

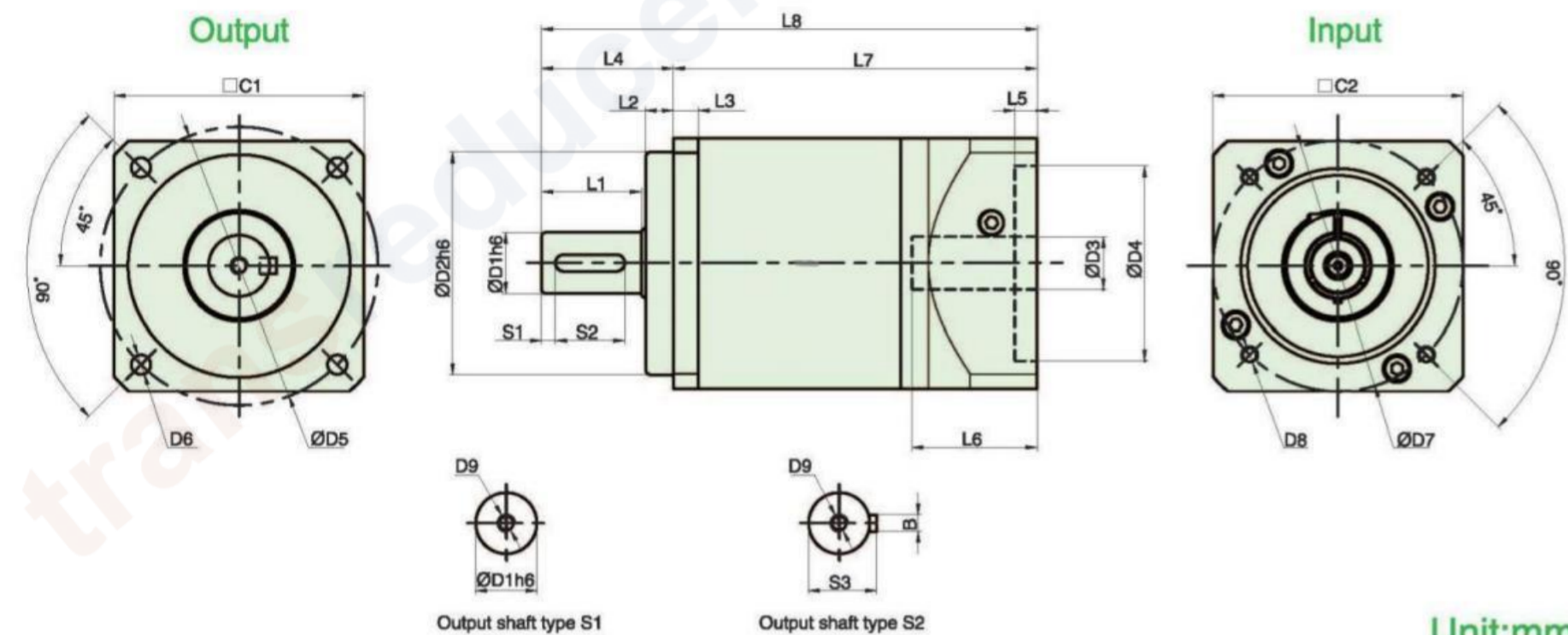
MODEL: AF

2-Stage

Ratio: 12, 15, 16, 20, 25, 28, 30, 35, 40, 50, 70, 80, 100



Dimensions:



