

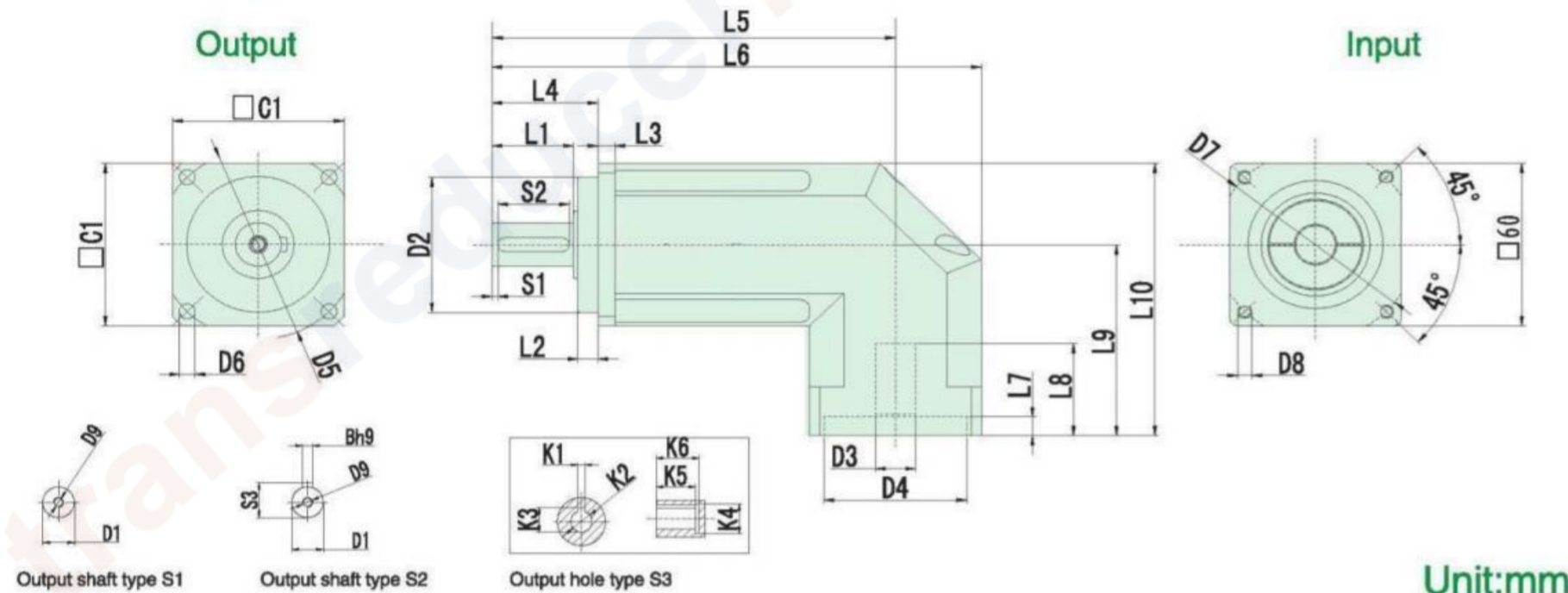
MODEL: ABR

2-Stage

Ratio: 15, 20, 25, 30, 35, 40, 50, 70, 80, 100, 120, 140, 160, 180, 200



Dimensions:



