

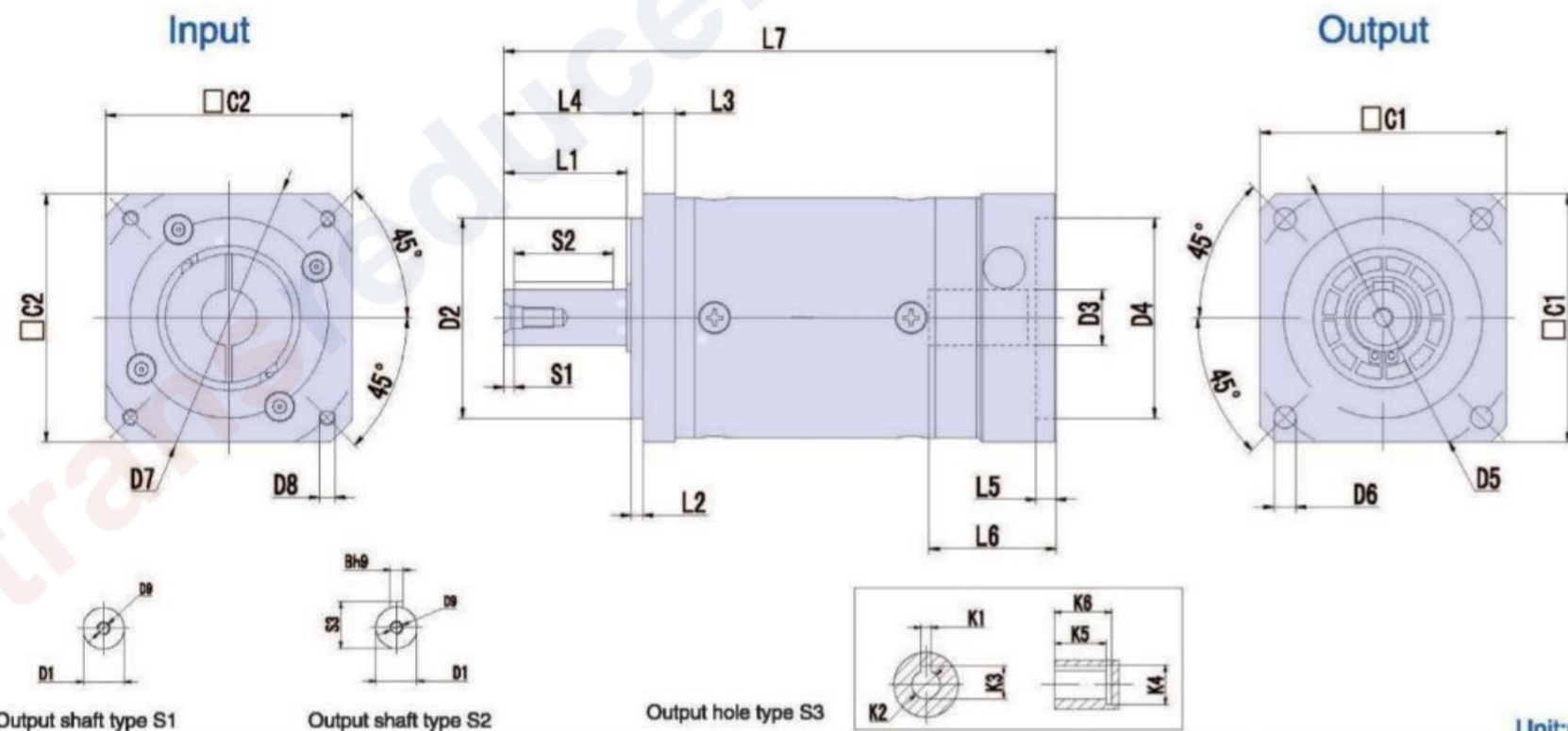
MODEL: MLF

2-Stage

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



Dimensions:



Unit:mm

Size	MLF04 -L2	MLF060 -L2	MLF080 -L2	MLF120 -L2	MLF160 -L2
D1	φ 3	φ 14(16)	φ 20(22)	φ 25(32)	φ 40
D2	φ 26	φ 50	φ 80	φ 110	φ 130
D3	φ 8(≤11)	φ 14(≤19)	φ 19(≤24)	φ 24(≤32)	φ 35(42)
D4	φ 30(30-50)	φ 50(50-70)	φ 70(50-110)	φ 110(70-130)	φ 114.3(110-150)
D5	φ 48	(φ 70)	(φ 100)	(φ 130)	φ 185(165)
D6	4- φ 3.4	4- φ 5	4- φ 6.5	4- φ 9	4- φ 11
D7	φ 46(45-70)	φ 70(70-130)	φ 90(70-145)	φ 145(90-165)	φ 200(145-220)
D8	(4-M4X8L)	(4-M4X10L)	(4-M5X12L)	(4-M8X25L)	(4-M12X25L)
D9	M4X0.7P	M5X0.8P	M6X1.0P	M10X1.5P	M16X2.0P
L1	18	31	36	50	80
L2	3	3	3	4	5
L3	4	8	10	15	16
L4	22.5	35	40	55	87
L5	(5)	(5)	(5)	(8)	(7)
L6	(32)	(37)	(42)	(59)	(86)
L7	(105)	(138)	(160)	(224)	(295)
C1	□45	□62	□90	□124	□175
C2	(□50)	(□62)	(□92)	(□120)	(□176)
S1	2	2.5	4	5	8
S2	14	25	28	40	65
S3	13.5	16	22.6	28	43
B	4	5	5	8	12
K1	3	3	6	8	10
K2	φ 8	φ 8	φ 18	φ 25	φ 35
K3	9.2	9.2	21	28	38.3
K4	φ 11	φ 11	φ 24	φ 32	φ 42
K5	20	20	30	40	52
K6	24	24	35	48	58