Unit:mm

Size	AF042-L2	AF060-L2	AF090-L2	AF120-L2	AF150-L2	AF180-L2	AF220-L2
D1	13	16	22	32	40	55	75
D2	35	50	80	110	130	160	180
D3	8(≤11)	14(≤14)	19(≤24)	24(≤32)	35(≤42)	38(≤50)	55(≤55)
D4	30(30~50)	50(30~70)	70(50~110)	110(50~130)	130(95~180)	180(95~180)	200(180~250)
D5	50	70	100	130	165	215	250
D6	4-Ø4.2	4-Ø5.5	4-Ø7	4-Ø9	4-Ø11	4-Ø13	4-Ø17
D7	46(22~70)	70(45~90)	90(70~145)	145(70~145)	145(90~215)	200(145~300)	235(200~300)
D8	M3~M5	M3~M6	M4~M10	M6~M10	M8~M13	M10~M13	M10~M13
D9	M4×0.7P	M5×0.8P	M6×1.0P	M8×1.25P	M12×1.75P	M12×1.75P	M20×2.5P
L1	20	28	36	50	74	82	105
L2	5.5	7	10	12	15	20	30
L3	7	8	9	12	15	16	20
L4	27	36	47.5	65	92	106	138
L5	4(2~7)	5(2~10)	8(4~10)	10(4~10)	10(4~10)	12.5(4~12.5)	12.5(4~12.5)
L6	26	32(30~42)	45(25~60)	65(50~80)	84(50~90)	105(50~130)	105(60~130)
L7	72	111.5	131	175.3	213.3	257	328
L8	99	147.5	178.5	240.3	305.3	363	466
C1	42	62	90	120	150	180	220
C2	42(42~70)	62(62~90)	90(90~165)	120(115~130)	150(142~200)	182(182~220)	220
S1	3	3	5	5	5	6	7
S2	15	20	25	40	60	70	90
S3	15	18	24.5	35	43	59	79.5
B	5	5	6	10	12	16	20

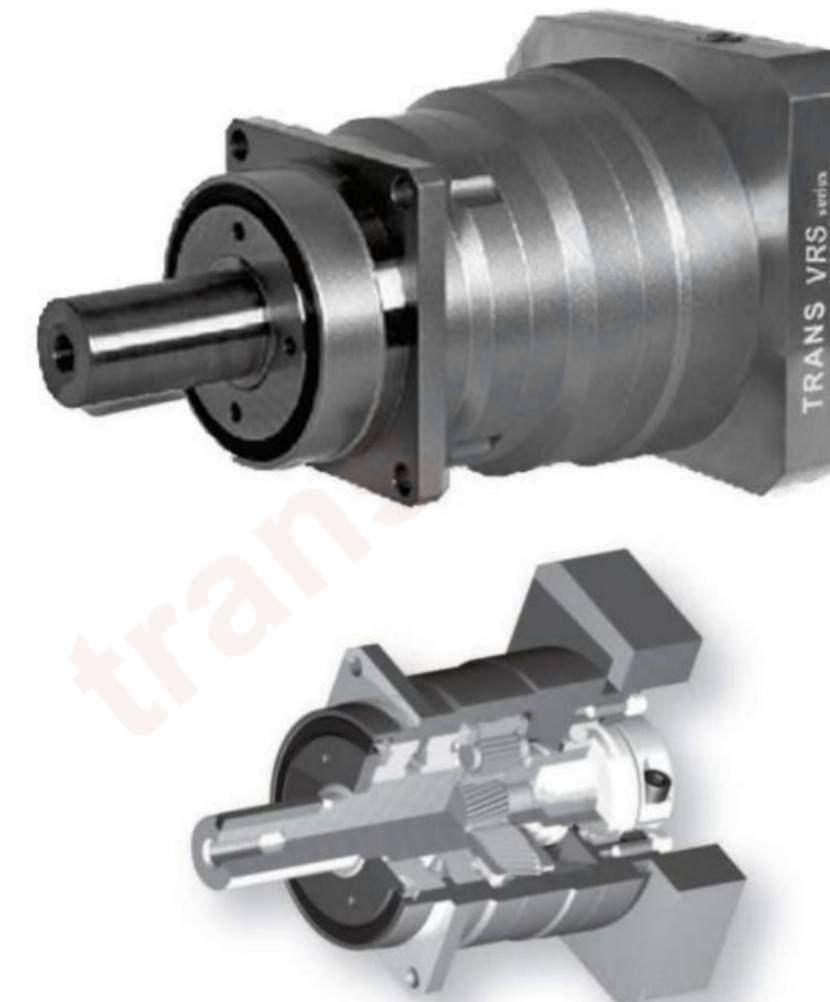
Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.