Unit:mm

Size	ABR042 -L2	ABR060 -L2	ABR090 -L2	ABR115 -L2	ABR142 -L2	ABR180 -L2	ABR220 -L2
D1	φ 13	φ 16	φ 22	φ 32	φ 40	φ 55	φ 75
D2	φ 35	φ 50	φ 80	φ 110	φ 130	φ 160	φ 180
D3	φ 8(≤11)	φ 14(≤14)	φ 19(≤24)	φ 24(≤32)	φ 35(≤42)	φ 38(≤50)	φ 55(≤55)
D4	φ 30(30-50)	φ 50(30-70)	φ 70(50-110)	φ 110(50-130)	φ 114.3(95-180)	φ 180(95-180)	φ 215(180-255)
D5	φ 50	φ 70	φ 100	φ 130	φ 165	φ 215	φ 250
D6	4-φ 3.4	4-φ 5.5	4-φ 6.6	4-φ 9	4-φ 11	4-φ 13	4-φ 17
D7	φ 46(22-70)	φ 70(45-90)	φ 90(70-145)	φ 145(70-145)	φ 200(90-215)	φ 200(90-300)	φ 235(200-300)
D8	(4-M3X8L)	(4-M5X10L)	(4-M6X12L)	(4-M8X25L)	(4-M12X30L)	(4-M12X30L)	(4-M12X30L)
D9	M4X0.7P	M5X0.8P	M8X1.25P	M12X1.75P	M16X2.0P	M20X2.5P	M20X2.5P
L1	19	28.5	36.5	51	79	82	105
L2	5.5	7	10	12	15	20	30
L3	4	6	8	10	12	15	20
L4	26	37	48	65	97	105	138
L5	(113)	(134)	(157)	(224)	(282)	(322)	(383)
L6	139	171	205	(292)	(378)	(427)	(521)
L7	(3.5)	(5)	(5)	(11)	(14)	(15)	(7)
L8	(30)	(34)	(44)	(60)	(81)	(85)	(85)
L9	(69.5)	(81.5)	(107.5)	(134)	(165)	(213.5)	(268.5)
L10	(90.5)	(111.5)	(152.5)	(191.5)	(236)	(303.5)	(378.5)
C1	□42	□60	□90	□115	□142	□180	□220
C2	(□42)	(□60)	(□90)	(□130)	(□142)	(□180)	(□220)
S1	2	2	2	5	5	5	7
S2	16	25	32	40	65	70	90
S3	15	18	24.5	35	43	59	79
B	5	5	6	10	12	16	20
K1	3	4	6	8	10	14	16
K2	φ 8	φ 11	φ 22	φ 28	φ 38	φ 50	φ 60
K3	9.2	12.7	25	31.3	42	53.8	64.4
K4	φ 13	φ 16	φ 32	φ 38	φ 48	φ 60	φ 72
K5	15	15	20	27	35	43	60
K6	18	18	24	32	40	50	65

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

MLF



- 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

MLF Type

MLF080 - 10 - S1 - P1 / Motor



Model Example: MLF080-100-S2-P1/Panasonic MSMJ 082S1A

MLF Reducer Specifications

Specs	Unit	Stage	Ratio	MLF040	MLF060	MLF080	MLF120	MLF160
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 _{2N0.1}	Nm	1,2	3~100	3Times of Nominal Output Torque				
Rated Input Speed / n _{1N}	rpm	1,2	3~100	3000	3000	3000	3000	2500
Max. Input Speed / n _{1B}	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	≥97%				
		2	15~100	≥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				
Noise Level(n1=3000rpm, No load)	dB(A)	1,2	3~100	≤62	≤63	≤65	≤67	≤68

Reducer Rotary Inertia

Specs	Unit	Stage	Ratio	MLF040	MLF060	MLF080	MLF120	MLF160
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.

