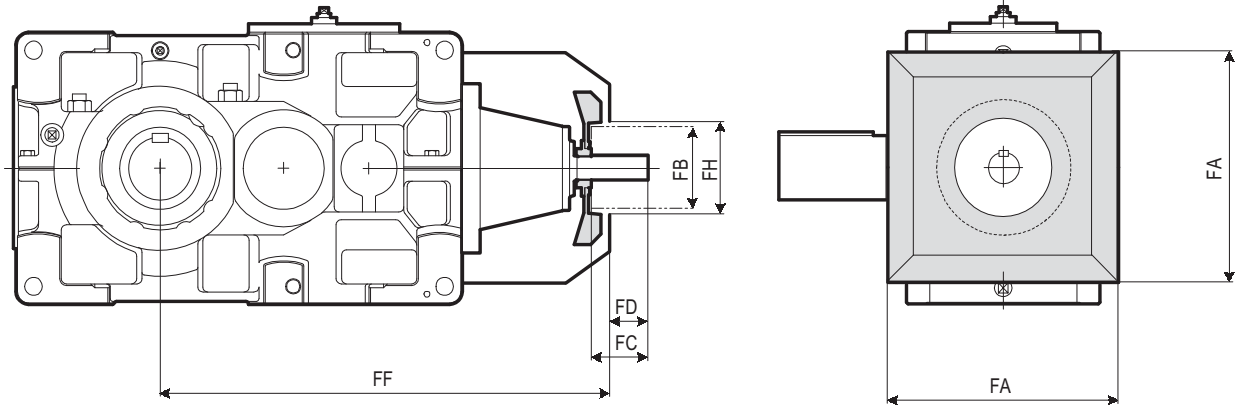
Technical

Common

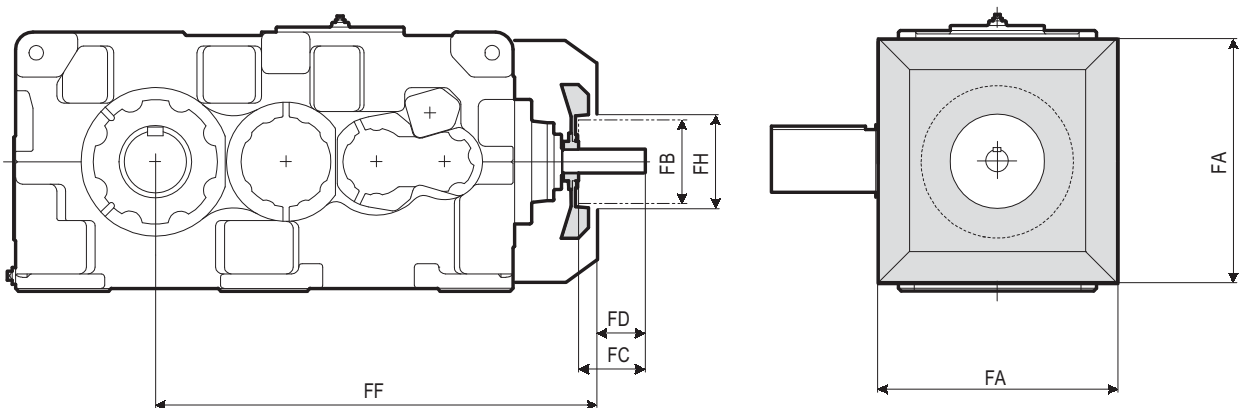
Option

TECHNICAL DATA Cooling Fan Dimension

9015 ▶ 9085 Right Angle Triple Reduction



9090 ▶ 9115 Right Angle Triple Reduction



Size	FA	FB	FC	FD	FF	FH
9030	300	125	50	30	626	145
9035	300	125	50	30	657	145
9040	340	125	50	30	686	145
9045	340	125	50	30	725	145
9050	380	140	50	22	786	160
9055	380	140	50	22	825	160
9060	440	160	80	52	887	180
9065	440	160	80	52	933	180
9070	490	160	80	52	975	180
9075	490	160	80	52	1028	180
9080	540	160	105	65	1111	180
9085	540	160	105	65	1167	180

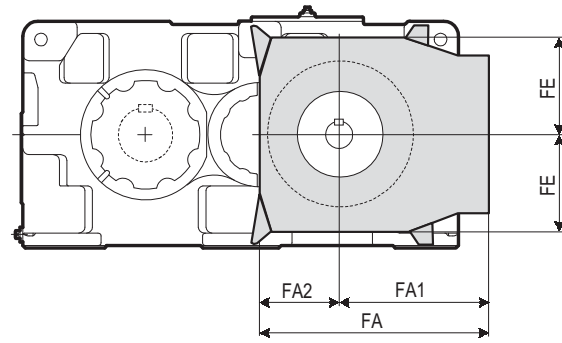
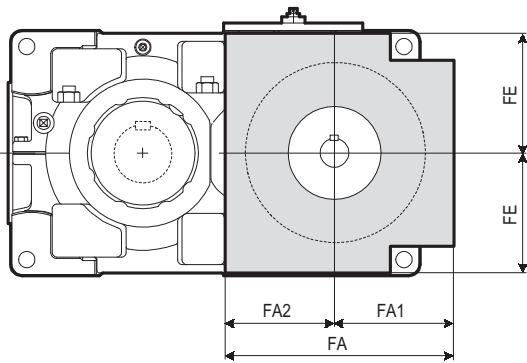
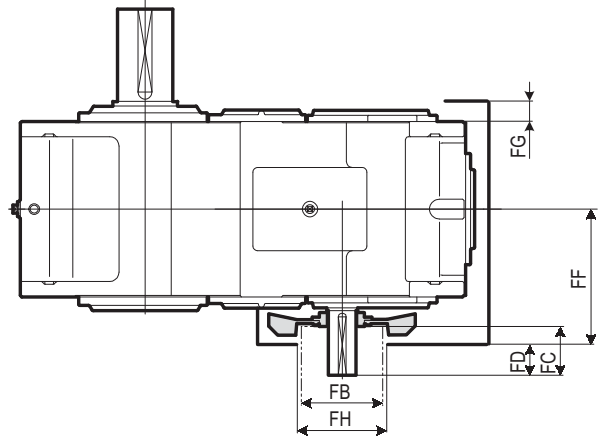
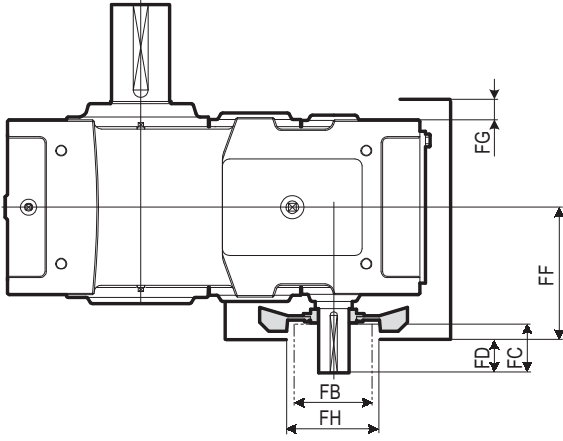
Size	FA	FB	FC	FD	FF	FH
9090	680	200	105	65	1255	220
9095	680	200	105	65	1285	220
9100	760	225	105	60	1414	245
9105	760	225	105	60	1448	245
9110	820	225	135	90	1594	245
9115	820	225	135	90	1643	245

Note) Consult us for cooling fan dimension of size 9118 and 9136.

TECHNICAL DATA Cooling Fan Dimension

9015 ▶ 9085 Parallel Double Reduction

9090 ▶ 9115 Parallel Double Reduction



※ When tightening installation bolt, remove fan hood.

Size	FA1	FA2	FA	FB	FC	FD	FE	FF	FG	FH
9015	129	129	258	125	50	30	130	181	32.5	145
9025	143	143	286	140	50	30	150	196	27.5	160
9030	169	169	338	140	80	52	155	217	27.5	160
9035	169	169	338	140	80	52	180	217	27.5	160
9040	188	188	376	160	80	52	195	232	21.5	180
9045	188	188	376	160	80	52	215	232	21.5	180
9050	208	208	416	160	80	52	205	251	28.5	180
9055	208	208	416	160	80	52	240	251	28.5	180
9060	240	240	480	200	105	65	260	295	40	220
9065	240	240	480	200	105	65	295	295	40	220
9070	274	274	548	225	105	65	295	320	44	245
9075	274	274	548	225	105	65	330	320	44	245
9080	296	296	592	225	135	95	330	339	52	245
9085	296	296	592	225	135	95	370	339	52	245

Size	FA1	FA2	FA	FB	FC	FD	FE	FF	FG	FH
9090	465	277	742	250	135	90	345	410	65	270
9095	465	277	742	250	135	90	345	410	65	270
9100	515	314	829	250	175	130	395	455	65	270
9105	515	314	829	250	175	130	395	455	65	270
9110	565	356	921	250	175	130	445	485	65	270
9115	565	356	921	250	175	130	445	485	65	270

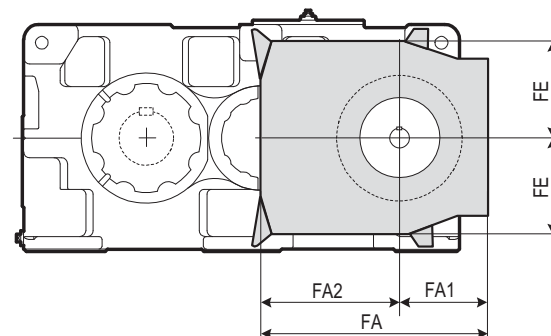
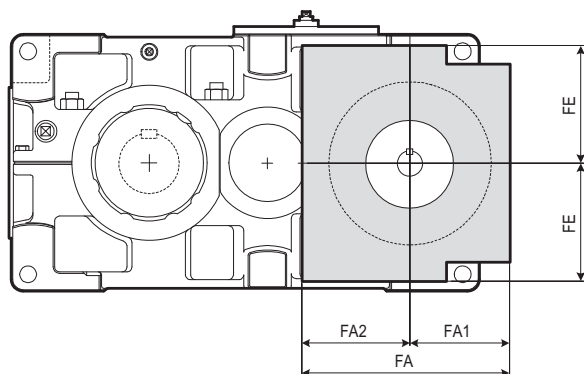
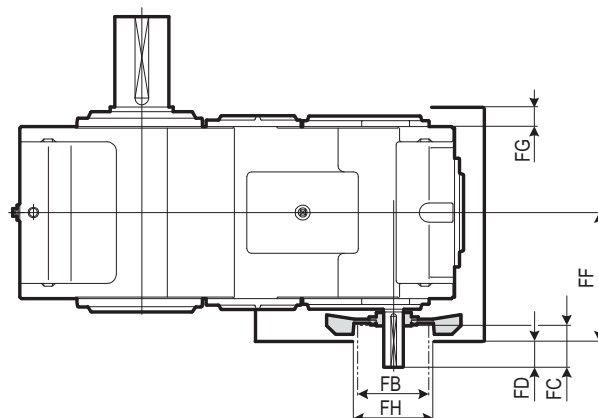
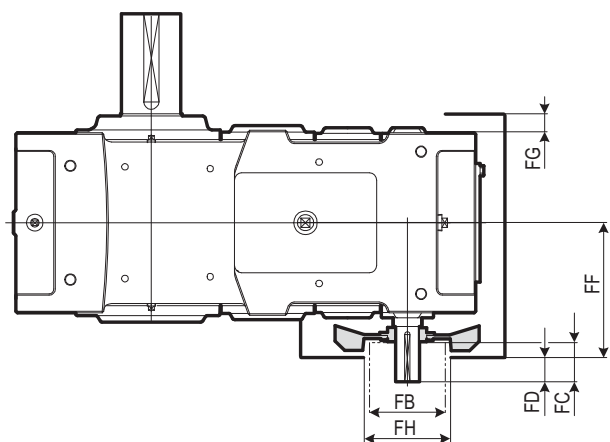
- Sufficient space must be allowed for air intake when mounting the safety guards for the coupling or other component.
- The split fan hood is prepared as a optional accessory for conducting maintenance work on a large coupling. 【Refer to the "PARAMAX 9000 Series Option Catalog No.G2052E".】

Technical
Common
Option

TECHNICAL DATA Cooling Fan Dimension

9015 ▶ 9085 Parallel Triple Reduction

9090 ▶ 9115 Parallel Triple Reduction



※ When tightening installation bolt, remove fan hood.

Size	FA1	FA2	FA	FB	FC	FD	FE	FF	FG	FH
9015	111	111	222	125	30	10	105	180	32.5	145
9025	129	129	258	125	30	10	125	194	27.5	145
9030	140	140	280	125	50	30	125	211	27.5	145
9035	150	150	300	140	50	22	150	219	27.5	160
9040	170	170	340	140	50	22	165	234	21.5	160
9045	170	170	340	140	50	22	185	234	21.5	160
9050	172	172	344	140	80	52	170	252	28.5	160
9055	172	172	344	140	80	52	205	252	28.5	160
9060	199	199	398	160	80	52	220	277	40	180
9065	199	199	398	160	80	52	255	277	40	180
9070	221	221	442	160	80	52	250	302	44	180
9075	221	221	442	160	80	52	285	302	44	180
9080	247	247	494	200	105	65	280	340	52	220
9085	247	247	494	200	105	65	320	340	52	220

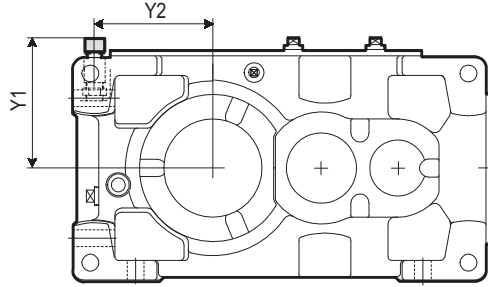
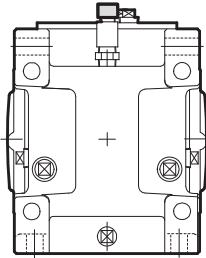
Size	FA1	FA2	FA	FB	FC	FD	FE	FF	FG	FH
9090	268	474	742	200	105	65	345	405	65	220
9095	268	474	742	200	105	65	345	405	65	220
9100	289	540	829	225	105	65	395	450	65	245
9105	289	540	829	225	105	65	395	450	65	245
9110	339	582	921	225	135	95	445	480	65	245
9115	339	582	921	225	135	95	445	480	65	245

Note) Consult us for cooling fan dimension of size 9118 and 9136.

TECHNICAL DATA Option Dimension

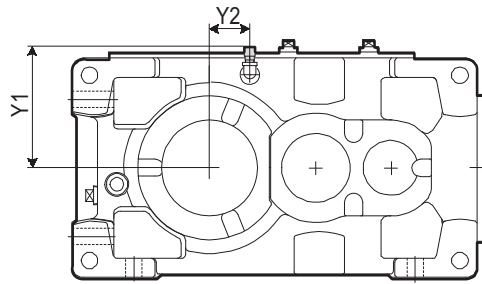
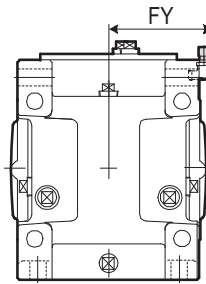
9015 ▶ 9055 Right Angle Double, Triple, Quadruple / Parallel Double, Triple, Quadruple

Air Breather



Size	Y1	Y2
9015	216	135
9025	233	149
9030	235	173

[9015~9030 Reduction Ratio 6.3~7.1]



Size	Y1	Y2	FY
9015	162	35	129
9025	182	25	141
9030	187	0	154
9035	212	0	154
9040	227	30	171
9045	247	*30	171
9050	232	25	191
9055	267	0	191

[9015~9030 Reduction Ratio 8 or above]
[9035~9055 Reduction Ratio All]

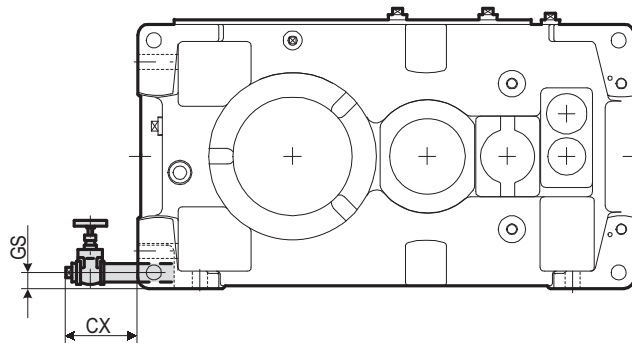
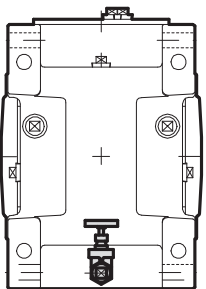
* Double and triple reduction right angle, and double reduction parallel is 29mm.

Technical

Common

Option

Drain Valve

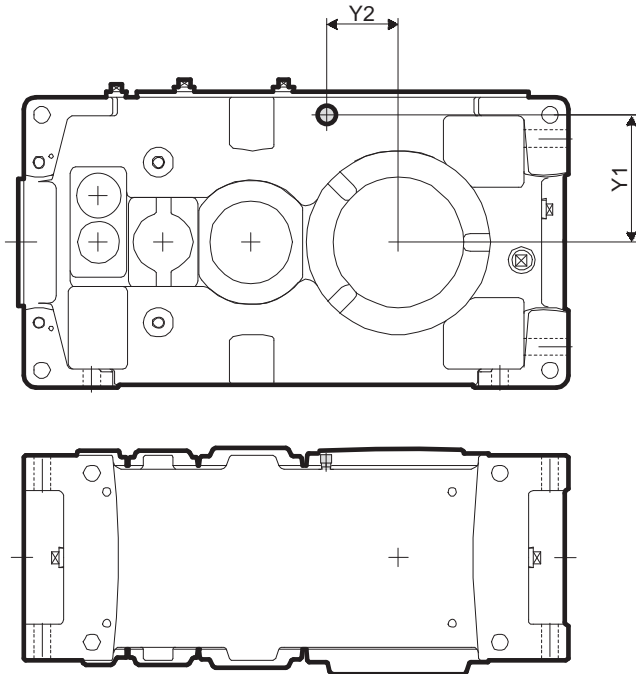


Size	CX	GS
9015	122	23
9025	122	24
9030	119	24
9035	119	24
9040	133	28
9045	133	28
9050	133	29
9055	133	29

TECHNICAL DATA Option Dimension

9015 ▶ 9055 Right Angle Double, Triple, Quadruple
/ Parallel Double, Triple, Quadruple

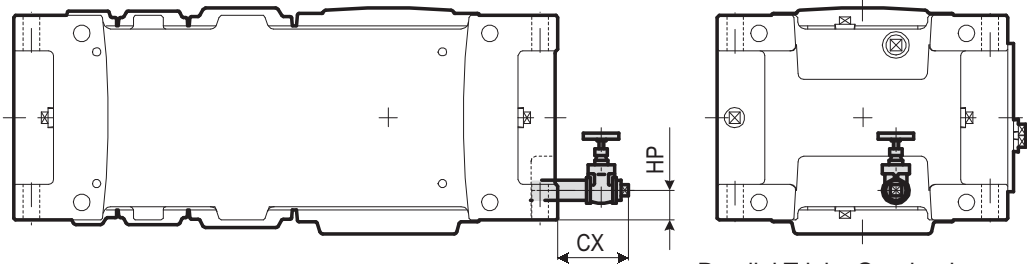
Air Breather



Size	Y1	Y2
9015	110	35
9025	130	25
9030	135	0
9035	160	0
9040	175	30
9045	195	*30
9050	180	25
9055	215	0

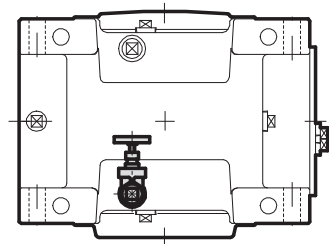
* Double and triple reduction right angle, and double reduction parallel is 29mm.

