

MP-Series Low Inertia Motors



MP-Series (Bulletin MPL) low-inertia high-output brushless servo motors use innovative design characteristics to reduce motor size while delivering significantly higher torque. These compact and highly-dynamic brushless servo motors are designed by Allen-Bradley to meet the demanding requirements of high performance motion systems.

MP-Series Low Inertia Motor Features

Attribute	Value
Main characteristics	• High torque to size ratio • Smart Motor Technology • Low rotor inertia
Features	• 200V and 400V-class windings • High-energy rare-earth magnets • Shaft-end threaded hole • DIN connectors, rotates 180° • Standard IEC 72-1 mounting dimensions
Motor type	Brushless AC synchronous servo motors
Environmental rating	• IP50 minimum, without shaft seal (standard). • IP66 with optional shaft seal and use of environmentally sealed cable connectors.
Certifications	Bulletin MPL rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to http://www.ab.com for more information.
Continuous stall torque	0.26...163 N·m (2.3...1440 lb·in)
Peak stall torque	0.74...278 N·m (6.6...2460 lb·in)
Speed	Up to 8000 rpm
Motor rated output	0.16...18.6 kW
Compatible servo drives	• Kinetix 5500 ⁽¹⁾ • Kinetix 6200/6500 • Kinetix 6000 • Kinetix 300/350 • Kinetix 2000 • Kinetix 7000 • Ultra3000
Typical applications	• Packaging • Converting • Material handling • Electronic assembly • Automotive • Metal forming

(1) Requires the 2198-H2DCK Hiperface-to-DSL feedback converter kit. MP-Series (200V-class) low-inertia motors require the 2198-H2DCK (series B or later) converter kit.

Catalog Numbers - MP-Series Low Inertia Motors

Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.

MP

L

-

x

xx

xx

x

x

7

x

A

A

Factory Options

A = Standard

Mounting Flange

A = IEC metric, free mounting holes (type FF)

Brake

2 = No Brake

4 = 24V DC Brake

Connectors

7 = Circular (SpeedTec) DIN connector, right angle, 180° rotatable ⁽⁷⁾

Enclosure/Shaft Key/Shaft Seal

J = Shaft key/No shaft seal

K = No shaft key/No shaft seal ⁽³⁾

Feedback

V = Multi-turn, 128 sin/cos, absolute encoder (Hiperface protocol) ⁽¹⁾

M = Multi-turn, 1024 sin/cos, absolute encoder (Hiperface protocol) ⁽²⁾

E = Single-turn, 128 sin/cos, absolute encoder (Hiperface protocol) ⁽¹⁾

S = Single-turn, 1024 sin/cos, absolute encoder (Hiperface protocol) ⁽²⁾

H = 2000 lines/revolution, incremental encoder ⁽⁴⁾

R = Resolver ⁽⁵⁾

Rated Speed ⁽⁶⁾

B = 1000 rpm

C = 1500 rpm

D = 2000 rpm

F = 3000 rpm

H = 3500 rpm

J = 3750 rpm

K = 4000 rpm

P = 5000 rpm

T = 6000 rpm

U = 7000 rpm

V = 8000 rpm

Magnet Stack Length ⁽⁶⁾

10 = 25.4 mm (1.0 in.)

20 = 50.8 mm (2.0 in.)

30 = 76.2 mm (3.0 in.)

40 = 101.6 mm (4.0 in.)

50 = 127.0 mm (5.0 in.)

60 = 152.4 mm (6.0 in.)

70 = 177.8 mm (7.0 in.)

80 = 203.2 mm (8.0 in.)

Frame Size

15 = 63 mm

2 = 75 mm

3 = 100 mm

4 = 115 mm

45 = 130 mm

5 = 165 mm

6 = 215 mm

8 = 265 mm

9 = 300 mm

Voltage Class

A = 200V

B = 400V

Series Type

L = Low Inertia

Series

MP = Premium permanent magnet rotary servo motor

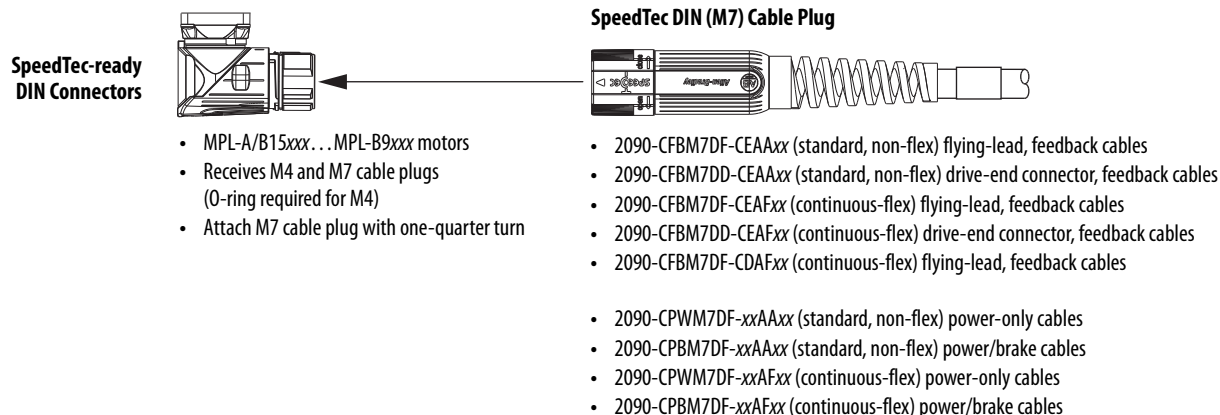
MP-Series Low Inertia Motor High Resolution Encoders

MP-Series low-inertia motors are available with high performance encoders with a choice of single-turn (-E, -S) or multi-turn (-V, -M) high resolution feedback:

- Up to 2 million counts per revolution (-M and -S) for smooth performance (MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx, MPL-B6xx, MPL-B8xx, and MPL-B9xx motors).
- Up to 260 thousand counts per revolution (-E and -V) for smooth performance (MPL-A/B15xx and MPL-A/B2xx motors).
- Single-turn encoder provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder provides high-resolution absolute position feedback within 4096 turns. The electromechanical design does not require a battery.