Note 2: The reducer output shaft size and length can be customized for customers.

Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

PRECISION PLANETARY GEARBOX

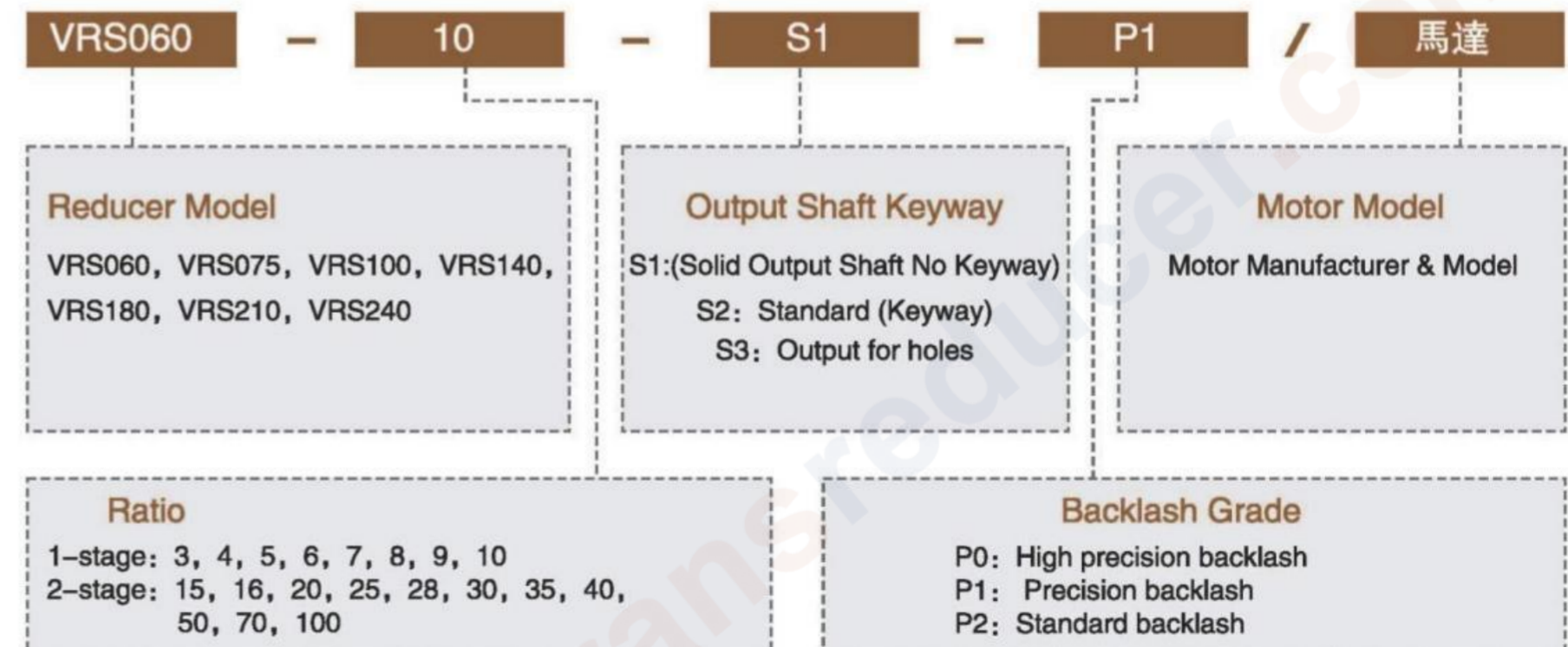
VRS



- High precision
The backlash is less than 3 arcmin and the positioning is accurate.
- High rigidity & torque
The use of integral ball bearings greatly improves the rigidity and torque.
- High load capacity
The main output shaft adopts taper roller bearing to greater increase the radial and axial force.
- Methods of flange and connector
It can be installed on any motor in the world.
- No grease leakage
The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.
- Convenient maintenance
No need to replace the grease in the product life period, and the installation is more convenient.