Drain Valve



Size	CX	HP
9015	122	38
9025	117	41
9030	109	43
9035	109	43
9040	127	55
9045	127	55
9050	119	50
9055	119	50

Parallel Triple, Quadruple
Right Angle Quadruple



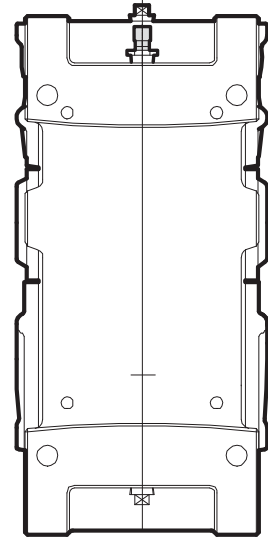
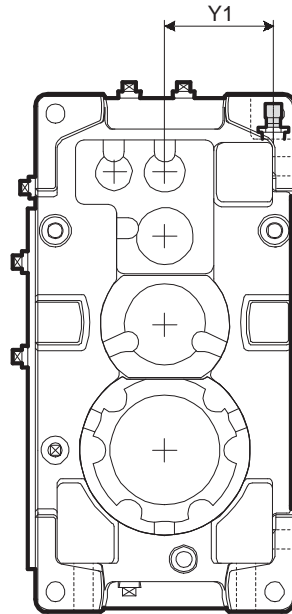
Parallel Double
Right Angle Double, Triple

TECHNICAL DATA Option Dimension

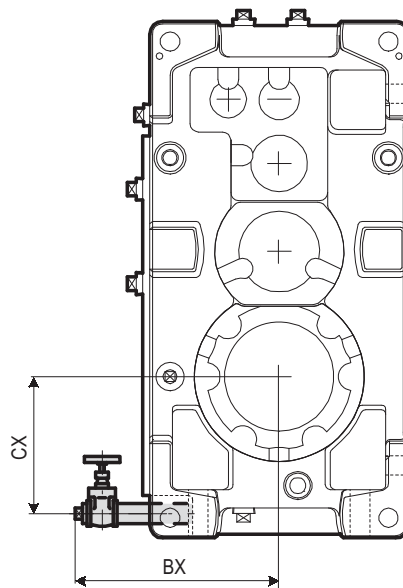
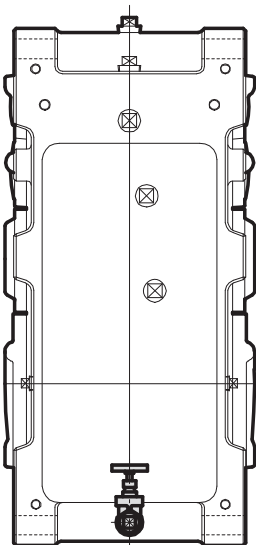
9015 ▶ 9055 Right Angle Double, Triple, Quadruple
/Parallel Double, Triple, Quadruple

Air Breather

Size	Y1
9015	112
9025	131
9030	136
9035	161
9040	172
9045	192
9050	181
9055	216



Drain Valve



Size	BX	CX
9015	260	135
9025	277	149
9030	279	173
9035	297	192
9040	333	205
9045	353	226
9050	343	224
9055	365	255

Technical

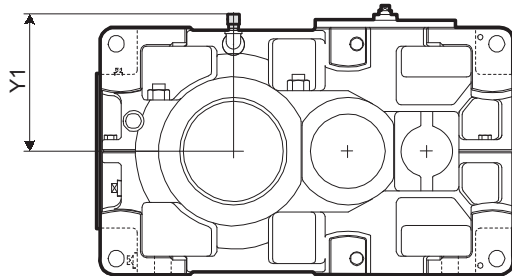
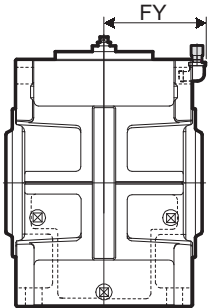
Common

Option

TECHNICAL DATA Option Dimension

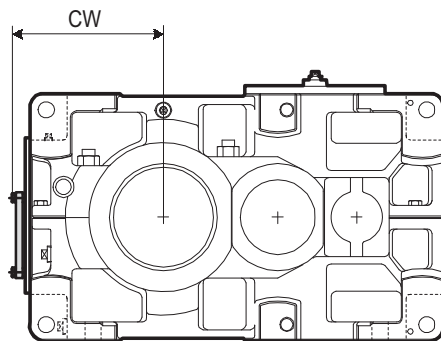
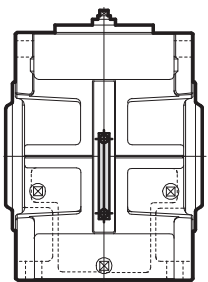
9060 ▶ 9085 Right Angle Double, Triple, Quadruple
/Parallel Double, Triple, Quadruple

Air Breather



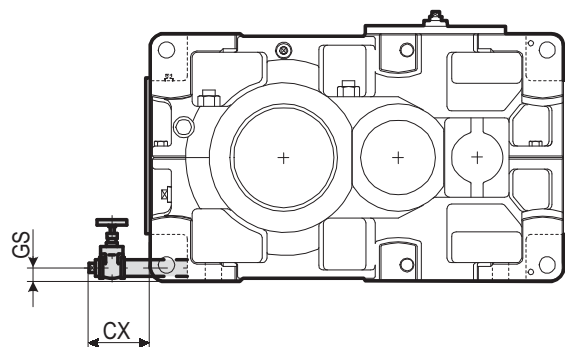
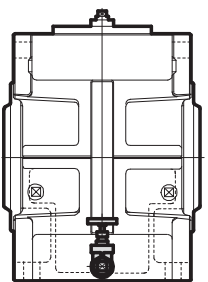
Size	Y1	FY
9060	281	211
9065	316	211
9070	315	236
9075	350	236
9080	350	256
9085	390	256

Oil Level Gauge



Size	CW
9060	318
9065	357
9070	355
9075	402
9080	397
9085	441

Drain Valve

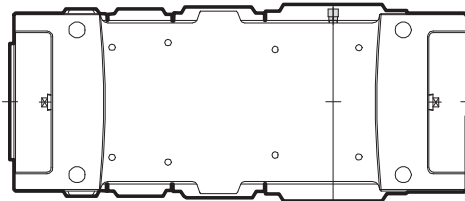
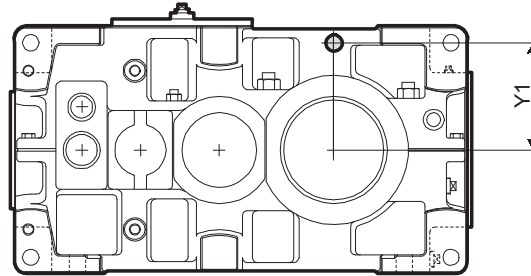


Size	CX	GS
9060	170	31
9065	170	31
9070	155	33
9075	155	33
9080	155	34
9085	157	34

TECHNICAL DATA Option Dimension

9060 ▶ 9085 Right Angle Double, Triple, Quadruple /Parallel Double, Triple, Quadruple

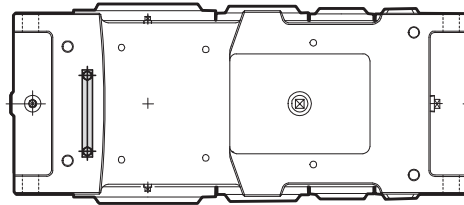
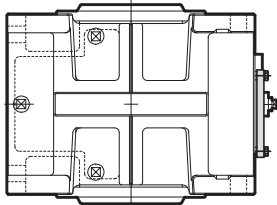
Air Breather



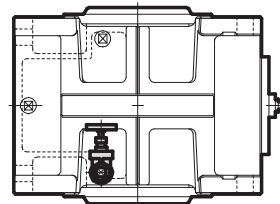
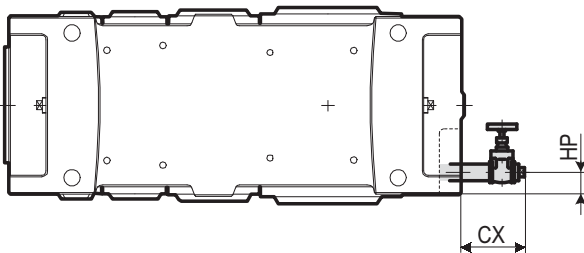
Size	Y1
9060	229
9065	264
9070	263
9075	298
9080	298
9085	338

Oil Level Gauge

Note) Oil level gauge is not max dimension.



Drain Valve



Size	CX	HP
9060	120	47
9065	120	47
9070	120	47
9075	120	47
9080	110	47
9085	110	47

Technical

Common

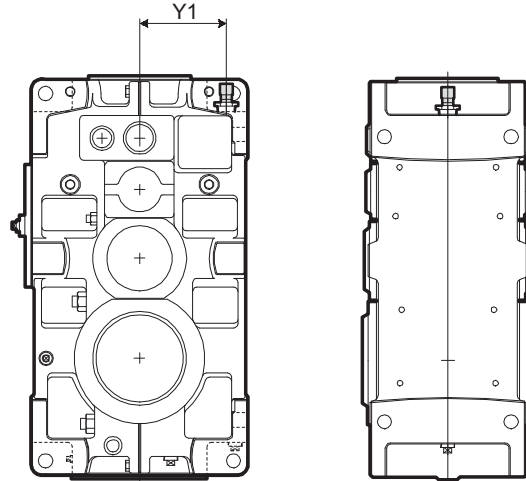
Option

TECHNICAL DATA Option Dimension

9060 ▶ 9085 Right Angle Double, Triple, Quadruple / Parallel Double, Triple, Quadruple

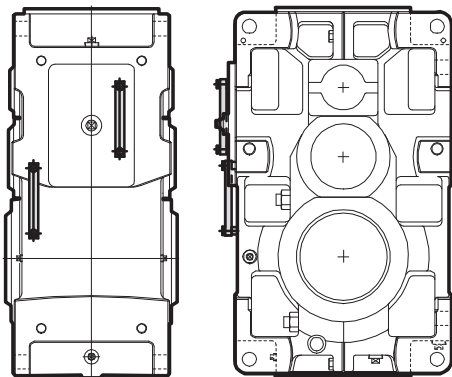
Air Breather

Size	Y1
9060	234
9065	264
9070	267
9075	302
9080	301
9085	341

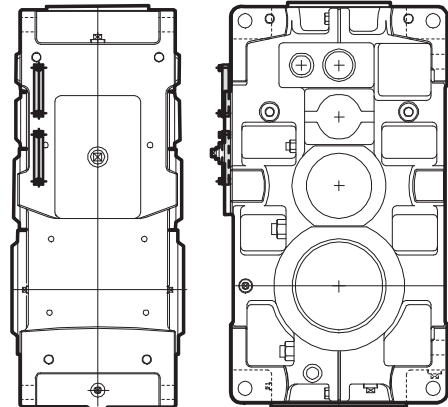


Oil Level Gauge

Note) Oil level gauge is not max dimension.

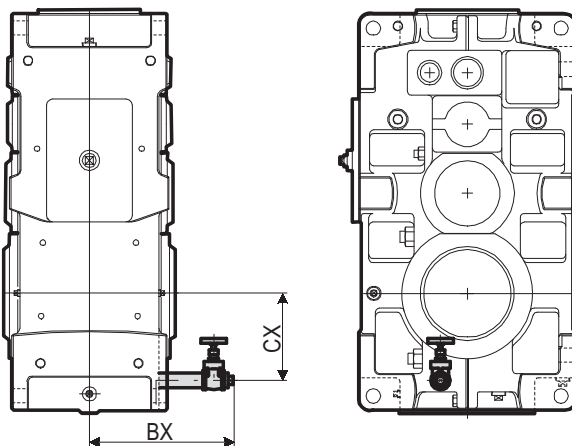


Right Angle Double, Triple / Parallel Double



Right Angle Quadruple / Parallel Triple, Quadruple

Drain Valve

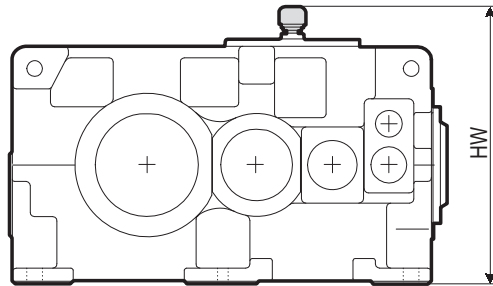


Size	BX	CY
9060	335	214
9065	335	253
9070	360	251
9075	360	298
9080	380	283
9085	380	327

TECHNICAL DATA Option Dimension

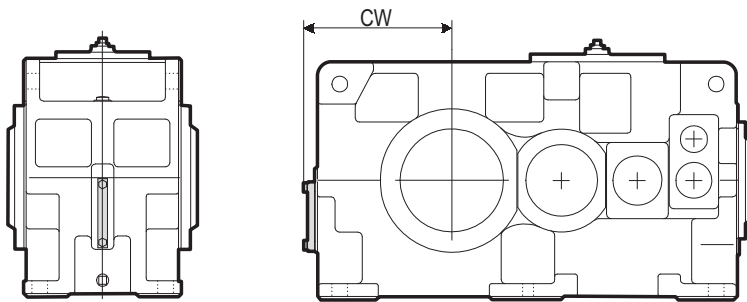
9090 ▶ 9115 Right Angle Double, Triple, Quadruple
/Parallel Double, Triple, Quadruple

Air Breather



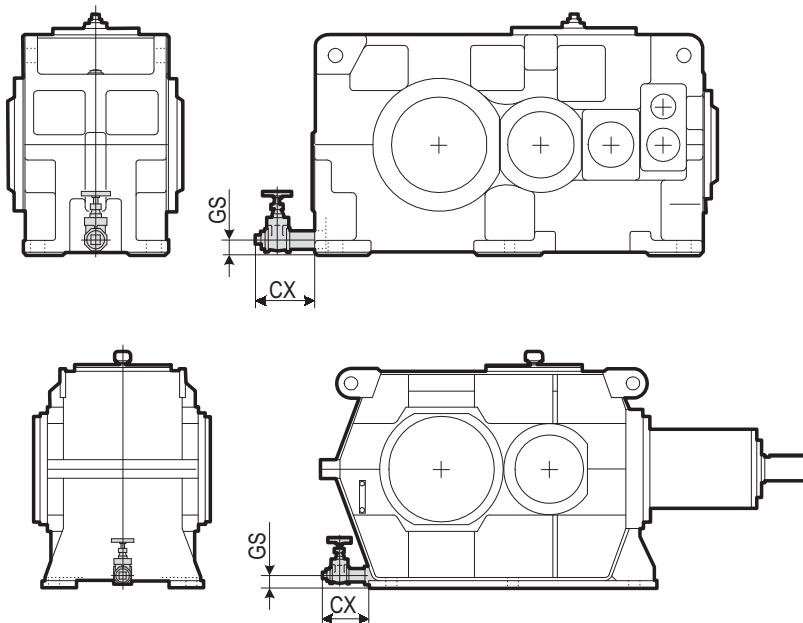
Size	HW
9090	839
9095	889
9100	939
9105	989
9110	1039
9115	1089

Oil Level Gauge



Size	CW
9090	435
9095	465
9100	475
9105	510
9110	525
9115	575

Drain Valve



Size	CX	GS
9090	162	45
9095	162	45
9100	162	46
9105	162	46
9110	162	48
9115	162	48

Size	CX	GS
9095R2	172	62
9105R2	172	62
9115R2	172	69

Technical

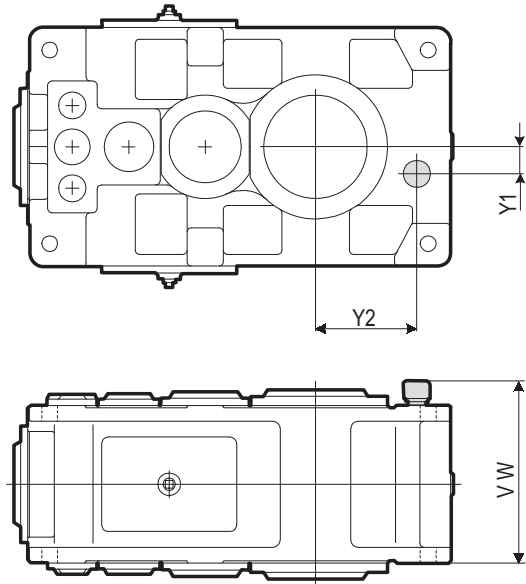
Common

Option

TECHNICAL DATA Option Dimension

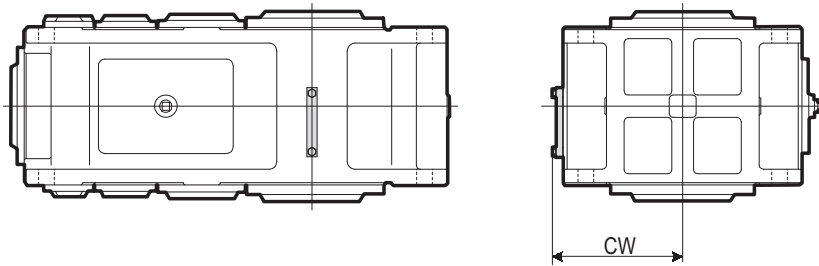
9090 ▶ 9115 Right Angle Double, Triple, Quadruple
/ Parallel Double, Triple, Quadruple

Air Breather



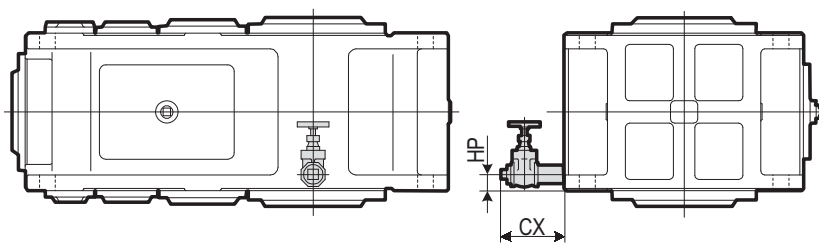
Size	V W	Y1	Y2
9090	626	90	315
9095	626	90	345
9100	706	100	355
9105	706	100	390
9110	766	100	405
9115	766	100	440

Oil Level Gauge



Size	CW
9090	405
9095	430
9100	455
9105	480
9110	505
9115	530

Drain Valve



Size	CX	HP
9090	162	42
9095	162	42
9100	162	43
9105	162	43
9110	162	44
9115	162	44

Option







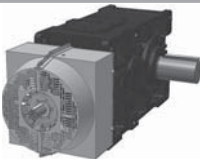
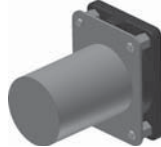

	Standard Specifications	Optional Specifications
Housing	Cast Iron Housing	
Slow / High Speed Shaft	Solid Single-end Shaft Slow Speed Shaft Hollow Shaft (Shrink) Slow Speed Shaft Hollow Shaft (Key)	Solid Both-end Shaft
Bearing		Heavy Duty LSS Bearing
Air Vent	Air Vent	Air Breather
Oil Gauge	Dip Stick Round Gauge	Oil Sight Gauge (Stick Type)
Drain	Drain Plug	Drain Valve
Auxiliary Cooling Unit		Cooling Fan
Hollow Shaft Auxiliary Unit		Torque Arm Mounting & Removal Kit
Coating	Standard Paint (indoor)	Rust-Proof Paint (Acrylic / Epoxy) Anticorrosion Paint (Epoxy / Polyurethane)

Technical

Common

Option

Coverage of this catalog - Optional Specifications

Main Parts	Housing		Ductile Iron Housing C-36 Steel Fabricated Housing C-36
	Slow / High Speed Shaft		Keeper Plate with Washer C-48 Shaft-End Tapped Hole (LSS) C-51
	Seal		Double Shaft Seals (LSS) C-52 FKM Seal C-53 Taconite Seal C-54
	Backstop		Internal Backstop C-56
	Air Vent		Washdown Breather C-60 Anti-Dust Breather C-63 Anti-Humidity Breather C-64
Accessory	Drain		Stainless Steel Drain Valve C-68
	Auxiliary Cooling Unit		Split Fan Hood (Right Angle Shaft) C-72
	Safety Cover		Shaft Cap C-74
External Parts		Oil Flow Switch C-76 Oil Pressure Switch C-77	

Option

Recommended Option for Applications

Options		Characteristics of Applications and Major Applications		
		Large moment applied on slow speed shaft	Moment applied on the slow speed shaft	Dusty environment Rotation in single direction
		Agitator	Aerator	Coal conveyor
Housing	Cast Iron Housing	C	C	C
	Steel Fabricated Housing			C
	Reversible Housing			C
High Speed Shaft	Both-end Shaft			C
Slow Speed Shaft	Both-end Shaft			C
	Keeper Plate with Washer	B	B	B
	Shaft-End Tapped Hole (LSS)	B	B	B
Bearing	Slow Speed Shaft Heavy Load Bearing	C	C	C
Seal	High speed shaft FKM seal	C	C	C
	Slow speed shaft FKM seal	C	C	C
	High speed shaft taconite seal			B
	Slow speed shaft taconite seal			B
Output Base	Drop bearing housing	C	A	
	LS base	B	C	
	Output flange	C		
Backstop	Internal Backstop	C	C	B
Air Vent	Air breather	B	B	C
	Washdown Breather	C	C	C
	Anti-Dust Breather			A
	Anti-Humidity Breather	C	C	
Oil Gauge	Oil Sight Gauge	B	B	B
Drain	Drain valve	B	B	B
	Stainless steel drain valve	C		
Auxiliary Cooling Unit	Cooling fan	C	C	C
	Split fan hood (Right angle shaft)			C
Auxiliary Hollow Shaft	Torque arm			B
	Heavy load torque arm			C
	Mounting / dismounting tools			C
Safety Cover	Shaft cap			B
Base	Motor adaptor	B	B	C
	Baseplate			C
	Heavy load bracket			
Instruments / Switches	Oil Flow Switch	B	B	C
	Oil Pressure Switch	B	B	C
Oil Lubrication	Pump mounted to shaft directly	A	A	
Grease Lubrication	Dry well	A	A	
Paint	Rust-Proof Paint (Epoxy / Acrylic)	A	A	B
	Anticorrosion Paint (Epoxy / Polyurethane)	C	C	C
	Anticorrosive paint on the underside		B	
	Undercoat only	C	C	C
	Paint color specified	C	C	C

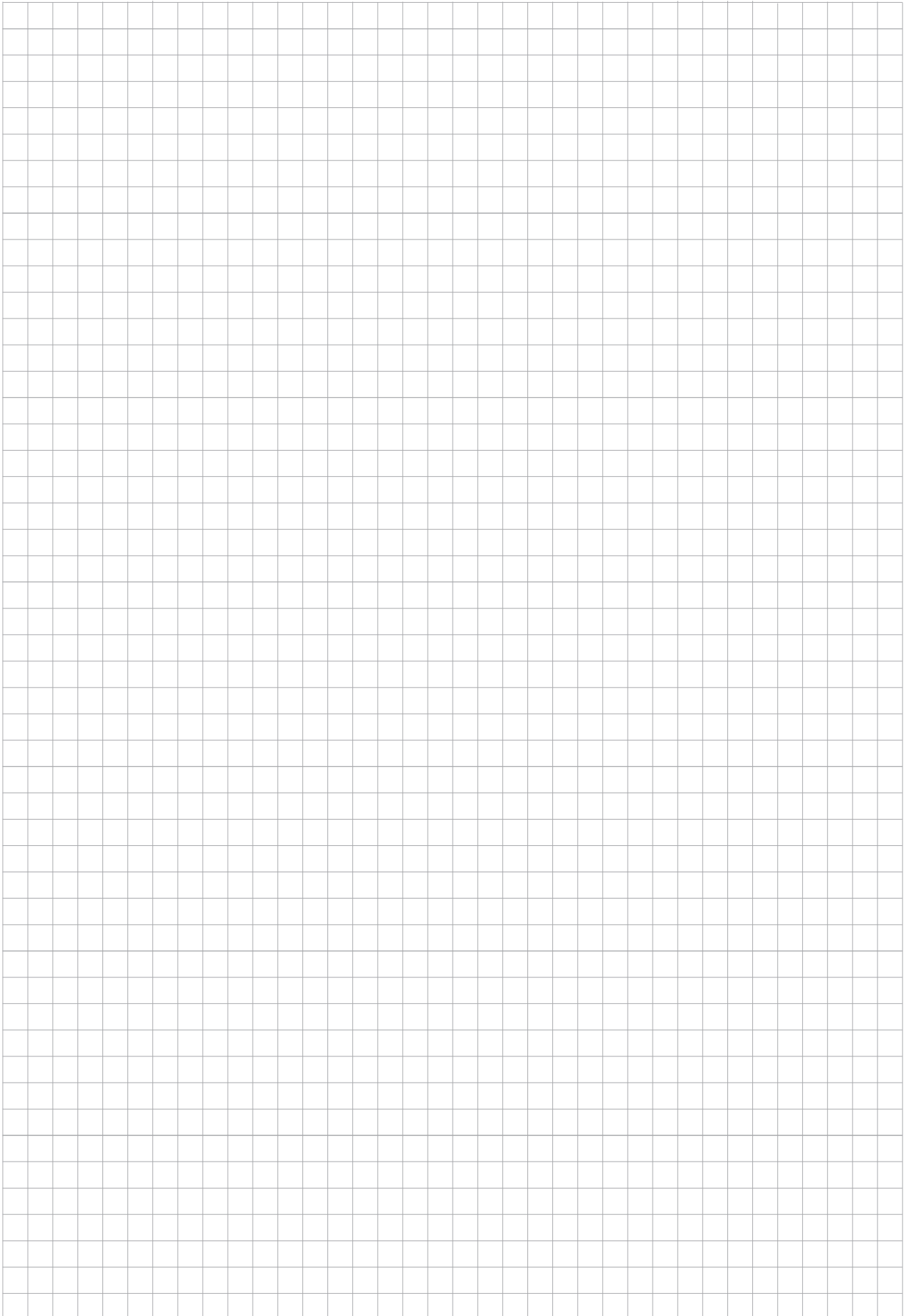
 : Models shown in this catalog

 : Consult us for these models

A: Specification of the base unit as a standard specification

B: Recommended optional specification

C: Option required under some usage conditions



Ductile Iron Housing

Ductile cast iron housing is more durable compared to the standard gray cast iron. It is suitable for applications requiring strength for housing, such as when impact load or upward load is applied on the slow speed shaft.