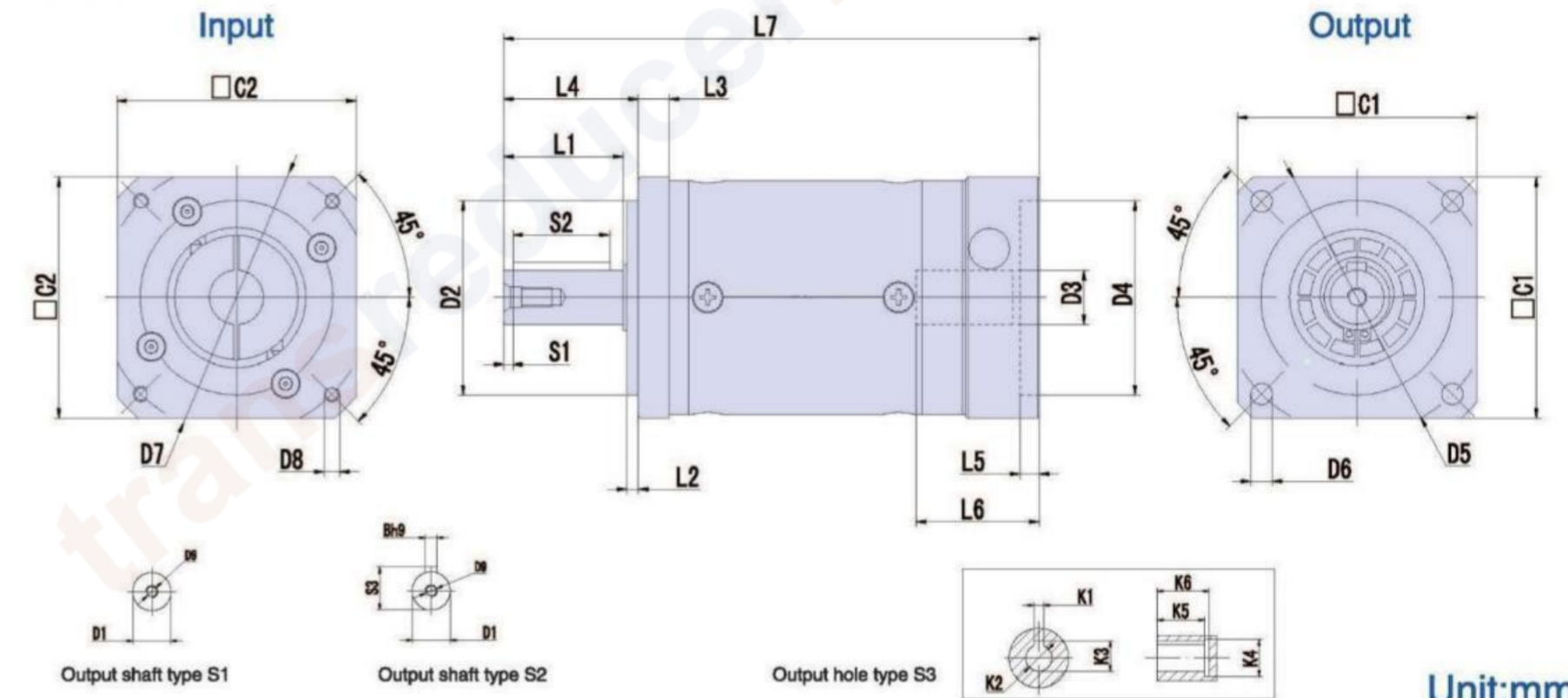
MODEL: MLF

1-Stage

Ratio: 3, 4, 5, 7, 10,



Dimensions:



Unit:mm

Size	MLF040-L1	MLF060-L1	MLF080-L1	MLF120-L1	MLF160-L1
D1	φ 12(13)	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	(88)	(117)	(157)	(211)	(292)
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.