Model Selection of Speed Reducers

VRS Type



Model Example: VRS180-100-S2-P1/Panasonic MSMJ 082S1A

VRS Reducer Specifications

Specs	Unit	Stage	Ratio	VRS060	VRS075	VRS100	VRS140	VRS180	VRS210	VRS240		
Rated Output Torque / T _{2N}	Nm	1	3	55	130	208	342	588	1140	1500		
			4	50	140	290	542	1050	1700	2500		
			5	60	160	330	650	1200	2000	2500		
			6	55	150	310	600	1100	1900	2260		
			7	50	140	300	550	1100	1800	2300		
			8	45	120	260	500	1000	1600	2100		
			9	40	100	230	450	900	1500	1800		
			10	40	100	230	450	900	1500	1800		
			2	15	55	130	208	342	588	1140	2300	
				16	55	130	208	342	588	1140	2300	
		20		50	140	290	542	1050	1700	2500		
		25		60	160	330	650	1200	2000	2500		
		28		60	160	330	650	1200	2000	2500		
		30		55	150	310	600	1100	1900	2300		
		35		50	140	300	550	1100	1800	2200		
		40		45	120	260	500	1000	1600	2350		
		Max. Output Torque / T _{200r1}	Nm	1,2	3~100	3Times of Nominal Output Torque						
						Rated Input Speed / Π _{IN}	rpm	1,2	3~100	5000	4000	4000
Max. Input Speed / Π _{IS}	rpm	1,2	3~100	10000	8000	8000	6000	6000	4000	2500		
Precision Backlash P1	arcmin	1	3~10	≤1	≤1	≤1	≤1	≤1	≤1	≤1		
Standard Backlash P2	arcmin	1	3~10	≤3	≤3	≤3	≤3	≤3	≤3	≤3		
		2	15~100	≤5	≤5	≤5	≤5	≤5	≤5	≤5		
Torsional Rigidity	Nm/arcmin	1,2	3~100	7	14	25	50	145	225	260		
Max. Radial Force / F _{2R} ²	N	1,2	3~100	2750	4100	6400	9880	15000	20000	27500		
Max. Axial Force / F _{2A} ²	N	1,2	3~100	2350	3200	5360	9690	14200	28000	30000		
Service Life	hr	1,2	3~100	20000h								
Efficiency / η	%	1	3~10	≥96%								
		2	15~100	≥93%								
Weight	kg	1	3~10	1.8	3.8	7.2	16.8	32	49	65		
		2	15~100	2.1	4.1	8.1	17.5	35	53	70		
Operating Temperature	°C	1,2	3~100	(-15°C ~ +90°C)								
Lubrication		1,2	3~100	(Synthetic Grease)								
Protection Class		1,2	3~100	IP65								
Mounting Position		1,2	3~100	(Any Direction)								
Noise Level(n1=3000rpm, No load)	dB(A)	1,2	3~100	≤62	≤62	≤65	≤68	≤68	≤70	≤70		

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	VRS060	VRS075	VRS100	VRS140	VRS180	VRS210	VRS240	
Moment of Inertia	kg.cm ²	1	3	0.16	0.61	3.25	9.21	28.98	69.61	82.16	
			4	0.14	0.48	2.74	7.54	23.67	54.37	75.58	
			5	0.13	0.47	2.71	7.42	23.29	53.27	75.29	
			6	0.13	0.45	2.65	7.25	22.75	51.72	72.35	
			7	0.13	0.45	2.62	7.14	22.48	50.97	69.13	
			8	0.13	0.44	2.58	7.07	22.59	50.84	69.22	
			9	0.13	0.44	2.57	7.04	22.53	50.63	66.23	
			10	0.13	0.44	2.57	7.03	22.51	50.56	66.23	
			2	15~40	0.03	0.13	0.47	2.71	7.42	23.29	48.23
				50~100	0.03	0.13	0.44	2.57	7.03	22.51	45.58