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

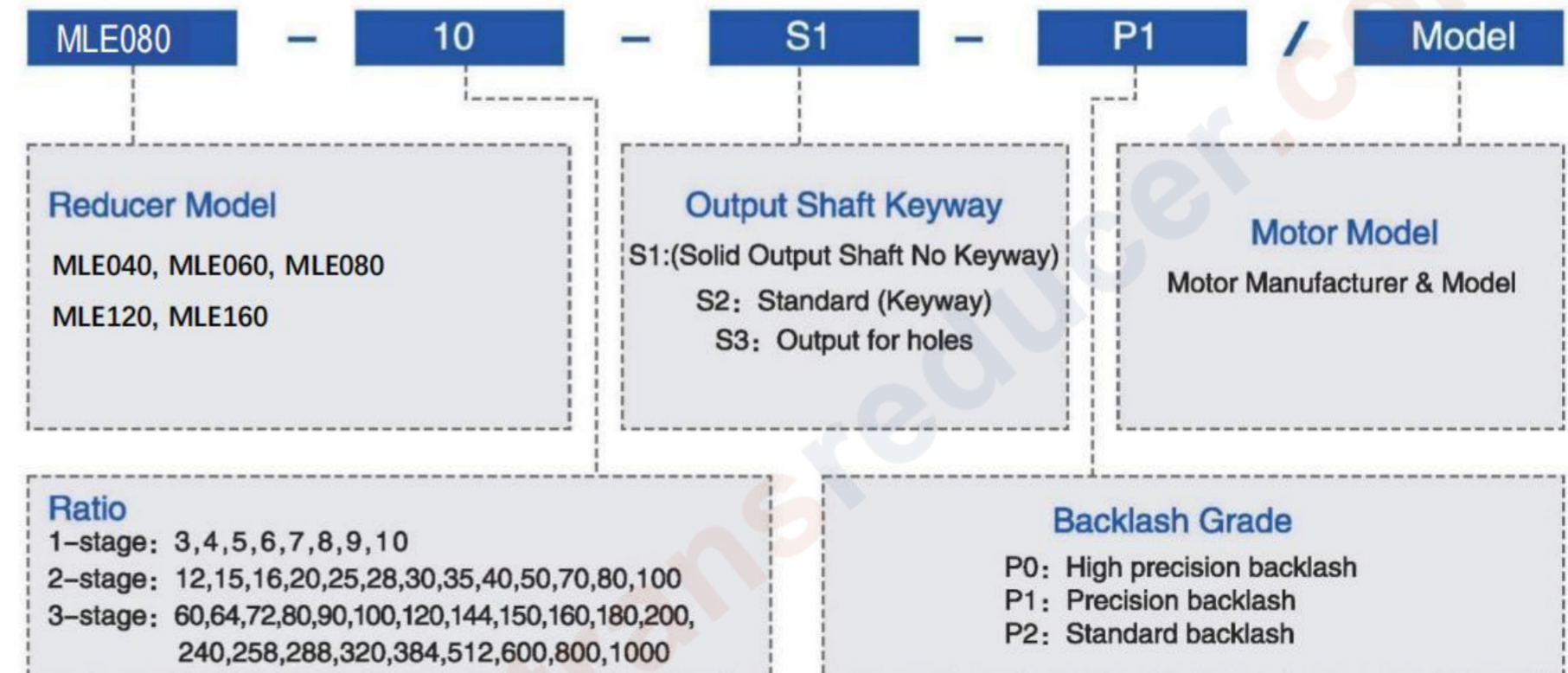
MLE



- Quiet operation
Helical gears are used to achieve smooth and quiet operation.
- 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.
- 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

MLE Type



Model Example: MLE080-100-S2-P1/Panasonic MSMJ 082S1A

MLE Reducer Specifications

Specs	Unit	Stage	Ratio	MLE040	MLE060	MLE080	MLE120	MLE160
Rated Output Torque / T_{2N}	Nm	1	3	17	28	112	165	423
			4	15	38	110	146	364
			5	14	40	108	160	423
			7	13	35	105	149	358
			10	12	25	100	141	293
		2	15	17	28	112	165	423
			20	15	38	110	146	364
			25	14	40	108	160	423
			30	13	28	112	165	423
			35	13	35	105	149	358
			40	12	38	110	146	364
			50	14	40	108	160	423
		70	13	35	105	149	358	
		100	12	25	100	141	293	
Max. Output Torque / T_{2Max}	Nm	1,2	3~100	3Times of Nominal Output Torque				
Rated Input Speed / Π_{1N}	rpm	1,2	3~100	3000	3000	3000	3000	2500
Max. Input Speed / Π_{1a}	rpm	1,2	3~100	5000	5000	5000	5000	3600
Precision Backlash P1	arcmin	1	3~10	≤ 3	≤ 3	≤ 3	≤ 3	≤ 3
		2	12~100	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
Standard Backlash P2	arcmin	1	3~10	≤ 5	≤ 5	≤ 5	≤ 5	≤ 5
		2	12~100	≤ 8	≤ 8	≤ 8	≤ 8	≤ 8
Torsional Rigidity	Nm/arcmin	1,2	3~100	3	6	12	22	50
Max. Radial Force / F_{2R}^2	N	1,2	3~100	320	460	1300	3200	6520
Max. Axial Force / F_{2A}^2	N	1,2	3~100	160	230	660	1600	3260
Service Life	hr	1,2	3~100	20000 h				
Efficiency / η	%	1	3~10	$\geq 97\%$				
		2	15~100	$\geq 94\%$				
Weight	kg	1	3~10	0.73	0.99	2.1	4.98	18.2
		2	15~100	1.05	1.46	3.2	6.92	24.9
Operating Temperature	°C	1,2	3~100	-25°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($n_1=3000$ rpm, No load)	dB(A)	1,2	3~100	≤ 62	≤ 63	≤ 65	≤ 67	≤ 68