Motor Connector/Cable Compatibility

MP-Series (Bulletin MPL) motors are equipped with SpeedTec-ready DIN connectors.



For information on transitioning your Bulletin MPL motor installation from bayonet cables to circular DIN cables, refer to Kinetix Motion Accessories Technical Data, publication [GMC-TD004](#).

MP-Series Low Inertia Motor Options

MP-Series low-inertia motors are available with these options:

- 24V DC brake.
- Optional keyless shaft available in limited frame sizes with extended lead times (MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, and MPL-A/B5xx motors).
- Shaft seal kits are available, as are replacement kits for field installation. Shaft seals are made of nitrile and kits include a lubricant to reduce wear.

IMPORTANT Shaft seals are subject to wear and require periodic inspection and replacement. Replacement is recommended every 3 months, not to exceed 12 months, depending on use.

Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
MPL-A15xx and MPL-B15xx	MPL-SSN-F63F75
MPL-A2xx and MPL-B2xx	
MPL-A3xx and MPL-B3xx	MPL-SSN-A3B3
MPL-A4xx and MPL-B4xx	MPL-SSN-A4B4
MPL-A45xx and MPL-B45xx	MPL-SSN-A5B5
MPL-A520 and MPL-B520 MPL-A540 and MPL-B540 MPL-A560 and MPL-B560	MPL-SSN-F165
MPL-B580	MPL-SSN-F165-32MM
MPL-B6xx	MPL-SSN-A6B6
MPL-B8xx	MPL-SSN-A8B8
MPL-B9xx	MPL-SSN-A9B9

Technical Specifications - MP-Series Low Inertia Motors

MP-Series Low Inertia Motor (200V-class) Performance Specifications

Motor Cat. No.	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Speed at Motor Rated Output rpm	Rotor Inertia ⁽¹⁾ kg·m ² (lb·in·s ²)	Motor Weight, approx ⁽¹⁾ kg (lb)
MPL-A1510V	8000	0.26 (2.3)	0.77 (6.8)	0.16	8000	0.0000074 (0.000065)	1.0 (2.2)
MPL-A1520U	7000	0.49 (4.3)	1.58 (14)	0.27	7000	0.000013 (0.00012)	1.2 (2.6)
MPL-A1530U	7000	0.90 (8.0)	2.80 (25)	0.39	7000	0.000023 (0.00020)	1.6 (3.4)
MPL-A210V	8000	0.55 (4.9)	1.50 (13.5)	0.37	8000	0.000015 (0.00013)	1.4 (3.1)
MPL-A220T	6000	1.61 (14.2)	4.74 (42)	0.62	6000	0.000039 (0.00035)	2.0 (4.4)
MPL-A230P	5000	2.10 (18.6)	8.20 (73)	0.86	5000	0.000063 (0.00056)	2.6 (5.7)
MPL-A310P	5000	1.58 (14)	3.61 (32)	0.73	4750	0.000044 (0.00039)	2.7 (5.8)
MPL-A310F	3000	1.58 (14)	3.61 (32)	0.46	3000		
MPL-A320P	5000	3.05 (27)	7.91 (70)	1.3	4750	0.000078 (0.00069)	3.7 (8.0)
MPL-A320H	3500	3.05 (27)	7.91 (70)	1.0	3350		
MPL-A330P	5000	4.18 (37)	11.1 (98)	1.8	5000	0.00012 (0.0010)	4.6 (10)
MPL-A420P	5000	4.74 (42)	10.2 (90)	2.0	5000	0.00026 (0.0023)	4.3 (9.4)
MPL-A430P	5000	5.99 (53)	19.8 (175)	2.2	5000	0.00038 (0.0033)	5.5 (12)
MPL-A430H	3500	6.21 (55)	19.8 (175)	1.8	3500		
MPL-A4530K	4000	8.13 (72)	20.3 (180)	2.5	4000	0.00040 (0.0036)	7.3 (16)
MPL-A4530F	2800	8.36 (74)	20.3 (180)	1.9	2800		
MPL-A4540C	1500	10.2 (90)	27.1 (240)	1.5	1500	0.00052 (0.0046)	8.6 (19)
MPL-A4540F	3000	10.2 (90)	27.1 (240)	2.6	3000		
MPL-A4560F	3000	14.1 (125)	34.4 (305)	3.0	3000	0.00078 (0.0067)	11.82 (26)
MPL-A520K	4000	10.7 (95)	24.3 (215)	3.5	3500	0.000783 (0.0069)	9.8 (21.5)
MPL-A540K	4000	19.4 (172)	48.6 (430)	5.5	4000	0.00147 (0.013)	15.0 (33)
MPL-A560F	3000	26.8 (237)	61.0 (540)	5.3	3000	0.00213 (0.019)	20.2 (44.5)

(1) Refer to MP-Series Low Inertia Motor Brake Specifications on [page 56](#) for brake rotor inertia and brake motor weight.