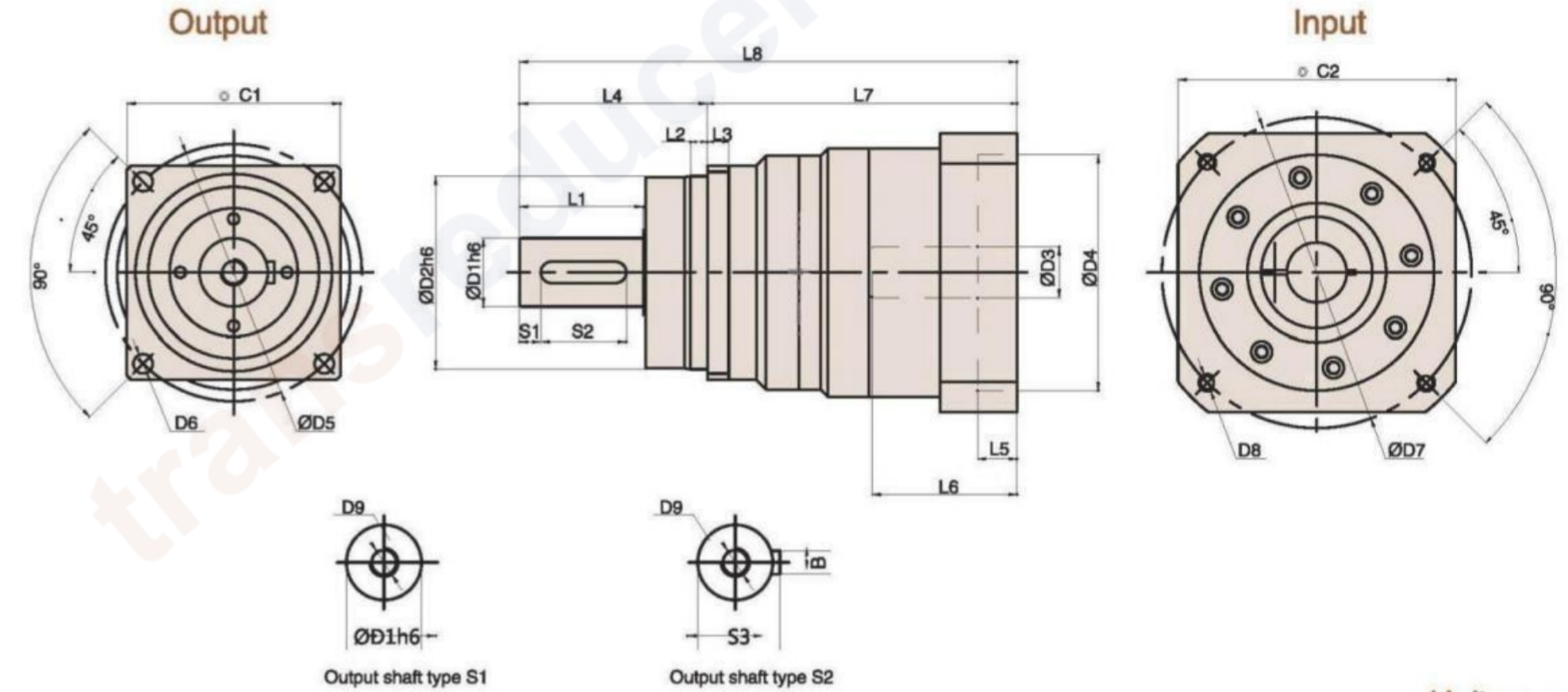
- Ratio (i=Nin/Nout)
- When output speed is 100rpm, acting on the output shaft center position
- *Continuous operation, service life is 10000hrs

MODEL: VRS

1-Stage
Ratio: 3, 4, 5, 6, 7, 8, 9, 10



Dimensions:



Unit:mm

Size	VRS060-L1	VRS075-L1	VRS100-L1	VRS140-L1	VRS180-L1	VRS210-L1	VRS240-L1
D1	16	22	32	40	55	75	85
D2	60	70	90	130	160	180	200
D3	8(8~19)	14(14~24)	19(19~35)	24(24~48)	38(38~48)	48(48~55)	60
D4	30(30~70)	50(50~110)	70(70~114.3)	110(110~114.3)	114.3(114.3~200)	200	220
D5	68	85	120	165	215	250	290
D6	4-Ø5.5	4-Ø6.6	4-Ø9	4-Ø11	4-Ø13.5	4-Ø17	4-Ø17
D7	46(45~90)	70(70~145)	90(90~200)	145(145~200)	200(200~235)	235	240
D8	M3~M5	M4~M8	M5~M12	M8~M12	M12	M12	M16
D9	M5	M8	M12	M16	M20	M20	M20
L1	28	36	58	82	82	105	130
L2	5	6	8	10	12	15	20
L3	6	7	10	12	15	17	20
L4	48	56	88	112	112	143	170
L5	7.5~9	10.5~16	12~36.5	8	10	10	12
L6	42~43.5	50.5~66	62~82	69~115	83~117	116	55
L7	94.5~96	117.5~133	139~153	170~216	210~244	257	295
L8	142.5~144	173.5~189	227~247	282~328	322~356	400	465
C1	60	75	100	140	182	215	240
C2	40(40~80)	60(60~130)	80(80~180)	130(130~180)	180(180~220)	220	250
S1	2	3	10	5	6	7	3
S2	22	28	40	70	70	90	105
S3	18	24.5	35	43	59	79.5	90
B	5	6	10	12	16	20	22

- Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.
 Note 2: The reducer output shaft size and length can be customized for customers.
 Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