Specification

- Housing material: Spheroidal graphite cast iron, FCD450
(Standard housing: Gray cast iron)

Dimension

Same as standard cast iron housing.

Example of Nomenclature

PHA9055R3F - RL - 35.5

|
F: Ductile Cast Iron (FCD) housing

Steel Fabricated Housing

Steel housing is more durable compared to the standard gray cast iron. It is suitable for applications requiring strength for housing, such as when impact load or upward load is applied on the slow speed shaft.

Specification

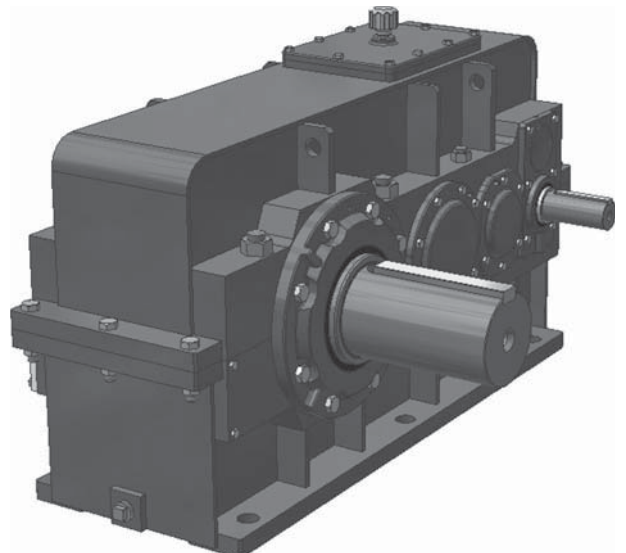
- Housing material: Rolled steel sheet SS400
(Standard housing: Gray cast iron)
- Steel housing models come with oil sight gauge and air breather.

Note: • Some of dimensions of this housing are different from FC or FCD housing.
• Consult us on the hollow shaft type.

Example of Nomenclature

PHD9055R3A - RL - 35.5

|
A: Steel fabricated housing



Technical

Common

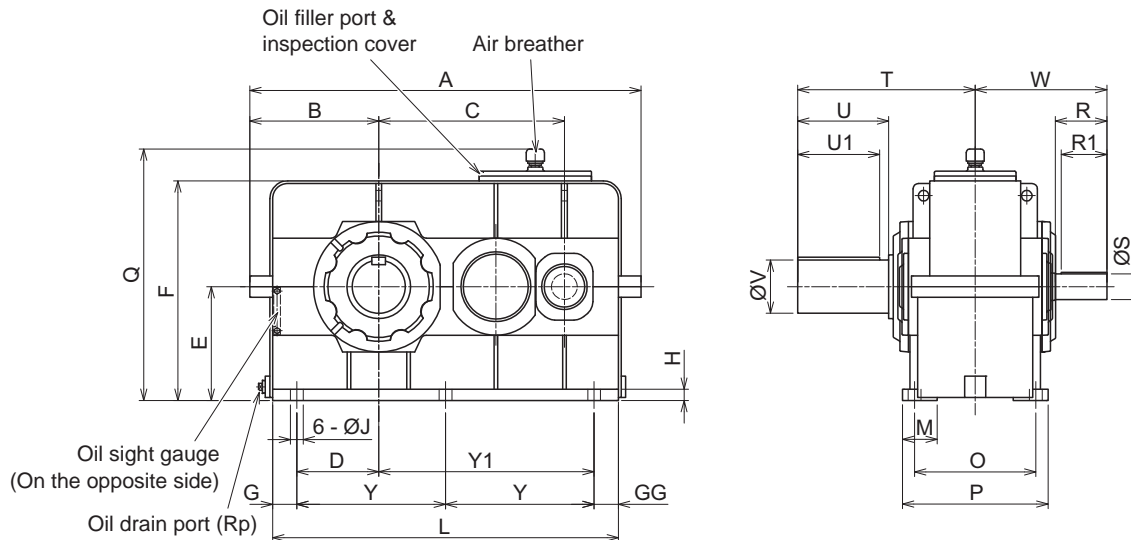
Option

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9015 ~ 9085 Parallel Shaft Double Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	Y1	M	O	P	Q
9015	475	175	194	95	135	262	30	30	19	15	375		220	65	185	220	367
9025	530	190	227	105	155	293	35	35	22	19	430		255	70	205	245	398
9030	610	210	264	115	160	316	45	45	25	24	510		305	75	230	275	421
9035	655	225	295	130	185	361	45	45	25	24	555		335	75	230	275	466
9040	685	235	306	140	200	381	45	50	25	28	585		350	85	260	315	486
9045	745	255	345	160	220	431	45	50	25	28	645	275		85	260	315	536
9050	805	275	358	165	210	417	50	55	27	28	685	290		90	290	345	522
9055	865	295	397	185	245	482	50	55	27	28	745	320		90	290	345	587
9060	915	310	414	195	265	510	55	60	29	35	795	340		105	340	410	615
9065	980	330	460	215	300	574	55	55	29	35	860	375		105	340	410	679
9070	1050	345	482	215	300	576	70	70	33	42	930	395		115	380	460	681
9075	1125	370	535	240	335	644	70	75	33	42	1005	430		115	380	460	749
9080	1205	395	556	240	335	644	80	85	37	42	1055	445		115	400	480	749
9085	1290	425	612	270	375	724	80	80	37	42	1140	490		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9015	211	80	30k6	70	8 x 7	245	110	58m6	95	18 x 11	3/4"	110	5
9025	226	80	35k6	70	10 x 8	285	140	70m6	125	20 x 12	3/4"	130	7
9030	269	110	40k6	95	12 x 8	330	170	80m6	150	25x 14	1"	185	10
9035	269	110	40k6	95	12 x 8	330	170	90m6	150	25x 14	1"	200	13
9040	284	110	50k6	95	14 x 9	349	170	95m6	150	25x 14	1"	260	17
9045	284	110	50k6	95	14 x 9	391	210	105m6	190	28 x 16	1"	320	21
9050	303	110	55m6	95	16 x 10	411	210	110m6	190	28 x 16	1"	410	24
9055	303	110	55m6	95	16 x 10	411	210	120m6	185	32 x 18	1"	450	31
9060	360	140	65m6	125	18 x 11	440	210	125m6	185	32 x 18	1 1/4"	580	32
9065	360	140	65m6	125	18 x 11	484	250	140m6	225	36 x 20	1 1/4"	665	41
9070	385	140	75m6	125	20 x 12	509	250	145m6	225	36 x 20	1 1/4"	830	47
9075	385	140	75m6	125	20 x 12	562	300	160m6	275	40 x 22	1 1/4"	1030	60
9080	434	170	85m6	150	22 x 14	582	300	165m6	275	40 x 22	1 1/4"	1200	66
9085	434	170	85m6	150	22 x 14	585	300	175m6	270	45 x 25	1 1/4"	1450	84

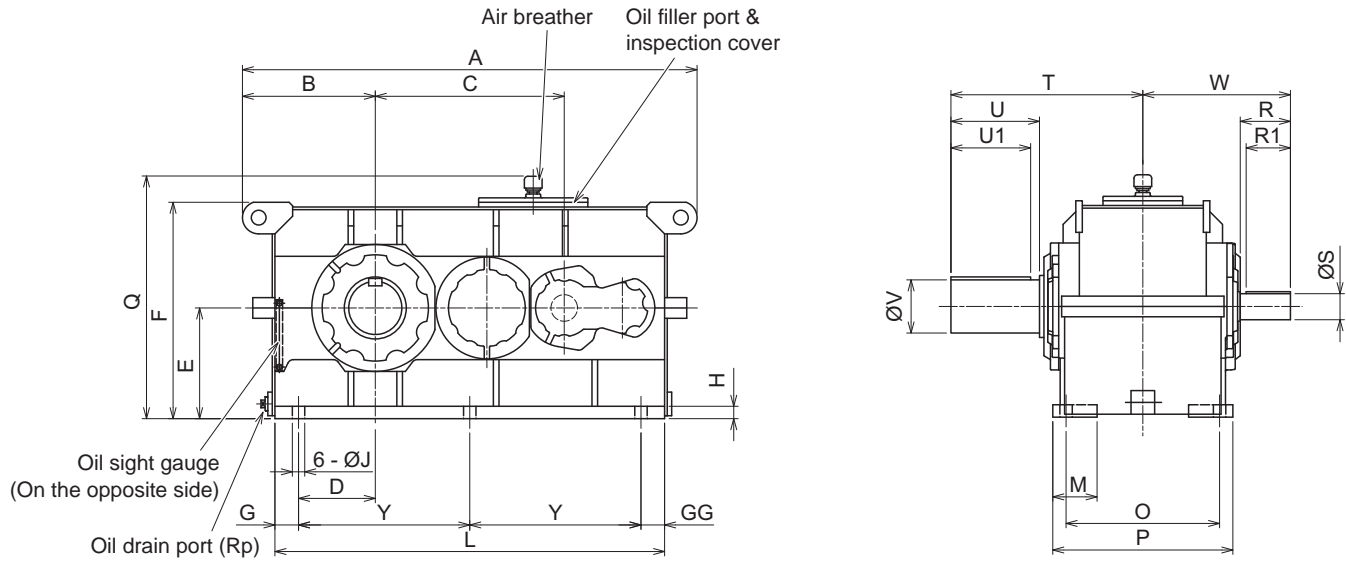
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090 ~ 9115 Parallel Shaft Double Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	M	O	P	Q
9090	1540	450	640	260	375	733	80	80	42	42	1320	580	150	520	610	822
9095	1600	480	670	285	400	783	85	95	42	42	1380	600	150	520	610	872
9100	1710	490	724	290	425	832	90	90	46	48	1490	655	150	570	660	921
9105	1780	525	758	315	450	882	100	100	46	48	1560	680	150	570	660	971
9110	1910	540	824	320	475	928	110	110	50	56	1690	735	165	630	730	1017
9115	2010	590	873	365	500	998	115	115	50	56	1790	780	165	630	730	1087

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	500	170	90m6	150	25 x 14	650	300	180m6	270	45 x 25	1 1/2"	2100	100
9095	500	170	90m6	150	25 x 14	700	350	190m6	320	45 x 25	1 1/2"	2300	120
9100	585	210	100m6	190	28 x 16	740	350	200m6	320	45 x 25	1 1/2"	2700	150
9105	585	210	100m6	190	28 x 16	740	350	220m6	320	50 x 28	1 1/2"	3300	170
9110	615	210	110m6	190	28 x 16	770	350	220m6	320	50 x 28	1 1/2"	4000	210
9115	615	210	110m6	190	28 x 16	830	410	240m6	375	56 x 32	1 1/2"	4400	250

Unit: mm

Technical

Common

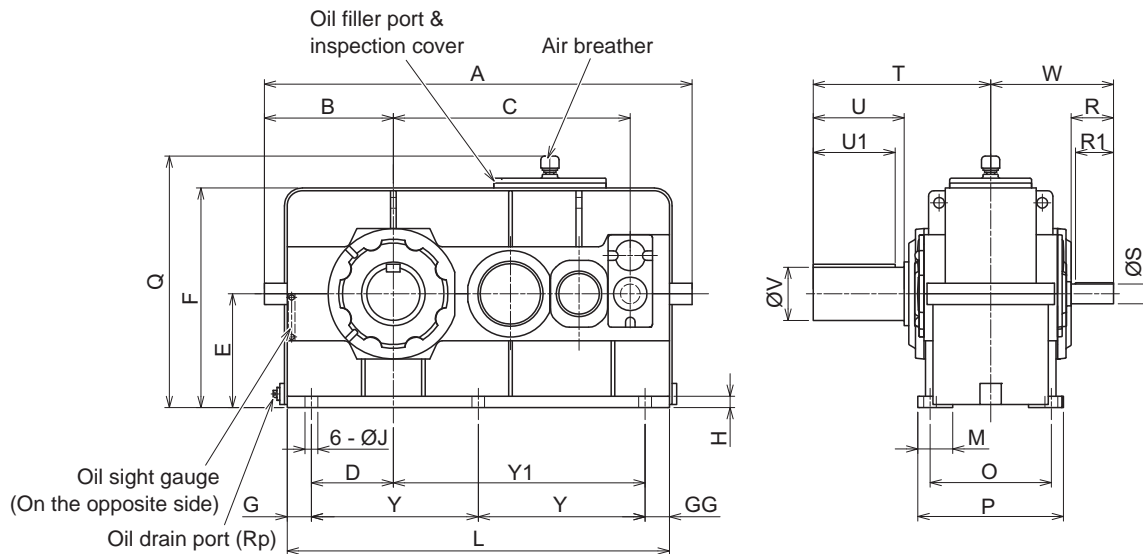
Option

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9015 ~ 9085 Parallel Shaft Triple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	Y1	M	O	P	Q
9015	540	175	257	95	135	262	30	30	19	15	440		285	65	185	220	367
9025	605	190	306	105	155	293	35	35	22	19	505		330	70	205	245	398
9030	670	210	343	115	160	316	45	45	25	24	570		365	75	230	275	421
9035	715	225	374	130	185	361	45	50	25	24	615		390	75	230	275	466
9040	770	235	398	140	200	381	45	85	25	28	670		400	85	260	315	486
9045	825	255	437	160	220	431	45	50	25	28	725	315		85	260	315	536
9050	885	275	467	165	210	417	50	85	27	28	765	315		90	290	345	522
9055	945	295	506	185	245	482	50	55	27	28	825	360		90	290	345	587
9060	1005	310	540	195	265	510	55	90	29	35	885	370		105	340	410	615
9065	1070	330	586	215	300	574	55	55	29	35	950	420		105	340	410	679
9070	1145	345	630	215	300	576	70	115	33	42	1025	420		115	380	460	681
9075	1220	370	683	240	335	644	70	70	33	42	1100	480		115	380	460	749
9080	1325	395	725	240	335	644	80	95	37	42	1175	500		115	400	480	749
9085	1410	425	781	270	375	724	80	80	37	42	1260	550		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9015	190	60	25k6	50	8 x 7	245	110	58m6	95	18 x 11	3/4"	110	6
9025	204	60	28k6	50	8 x 7	285	140	70m6	125	20 x 12	3/4"	160	9
9030	241	80	30k6	70	8 x 7	330	170	80m6	150	25x 14	1"	200	11
9035	241	80	30k6	70	8 x 7	330	170	90m6	150	25x 14	1"	215	15
9040	256	80	35k6	70	10 x 8	349	170	95m6	150	25x 14	1"	285	20
9045	256	80	35k6	70	10 x 8	391	210	105m6	190	28 x 16	1"	350	25
9050	304	110	40k6	95	12 x 8	411	210	110m6	190	28 x 16	1"	440	28
9055	304	110	40k6	95	12 x 8	411	210	120m6	185	32 x 18	1"	485	36
9060	329	110	50k6	95	14 x 9	440	210	125m6	185	32 x 18	1 1/4"	630	41
9065	329	110	50k6	95	14 x 9	484	250	140m6	225	36 x 20	1 1/4"	720	51
9070	354	110	55m6	95	16 x 10	509	250	145m6	225	36 x 20	1 1/4"	900	60
9075	354	110	55m6	95	16 x 10	562	300	160m6	275	40 x 22	1 1/4"	1120	74
9080	405	140	65m6	125	18 x 11	582	300	165m6	275	40 x 22	1 1/4"	1300	82
9085	405	140	65m6	125	18 x 11	585	300	175m6	270	45 x 25	1 1/4"	1560	102

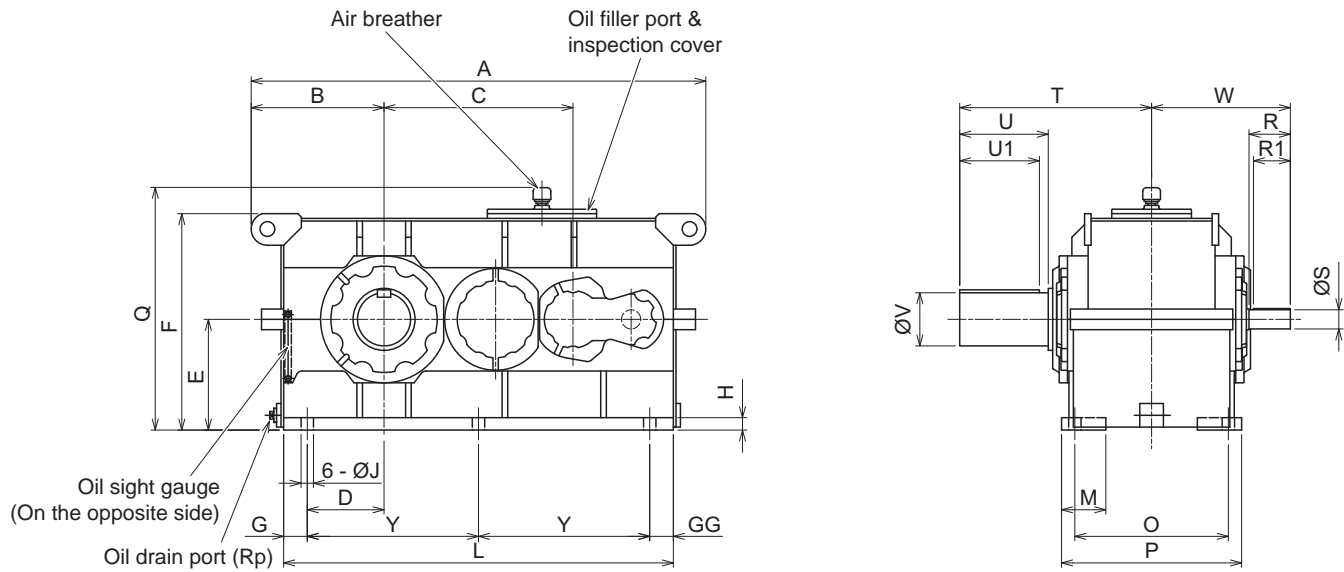
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090 ~ 9115 Parallel Shaft Triple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	M	O	P	Q
9090	1540	450	837	260	375	733	80	80	42	42	1320	580	150	520	610	822
9095	1600	480	867	285	400	783	85	95	42	42	1380	600	150	520	610	872
9100	1710	490	950	290	425	832	90	90	46	48	1490	655	150	570	660	921
9105	1780	525	984	315	450	882	100	100	46	48	1560	680	150	570	660	971
9110	1910	540	1050	320	475	928	110	110	50	56	1690	735	165	630	730	1017
9115	2010	590	1099	365	500	998	115	115	50	56	1790	780	165	630	730	1087

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	470	140	65m6	125	18 x 11	650	300	180m6	270	45 x 25	1 1/2"	2100	100
9095	470	140	65m6	125	18 x 11	700	350	190m6	320	45 x 25	1 1/2"	2400	130
9100	515	140	75m6	125	20 x 12	740	350	200m6	320	45 x 25	1 1/2"	2800	150
9105	515	140	75m6	125	20 x 12	740	350	220m6	320	50 x 28	1 1/2"	3300	190
9110	575	170	80m6	150	22 x 14	770	350	220m6	320	50 x 28	1 1/2"	4000	220
9115	575	170	80m6	150	22 x 14	830	410	240m6	375	56 x 32	1 1/2"	4500	280

Unit: mm

Technical

Common

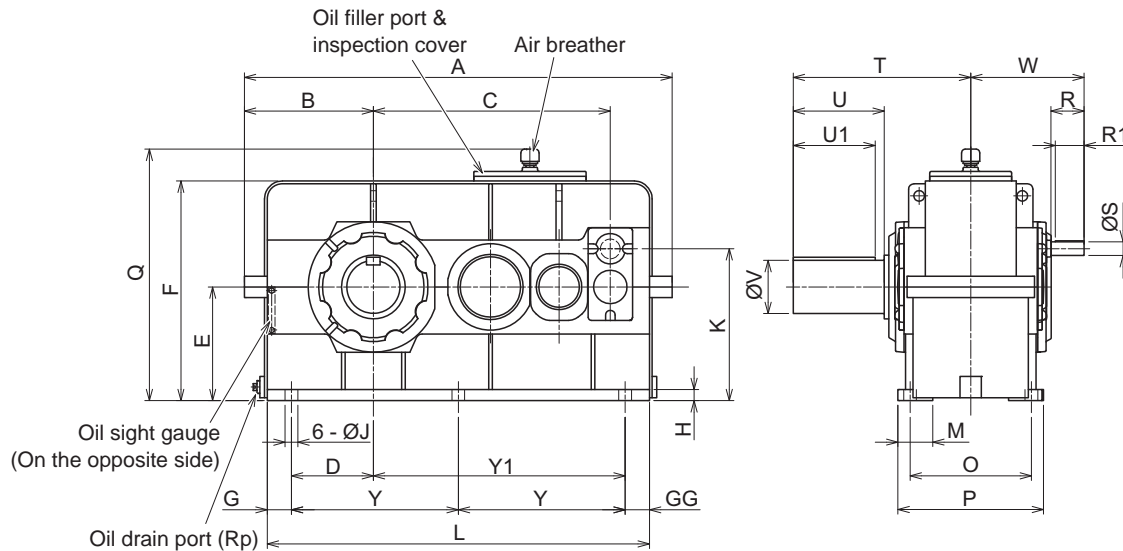
Option

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9030 ~ 9085 Parallel Shaft Quadruple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	K	L	Y	Y1	M	O	P	Q
9030	670	210	343	115	160	316	45	45	25	24	223	570		365	75	230	275	421
9035	715	225	374	130	185	361	45	50	25	24	248	615		390	75	230	275	466
9040	770	235	398	140	200	381	45	85	25	28	279	670		400	85	260	315	486
9045	825	255	437	160	220	431	45	50	25	28	299	725	315		85	260	315	536
9050	885	275	467	165	210	417	50	85	27	28	289	765	315		90	290	345	522
9055	945	295	506	185	245	482	50	55	27	28	324	825	360		90	290	345	587
9060	1005	310	540	195	265	510	55	90	29	35	357	885	370		105	340	410	615
9065	1070	330	586	215	300	574	55	55	29	35	392	950	420		105	340	410	679
9070	1145	345	630	215	300	576	70	115	33	42	409	1025	420		115	380	460	681
9075	1220	370	683	240	335	644	70	70	33	42	444	1100	480		115	380	460	749
9080	1325	395	725	240	335	644	80	95	37	42	461	1175	500		115	400	480	749
9085	1410	425	781	270	375	724	80	80	37	42	501	1260	550		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9030	219	60	25k6	50	8 x 7	330	170	80m6	150	22 x 14	1"	205	17
9035	219	60	25k6	50	8 x 7	330	170	90m6	150	25 x 14	1"	220	21
9040	235	60	28k6	50	8 x 7	349	170	95m6	150	25 x 14	1"	290	29
9045	235	60	28k6	50	8 x 7	391	210	105m6	190	28 x 16	1"	350	34
9050	275	80	30k6	70	8 x 7	411	210	110m6	190	28 x 16	1"	440	39
9055	275	80	30k6	70	8 x 7	411	210	120m6	185	32 x 18	1"	490	48
9060	301	80	35k6	70	10 x 8	440	210	125m6	185	32 x 18	1 1/4"	625	46
9065	301	80	35k6	70	10 x 8	484	250	140m6	225	36 x 20	1 1/4"	720	57
9070	354	110	40k6	95	12 x 8	509	250	145m6	225	36 x 20	1 1/4"	905	69
9075	354	110	40k6	95	12 x 8	562	300	160m6	275	40 x 22	1 1/4"	1120	84
9080	374	110	45k6	95	14 x 9	582	300	165m6	275	40 x 22	1 1/4"	1300	94
9085	374	110	45k6	95	14 x 9	585	300	175m6	270	45 x 25	1 1/4"	1560	115