MP-Series Low Inertia Motor (400V-class) Performance Specifications

Motor Cat. No.	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Speed at Motor Rated Output rpm	Rotor Inertia ⁽¹⁾ kg·m ² (lb·in·s ²)	Motor Weight, approx ⁽¹⁾ kg (lb)
MPL-B1510V	8000	0.26 (2.3)	0.77 (6.8)	0.16	8000	0.0000074 (0.000065)	1.0 (2.2)
MPL-B1520U	7000	0.49 (4.3)	1.58 (14)	0.27	7000	0.000013 (0.00012)	1.2 (2.6)
MPL-B1530U	7000	0.90 (8.0)	2.80 (25)	0.39	7000	0.000023 (0.00020)	1.6 (3.4)
MPL-B210V	8000	0.55 (4.9)	1.50 (13.5)	0.37	8000	0.000015 (0.00013)	1.4 (3.1)
MPL-B220T	6000	1.61 (14.2)	4.74 (42)	0.62	6000	0.000039 (0.00035)	2.0 (4.4)
MPL-B230P	5000	2.10 (18.6)	8.20 (73)	0.86	5000	0.000063 (0.00056)	2.6 (5.7)
MPL-B310P	5000	1.58 (14)	3.61 (32)	0.77	5000	0.000044 (0.00039) ⁽²⁾	2.7 (5.8)
MPL-B320P	5000	3.05 (27)	7.91 (70)	1.5	5000	0.000078 (0.00069) ⁽²⁾	3.7 (8.0)
MPL-B330P	5000	4.18 (37)	11.1 (98)	1.8	5000	0.00012 (0.0010) ⁽²⁾	4.6 (10)
MPL-B420P	5000	4.74 (42)	13.5 (120)	1.9	5000	0.00026 (0.0023) ⁽²⁾	4.3 (9.4)
MPL-B430P	5000	6.55 (58)	19.8 (175)	2.2	5000	0.00038 (0.0033) ⁽²⁾	5.5 (12)
MPL-B4530F	3000	8.25 (73)	20.3 (180)	2.1	3000	0.00040 (0.0036) ⁽²⁾	7.3 (16)
MPL-B4530K	4000	8.25 (73)	20.3 (180)	2.6	4000		
MPL-B4540F	3000	10.2 (90)	27.1 (240)	2.6	3000	0.00052 (0.0046) ⁽²⁾	8.6 (19)
MPL-B4560F	3000	14.1 (125)	34.4 (305)	3.2	3000	0.00078 (0.0067) ⁽²⁾	11.82 (26)
MPL-B520K	4000	10.7 (95)	23.2 (205)	3.5	3500	0.000783 (0.0069)	9.8 (21.5)
MPL-B540D	2000	19.4 (172)	41.0 (362)	3.4	2000	0.00147 (0.013)	15 (33)
MPL-B540K	4000	19.4 (172)	48.6 (430)	5.4	4000	0.00147 (0.013)	
MPL-B560F	3000	26.8 (237)	67.8 (600)	5.5	3000	0.00213 (0.019)	20.2 (44.5)
MPL-B580F	3000	34.0 (301)	87.0 (770)	7.1	3000	0.00289 (0.023)	25.4 (56)
MPL-B580J	3800	34.0 (301)	81.0 (716)	7.9	3800		
MPL-B640F	3000	36.7 (325)	72.3 (640)	6.11	2000	0.004 (0.0354)	26.8 (59)
MPL-B660F	3000	48.0 (425)	101.1 (895)	6.15	2000	0.0058 (0.051)	35.0 (77)
MPL-B680D	2000	62.8 (556)	154.2 (1365)	9.3	2000	0.00775 (0.0685)	40.4 (89)
MPL-B680F	3000	60.0 (531)	108.5 (960)	7.5	2000		
MPL-B680H	3500	60.0 (531)	146.9 (1300)	7.5	2000		
MPL-B860D	2000	83.0 (735)	152.5 (1350)	12.5	2000	0.0169 (0.150)	57.3 (126)
MPL-B880C	1500	110.0 (973)	203 (1800)	12.6	1500	0.0224 (0.198)	72.7 (160)
MPL-B880D	2000	110.0 (973)	147 (1300)	12.6	2000		
MPL-B960B	1200	130.0 (1150)	231 (2050)	12.7	1200	0.0273 (0.242)	76.0 (167)
MPL-B960C	1500	124.3 (1100)	226 (2000)	14.8	1500		
MPL-B960D	2000	124.3 (1100)	226 (2000)	15.0	2000		
MPL-B980B	1000	162.7 (1440)	278 (2460)	15.2	1000	0.0354 (0.313)	94.5 (208)
MPL-B980C	1500	158.2 (1400)	271 (2400)	16.8	1500		
MPL-B980D	2000	158.2 (1400)	260 (2300)	18.6	2000		
MPL-B980E	2750	141.0 (1250)	237 (2100)	13.0	1500		

(1) Refer to MP-Series Low Inertia Motor Brake Specifications on [page 56](#) for brake rotor inertia and brake motor weight.

(2) Rotor inertia can vary slightly depending on feedback.

MP-Series Low Inertia Motor Brake Specifications

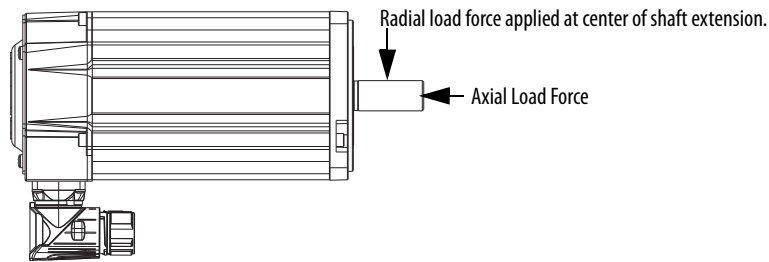
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time			Brake Rotor Inertia kg·m ² (lb·in·s ²)	Brake Motor Weight, approx kg (lb)
				Release ms	Engage (by using external arc suppression device)			
					MOV ms	Diode ms		
MPL-A/B1510V	0	0.9 (8.0)	0.43 . . . 0.53	23	9	18	0.0000099 (0.000088)	1.2 (2.6)
MPL-A/B1520U							0.000015 (0.00013)	1.4 (3.1)
MPL-A/B1530U							0.000026 (0.00023)	1.8 (3.9)
MPL-A/B210V		4.5 (40)	0.46 . . . 0.56	58	20	42	0.000033 (0.00029)	1.8 (4.0)
MPL-A/B220T							0.000057 (0.00050)	2.4 (5.4)
MPL-A/B230P							0.000082 (0.00073)	3.0 (6.7)
MPL-A/B310	45	4.18 (37)	0.45 . . . 0.55	50	20	110	0.000057 (0.00050)	3.7 (8)
MPL-A/B320							0.000092 (0.00081)	4.6 (10)
MPL-A/B330							0.00013 (0.0011)	5.6 (12.4)
MPL-A/B420	37	10.2 (90)	0.576 . . . 0.704	110	25	160	0.00030 (0.0027)	6.0 (13.2)
MPL-A/B430							0.00042 (0.0038)	7.3 (16)
MPL-A/B4530							0.00044 (0.0039)	9.1 (20)
MPL-A/B4540							0.00056 (0.0050)	11.0 (24)
MPL-A/B4560							0.00084 (0.0072)	15.1 (33.2)
MPL-A/B520	25	28.3 (250)	1.05 . . . 1.28	70	50	250	0.000897 (0.0079)	12.38 (27.25)
MPL-A/B540							0.00157 (0.0139)	17.6 (38.75)
MPL-A/B560							0.00227 (0.020)	22.8 (50.1)
MPL-B580							0.0030 (0.026)	29.0 (63.8)
MPL-B640	25	70.0 (619)	1.91 . . . 2.19	200	120	900	0.00438 (0.03863)	37.27 (82.0)
MPL-B660							0.00628 (0.0555)	42.95 (94.5)
MPL-B680							0.0079 (0.0698)	50.8 (112.0)
MPL-B860		106.0 (938)	2.05 . . . 2.50	250	200	1000	0.0177 (0.1570)	72.7 (160)
MPL-B880							0.0232 (0.205)	87.7 (193)
MPL-B960		153.0 (1350)	3.85 . . . 4.70	300	200	1200	0.0290 (0.256)	89.5 (197)
MPL-B980							0.0378 (0.334)	116.5 (256)