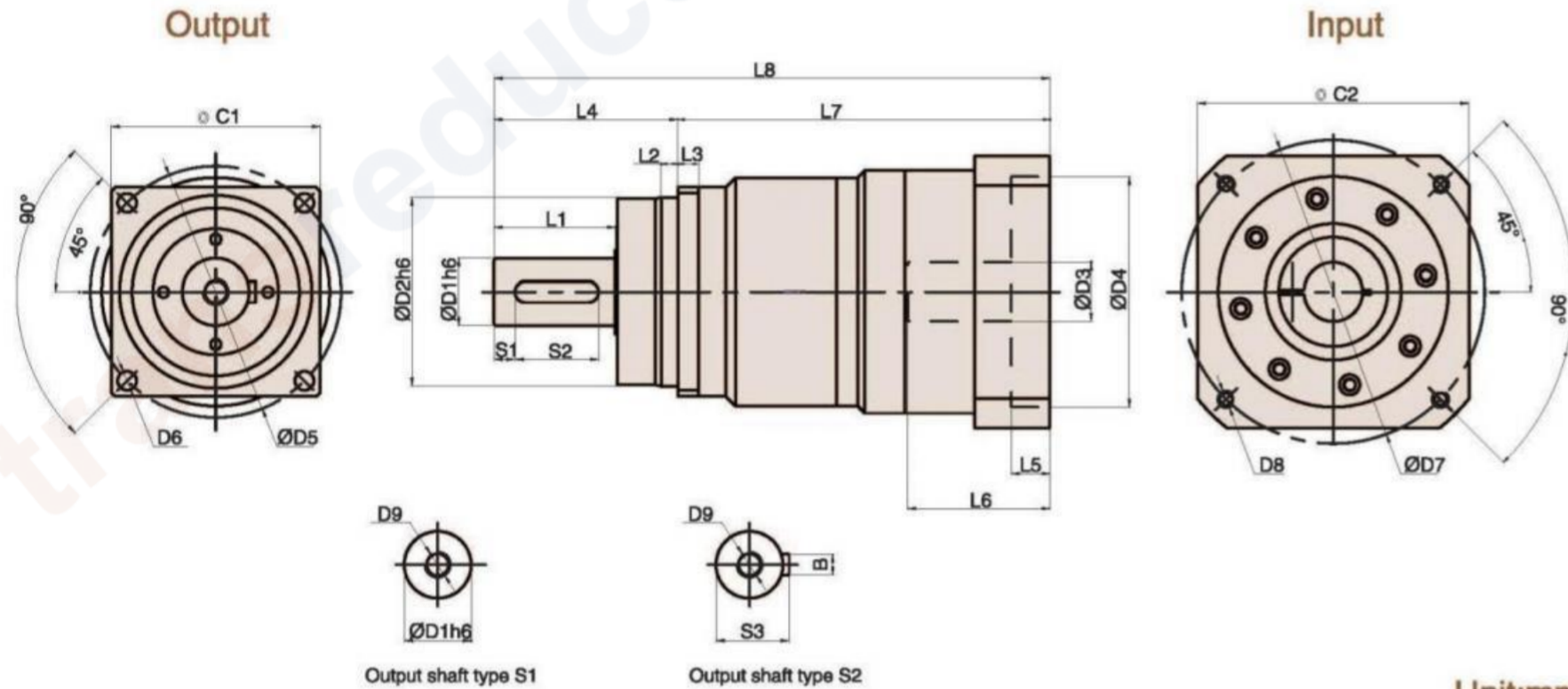
MODEL: VRS

2-Stage

Ratio: 15, 16, 20, 25, 28, 30, 35, 40, 50, 70, 100



Dimensions:



Unit:mm

Size	VRS060-L2	VRS075-L2	VRS100-L2	VRS140-L2	VRS180-L2	VRS210-L2	VRS240-L2
D1	16	22	32	40	55	75	85
D2	60	70	90	130	160	180	200
D3	8(8 ~ 14)	14(14 ~ 24)	19(19 ~ 28)	24(24 ~ 38)	38(24 ~ 42)	48(48 ~ 55)	48
D4	30(30 ~ 50)	50(50 ~ 110)	50(50 ~ 110)	110(110 ~ 114.3)	114.3(110 ~ 114.3)	200	220
D5	68	85	120	165	215	250	290
D6	4-Ø5.5	4-Ø6.6	4-Ø9	4-Ø11	4-Ø13.5	4-Ø17	4-Ø17
D7	46(45 ~ 70)	70(70 ~ 145)	70(70 ~ 145)	145(145 ~ 200)	200(145 ~ 200)	235	240
D8	M3 ~ M5	M4 ~ M8	M5 ~ M8	M8 ~ M12	M8 ~ M12	M12	M16
D9	M5	M8	M12	M16	M20	M20	M20
L1	28	36	58	82	82	105	130
L2	5	6	8	10	12	15	20
L3	6	7	10	12	15	17	20
L4	48	56	88	112	112	143	170
L5	8 ~ 9	10.5 ~ 16	12 ~ 18.5	6 ~ 8	6 ~ 10	10	12
L6	42.5 ~ 43.5	50.5 ~ 66	61 ~ 68	69 ~ 81	69 ~ 117	116	55
L7	116.5 ~ 117.5	143 ~ 158.5	172 ~ 178	210 ~ 222	236.5 ~ 293.5	257	346
L8	164.5 ~ 165.5	199 ~ 214.5	260 ~ 266	322 ~ 334	348.5 ~ 406.5	400	516
C1	60	75	100	140	182	215	240
C2	40(40 ~ 65)	60(60 ~ 130)	60(60 ~ 130)	130(130 ~ 180)	130(130 ~ 180)	220	250
S1	2	3	10	5	6	7	3
S2	22	28	40	70	70	90	105
S3	18	24.5	35	43	59	79.5	90
B	5	6	10	12	16	20	22

Note 1: Inside of () is the optional range of sizes, outside of () is the standard sizes.

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Note 3: The input size can be changed according to the servomotor or stepper motor of each brand.