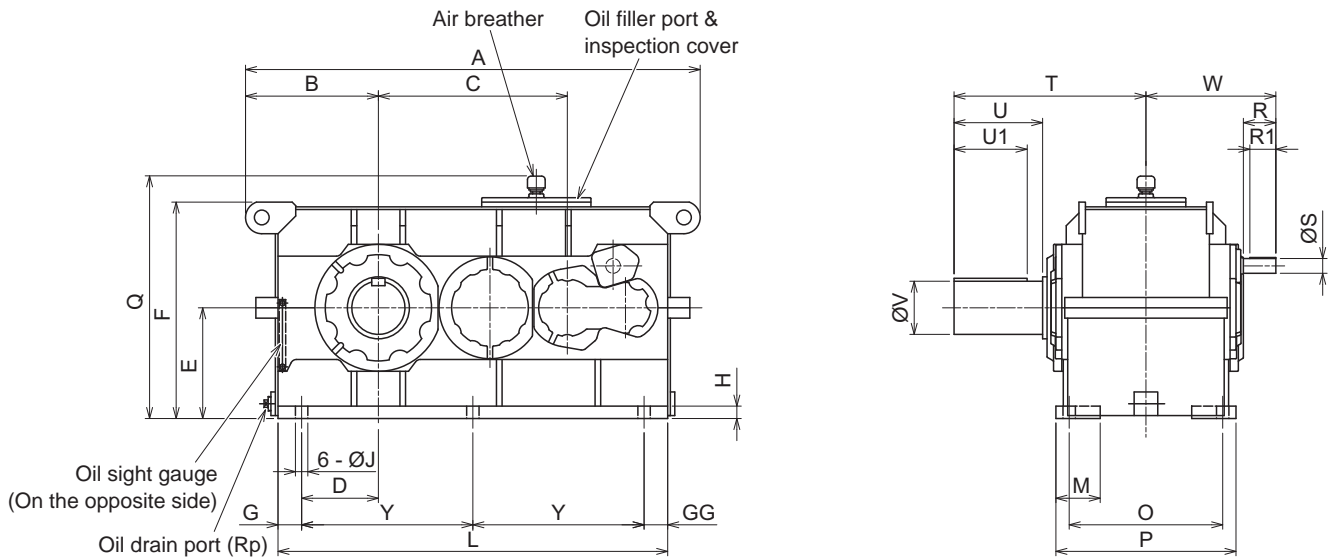
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090 ~ 9115 Parallel Shaft Quadruple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	K	L	Y	M	O	P	Q
9090	1540	450	795	260	375	733	80	80	42	42	517	1320	580	150	520	610	822
9095	1600	480	825	285	400	783	85	95	42	42	542	1380	600	150	520	610	872
9100	1710	490	901	290	425	832	90	90	46	48	587	1490	655	150	570	660	921
9105	1780	525	935	315	450	882	100	100	46	48	612	1560	680	150	570	660	971
9110	1910	540	1001	320	475	928	110	110	50	56	637	1690	735	165	630	730	1017
9115	2010	590	1050	365	500	998	115	115	50	56	662	1790	780	165	630	730	1087

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	440	110	50k6	95	14 x 9	650	300	180m6	270	45 x 25	1 1/2"	2200	130
9095	440	110	50k6	95	14 x 9	700	350	190m6	320	45 x 25	1 1/2"	2400	150
9100	515	140	60m6	125	18 x 11	740	350	200m6	320	45 x 25	1 1/2"	2800	190
9105	515	140	60m6	125	18 x 11	740	350	220m6	320	50 x 28	1 1/2"	3400	220
9110	545	140	60m6	125	18 x 11	770	350	220m6	320	50 x 28	1 1/2"	4100	260
9115	545	140	60m6	125	18 x 11	830	410	240m6	375	56 x 32	1 1/2"	4500	310

Unit: mm

Technical

Common

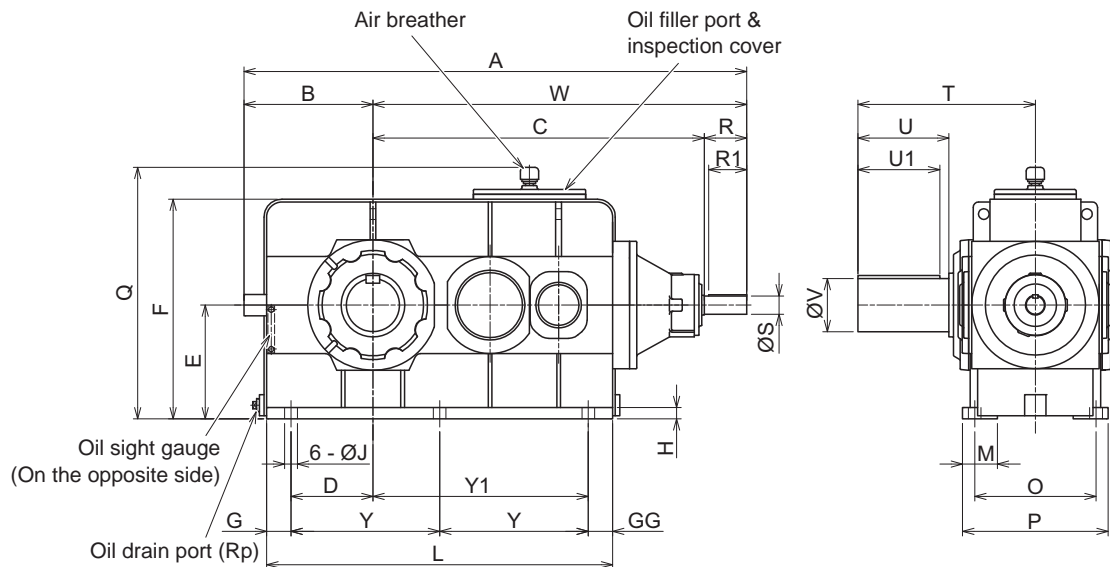
Option

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9030 ~ 9085 Right Angle Shaft Triple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	Y1	M	O	P	Q
9030	866	210	576	115	160	316	45	45	25	24	510		305	75	230	275	421
9035	912	225	607	130	185	361	45	45	25	24	555		335	75	230	275	466
9040	951	235	636	140	200	381	45	50	25	28	585		350	85	260	315	486
9045	1010	255	675	160	220	431	45	50	25	28	645	275		85	260	315	536
9050	1083	275	728	165	210	417	50	55	27	28	685	290		90	290	345	522
9055	1142	295	767	185	245	482	50	55	27	28	745	320		90	290	345	587
9060	1249	310	829	195	265	510	55	60	29	35	795	340		105	340	410	615
9065	1315	330	875	215	300	574	55	55	29	35	860	375		105	340	410	679
9070	1372	345	917	215	300	576	70	70	33	42	930	395		115	380	460	681
9075	1450	370	970	240	335	644	70	75	33	42	1005	430		115	380	460	749
9080	1571	395	1036	240	335	644	80	85	37	42	1055	445		115	400	480	749
9085	1657	425	1092	270	375	724	80	80	37	42	1140	490		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9030	656	80	28k6	70	8 x 7	330	170	80m6	150	25x 14	1"	205	10
9035	687	80	28k6	70	8 x 7	330	170	90m6	150	25x 14	1"	220	13
9040	716	80	30k6	70	8 x 7	349	170	95m6	150	25x 14	1"	290	17
9045	755	80	30k6	70	8 x 7	391	210	105m6	190	28 x 16	1"	350	21
9050	808	80	35k6	70	10 x 8	411	210	110m6	190	28 x 16	1"	440	24
9055	847	80	35k6	70	10 x 8	411	210	120m6	185	32 x 18	1"	490	31
9060	939	110	45k6	95	14 x 9	440	210	125m6	185	32 x 18	1 1/4"	650	36
9065	985	110	45k6	95	14 x 9	484	250	140m6	225	36 x 20	1 1/4"	730	46
9070	1027	110	50k6	95	14 x 9	509	250	145m6	225	36 x 20	1 1/4"	925	54
9075	1080	110	50k6	95	14 x 9	562	300	160m6	275	40 x 22	1 1/4"	1140	67
9080	1176	140	60m6	125	18 x 11	582	300	165m6	275	40 x 22	1 1/4"	1330	73
9085	1232	140	60m6	125	18 x 11	585	300	175m6	270	45 x 25	1 1/4"	1580	92

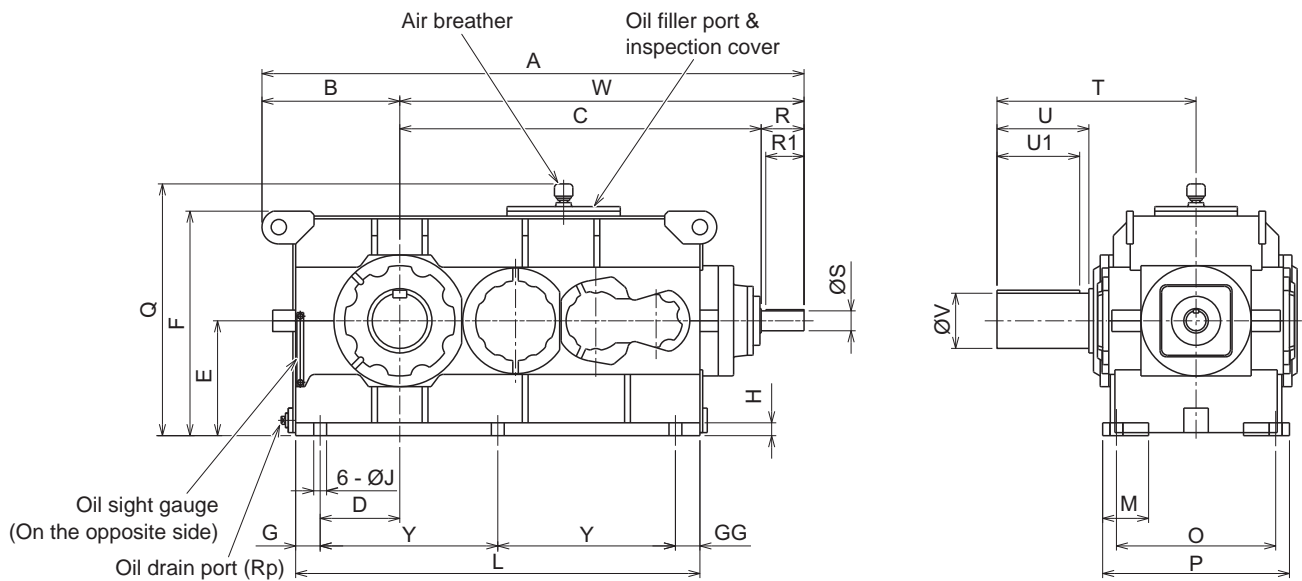
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090 ~ 9115 Right Angle Shaft Triple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	M	O	P	Q
9090	1770	450	1180	260	375	733	80	80	42	42	1320	580	150	520	610	822
9095	1830	480	1210	285	400	783	85	95	42	42	1380	600	150	520	610	872
9100	1964	490	1334	290	425	832	90	90	46	48	1490	655	150	570	660	921
9105	2033	525	1368	315	450	882	100	100	46	48	1560	680	150	570	660	971
9110	2224	540	1514	320	475	928	110	110	50	56	1690	735	165	630	730	1017
9115	2323	590	1563	365	500	998	115	115	50	56	1790	780	165	630	730	1087

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	1320	140	65m6	125	18 x 11	650	300	180m6	270	45 x 25	1 1/2"	2200	100
9095	1350	140	65m6	125	18 x 11	700	350	190m6	320	45 x 25	1 1/2"	2400	130
9100	1474	140	75m6	125	20 x 12	740	350	200m6	320	45 x 25	1 1/2"	2900	150
9105	1508	140	75m6	125	20 x 12	740	350	220m6	320	50 x 28	1 1/2"	3400	190
9110	1684	170	80m6	150	22 x 14	770	350	220m6	320	50 x 28	1 1/2"	4200	210
9115	1733	170	80m6	150	22 x 14	830	410	240m6	375	56 x 32	1 1/2"	4600	260

Unit: mm

Technical

Common

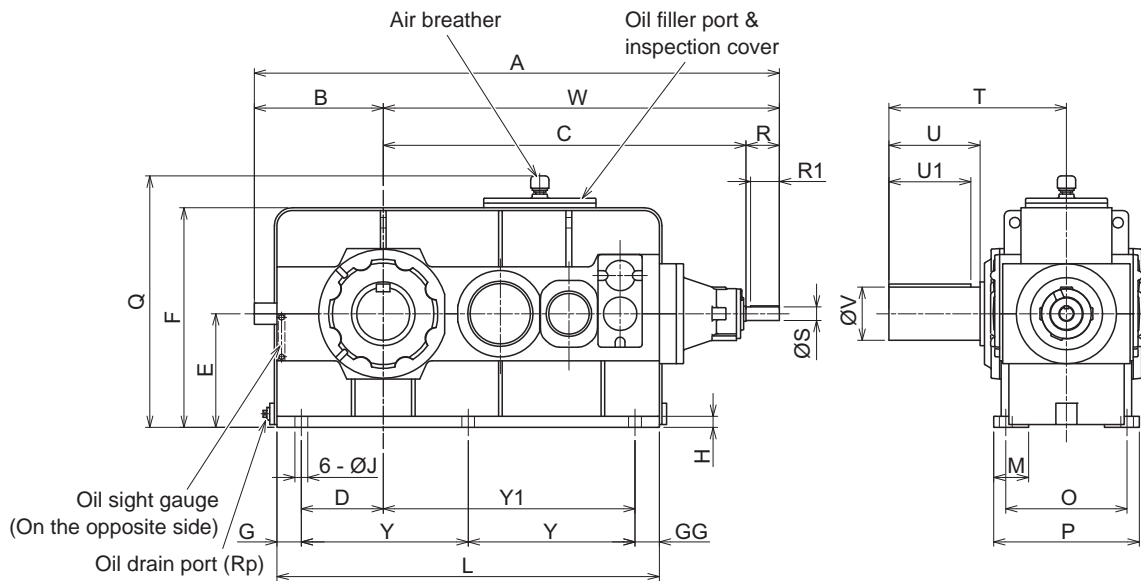
Option

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9040 ~ 9085 Right Angle Shaft Quadruple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	Y1	M	O	P	Q
9040	1025	235	710	140	200	381	45	85	25	28	670		400	85	260	315	486
9045	1084	255	749	160	220	431	45	50	25	28	725	315		85	260	315	536
9050	1134	275	779	165	210	417	50	85	27	28	765	315		90	290	345	522
9055	1193	295	818	185	245	482	50	55	27	28	825	360		90	290	345	587
9060	1260	310	870	195	265	510	55	90	29	35	885	370		105	340	410	615
9065	1326	330	916	215	300	574	55	55	29	35	950	420		105	340	410	679
9070	1425	345	1000	215	300	576	70	115	33	42	1025	420		115	380	460	681
9075	1503	370	1053	240	335	644	70	70	33	42	1100	480		115	380	460	749
9080	1645	395	1140	240	335	644	80	95	37	42	1175	500		115	400	480	749
9085	1731	425	1196	270	375	724	80	80	37	42	1260	550		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9040	790	80	28k6	70	8 x 7	349	170	95m6	150	25 x 14	1"	310	20
9045	829	80	28k6	70	8 x 7	391	210	105m6	190	28 x 16	1"	375	25
9050	859	80	28k6	70	8 x 7	411	210	110m6	190	28 x 16	1"	460	28
9055	898	80	28k6	70	8 x 7	411	210	120m6	185	32 x 18	1"	505	36
9060	950	80	30k6	70	8 x 7	440	210	125m6	185	32 x 18	1 1/4"	950	47
9065	996	80	30k6	70	8 x 7	484	250	140m6	225	36 x 20	1 1/4"	740	58
9070	1080	80	35k6	70	10 x 8	509	250	145m6	225	36 x 20	1 1/4"	930	70
9075	1133	80	35k6	70	10 x 8	562	300	160m6	275	40 x 22	1 1/4"	1150	85
9080	1250	110	45k6	95	14 x 9	582	300	165m6	275	40 x 22	1 1/4"	1350	96
9085	1306	110	45k6	95	14 x 9	585	300	175m6	270	45 x 25	1 1/4"	1620	117

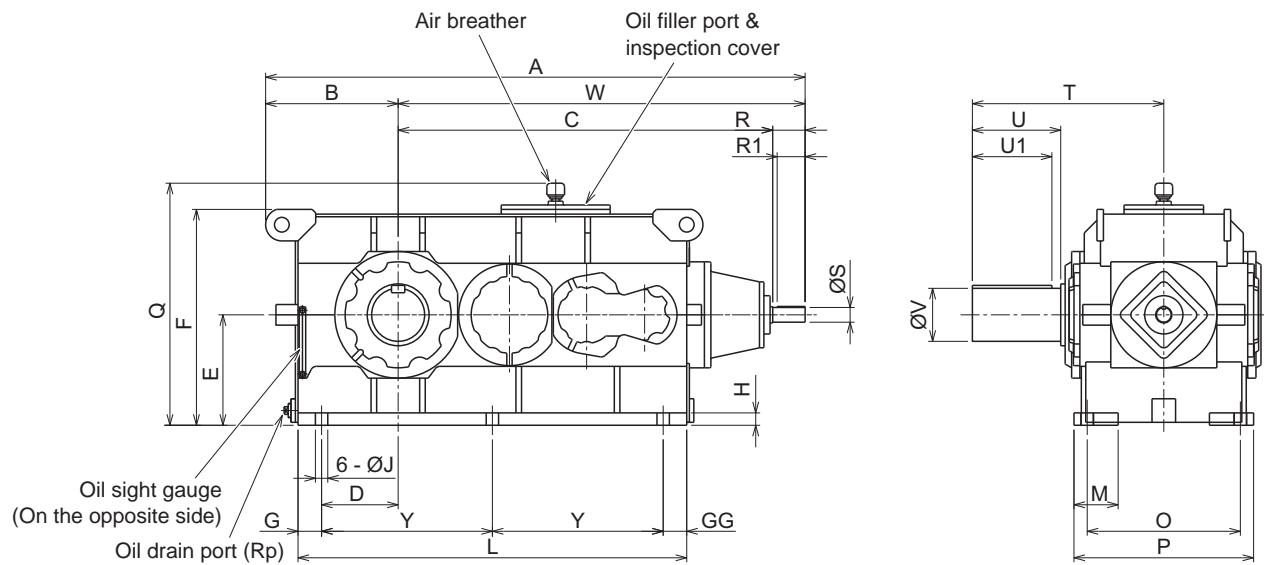
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090 ~ 9115 Right Angle Shaft Quadruple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	M	O	P	Q
9090	1832	450	1272	260	375	733	80	80	42	42	1320	580	150	520	610	822
9095	1892	480	1302	285	400	783	85	95	42	42	1380	600	150	520	610	872
9100	2060	490	1430	290	425	832	90	90	46	48	1490	655	150	570	660	921
9105	2129	525	1464	315	450	882	100	100	46	48	1560	680	150	570	660	971
9110	2210	540	1530	320	475	928	110	110	50	56	1690	735	165	630	730	1017
9115	2309	590	1579	365	500	998	115	115	50	56	1790	780	165	630	730	1087

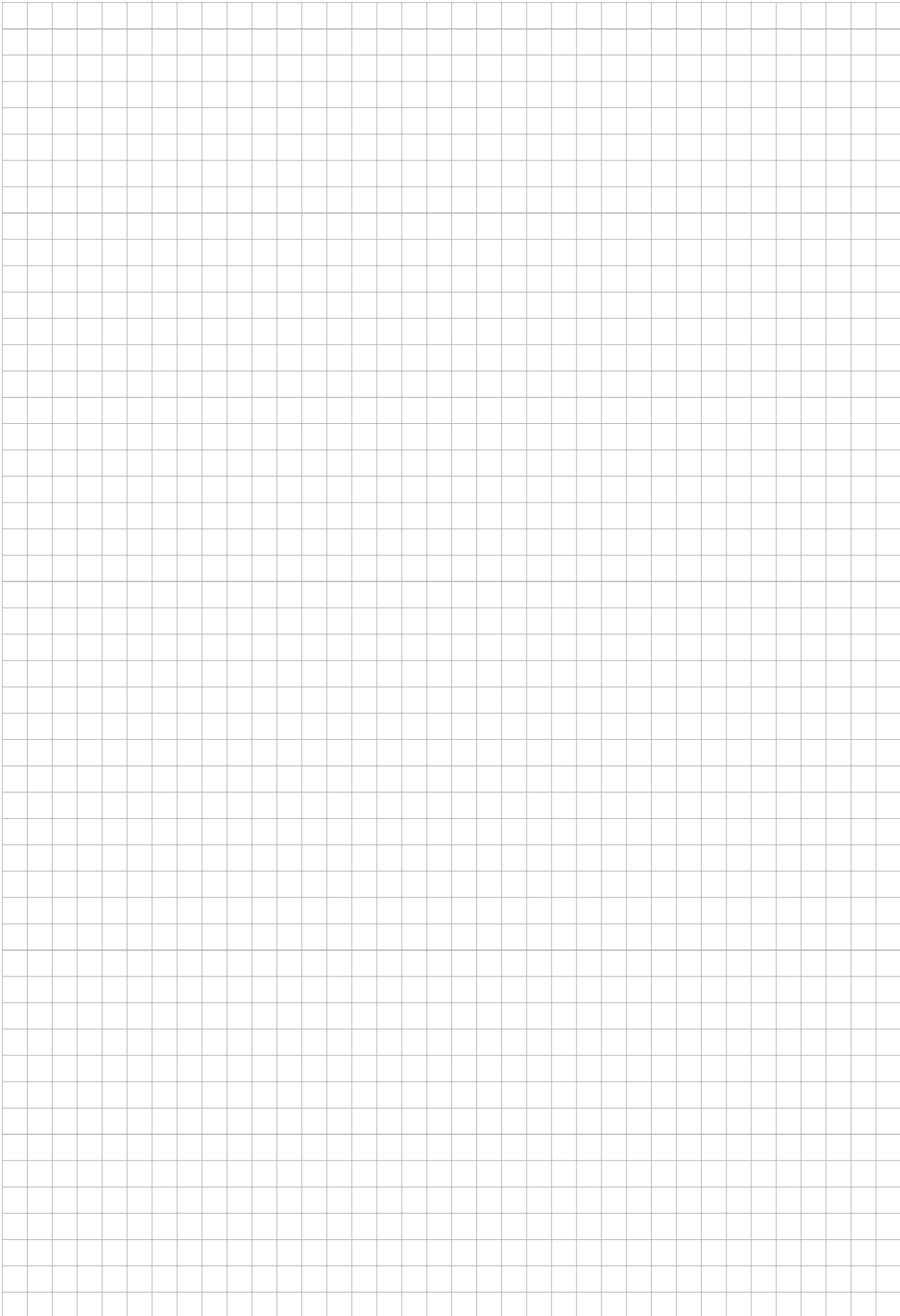
Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	1382	110	50k6	95	14 x 9	650	300	180m6	270	45 x 25	1 1/2"	2200	130
9095	1412	110	50k6	95	14 x 9	700	350	190m6	320	45 x 25	1 1/2"	2400	150
9100	1570	140	60m6	125	18 x 11	740	350	200m6	320	45 x 25	1 1/2"	2900	180
9105	1604	140	60m6	125	18 x 11	740	350	220m6	320	50 x 28	1 1/2"	3400	220
9110	1670	140	60m6	125	18 x 11	770	350	220m6	320	50 x 28	1 1/2"	4100	260
9115	1719	140	60m6	125	18 x 11	830	410	240m6	375	56 x 32	1 1/2"	4500	310

Unit: mm

Technical

Common

Option



Keeper Plate with Washer

Keeper plate is for retaining the high speed shaft, slow speed shaft, etc. It is attached when mounting coupling and gears.