MP-Series Low Inertia Motor Load Force Ratings

Bulletin MPL motors are capable of operating with the maximum radial or maximum axial shaft loads listed in the following tables. Radial loads listed are applied in the middle of the shaft extension. The tables starting below represent an L₁₀ bearing fatigue life of 20,000 hours. This 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources. Maximum operating speed is limited by motor winding.

Radial Load Force Ratings

Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)	6000 rpm kg (lb)	7000 rpm kg (lb)	8000 rpm kg (lb)
MPL-A/B1510	—	24 (52)	19 (41)	—	—	15 (33)	—	—	—	12 (26)
MPL-A/B1520	—	25 (56)	20 (45)	—	—	16 (36)	—	—	14 (30)	—
MPL-A/B1530	—	28 (62)	22 (49)	—	—	18 (39)	—	—	15 (33)	—
MPL-A/B210	—	24 (52)	19 (41)	—	—	15 (33)	—	—	—	12 (26)
MPL-A/B220	—	27 (59)	21 (47)	—	18 (39)	—	—	15 (33)	—	—
MPL-A/B230	—	29 (64)	23 (51)	—	19 (42)	—	17 (37)	—	—	—
MPL-A/B310	78 (172)	62 (137)	49 (108)	—	40 (88)	—	36 (79)	—	—	—
MPL-A/B320	87 (192)	69 (152)	55 (121)	—	45 (99)	—	40 (88)	—	—	—
MPL-A/B330	—	74 (163)	59 (130)	—	49 (108)	—	43 (95)	—	—	—
MPL-A/B420	—	78 (172)	62 (137)	—	51 (112)	—	45 (99)	—	—	—
MPL-A/B430	106 (234)	84 (185)	67 (148)	—	55 (121)	—	49 (108)	—	—	—
MPL-A/B4530	133 (293)	105 (232)	84 (185)	73 (161)	—	66 (146)	—	—	—	—
MPL-A4540C	140 (309)	112 (245)	96 (211)	—	—	—	—	—	—	—
MPL-A/B4540	140 (309)	111 (245)	89 (196)	77 (170)	—	—	—	—	—	—
MPL-A/B4560	—	151 (332)	119 (263)	95 (209)	—	—	—	—	—	—
MPL-A/B520	—	127 (280)	100 (222)	88 (194)	—	80 (176)	—	—	—	—
MPL-A/B540	—	143 (316)	114 (251)	99 (219)	—	90 (199)	—	—	—	—
MPL-A/B560	—	153 (338)	121 (268)	106 (234)	—	—	—	—	—	—
MPL-B580	—	153 (338)	121 (268)	106 (234)	—	—	—	—	—	—
MPL-B640	253 (557)	200 (442)	159 (351)	139 (307)	—	—	—	—	—	—
MPL-B660	275 (607)	219 (482)	173 (382)	151 (334)	—	—	—	—	—	—
MPL-B680	291 (641)	230 (508)	183 (404)	160 (353)	—	—	—	—	—	—
MPL-B860	347 (764)	276 (607)	219 (481)	—	—	—	—	—	—	—
MPL-B880	368 (810)	292 (643)	231 (510)	—	—	—	—	—	—	—
MPL-B960	466 (1028)	370 (816)	323 (713)	—	—	—	—	—	—	—
MPL-B980	494 (1089)	392 (864)	352 (775)	—	—	—	—	—	—	—