PRECISION PLANETARY GEARBOX

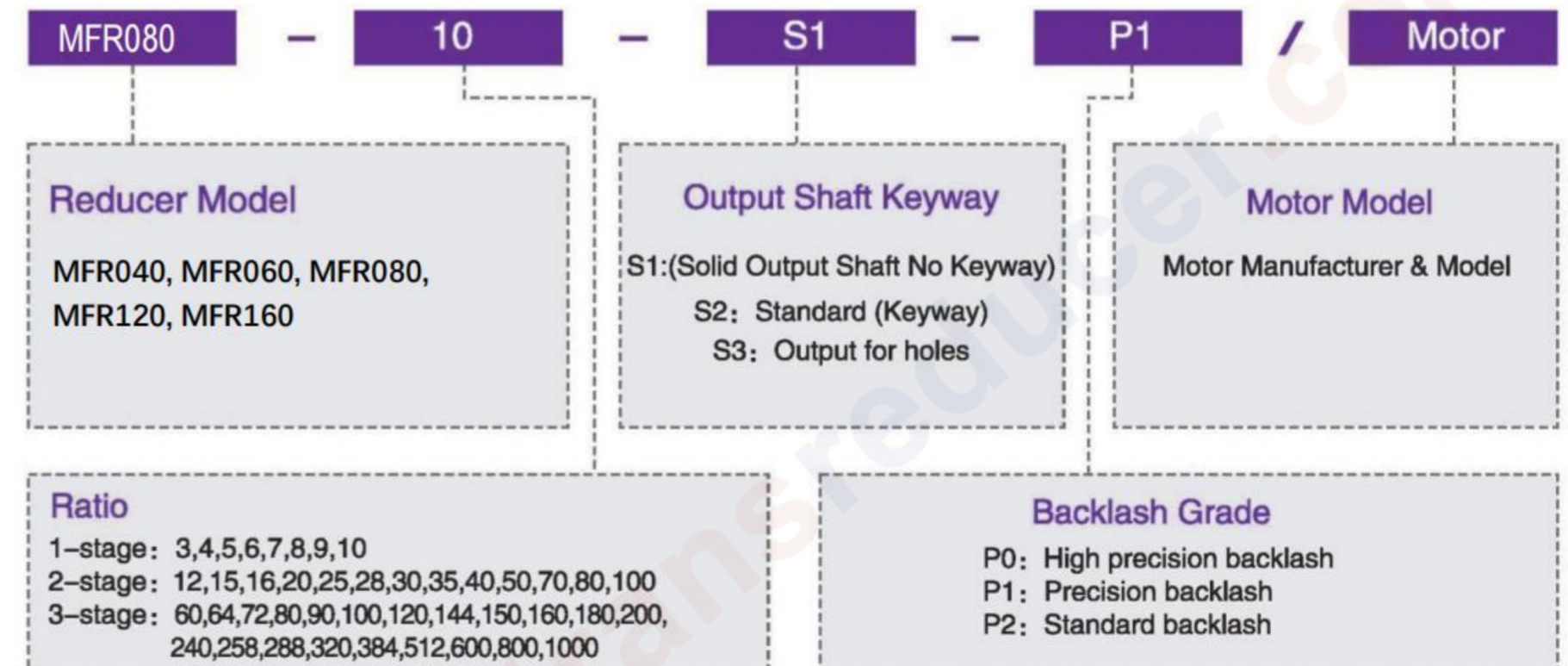
MFR



- Space-saving
The straight cross reducer uses spiral bevel gear. The installation of the motor can achieve 90 degree bending and save the installation space.
- High rigidity & torque
The use of integral ball bearings greatly improves the rigidity and torque.
- Connector and shaft sleeve mode
It can be installed on any motor in the world.
- No grease leakage
The use of grease with high viscosity which is not easy to separate effectively prevents the grease leakage.
- Convenient maintenance
No need to replace the grease in the product life period, and the installation is more convenient.

Model Selection of Speed Reducers

MFR Type



Model Example: MFR080-100-S2-P1/Panasonic MSMJ 082S1A