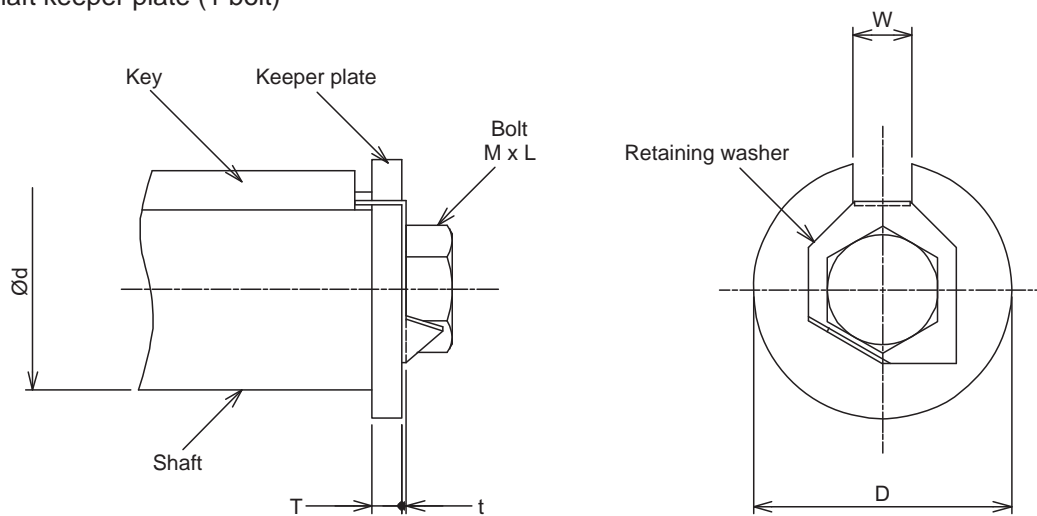
Specification

- There is a standard keeper plate for each shaft size.
- Keeper plate of high speed shaft is fixed by used by affixing a bolt by bending a retaining washer along the keyway.
- Keeper plate of slow speed shaft is used by affixing two bolts by bending a retaining washer.

Note: · Key length is shorter than the standard models for keeper plate on a high speed shaft. This is because the retaining washer is bent along the keyway.
 · Two tap holes are added on the shaft end for keeper plate on slow speed shaft.

Dimension

High speed shaft keeper plate (1 bolt)



Shaft diameter d	Outer diameter D	Keyway width W	Thickness		Nominal bolt diameter x Screw length M x L		Reduced key length
			T	t			
25	35	8	5	0.8	M10	25	5
28	35	8	5	0.8	M10	25	5
30	35	8	5	0.8	M10	25	5
35	45	10	5	0.8	M12	30	5
40 (a)	50	12	5	1.2	M16	40	5
40 (b)	50	14	6	1.2	M16	40	5
45	60	14	8	1.2	M16	40	5
50	60	14	8	1.2	M16	40	5
55	70	16	8	1.2	M20	45	5
58	75	18	8	1.2	M20	45	5
60	75	18	8	1.2	M20	45	5
65	75	18	8	1.2	M20	45	5
70	90	20	8	1.2	M20	45	5
75	90	20	8	1.2	M20	45	5
80	100	22	8	1.2	M20	45	5
85	100	22	8	1.2	M20	45	5
90	110	25	10	1.6	M24	55	6
95	120	25	10	1.6	M24	55	6
100	120	28	10	1.6	M24	55	6
105	130	28	10	1.6	M24	55	6
110	140	28	10	1.6	M24	55	6
120	140	32	10	1.6	M24	55	6
125	150	32	10	1.6	M24	55	6
130	160	32	10	1.6	M24	55	6

Technical

Common

Option

Keeper Plate with Washer

High speed shaft diameter

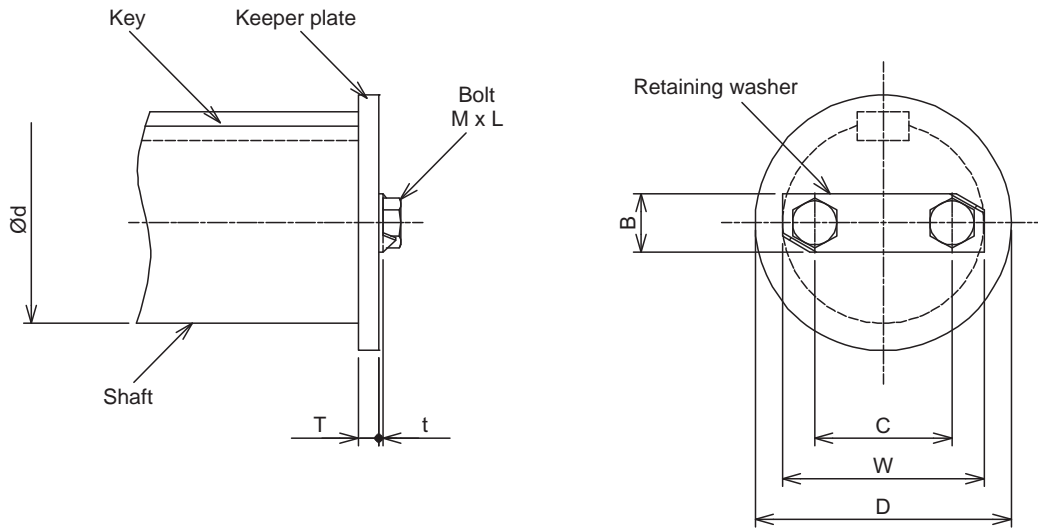
Size	P2	P3	P4	R2	R3	R4
9015	30	25	-	28	-	-
9025	35	28	-	35	-	-
9030	40 (a)	30	25	40 (b)	28	-
9035	40 (a)	30	25	40 (b)	28	-
9040	50	35	28	45	30	28
9045	50	35	28	45	30	28
9050	55	40 (a)	30	50	35	28
9055	55	40 (a)	30	50	35	28
9060	65	50	35	60	45	30
9065	65	50	35	60	45	30
9070	75	55	40 (a)	65	50	35
9075	75	55	40 (a)	65	50	35
9080	85	65	45	75	60	45
9085	85	65	45	75	60	45
9090	90	65	50	-	65	50
9095	90	65	50	90	65	50
9100	100	75	60	-	75	60
9105	100	75	60	100	75	60
9110	110	80	60	-	85	60
9115	110	80	60	110	85	60

Unit: mm

Keeper Plate with Washer

Dimension

Slow speed shaft keeper plate (2 bolts)



Size	Shaft diameter d	Pitch C	Outer diameter D	Thickness T	W	B	Thickness t	Nominal bolt diameter x Screw length	
								M x L	
9015	58	42	75	9	65	25	0.8	M10	25
9025	70	46	85	9	75	25	0.8	M12	30
9030	80	50	100	9	77	25	0.8	M12	30
9035	90	55	105	9	85	25	1.2	M12	30
9040	95	60	120	12	95	32	1.2	M16	40
9045	105	60	120	12	95	32	1.2	M16	40
9050	110	75	140	12	110	32	1.2	M16	40
9055	120	75	140	12	110	32	1.2	M16	40
9060	125	85	150	16	130	40	1.2	M20	50
9065	140	95	175	16	140	40	1.2	M20	50
9070	145	95	175	16	140	40	1.2	M20	50
9075	160	110	190	16	155	40	1.2	M20	50
9080	165	110	190	16	155	40	1.2	M20	50
9085	175	130	210	16	175	40	1.2	M20	50
9090	180	130	210	16	175	40	1.2	M20	50
9095	190	140	220	16	185	40	1.2	M20	50
9100	200	145	230	16	197	48	1.2	M24	55
9105	220	165	250	16	217	48	1.2	M24	55
9110	220	165	250	16	217	48	1.2	M24	55
9115	240	180	270	16	232	48	1.2	M24	55
9118	260	190	290	18	254	55	1.6	M30	75
9121	280	200	310	18	264	55	1.6	M30	75
9126	300	220	330	18	284	55	1.6	M30	75
9128	320	200	350	21	272	64	1.6	M36	90
9131	340	215	370	21	287	64	1.6	M36	90
9136	360	230	390	21	302	64	1.6	M36	90

Unit: mm

Technical

Common
Option

Shaft-End Tapped Hole (LSS)

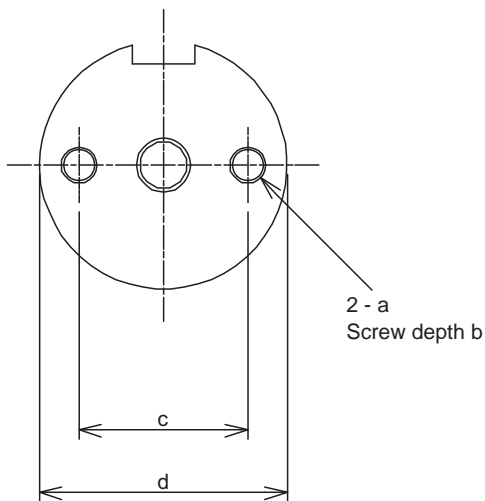
Shaft end tap on LSS end is to fix keeper plate etc. using two bolts.

Specification

- This adds two tap holes to the end of a standard low speed shaft, which has one tap hole at the center.

Dimension

Slow speed shaft

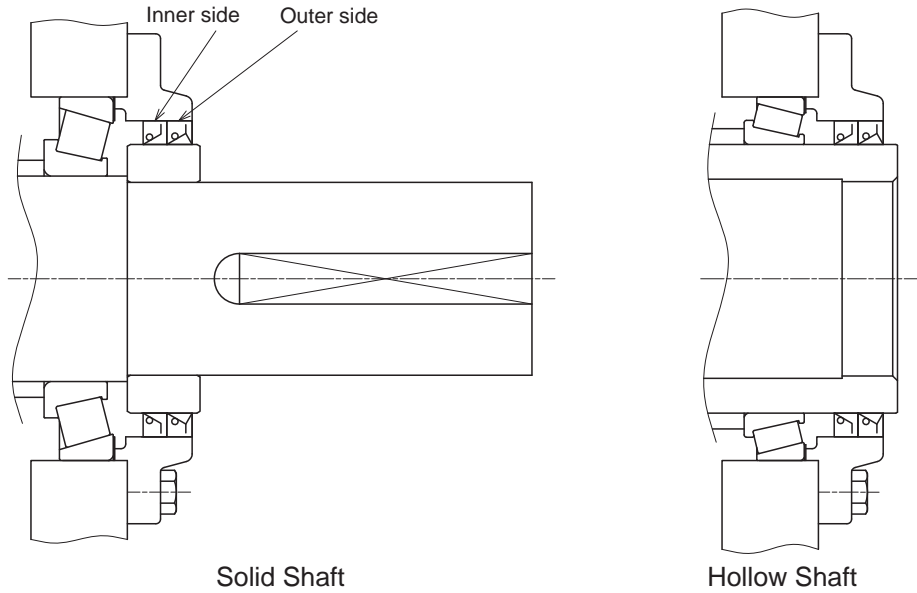


Size	d	a	b	c
9015	58	M10	20	42
9025	70	M12	25	46
9030	80	M12	25	50
9035	90	M12	25	55
9040	95	M16	30	60
9045	105	M16	30	60
9050	110	M16	30	75
9055	120	M16	30	75
9060	125	M20	38	85
9065	140	M20	38	95
9070	145	M20	38	95
9075	160	M20	38	110
9080	165	M20	38	110
9085	175	M20	38	130
9090	180	M20	38	130
9095	190	M20	38	140
9100	200	M24	45	145
9105	220	M24	45	165
9110	220	M24	45	165
9115	240	M24	45	180

Unit: mm

Double Shaft Seals (LSS)

Oil seal may be doubled in applications where oil leakage may have severe impact on production or the environment. Use of double oil seal enhance the reliability of the oil leakage prevention.



Specification

- This specification comes with double nitrile rubber oil seal.
- The optional double oil seals on slow speed shaft is available for the combinations marked with “S” in the table below.

Note: • Double oil seal on the slow speed shaft is standard for quadruple stage reduction horizontal mounting models, vertical mounting slow speed shaft models facing the bottom, and upright models.
 • Double oil seal is used only for the seal at the bottom for vertical mounting hollow shaft models.

Standard specifications of slow speed shaft oil seal

Installation	Number of reduction stage	Right angle shaft						Parallel shaft									
		RL	RR	RB	LR	LL	LB	RL	RR	RB	LR	LL	LB	BR	BL	BB	
Horizontal	Double stage	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Triple stage	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Quadruple stage	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
Vertical	Double stage	D	S	-	-	-	-	D	S	-	-	-	-	-	-	-	-
	Triple stage	D	S	-	-	-	-	D	S	-	-	-	-	-	-	-	-
	Quadruple stage	-	-	-	S	D	-	D	S	-	-	-	-	-	-	-	-
Upright	Double stage	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	Triple stage	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	Quadruple stage	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

S: Single oil seal, D: Double oil seal

Technical
Common
Option

FKM seal has better heat resistance compared to the nitrile rubber seal. Use FKM seal when the ambient temperature is 60 degrees Celsius or higher.

FKM seal is also recommended for ambient environment requiring chemical resistance.

Specification

- This is an oil seal with dust lip made of fluorine-containing rubber.

Dimension

The installation dimension is the same as the standard oil seal.

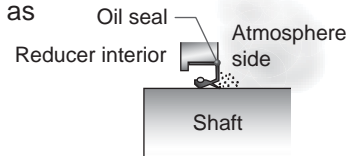
FKM seal do not affect the installation dimension of high speed and slow speed shafts.

Taconite Seal

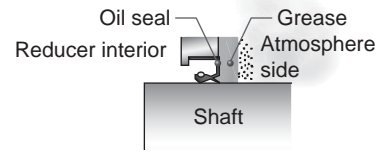
Taconite seal is suitable used when operating a reducer in a dusty environment, such as applications for coal conveyors.

Specification

- The seal structure has grease on the open air side. This prevents dust particles from reaching the oil seal lip to prevent wear and tear.
- There are two types of seal structures, “standard” and “labyrinth.”

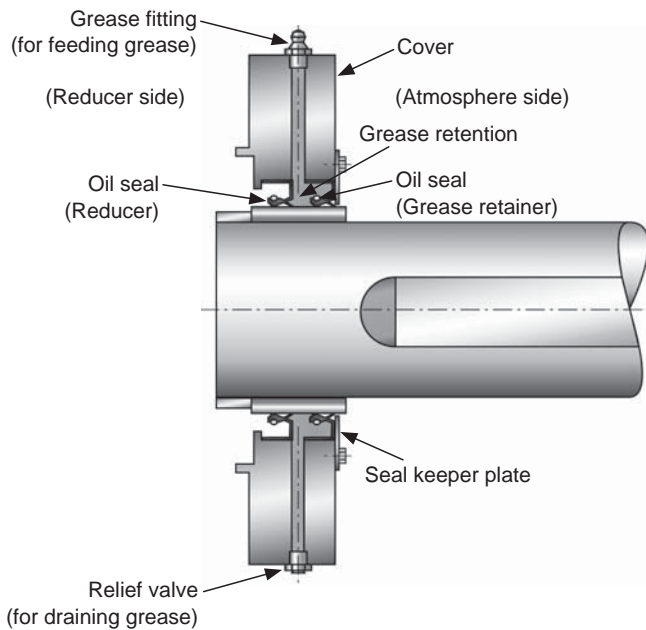


Oil seal

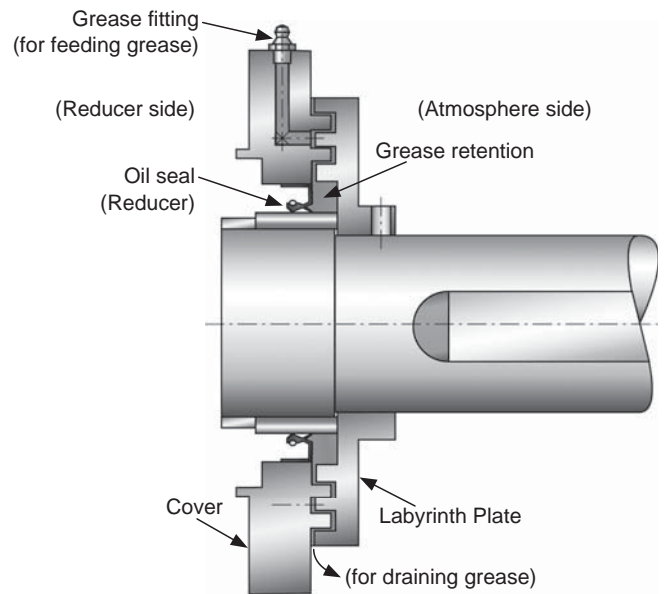


Taconite Seal

Standard type



Labyrinth type



Seal structure application table

S: Standard type L: Labyrinth type

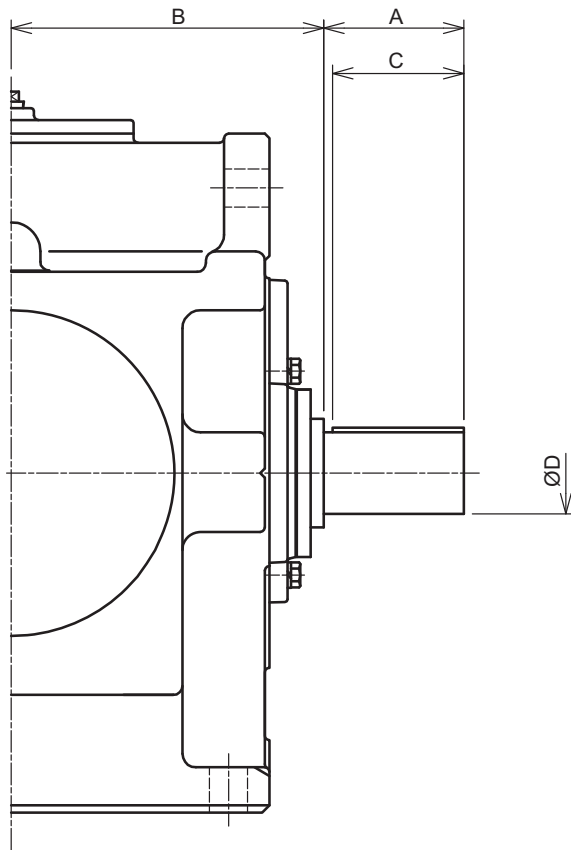
Size	High speed shaft						Slow speed shaft
	P2	P3	P4	R2	R3	R4	
9015	S	S	—	S	—	—	S
9025	S	S	—	S	—	—	
9030	S	S	S	S	S	—	
9035	S	S	S	S	S	—	
9045	S	S	S	S	S	S	
~ 9085	S	S	S	S	S	S	S
9090	L	L	S	S	S	S	
~ 9115	L	L	S	S	S	S	

Dimension

- The above table shows that output dimension of the shaft with “Standard type” taconite seal is the same as those described in this catalog as standard.
- The high speed shaft seal for 9090 - 9115 P2 , P3 is the “Labyrinth type (L)” with different shaft output dimensions and collar-end dimensions from standard.