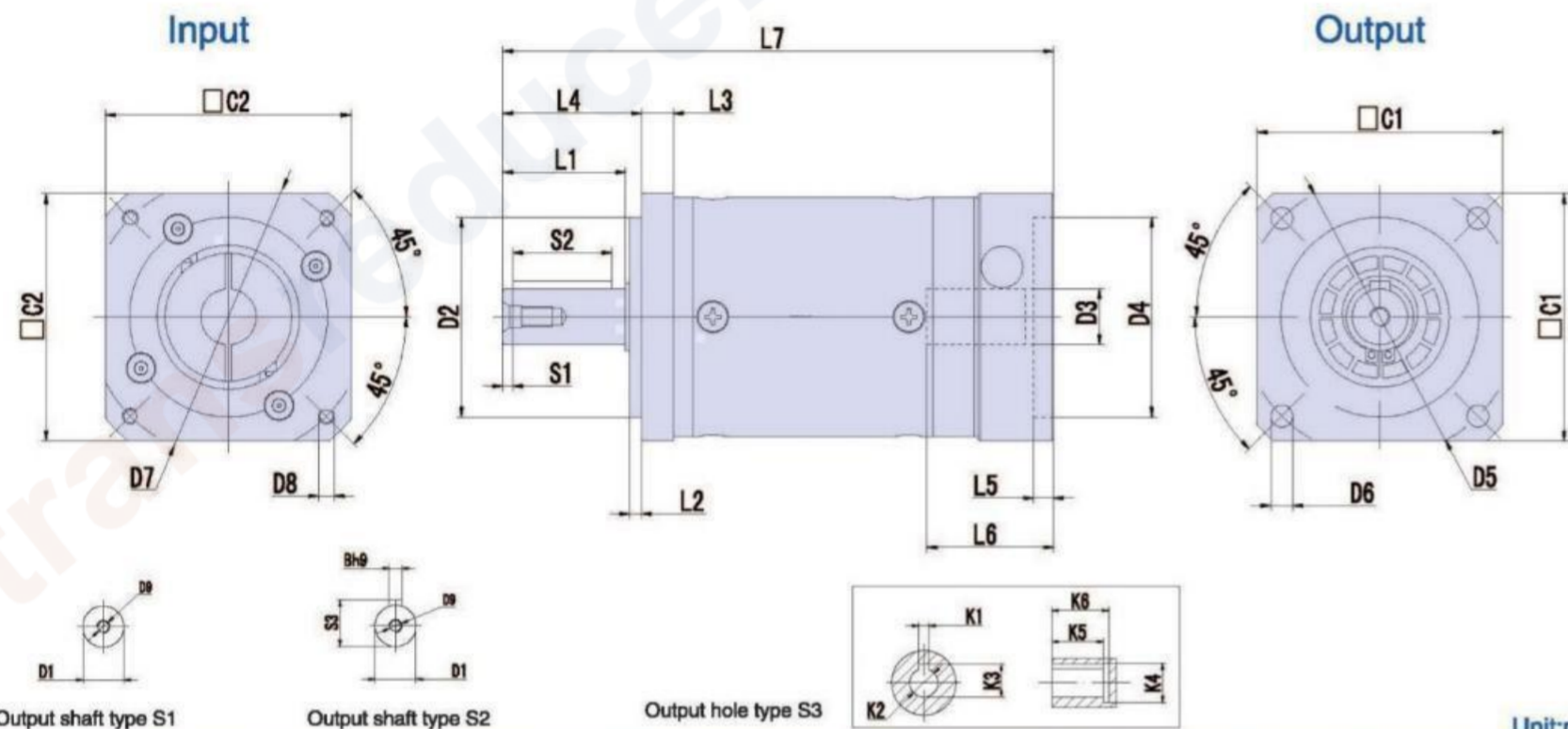
MODEL: MLF

2-Stage

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



Dimensions:



Unit:mm

Size	MLF040-L2	MLF060-L2	MLF080-L2	MLF120-L2	MLF160-L2
D1	φ12(13)	φ14(16)	φ20(22)	φ25(32)	φ40
D2	φ26	φ50	φ80	φ110	φ130
D3	φ8(≤11)	φ14(≤19)	φ19(≤24)	φ24(≤32)	φ35(42)
D4	φ30(30-50)	φ50(50-70)	φ70(50-110)	φ110(70-130)	φ114.3(110-150)
D5	φ48	(φ70)	(φ100)	(φ130)	φ185(165)
D6	4-φ3.4	4-φ5	4-φ6.5	4-φ9	4-φ11
D7	φ46(45-70)	φ70(70-130)	φ90(70-145)	φ145(90-165)	φ200(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	φ8	φ8	φ18	φ25	φ35
K3	9.2	9.2	21	28	38.3
K4	φ11	φ11	φ24	φ32	φ42
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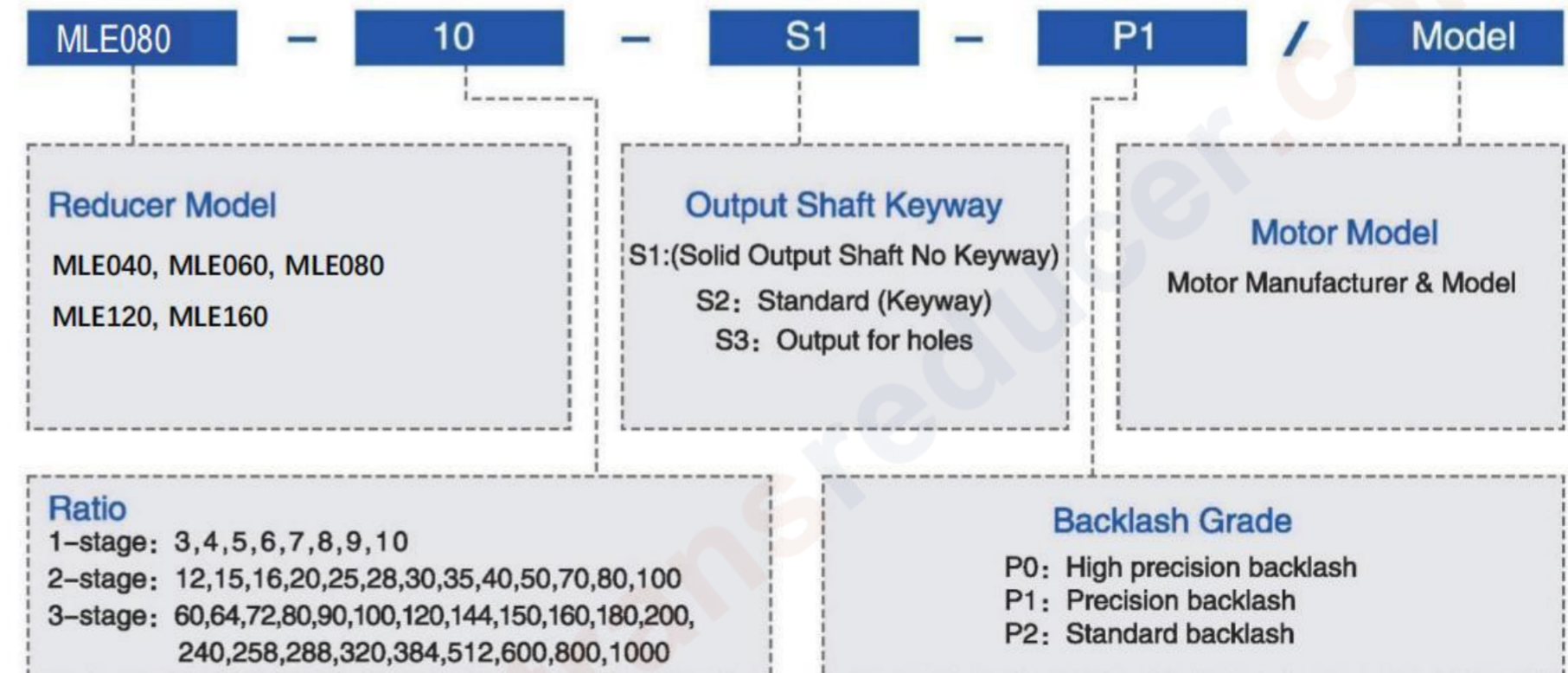
MLE



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