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	MLE040	MLE060	MLE080	MLE120	MLE160
Moment of Inertia	kg.cm ²	1	3	0.16	0.63	3.48	12.84	36.72
			4	0.16	0.6	3.31	12.22	34.63
			5	0.16	0.59	3.28	12.1	34.24
			7	0.16	0.59	3.27	12.05	34.07
			10	0.16	0.59	3.26	12.03	34.02
		2	12~40	0.16	0.59	3.26	12.03	34.02
			50~100	0.16	0.59	3.26	12.03	34.02

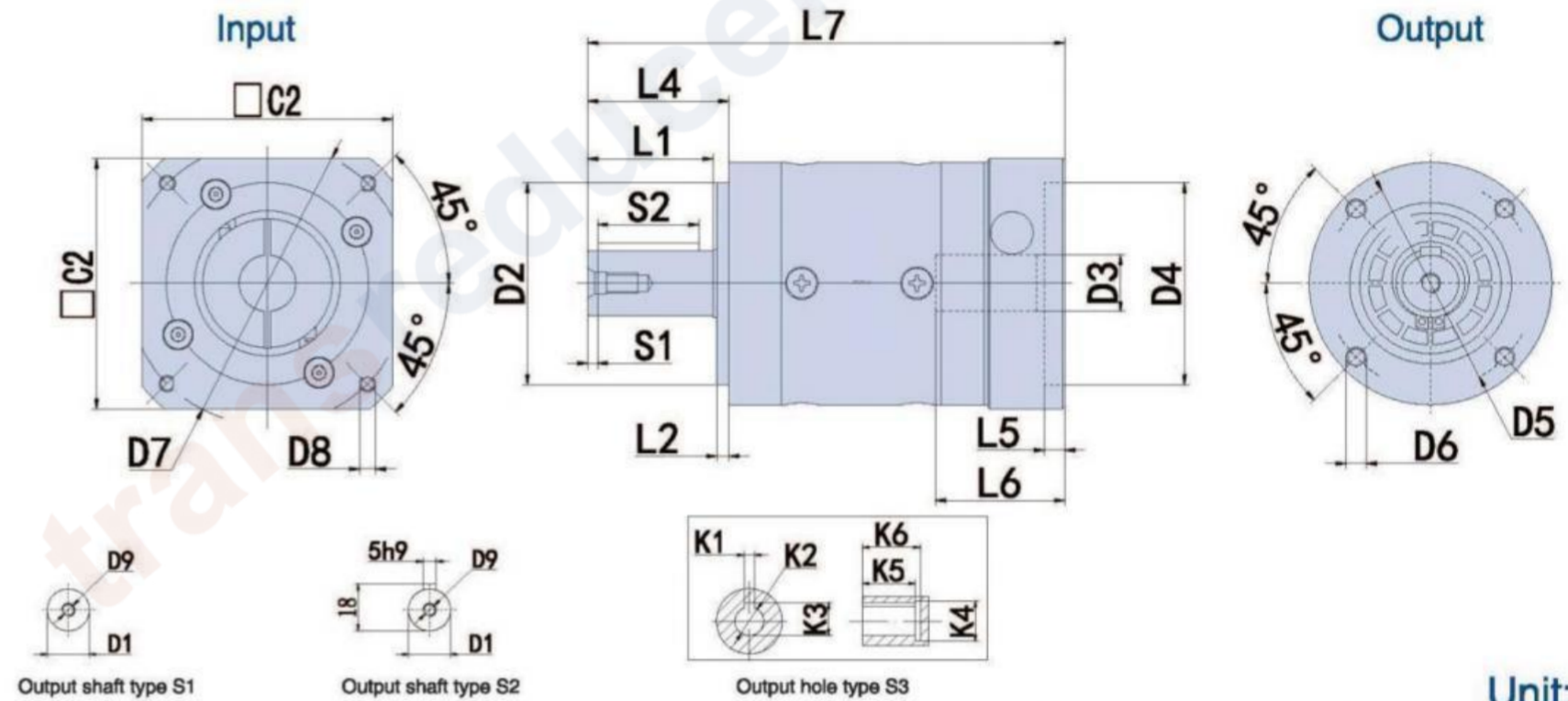
- Ratio ($i=N_{in}/N_{out}$)
- Output revolutions 100rpm, acting on the output shaft center position.
- *Continuous operation, service life is 10000hrs.