Dimension

Taconite seal “labyrinth type” high speed shaft-end



Parallel Shaft Double Stage Reduction Horizontal Mounting

Size	A	B	C	D	Key
9090	155	345	150	90m6	25x14
9095	155	345	150	90m6	25x14
9100	195	390	190	100m6	28x16
9105	195	390	190	100m6	28x16
9110	195	420	190	110m6	28x16
9115	195	420	190	110m6	28x16

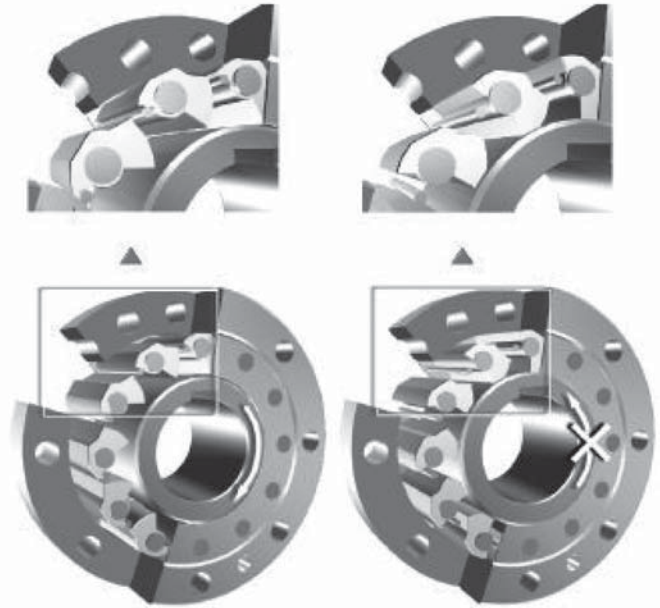
Unit : mm

Parallel Shaft Triple Stage Reduction Horizontal Mounting

Size	A	B	C	D	Key
9090	125	345	125	65m6	18x11
9095	125	345	125	65m6	18x11
9100	125	390	125	75m6	20x12
9105	125	390	125	75m6	20x12
9110	155	420	150	80m6	22x14
9115	155	420	150	80m6	22x14

Unit : mm

Internal Backstop



Internal backstop is mounted directly on the intermediate shaft of the reducer.

Internal type does not require the torque arm for the back stop, bearing, oil seal, and specialized lubrication, unlike the exterior-mount type. It makes the application device more simple, compact, and maintenance free.

Specification

- Inner race rotate in single direction only. This is a centrifugal lift-off backstop with no contact of cam.

Technical

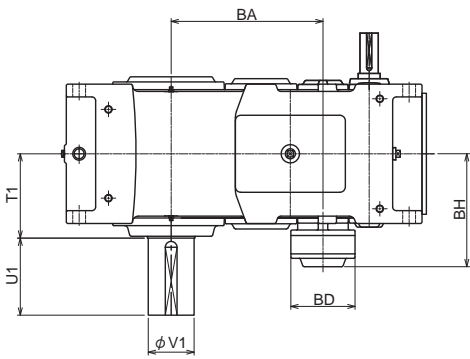
Common

Option

Internal Backstop

Dimension

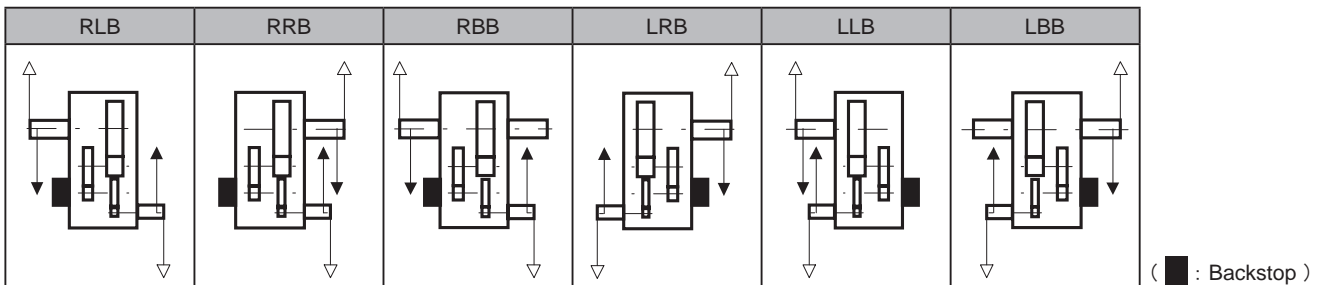
Parallel Shaft Triple Stage Reduction Horizontal Mounting



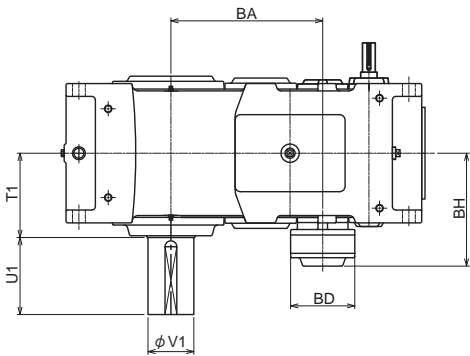
Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [ℓ]
9050	358	263	150	201	110	210	24
9055	397	263	150	201	120	210	24
9060	414	308	175	230	125	210	35 *
9065	460	308	175	234	140	250	40 *
9070	482	330	190	259	145	250	53 *
9075	535	330	190	262	160	300	64 *
9080	556	365	210	282	165	300	69 *
9085	612	365	210	285	175	300	85 *

Note: The oil volumes marked with "*" are different from the standard oil volume. Unit : mm

Standard Shaft Arrangement Configuration



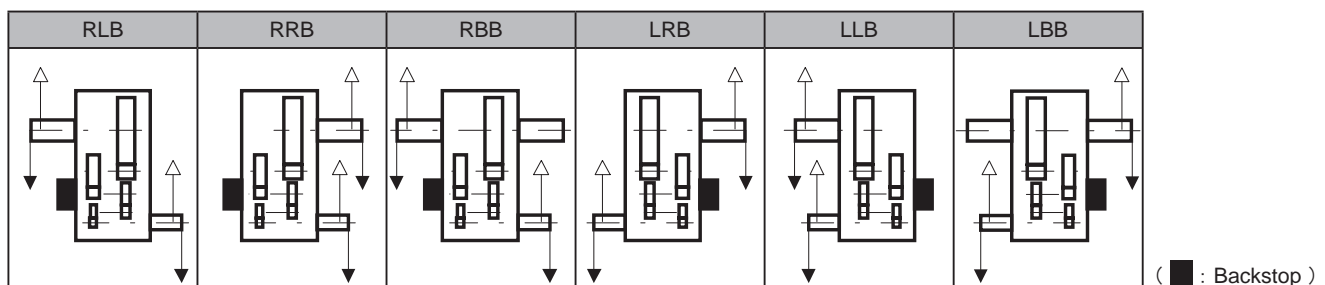
Parallel Shaft Quadruple Stage Reduction Horizontal Mounting



Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [ℓ]
9050	358	263	150	201	110	210	56
9055	397	263	150	201	120	210	56
9060	414	308	175	230	125	210	37
9065	460	308	175	234	140	250	42
9070	482	330	190	259	145	250	56
9075	535	330	190	262	160	300	67
9080	556	365	210	282	165	300	73
9085	612	365	210	285	175	300	90

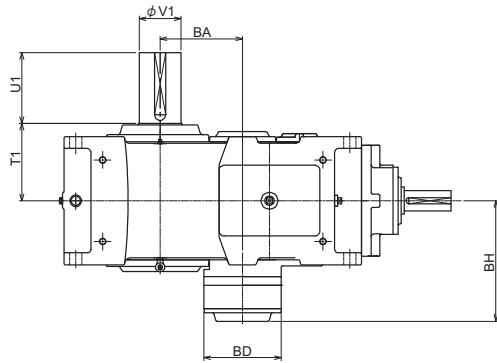
Unit : mm

Standard Shaft Arrangement Configuration



Internal Backstop

Right Angle Shaft Double Stage Reduction Horizontal Mounting

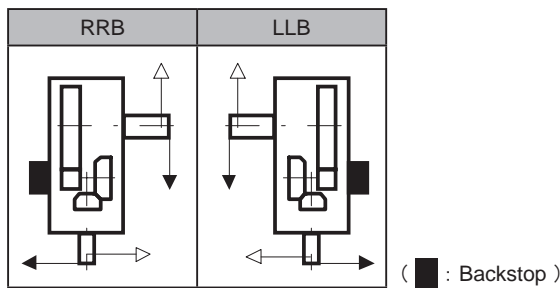


Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [ℓ]
9060	245	358	230	230	125	210	25
9065	291	358	230	234	140	250	34
9070	285	402.5	290	259	145	250	37
9075	338	402.5	290	262	160	300	46
9080	330	416.5	322	282	165	300	53
9085	386	416.5	322	285	175	300	67

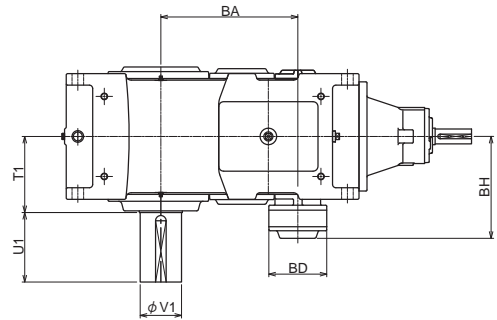
Unit : mm

Note: Consult us when a backstop is used more than twenty times per an hour.

Standard Shaft Arrangement Configuration



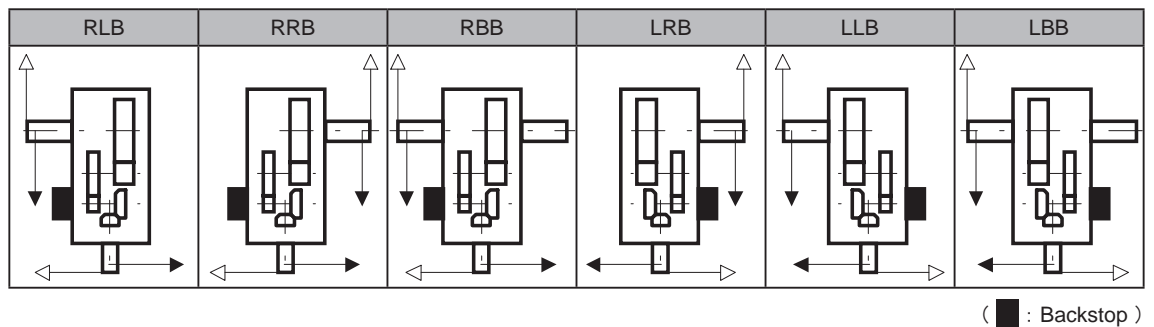
Right Angle Shaft Triple Stage Reduction Horizontal Mounting



Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [ℓ]
9050	358	263	150	201	110	210	32
9055	397	263	150	201	120	210	32
9060	414	308	175	230	125	210	29
9065	460	308	175	234	140	250	33
9070	482	330	190	259	145	250	45
9075	535	330	190	262	160	300	52
9080	556	365	210	282	165	300	60
9085	612	365	210	285	175	300	75

Unit : mm

Standard Shaft Arrangement Configuration



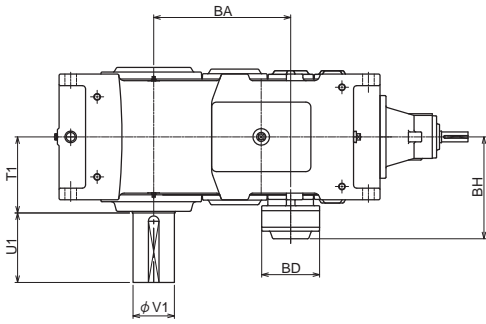
(■ : Backstop)

Technical

Common
Option

Internal Backstop

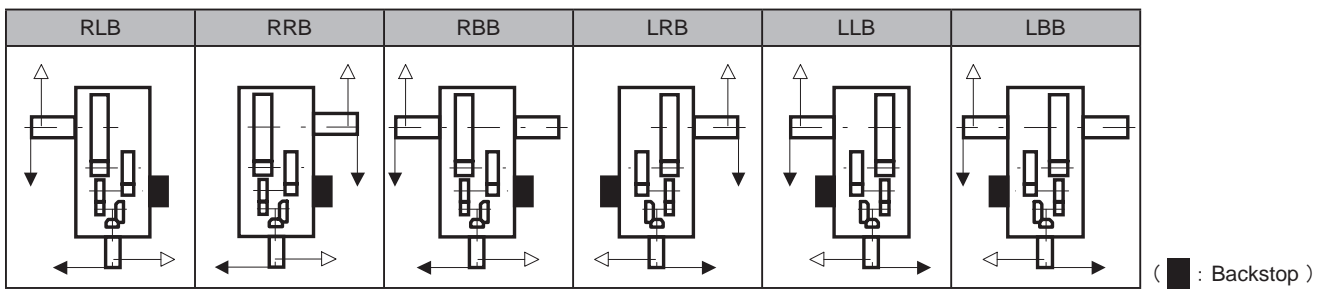
Right Angle Shaft Quadruple Stage Reduction Horizontal Mounting



Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [ℓ]
9050	358	263	150	201	110	210	24
9055	397	263	150	201	120	210	24
9060	414	308	175	230	125	210	38
9065	460	308	175	234	140	250	43
9070	482	330	190	259	145	250	57
9075	535	330	190	262	160	300	67
9080	556	365	210	282	165	300	73
9085	612	365	210	285	175	300	90

Unit : mm

Standard Shaft Arrangement Configuration

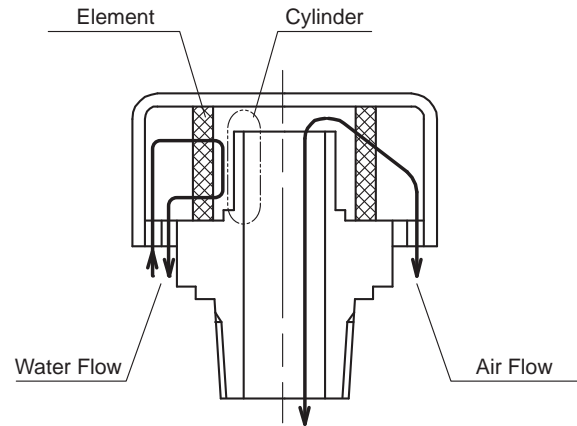


Washdown Breather

Select washdown breather for outdoor environment with exposure to rain or water splash.

Specification

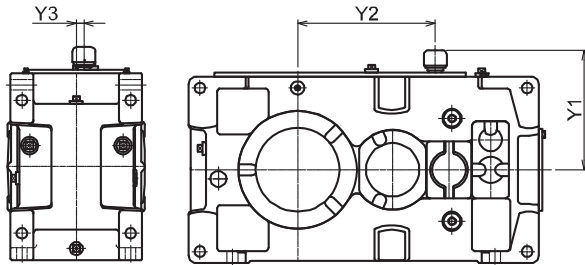
- Compared to the normal air breather, this one has an internal cylindrical section to prevent drops of water from the outside from entering into the inside of the reducer.
- The element is made of stainless steel.



Dimension

Horizontal Mounting

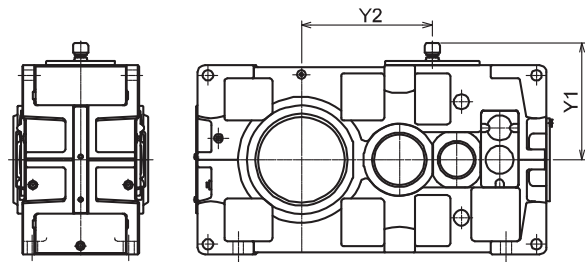
PHA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	Y3
9015	205	150	0
9025	225	200	18
9030	230	232	20
9035	255	263	20
9040	270	274	20
9045	290	313	20
9050	280	322	20
9055	315	361	20

Unit : mm

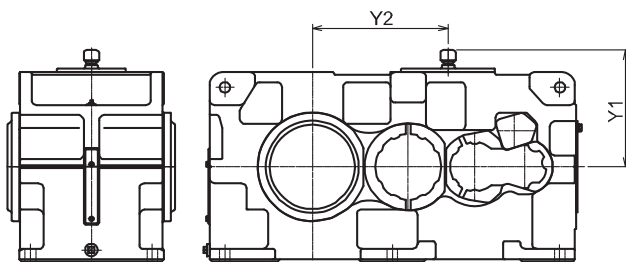
PHD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2
9060	354	325
9065	389	371
9070	389	370
9075	424	423
9080	424	460
9085	464	516

Unit : mm

PHD9090-9115 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2
9090	464	535
9095	489	565
9100	514	620
9105	539	655
9110	564	710
9115	589	760

Unit : mm

Technical

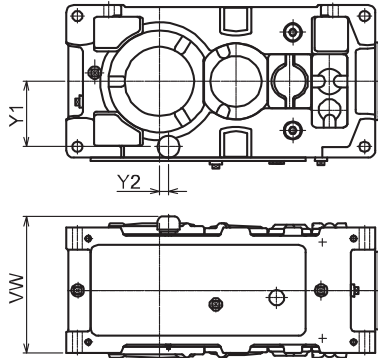
Common
Option

Washdown Breather

Dimension

Vertical Mounting

PVA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



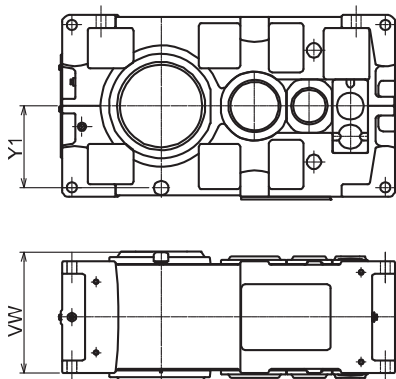
Size	Y1	Y2	VW
9015	110	35	243
9025	130	25	270
9030	135	0	351
9035	160	0	298
9040	175	30	340
9045	195	30 *1	340
9050	180	25	375
9055	215	0	375

Unit : mm

Note : • *1; The size for the Right Angle Shaft Double Stage model, Right Angle Shaft Triple Stage model and Parallel Shaft Double Stage model of 9045 is 29.

- Consult us when upward vertical shaft is required.

PVD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction

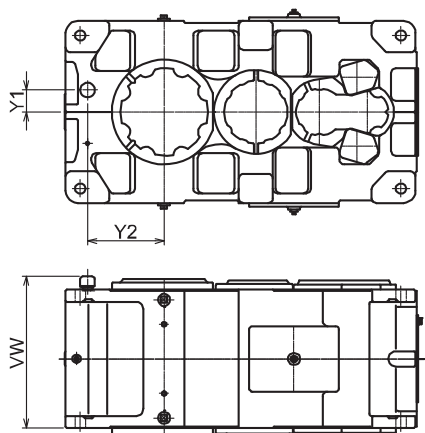


Size	Y1	VW
9060	229	413
9065	264	413
9070	263	463
9075	298	463
9080	298	498
9085	338	498

Unit : mm

Note: Consult us when upward vertical shaft is required.

PVD9090-9115 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	VW
9090	90	315	625
9095	90	345	625
9100	100	355	705
9105	100	390	705
9110	100	405	765
9115	100	440	765

Unit : mm

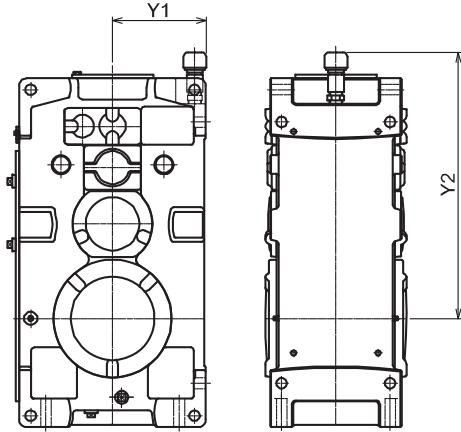
Note: Consult us when upward vertical shaft is required.

Washdown Breather

Dimension

Upright Mounting

PWA9015-9055 Parallel Shaft Double, Triple, Quadruple Stage Reduction



Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2
9015	142	358
9025	161	408
9030	166	465
9035	191	496
9040	202	519
9045	222	558
9050	211	589
9055	246	628

Unit : mm

Note: Consult us when you use a right angle shaft.

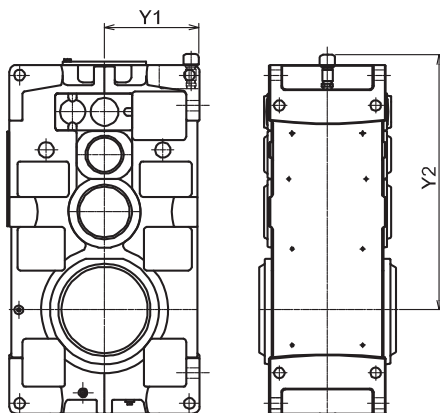
Parallel Shaft Triple Stage Reduction (P3), Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2
9015	142	403
9025	161	473
9030	166	515
9035	191	546
9040	202	593
9045	222	632
9050	211	662
9055	246	701

Unit : mm

Note: Consult us when you use a right angle shaft.

PWD9060-9085 Parallel Shaft Double, Triple, Quadruple Stage Reduction



Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2
9060	264	655
9065	299	701
9070	297	738
9075	332	791
9080	331	831
9085	371	887

Unit : mm

Note: Consult us when you use a right angle shaft.

Parallel Shaft Triple Stage Reduction (P3), Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2
9060	264	740
9065	299	786
9070	297	833
9075	332	886
9080	331	951
9085	371	1007

Unit : mm

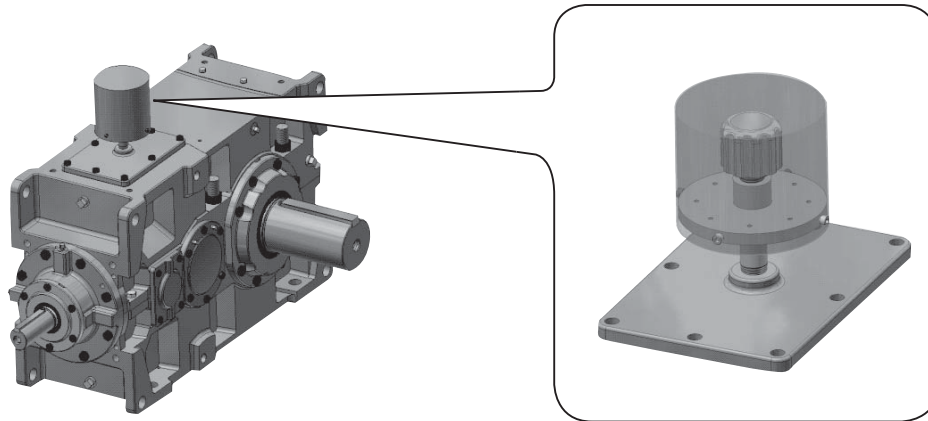
Note: Consult us when you use a right angle shaft.

Technical

Common

Option

Anti-Dust Breather



This air breather should be used when installing a reducer in a very dusty environment.