MPL-xxxx-xxxxAA Load Forces**Axial Load Force Ratings (maximum radial load)**

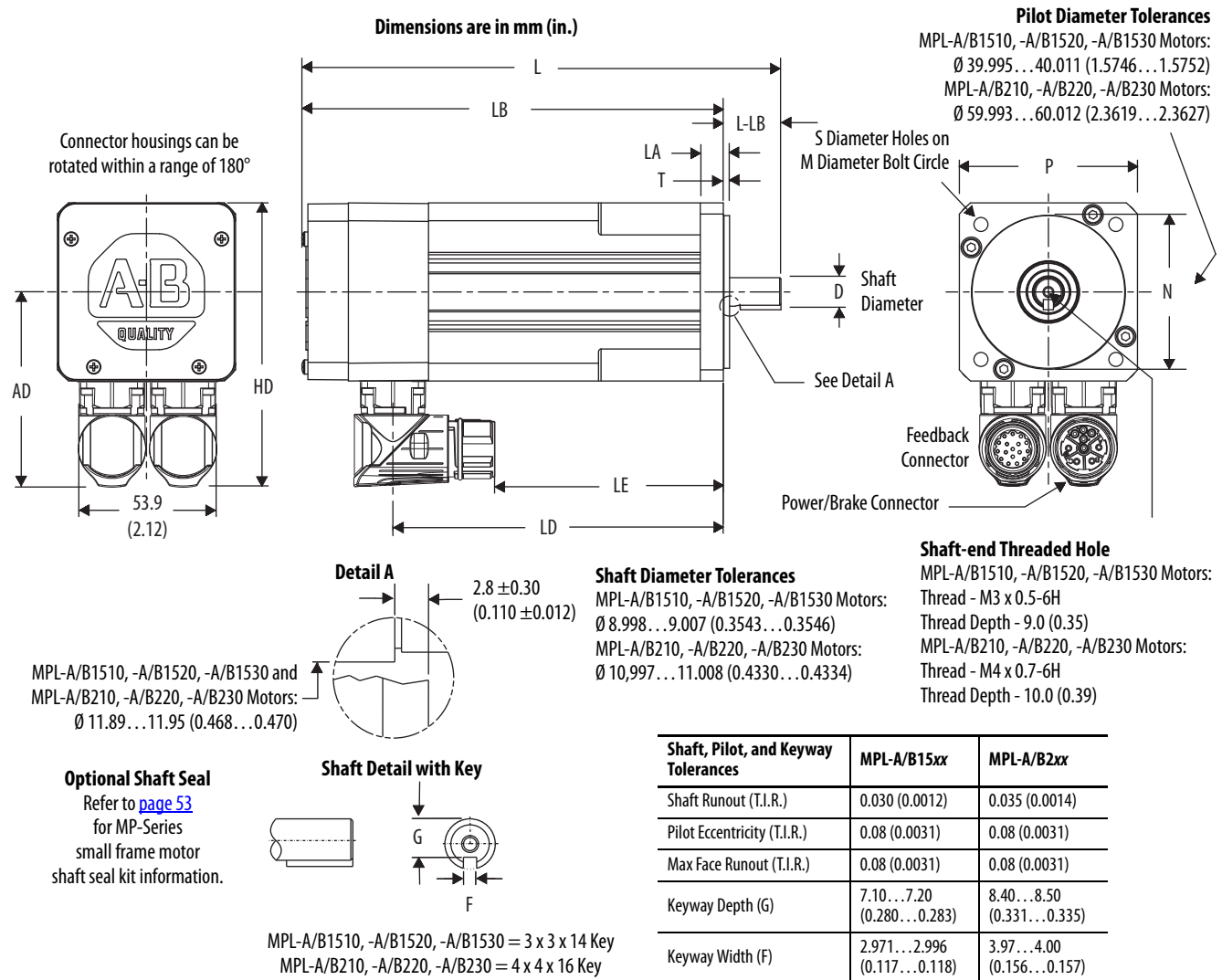
Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)	6000 rpm kg (lb)	7000 rpm kg (lb)	8000 rpm kg (lb)
MPL-A/B1510	—	15 (33)	10 (22)	—	—	7 (15)	—	—	—	5 (11)
MPL-A/B1520	—	14 (31)	10 (22)	—	—	6 (13)	—	—	4 (9)	—
MPL-A/B1530	—	13 (29)	9 (20)	—	—	6 (13)	—	—	4 (8)	—
MPL-A/B210	—	15 (33)	10 (22)	—	—	7 (15)	—	—	—	5 (11)
MPL-A/B220	—	14 (30)	9 (20)	—	7 (15)	—	—	5 (11)	—	—
MPL-A/B230	—	13 (28)	9 (19)	—	6 (13)	—	5 (11)	—	—	—
MPL-A/B310	30 (66)	23 (51)	16 (35)	—	13 (29)	—	11 (24)	—	—	—
MPL-A/B320	34 (75)	25 (55)	19 (42)	—	15 (33)	—	13 (29)	—	—	—
MPL-A/B330	—	27 (60)	20 (44)	—	16 (35)	—	13 (29)	—	—	—
MPL-A/B420	—	36 (79)	27 (60)	—	21 (46)	—	18 (40)	—	—	—
MPL-A/B430	52 (115)	39 (86)	29 (64)	—	22 (49)	—	19 (42)	—	—	—
MPL-A/B4530	45 (99)	34 (75)	25 (55)	21 (46)	—	19 (42)	—	—	—	—
MPL-A4540C	31 (68)	37 (81)	49 (108)	—	—	—	—	—	—	—
MPL-A/B4540	49 (108)	36 (79)	27 (60)	22 (49)	—	—	—	—	—	—
MPL-A/B4560	—	53 (117)	40 (88)	30 (65)	—	—	—	—	—	—
MPL-A/B520	—	42 (94)	30 (68)	26 (58)	—	22 (50)	—	—	—	—
MPL-A/B540	—	48 (107)	35 (79)	30 (66)	—	26 (58)	—	—	—	—
MPL-A/B560	—	52 (115)	43 (95)	32 (71)	—	—	—	—	—	—
MPL-B580	—	52 (115)	43 (95)	32 (71)	—	—	—	—	—	—
MPL-B640	89 (197)	66 (146)	48 (107)	41 (90)	—	—	—	—	—	—
MPL-B660	98 (217)	72 (159)	53 (118)	45 (99)	—	—	—	—	—	—
MPL-B680	104 (230)	77 (169)	34 (125)	47 (104)	—	—	—	—	—	—
MPL-B860	145 (320)	107 (237)	79 (175)	—	—	—	—	—	—	—
MPL-B880	153 (338)	113 (250)	84 (185)	—	—	—	—	—	—	—
MPL-B960	142 (314)	105 (232)	88 (194)	—	—	—	—	—	—	—
MPL-B980	153 (338)	113 (249)	94 (207)	—	—	—	—	—	—	—

Axial Load Force Ratings (zero radial load)

Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)	6000 rpm kg (lb)	7000 rpm kg (lb)	8000 rpm kg (lb)
MPL-A/B1510	—	24 (53)	17 (37)	—	—	12 (26)	—	—	—	8 (18)
MPL-A/B1520	—	24 (53)	17 (37)	—	—	12 (26)	—	—	9 (19)	—
MPL-A/B1530	—	24 (53)	17 (37)	—	—	12 (26)	—	—	9 (19)	—
MPL-A/B210	—	24 (53)	17 (37)	—	—	12 (26)	—	—	—	8 (18)
MPL-A/B220	—	24 (53)	17 (37)	—	13 (28)	—	—	10 (22)	—	—
MPL-A/B230	—	24 (53)	17 (37)	—	13 (28)	—	10 (22)	—	—	—
MPL-A/B310	49 (108)	36 (79)	27 (60)	—	21 (46)	—	18 (40)	—	—	—
MPL-A/B320	49 (108)	36 (79)	27 (60)	—	21 (46)	—	18 (40)	—	—	—
MPL-A/B330	—	36 (79)	27 (60)	—	21 (46)	—	18 (40)	—	—	—
MPL-A/B420	—	51 (112)	38 (84)	—	30 (66)	—	25 (55)	—	—	—
MPL-A/B430	69 (152)	51 (112)	38 (84)	—	30 (66)	—	25 (55)	—	—	—
MPL-A/B4530	69 (152)	51 (112)	38 (84)	31 (68)	—	28 (62)	—	—	—	—
MPL-A4540C	68 (150)	51 (112)	43 (95)	—	—	—	—	—	—	—
MPL-A/B4540	69 (152)	51 (112)	38 (84)	31 (68)	—	—	—	—	—	—
MPL-A/B4560	—	69 (152)	51 (112)	38 (84)	—	—	—	—	—	—
MPL-A/B520	—	67 (149)	49 (109)	41 (92)	—	36 (81)	—	—	—	—
MPL-A/B540	—	67 (149)	49 (109)	41 (92)	—	36 (81)	—	—	—	—
MPL-A/B560	—	67 (149)	49 (109)	41 (92)	—	—	—	—	—	—
MPL-B580	—	67 (149)	49 (109)	41 (92)	—	—	—	—	—	—
MPL-B640	136 (300)	99 (219)	74 (163)	62 (137)	—	—	—	—	—	—
MPL-B660	136 (300)	99 (219)	74 (163)	62 (137)	—	—	—	—	—	—
MPL-B680	136 (300)	99 (219)	74 (163)	62 (137)	—	—	—	—	—	—
MPL-B860	201 (443)	147 (323)	110 (242)	—	—	—	—	—	—	—
MPL-B880	201 (443)	147 (323)	110 (242)	—	—	—	—	—	—	—
MPL-B960	215 (473)	159 (350)	133 (293)	—	—	—	—	—	—	—
MPL-B980	215 (473)	159 (350)	133 (293)	—	—	—	—	—	—	—

Dimensions - MP-Series Low Inertia Motors

MPL-A/B15xx and MPL-A/B2xx Motor Dimensions (SpeedTec DIN connectors)



MPL-A/B15xx and MPL-A/B2xx Motor Dimensions (SpeedTec DIN connectors)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD ⁽¹⁾ mm (in.)	LE ⁽¹⁾ mm (in.)	L ⁽¹⁾ mm (in.)	LB ⁽¹⁾ mm (in.)	L-LB ⁽²⁾ mm (in.)	D ⁽³⁾ mm (in.)	M mm (in.)	S ⁽⁴⁾ mm (in.)	N ⁽³⁾ mm (in.)	P mm (in.)	G ⁽³⁾ mm (in.)	F ⁽³⁾ mm (in.)
MPL-A/B1510	68.9 (2.71)	96.4 (3.80)	2.50 (0.098)	9.0 (0.35)	78.3 (3.08)	37.8 (1.49)	133.2 (5.25)	113.5 (4.47)	19.7 (0.776)	9.0 (0.35)	63.0 (2.480)	5.80 (0.228)	40.0 (1.57)	55.0 (2.17)	7.2 (0.283)	3.0 (0.118)
MPL-A/B1520					91.3 (3.60)	50.9 (2.00)	146.2 (5.76)	126.5 (4.98)								
MPL-A/B1530					116.3 (4.58)	76.7 (2.98)	171.2 (6.74)	151.5 (5.96)								
MPL-A/B210	76.2 (3.00)	111.2 (4.38)	2.50 (0.098)	9.0 (0.35)	78.6 (3.09)	38.4 (1.51)	137.3 (5.40)	114.6 (4.51)	22.7 (0.894)	11.0 (0.43)	75.0 (2.953)	5.80 (0.228)	60.0 (2.36)	70.0 (2.76)	8.5 (0.335)	4.0 (0.157)
MPL-A/B220					104.1 (4.10)	63.9 (2.52)	162.8 (6.41)	140.1 (5.52)								
MPL-A/B230					129.6 (5.10)	89.4 (3.52)	188.3 (7.41)	165.6 (6.52)								

(1) If ordering an MPL-A/B1510, MPL-A/B1520, or MPL-A/B1530 motor with brake, add 36.1 mm (1.421 in.) to dimension L and LB, and add 33.4 mm (1.32 in.) to LD and LE.

If ordering an MPL-A/B210, A/B220, or A/B230 motor with brake, add 39.0 mm (1.535 in.) to dimension L and LB, and add 24.7 mm (0.97 in.) to LD and LE.