MODEL: MLE

1-Stage
Ratio: 3, 4, 5, 7, 10,



Dimensions:



Unit:mm

Size	MLE040 -L1	MLE060 -L1	MLE080 -L1	MLE120 -L1	MLE160 -L1
D1	$\phi 12(13)$	$\phi 14(16)$	$\phi 20(22)$	$\phi 25(32)$	$\phi 40$
D2	$\phi 26$	$\phi 40$	$\phi 60$	$\phi 80$	$\phi 130$
D3	$\phi 8(\leq 11)$	$\phi 14(\leq 19)$	$\phi 19(\leq 24)$	$\phi 24(\leq 32)$	$\phi 35(42)$
D4	$\phi 30(30-50)$	$\phi 50(50-70)$	$\phi 70(50-110)$	$\phi 110(70-130)$	$\phi 114.3(110-150)$
D5	$\phi 34$	$\phi 52$	$\phi 70$	$\phi 100$	$\phi 145$
D6	(4-M4)	(4-M5)	(4-M6)	(4-M10)	(4-M12)
D7	$\phi 46(45-70)$	$\phi 70(70-130)$	$\phi 90(70-145)$	$\phi 145(90-165)$	$\phi 200(145-220)$
D8	(4-M4X8L)	(4-M4X10L)	(4-M5X12L)	(4-M8X25L)	(4-M12X25L)
D9	M4X0.7P	M5X0.8P	M6X1.0P	M10X1.5P	M16X2.0P
L1	18	31	36	50	80
L2	2	3	3	4	5
L4	26	35	40	55	87
L5	(4)	(5)	(5)	(8)	(7)
L6	26	32	42	59	86
L7	88	113	148	181	282
C1	$\phi 42$	$\phi 60$	$\phi 80$	$\phi 120$	$\phi 160$
C2	($\square 50$)	($\square 62$)	($\square 92$)	($\square 120$)	($\square 176$)
S1	2	2	4	5	8
S2	14	25	28	40	65
S3	13.5	16	22.5	28	43
B	4	5	6	8	12
K1	3	3	6	8	10
K2	$\phi 8$	$\phi 8$	$\phi 18$	$\phi 25$	$\phi 35$
K3	9.2	9.2	21	28	38.3
K4	$\phi 11$	$\phi 11$	$\phi 24$	$\phi 32$	$\phi 42$
K5	20	20	30	40	52
K6	24	24	35	48	58

- 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.