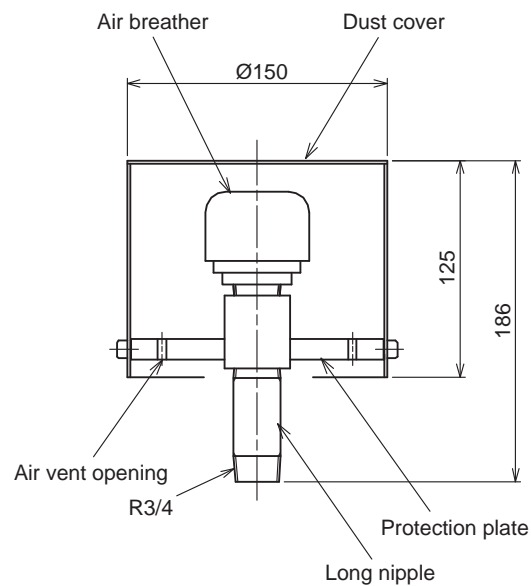
This unit may be used even in an environment whereby the unit with a normal air breather becomes buried under dust.

Specification

- A long nipple is used to raise the unit from the standard installation position, so as to prevent it from becoming buried under dust.
- A dustproof cover is installed over the air breather to prevent direct accumulation of dust.

Dimension

9015 ~ 9136 (all sizes)



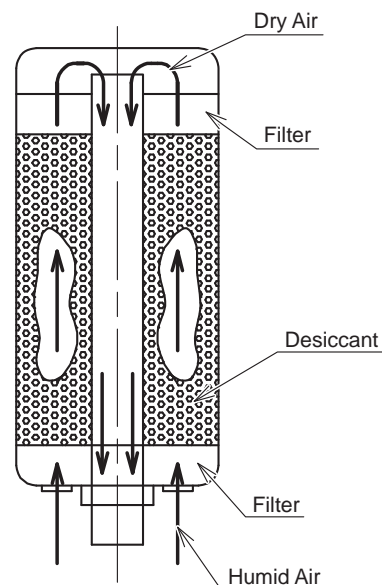
Anti-Humidity Breather

Specification

- This breather should be used in a high-humidity environment with the humidity of 85% or above.
- The main unit of the air breather contains an absorbent agent to prevent moisture penetration.

The use of this air breather protects the reducer, and prevents the following types of problems:

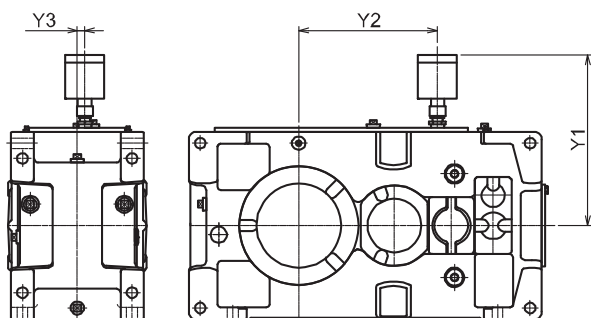
- Rust development on gears and bearings
- Burning, pitching and other damage caused by the deterioration of lubrication oil
- The absorbent agent can be replaced easily at a timing that is visually indicated.



Dimension

Horizontal Mounting

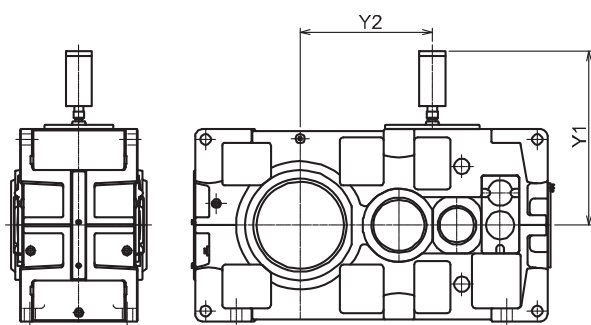
PHA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	Y3
9015	320	150	0
9025	340	200	18
9030	345	232	20
9035	370	263	20
9040	401	274	20
9045	421	313	20
9050	411	322	20
9055	446	361	20

Unit : mm

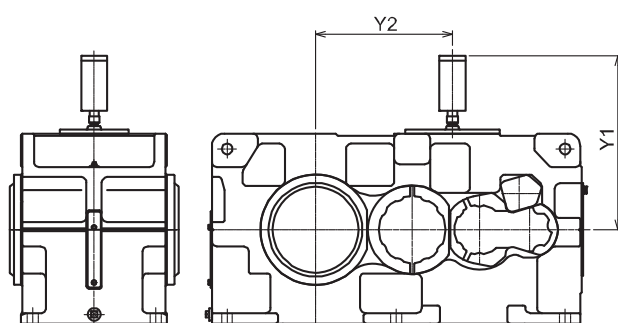
PHD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2
9060	469	325
9065	504	371
9070	504	370
9075	539	423
9080	640	460
9085	680	516

Unit : mm

PHD9090-9115 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2
9090	680	535
9095	705	565
9100	730	620
9105	755	655
9110	780	710
9115	805	760

Unit : mm

Technical

Common

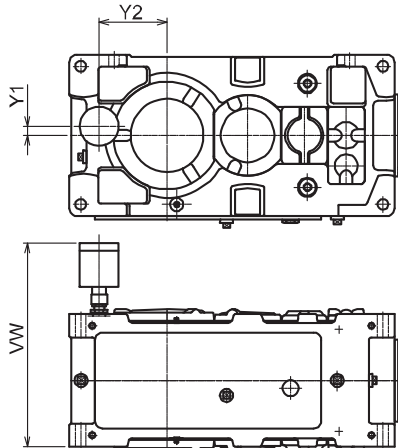
Option

Anti-Humidity Breather

Dimension

Vertical Mounting

PVA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Right Angle Shaft Double Stage Reduction (R2),
Right Angle Shaft Triple Stage Reduction (R3),
Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2	VW
9015	23	107	364
9025	26	117	391
9030	24	135	419
9035	24	154	419
9040	28	165	478
9045	28	186	478
9050	32	177	513
9055	32	208	513

Unit : mm

Note: Consult us when upward vertical shaft is required.

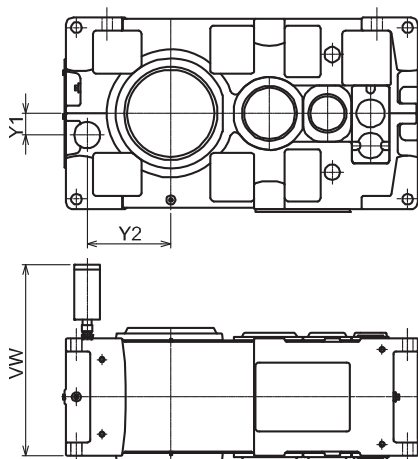
Right Angle Shaft Quadruple Stage Reduction (R4),
Parallel Shaft Triple Stage Reduction (P3),
Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2	VW
9015	19	107	364
9025	23	117	391
9030	23	135	419
9035	23	154	419
9040	24	165	478
9045	24	186	478
9050	24	177	513
9055	24	208	513

Unit : mm

Note: Consult us when upward vertical shaft is required.

PVD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	VW
9060	65	214	551
9065	65	253	551
9070	75	251	601
9075	75	298	601
9080	85	283	738
9085	85	327	738

Unit : mm

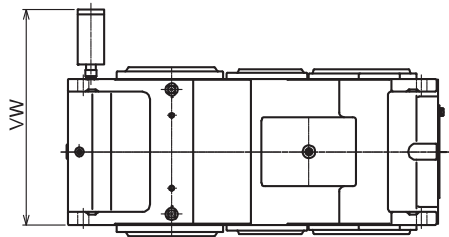
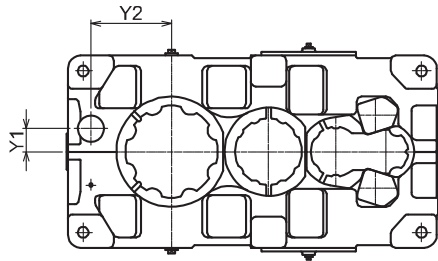
Note: Consult us when upward vertical shaft is required.

Anti-Humidity Breather

Dimension

Vertical Mounting

PVD9090-9115 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
 Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	VW
9090	90	315	858
9095	90	345	858
9100	100	355	938
9105	100	390	938
9110	100	405	998
9115	100	440	998

Unit : mm

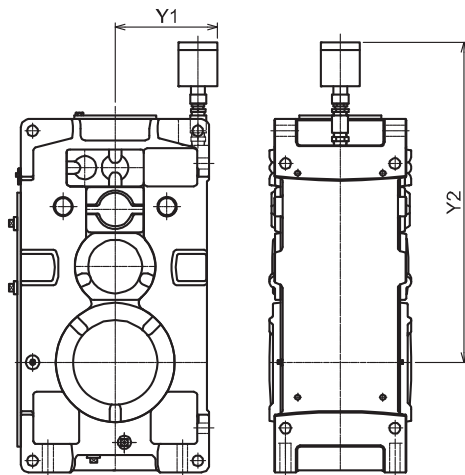
Note: Consult us when upward vertical shaft is required.

Anti-Humidity Breather

Dimension

Upright Mounting

PWA9015-9055 Parallel Shaft Double, Triple, Quadruple Stage Reduction



Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2
9015	163	473
9025	182	523
9030	187	580
9035	212	611
9040	223	650
9045	243	689
9050	232	720
9055	267	759

Unit : mm

Note: Consult us when you use a right angle shaft.

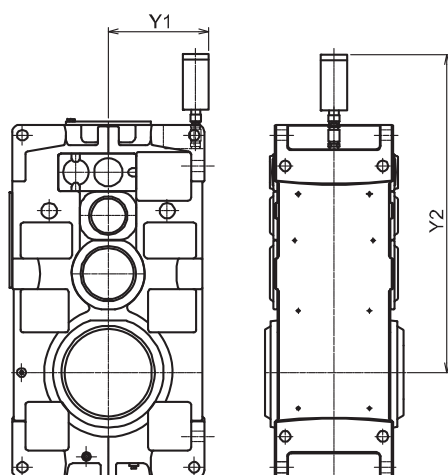
Parallel Shaft Triple Stage Reduction (P3),
Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2
9015	163	518
9025	182	588
9030	187	630
9035	212	661
9040	223	724
9045	243	763
9050	232	793
9055	267	832

Unit : mm

Note: Consult us when you use a right angle shaft.

PWD9060-9085 Parallel Shaft Double, Triple, Quadruple Stage Reduction



Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2
9060	285	786
9065	320	832
9070	318	869
9075	353	922
9080	352	1064
9085	392	1120

Unit : mm

Note: Consult us when you use a right angle shaft.

Parallel Shaft Triple Stage Reduction (P3),
Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2
9060	285	871
9065	320	917
9070	318	964
9075	353	1017
9080	352	1184
9085	392	1240

Unit : mm

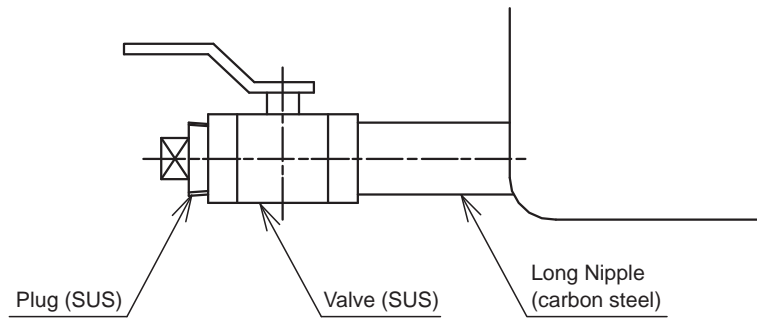
Note: Consult us when you use a right angle shaft.

Stainless Steel Drain Valve

This drain valve is less corrosive than a bronze valve, and can be used in a corrosive atmosphere for an extended period of time.

Specification

- If you require anticorrosive performance, use a stainless-steel drain valve.
- The drain valve uses a ball valve made of stainless steel (equivalent to SUS304).
- * Consult us for gate valves, which can be also manufactured.



Technical

Common

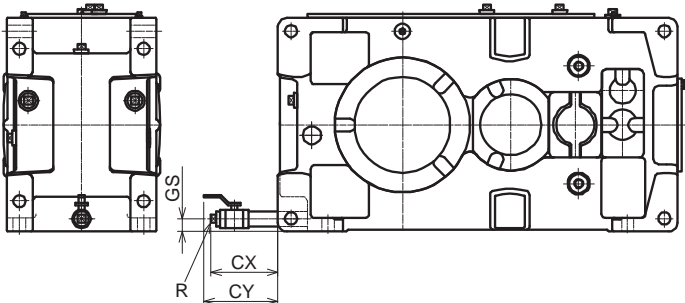
Option

Stainless Steel Drain Valve

Dimension

Horizontal Mounting

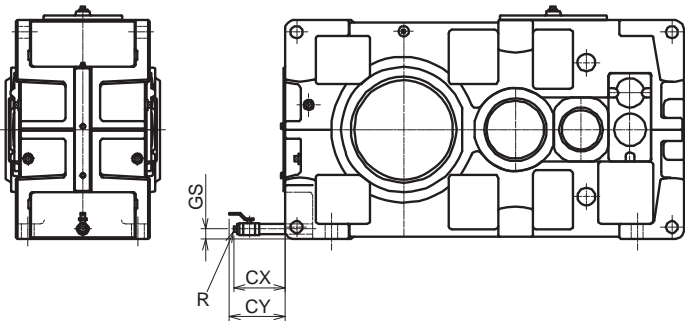
PHA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	GS
9015	3/4"	133	170	23
9025	3/4"	133	170	24
9030	3/4"	130	167	24
9035	3/4"	130	167	24
9040	1"	154	198	28
9045	1"	154	198	28
9050	1"	154	198	29
9055	1"	154	198	29

Unit : mm

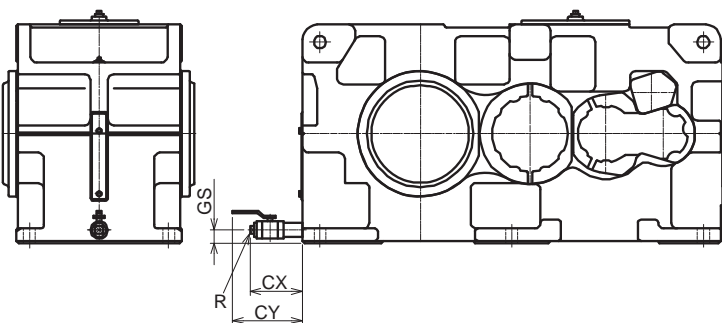
PHD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	GS
9060	1"	191	235	31
9065	1"	191	235	31
9070	1"	176	220	33
9075	1"	176	220	33
9080	1"	176	220	34
9085	1"	176	220	34

Unit : mm

PHD9090-9115 Right Angle Shaft Triple, Quadruple Reduction,
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	GS
9090	1 1/2"	181	241	45
9095	1 1/2"	181	241	45
9100	1 1/2"	181	241	45
9105	1 1/2"	181	241	45
9110	1 1/2"	181	241	48
9115	1 1/2"	181	241	48

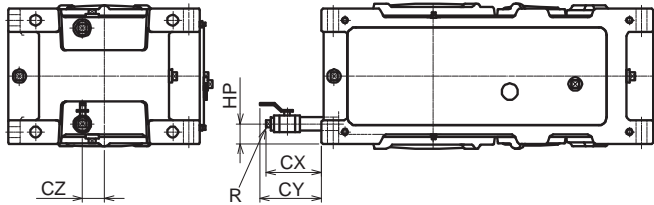
Unit : mm

Stainless Steel Drain Valve

Dimension

Vertical Mounting

PVA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



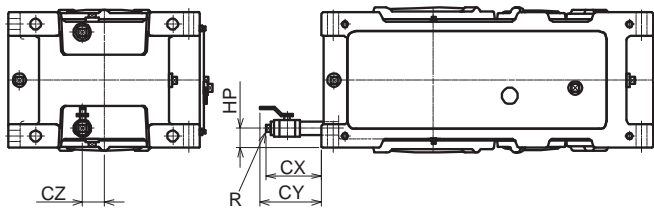
9030-9055 Right Angle Shaft Double Stage Reduction (R2),
Right Angle Shaft Triple Reduction (R3),
Parallel Shaft Double Stage Reduction (P2)

Size	R	CX	CY	CZ	HP
9030	3/4"	121	158	40	43
9035	3/4"	121	158	40	43
9040	1"	149	193	48	55
9045	1"	149	193	48	55
9050	1"	141	185	55	50
9055	1"	141	185	55	50

Unit : mm

9015,9025 Right Angle Shaft Double Stage Reduction (R2),
Parallel Shaft Double Stage Reduction (P2),
Parallel Shaft Triple Stage Reduction (P3)

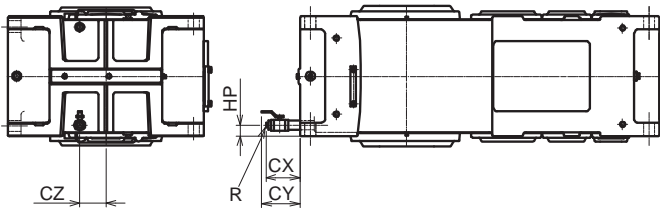
9030-9055 Right Angle Shaft Quadruple Stage Reduction (R4),
Parallel Shaft Triple Stage Reduction (P3),
Parallel Shaft Quadruple Stage Reduction (P4)



Size	R	CX	CY	CZ	HP
9015	3/4"	133	170	25	38
9025	3/4"	128	165	30	40.5
9030	3/4"	121	158	44	43
9035	3/4"	121	158	44	43
9040	1"	149	193	56	55
9045	1"	149	193	56	55
9050	1"	141	185	56	50
9055	1"	141	185	56	50

Unit : mm

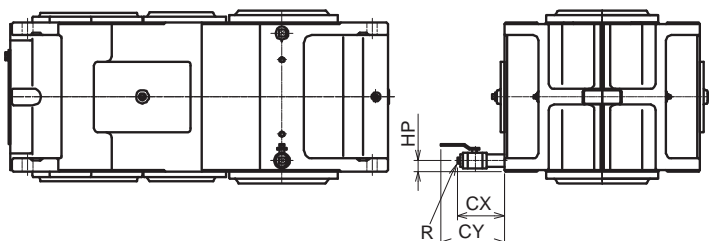
PVD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	CZ	HP
9060	1"	141	185	75	47
9065	1"	141	185	75	47
9070	1"	141	185	85	47
9075	1"	141	185	85	47
9080	1"	131	175	100	42
9085	1"	131	175	100	42

Unit : mm

PVD9090-9115 Right Angle Shaft Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	HP
9090	1 1/2"	181	241	42
9095	1 1/2"	181	241	42
9100	1 1/2"	181	241	43
9105	1 1/2"	181	241	43
9110	1 1/2"	181	241	44
9115	1 1/2"	181	241	44

Unit : mm

Technical

Common

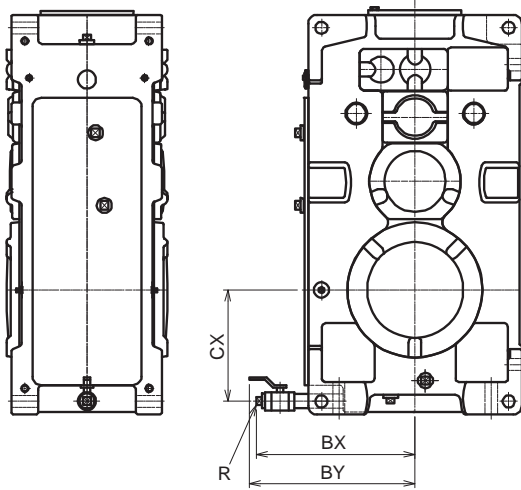
Option

Stainless Steel Drain Valve

Dimension

Upright Mounting

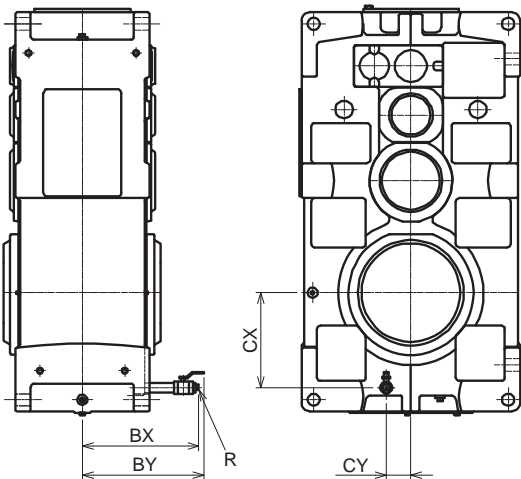
PWA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	BX	BY	CX
9015	3/4"	271	308	135
9025	3/4"	288	325	149
9030	3/4"	290	327	173
9035	3/4"	308	345	192
9040	1"	379	423	205
9045	1"	354	398	226
9050	1"	364	408	224
9055	1"	364	430	255

Unit : mm

PWA9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	BX	BY	CX	CY
9060	1"	356	400	214	65
9065	1"	356	400	253	65
9070	1"	381	425	251	75
9075	1"	381	425	298	75
9080	1"	401	445	283	85
9085	1"	401	445	327	85

Unit : mm

Split Fan Hood (Right Angle Shaft)

This fan hood may be dismantled to facilitate the installation and removal of the coupling.

It creates additional space when using a fluid coupling on the reducer for a conveyor, or when conducting maintenance work on a large coupling.

Specification

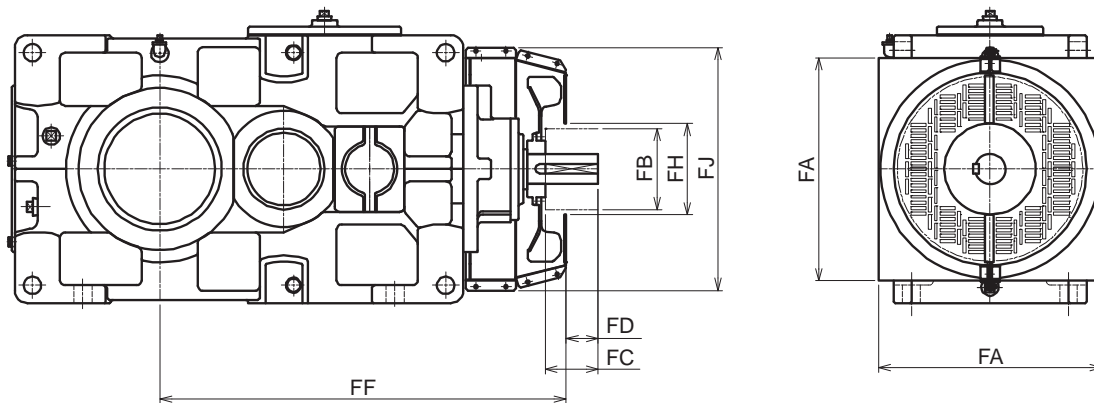
- It is designed so that it breaks up into two sections.
- It is only for horizontal models, and has the identical exterior dimensions as the standard fan hood for installation compatibility.
- Similarly to the standard fan hood, this fan hood has a perforated steel plate on the back for safety reasons, ensuring that people cannot touch the fan rotor.

Note: Make sure not to cover the air inlet of the fan hood.