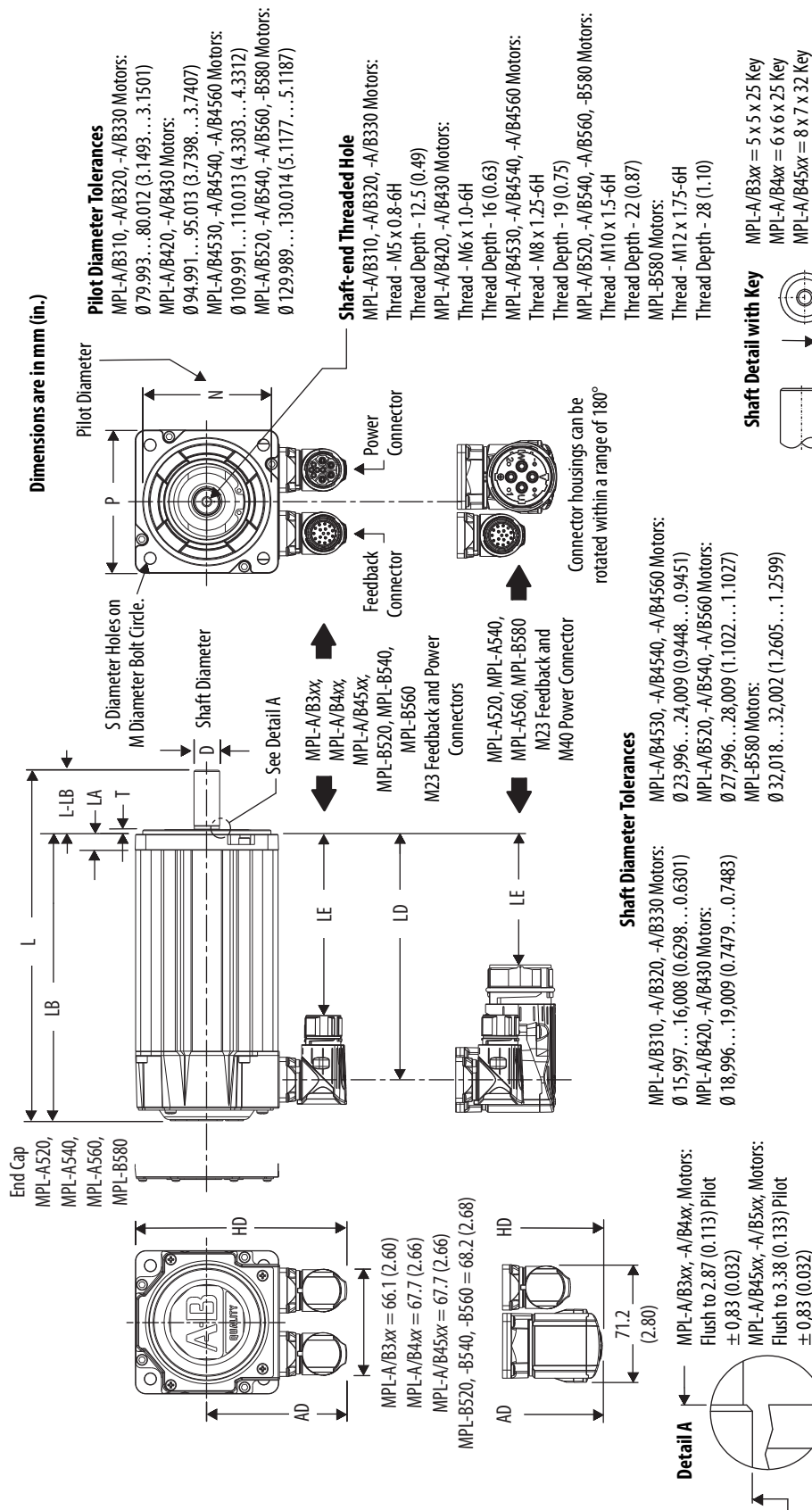
(2) Tolerance for this dimension is ± 0.7 mm (± 0.028 in.).

(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 60](#).

(4) Tolerance for this dimension is $+0.3$ mm ($+0.012$ in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx Motor Dimensions (SpeedTec DIN connectors)



Optional Shaft Seal

Refer to [page 53](#)
for MP-Series motor
shaft seal kit information.

MPL-A/B310, -A/B320, -A/B330 Motors:
Ø 16.94 ± 0.05 (0.667 ± 0.002)

MPL-A/B420, -A/B430 Motors:
Ø 19.94 ± 0.05 (0.785 ± 0.002)

MPL-A/B4530, -A/B4540, -A/B4560 Motors:
Ø 24.94 ± 0.05 (0.982 ± 0.002)

MPL-A/B520, -A/B540, -A/B560, -B580 Motors:
Ø 29.92 ± 0.05 (1.178 ± 0.002)

Shaft, Pilot, and Keyway Tolerances	MPL-A/B3xx	MPL-A/B4xx	MPL-A/B45xx	MPL-A/B5xx	MPL-B580
Shaft Runout (T.I.R.)	0.035 (0.0014)	0.04 (0.0016)	0.04 (0.0016)	0.04 (0.0016)	0.05 (0.002)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)	0.10 (0.0039)
Keyway Depth (GE)	3.00...3.10 (0.118...0.122)	3.50...3.60 (0.138...0.142)	4.00...4.20 (0.158...0.165)	4.00...4.20 (0.158...0.165)	5.00...5.20 (0.197...0.205)
Keyway Width (F)	4.97...5.00 (0.196...0.197)	5.97...6.00 (0.235...0.236)	7.96...8.00 (0.314...0.315)	7.96...8.00 (0.3135...0.3150)	9.964...10.000 (0.3923...0.3937)

MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx Motor Dimensions (SpeedTec DIN connectors)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD ⁽¹⁾ mm (in.)	LE ⁽¹⁾ mm (in.)	L ⁽¹⁾ mm (in.)	LB ⁽¹⁾ mm (in.)	L-LB ⁽²⁾ mm (in.)	D ⁽³⁾ mm (in.)	M mm (in.)	S ⁽⁴⁾ mm (in.)	N ⁽³⁾ mm (in.)	P mm (in.)	GE ⁽³⁾ mm (in.)	F ⁽³⁾ mm (in.)
MPL-A/B310					102.0 (4.03)	62.0 (2.45)	168.0 (6.62)	128.0 (5.04)								
MPL-A/B320	87.2 (3.44)	132.0 (5.20)	2.74 (0.108)	9.90 (0.39)	128.0 (5.03)	88.0 (3.45)	193.0 (7.62)	153.0 (6.04)	40.0 (1.58)	16.0 (0.629)	100.0 (3.937)	7.0 (0.283)	80.0 (3.15)	89.4 (3.52)	3.0 (0.118)	5.0 (0.197)
MPL-A/B330					153.0 (6.03)	113.0 (4.45)	219.0 (8.62)	179.0 (7.04)								
MPL-A/B420	90.9 (3.58)	140.1 (5.52)	2.74 (0.108)	10.16 (0.40)	124.0 (4.89)	84.0 (3.31)	190.0 (7.48)	150.0 (5.90)	40.0 (1.58)	19.0 (0.748)	115.0 (4.528)	10.0 (0.401)	95.0 (3.74)	98.3 (3.87)	3.5 (0.138)	6.0 (0.236)
MPL-A/B430					150.0 (5.89)	110.0 (4.31)	215.0 (8.48)	175.0 (6.90)								
MPL-A/B4530					153.0 (6.02)	113.0 (4.44)	229.0 (9.0)	179.0 (7.03)								
MPL-A/B4540	98.6 (3.88)	155.4 (6.12)	2.74 (0.108)	12.19 (0.48)	178.0 (7.02)	138.0 (5.44)	254.0 (10.0)	204.0 (8.03)	50.0 (1.97)	24.0 (0.945)	130.0 (5.118)	10.0 (0.401)	110.0 (4.331)	113.7 (4.48)	4.0 (0.158)	8.0 (0.315)
MPL-A/B4560					229.0 (9.02)	189.0 (7.44)	305.0 (12.0)	255.0 (10.03)								
MPL-A520					151.0 (5.95)	80.0 (3.15)	236.0 (9.28)	176.0 (6.92)								
MPL-A540	136.4 (5.37)	208.1 (8.19)	3.12 (0.123)	14.0 (0.55)	202.0 (7.95)	131.0 (5.15)	287.0 (11.28)	227.0 (8.92)	60.0 (2.362)	28.0 (1.102)	165.0 (6.496)	12.0 (0.481)	130.0 (5.118)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)
MPL-A560					253.0 (9.95)	182.0 (7.15)	337.0 (13.28)	277.0 (10.92)								
MPL-B520					149.0 (5.88)	109.0 (4.30)	236.0 (9.28)	176.0 (6.92)								
MPL-B540	113.4 (4.47)	185.2 (7.29)	3.12 (0.123)	14.0 (0.55)	200.0 (7.88)	160.0 (6.30)	287.0 (11.28)	227.0 (8.92)	60.0 (2.38)	28.0 (1.102)	165.0 (6.496)	12.0 (0.481)	130.0 (5.118)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)
MPL-B560					251.0 (9.88)	211.0 (8.30)	337.0 (13.28)	277.0 (10.92)								
MPL-B580	136.4 (5.37)	208.1 (8.19)	3.12 (0.123)	14.0 (0.55)	304.0 (11.95)	232.0 (9.15)	408.0 (16.07)	328.0 (12.92)	80.0 (3.15)	32.0 (1.260)					5.0 (0.198)	10.0 (0.393)