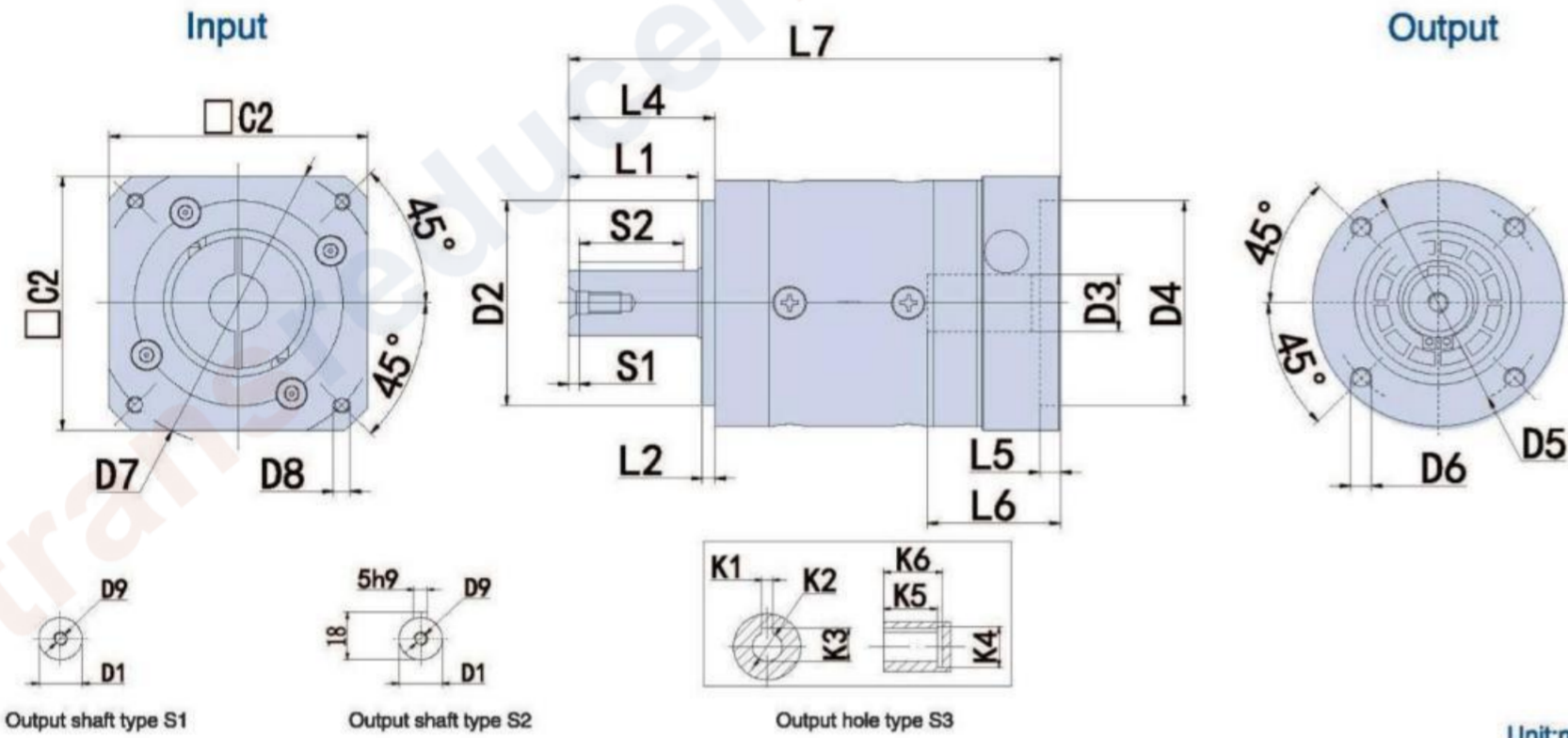
MODEL: MLE

2-Stage

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



Dimensions:



Size	MLE040 -L2	MLE060 -L2	MLE080 -L2	MLE120 -L2	MLE160 -L2
D1	φ 12(13)	φ 14(16)	φ 20(22)	φ 25(32)	φ 40
D2	φ 26	φ 40	φ 60	φ 80	φ 130
D3	φ 8(≤11)	φ 14(≤19)	φ 19(≤24)	φ 24(≤32)	φ 35(42)
D4	φ 30(30-50)	φ 50(50-70)	φ 70(50-110)	φ 110(70-110)	φ 114.3(110-150)
D5	φ 34	φ 52	φ 70	φ 100	φ 145
D6	(4-M4)	(4-M5)	(4-M6)	(4-M10)	(4-M12)
D7	φ 46(45-70)	φ 70(70-130)	φ 90(70-145)	φ 145(90-165)	φ 200(145-220)
D8	(4-M4X8L)	(4-M4X10L)	(4-M5X12L)	(4-M8X25L)	(4-M12X25L)
D9	M4X0.7P	M5X0.8P	M6X1.0P	M10X1.5P	M16X2.0P
L1	18	31	36	50	80
L2	2	3	3	4	5
L4	26	35	40	55	87
L5	(4)	(5)	(5)	(8)	(7)
L6	26	32	42	59	86
L7	104.5	133	168	221	331.5
C1	φ 42	φ 60	φ 80	φ 120	φ 160
C2	(□50)	(□62)	(□92)	(□120)	(□176)
S1	2	2	4	5	8
S2	14	25	28	40	65
S3	13.5	16	22.5	28	43
B	4	5	6	8	12
K1	3	3	6	8	10
K2	φ 8	φ 8	φ 18	φ 25	φ 35
K3	9.2	9.2	21	28	38.3
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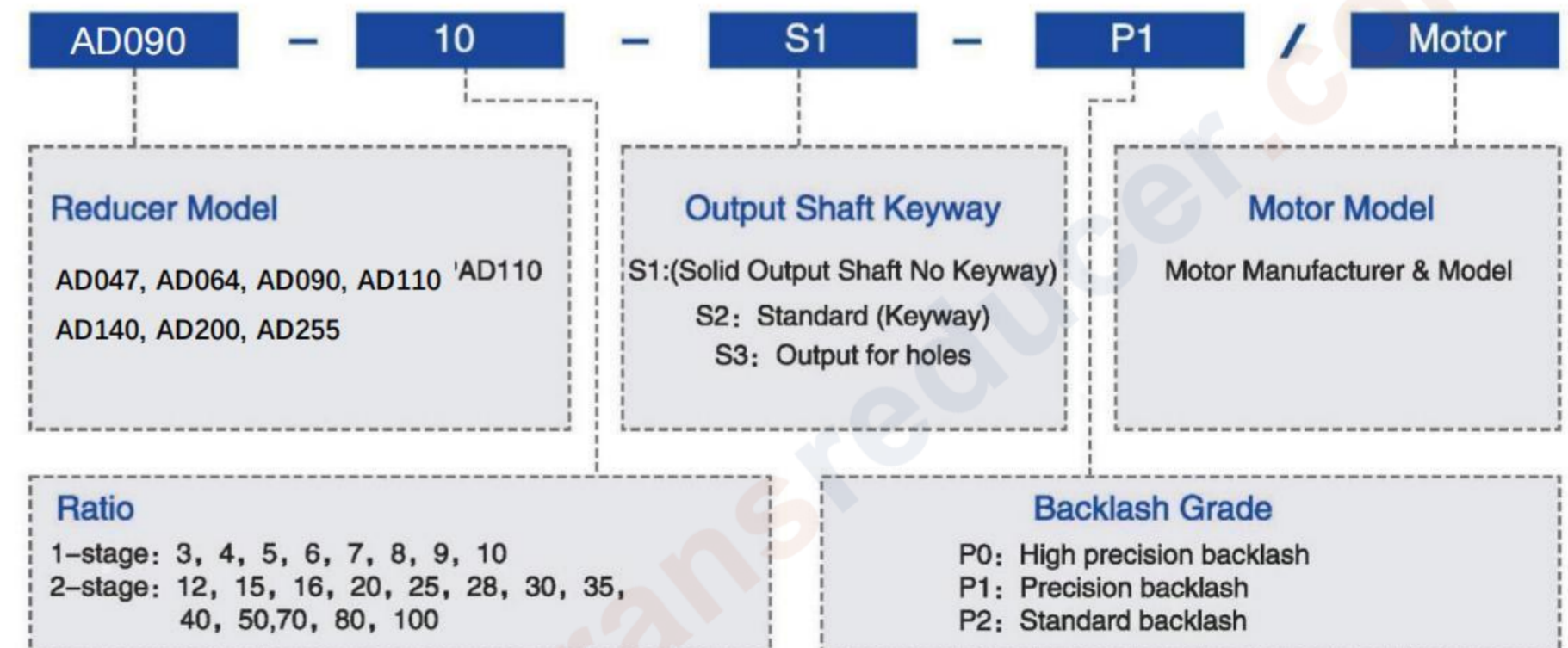
AD



- Quiet operation
Helical gears are used to achieve smooth and quiet operation.
- 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.
- 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

AD Type



Model Example: AD090-100-S2-P1/Panasonic MSMJ 082S1A