Dimension

Horizontal Mounting

PHD9060-9085 Right Angle Shaft Double Stage Reduction



Size	FA	FB	FC	FD	FF	FH	FJ
9060	440	160	105	64	801	180	480
9065	440	160	105	64	847	180	480
9070	490	200	105	64	901	220	530
9075	490	200	105	64	954	220	530
9080	540	225	105	59	1021	245	580
9085	540	225	105	59	1077	245	580

Unit: mm

Technical

Common

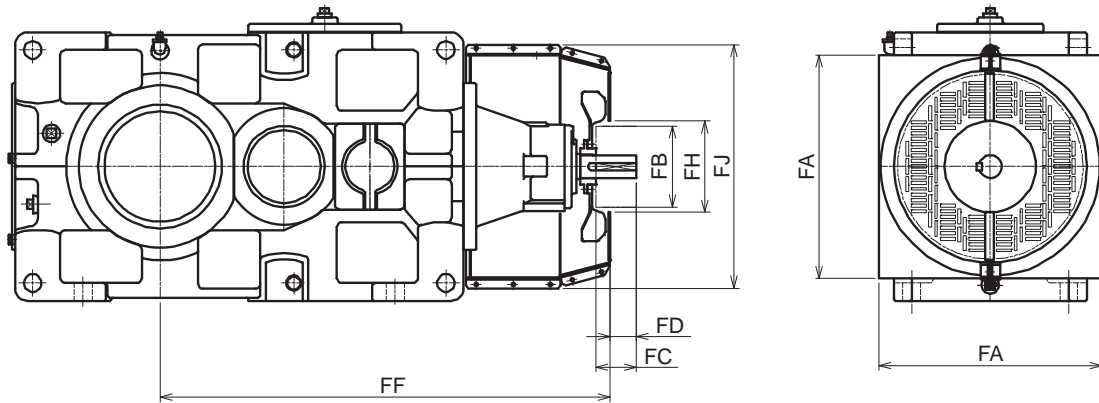
Option

Split Fan Hood (Right Angle Shaft)

Dimension

Horizontal Mounting

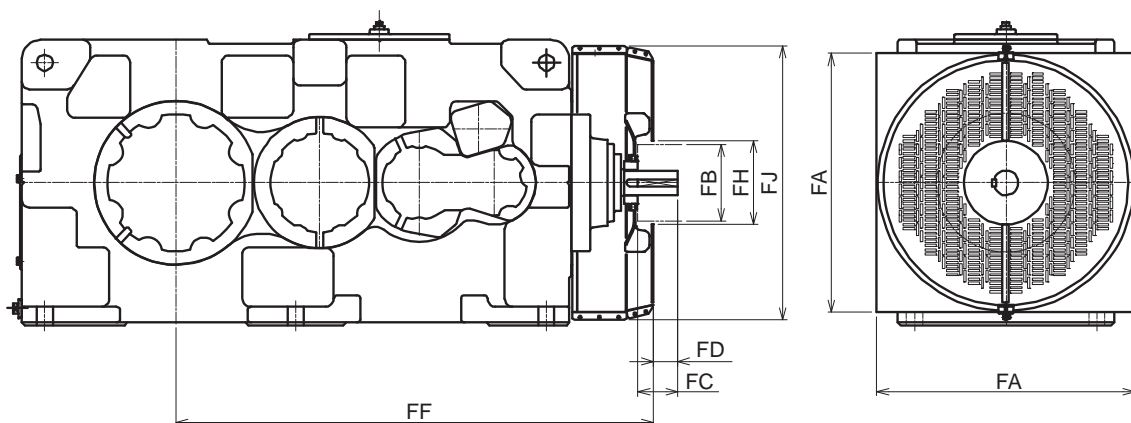
PHD9060-9085 Right Angle Shaft Triple Stage Reduction



Size	FA	FB	FC	FD	FF	FH	FJ
9060	440	160	80	51	888	180	480
9065	440	160	80	51	934	180	480
9070	490	160	80	51	976	180	530
9075	490	160	80	51	1029	180	530
9080	540	160	105	64	1112	180	580
9085	540	160	105	64	1168	180	580

Unit: mm

PHD9090-9105 Right Angle Shaft Triple Stage Reduction



Size	FA	FB	FC	FD	FF	FH	FJ
9090	680	200	105	67	1257	220	720
9095	680	200	105	67	1287	220	720
9100	760	225	105	62	1416	245	800
9105	760	225	105	62	1450	245	800

Unit: mm

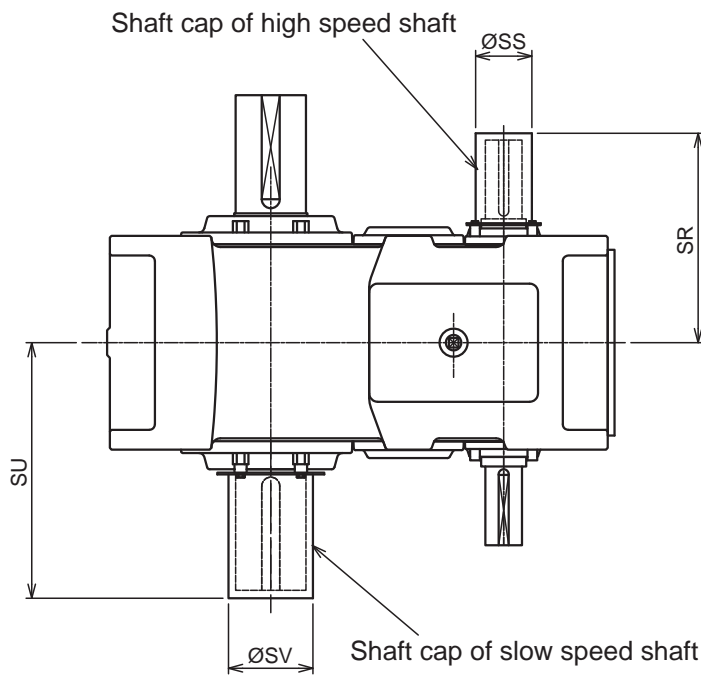
Shaft Cap

For a machine or auxiliary unit that has to use a different shaft due to layout change, a dual output shaft reducer is often chosen so that either side may be used for the output. This cap is used as a safety cover in such cases.

Specification

- The cap is made of welded thin sheet metal.
- The cap is processed for installation on both sides. You can remove a fitted shaft cap, and place it over the shaft on the other side.

Dimension



For slow speed shaft

Size	SU	ØSV
9030	345	120
9035	342	130
9040	362	135
9045	404	145
9050	424	150
9055	424	160
9060	454	150
9065	499	170
9070	524	170
9075	577	190
9080	597	190
9085	601	230
9090	666	230
9095	716	230
9100	756	240

Unit: mm

For high speed shaft

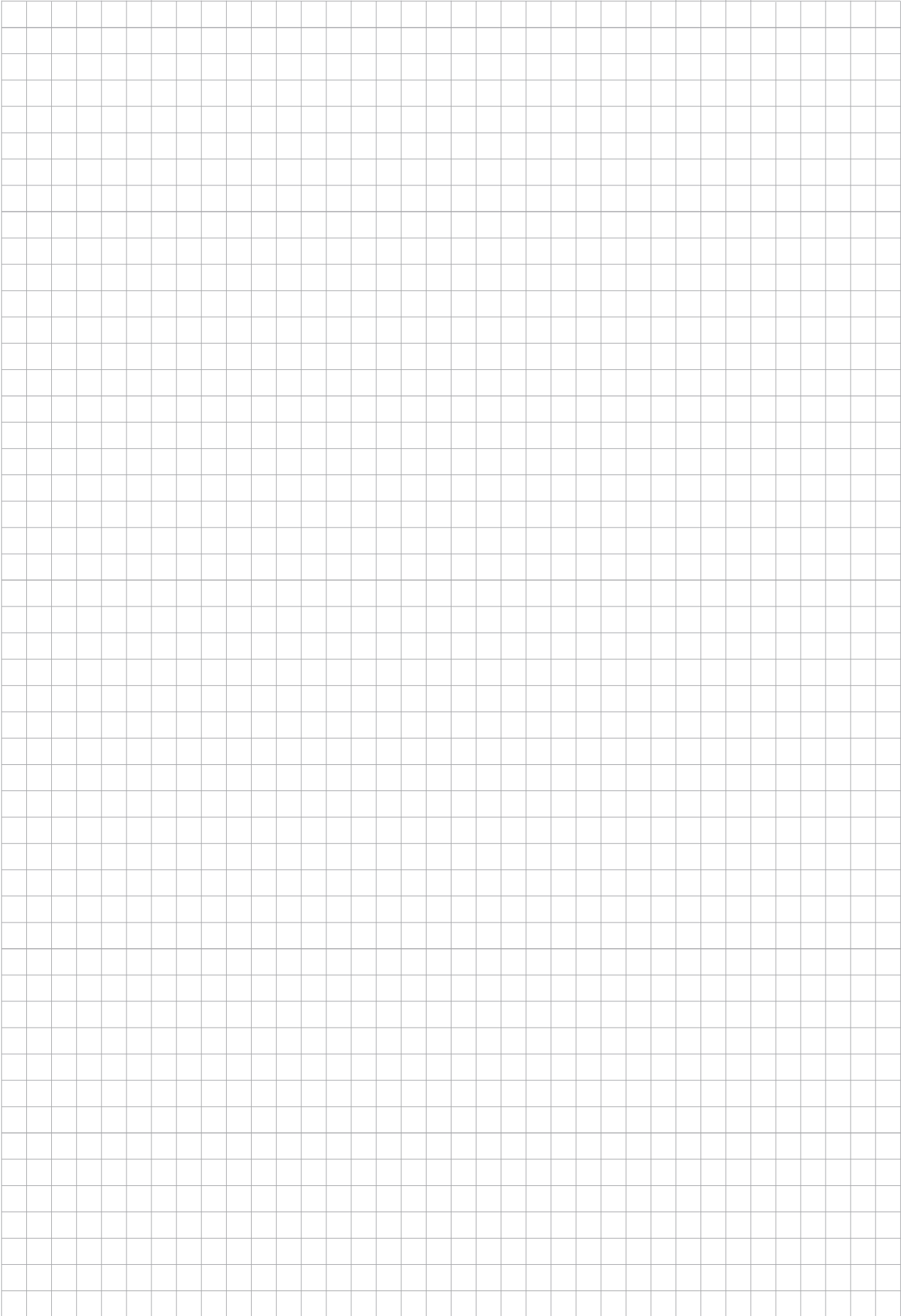
Size	SR	ØSS
9050	2 stage	312
	3 stage	278
9055	2 stage	312
	3 stage	278
9060	2 stage	372
	3 stage	337
9065	2 stage	372
	3 stage	337
9070	2 stage	394
	3 stage	362
	4 stage	362
9075	2 stage	394
	3 stage	362
	4 stage	362
9080	2 stage	444
	3 stage	414
	4 stage	384
9085	2 stage	444
	3 stage	414
	4 stage	384
9090	2 stage	508
	3 stage	478
	4 stage	448
9095	2 stage	508
	3 stage	478
	4 stage	448
9100	2 stage	595
	3 stage	525
	4 stage	526

Unit: mm

Technical

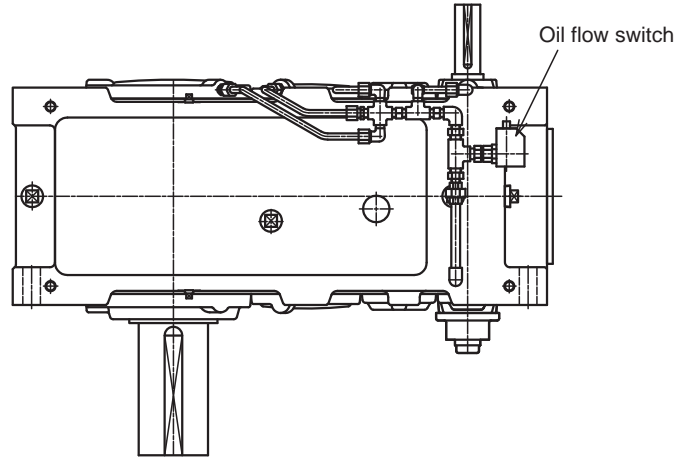
Common

Option



Oil Flow Switch

This flow switch may be directly installed on the forced lubrication pipe to sound an alarm if a pump stops to terminate the oil flow or to control the operation of the reducer. This is useful to prevent reducer damage attributable to poor lubrication. The diagram on the right shows an installation example of the flow switch.

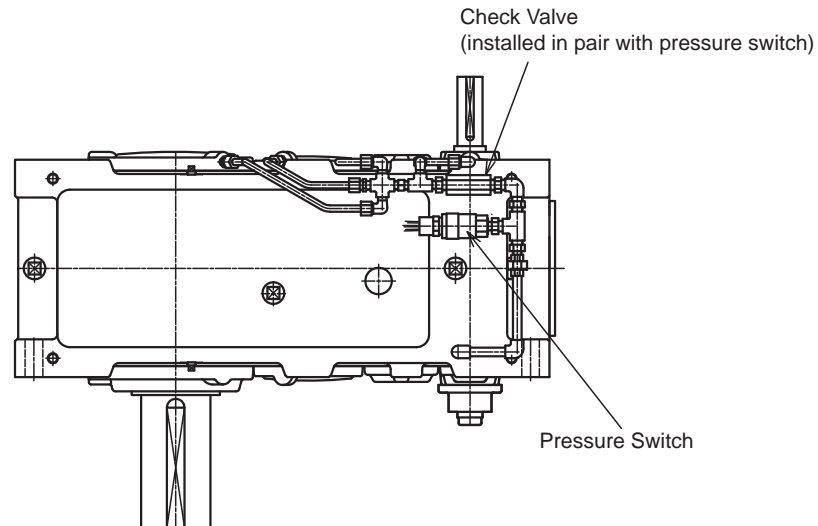


Specification

- This flow switch (fluid sensor) uses an electronic sensor system, and therefore has no moving parts to remain free from problems caused by grime accumulation or blockage. This feature makes it a maintenance-free switch.
- The sensor is adjusted at the factory on shipment, and requires no further adjustment by users.

Oil Pressure Switch

This pressure switch may be directly installed on the forced lubrication pipe to sound an alarm if a pump stops to terminate oil circulation and reduces hydraulic pressure, or to stop the operation of the reducer. This is useful to prevent reducer damage attributable to poor lubrication. The diagram below shows an installation example of the pressure switch.

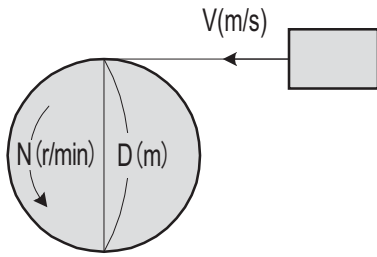


Specification

- The pressure in the forced lubrication pipe fluctuates largely according to oil temperature. However, this option applies a check valve to generate pressure above a certain level as long as there is oil flow, and therefore allows you to positively determine whether there is oil flow or not. The sensor is adjusted at the factory on shipment, and requires no further adjustment by users.

TECHNICAL DATA Formula of Drive System SI Units

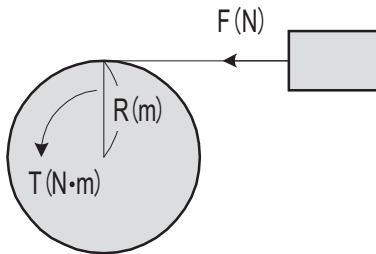
1. Revolving Speed N(r/min), Velocity V(m/s)



$$V = \pi \cdot D \cdot \frac{N}{60} \quad (\text{m/s})$$

π : Circular constant (≈ 3.14)
 D : Wheel Diameter (m)

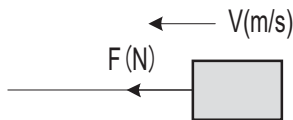
2. Torque T (Nm)



$$T = F \cdot R \quad (\text{N} \cdot \text{m})$$

F : Load (N)
 R : Wheel Radius (m)

3. Power P(kW)



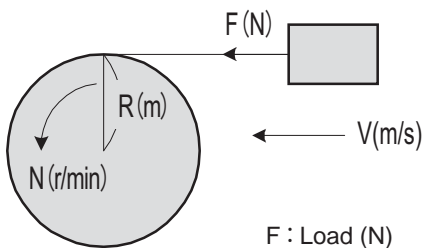
$$P = \frac{F \cdot V}{1000} \quad (\text{kW})$$

F : Load (N)
 V : Velocity (m/s)

4. Power P(kW), Torque T(Nm), Revolving Speed N(r/min)

$$P = \frac{N \cdot T}{9550} \quad (\text{kW}), \quad T = \frac{9550 \cdot P}{N} \quad (\text{N} \cdot \text{m})$$

$$P = \frac{F \cdot V}{1000} \quad (\text{kW}), \quad V = \pi \cdot 2 \cdot R \cdot \frac{N}{60} \quad (\text{m/s})$$



$$\therefore P = \frac{F \cdot \pi \cdot 2 \cdot R \cdot \frac{N}{60}}{1000} = \frac{2 \cdot \pi}{1000 \times 60} \cdot N \cdot F \cdot R \quad (\text{kW})$$

Since $T = F \cdot R$

$$P = \frac{2 \cdot \pi}{1000 \times 60} \cdot N \cdot T = \frac{N \cdot T}{9550} \quad (\text{kW})$$

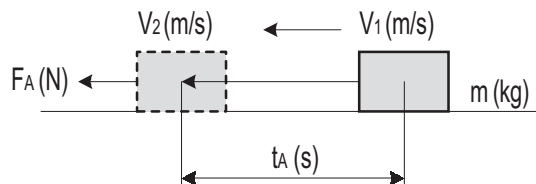
Technical

Common

Option

TECHNICAL DATA Formula of Drive System SI Units

5. Acceleration Force F_A (N)



$$F_A = m \cdot \alpha = m \cdot \frac{V_2 - V_1}{t_A} \text{ (N)}$$

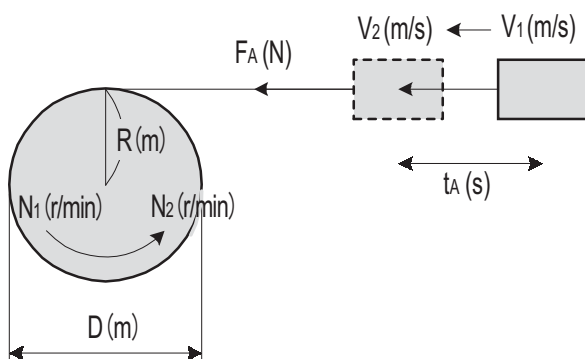
$$\alpha = m \cdot \frac{V_2 - V_1}{t_A}$$

m : Mass (kg)

α : Acceleration (m/s²)

t_A : Acceleration Time (s)

6. Acceleration Torque T_A (Nm)



$$T_A = F_A \cdot R, \quad F_A = m \cdot \frac{V_2 - V_1}{t_A}$$

$$V_2 = \pi \cdot D \cdot \frac{N_2}{60}, \quad V_1 = \pi \cdot D \cdot \frac{N_1}{60},$$

$$D = 2 \cdot R$$

$$\therefore T_A = m \cdot \frac{\pi \cdot 2 \cdot R}{60} (N_2 - N_1) \cdot R$$

$$= \frac{2 \pi \cdot m \cdot R}{60} \cdot \frac{N_2 - N_1}{t_A} \cdot R$$

$$= \frac{m \cdot R^2}{9.55} \cdot \frac{N_2 - N_1}{t_A} \text{ (N} \cdot \text{m)}$$

Since $m \cdot R^2$ is J (Moment of Inertia : kg-m²)

$$T_A = \frac{J}{9.55} \cdot \frac{N_2 - N_1}{t_A} \text{ (N} \cdot \text{m)}$$

7. Synchronized Revolving Speed of AC Motor N_0 (r/min)

$$N_0 = \frac{120 \cdot f}{P} \text{ (r/min)}$$

f : Power Supply Frequency (Hz)

P : No. of Motor Poles

8. Rated Revolving Speed of AC Motor N (r/min)

$$N = N_0(1 - S) \text{ (r/min)}$$

N_0 : Synchronized Revolving Speed (r/min)

S : Slippage

Warranty

Warranty Period	The warranty period for the Products shall be 18 months after the commencement of delivery or 18 months after the shipment of the Products from the seller's works or 12 months from the Products coming into operation, whichever comes first.
Warranty Condition	In Case that any problems, troubles or damages on the Products arise due to the defects in the Products during the above "Warranty Period" , although the Products are appropriately and properly installed in, connected or combined to the equipment or machines, or maintained in accordance with the maintenance manual and are properly operated under the conditions as described in the catalogue or otherwise as agreed upon in writing between the Seller and the Buyer or its customers, the Seller will provide, at its sole discretion, appropriate repair or replacement on the Products free of charge, except as stipulated in the "Exception for Warranty" as described below. However, in the event that the Products is installed in, connected or combined to or integrated into the equipment or machines, the Seller shall not reimburse the costs for removal or re-installation of the Products or other incidental costs related thereto and any lost opportunity, loss of profit or any other incidental or consequential losses or damages incurred by the Buyer or its customers.
Exception for Warranty	Notwithstanding the above warranty, the warranty as set forth herein shall not be applied to the problems, troubles or damages on the Products which are caused by: <ol style="list-style-type: none"> 1. installations, connections, combinations or integration of the Products in or to the other equipment or machines, which are rendered by any person or entity other than the Seller, 2. the insufficient maintenance or improper operation by the Buyer or its customers, such that the Product is not appropriately maintained in accordance with the maintenance manual provided or designated by the Seller, 3. the improper use or operation of the Products by the Buyer or its customers which are not informed to the Seller, including, without limitation, the Buyer's or its customers' operation of the Products not in conformity with the specifications, or use of the lubrication oil in the Products which is not recommended by the Seller, 4. troubles, problems or damages on any equipment or machines in or to which the Products are installed, connected or combined or installed, or any specifications particular to the Buyer or its customers.



SAFETY PRECAUTIONS

- Strictly observe the safety rules for the installation place and the equipment to use.
(Industrial Safety and Health Law, Technical Standard for Electric Facilities, Extension Rules, Plant Explosion Guidelines, Building Standards Law, etc.)
- Carefully read the maintenance manual before use. If the maintenance manual is not on hand, make a request for one to the distributor at which you purchased the product or to our sales department. The maintenance manual should be sent to the actual user.
- Select an appropriate product that matches the operating environment and usage.
- Install a protective equipment on the machine side when the machine is used for transportation of passengers or for elevators, escalators, and dumbwaiters.
- When the machine is used for food processing equipment and others that are susceptible to oil, install an oil pan or other damage preventive devices in case of oil leakage due to failure or termination of service life.