(1) If ordering an MPL-A/B310, MPL-A/B320, or MPL-A/B330 motor with brake, add 35.0 mm (1.38 in.) to dimensions L, LB, LE, and LD.

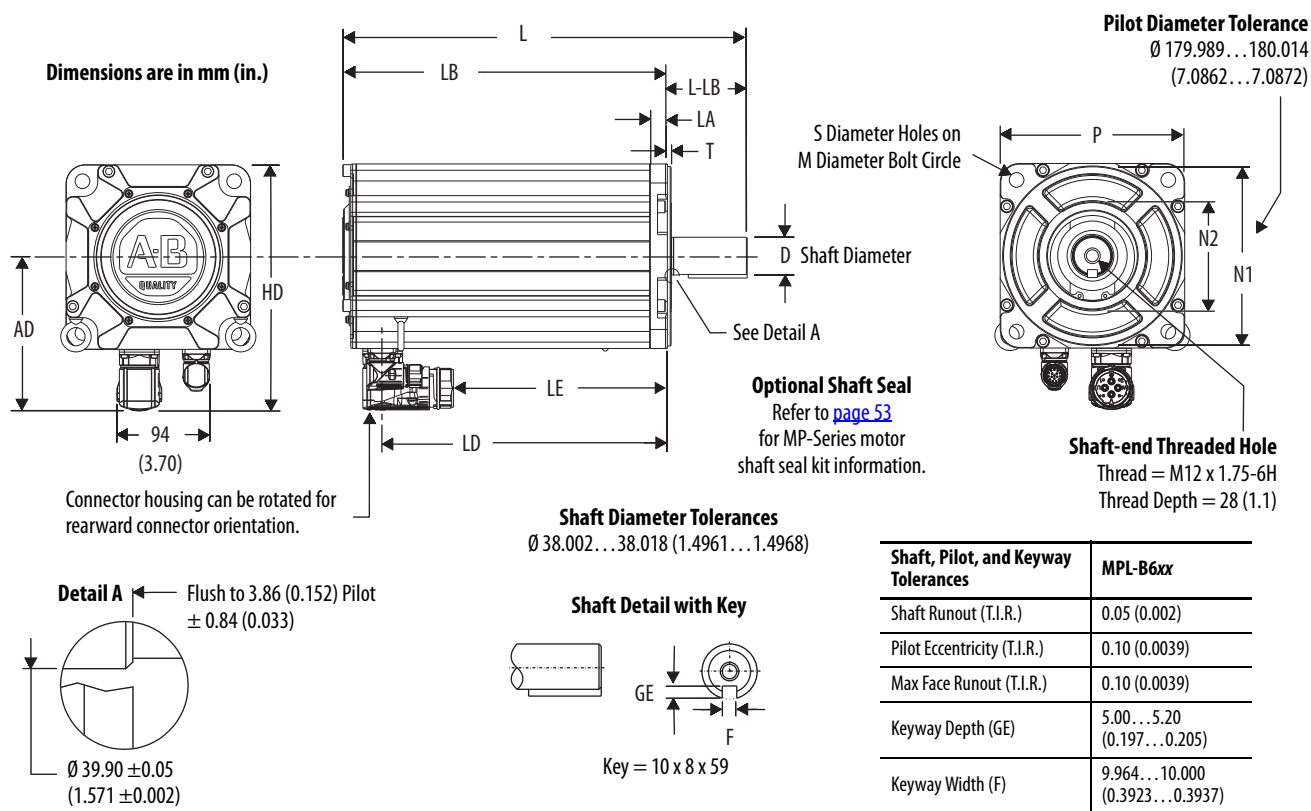
(2) If ordering an MPL-A/B420, MPL-A/B430, MPL-A/B4530, MPL-A/B4540, or MPL-A/B4560 motor with brake, add 48.0 mm (1.89 in.) to dimensions L, LB, LE, and LD.

(3) If ordering an MPL-A/B520, MPL-A/B540, MPL-A/B560, or MPL-B580 motor with brake, add 52.0 mm (2.03 in.) to dimensions L, LB, LE, and LD.

(4) Tolerance for this dimension is ± 0.7 mm (± 0.028 in.).(5) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 62](#).(6) Tolerance for this dimension is ± 0.36 mm (± 0.007 in.) on MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, and ± 0.43 mm (± 0.008 in.) on MPL-A/B5xx.

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

MPL-B6xx Motor Dimensions (SpeedTec DIN connectors)



Motor Cat. No.	AD	HD	T	LA	LD ⁽¹⁾	LE ⁽¹⁾	L ⁽¹⁾	LB ⁽¹⁾	L-LB ⁽²⁾	D	M	S ⁽³⁾	N	P	GE	F
mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)	mm (in.)
MPL-B640					184.0 (7.23)	113.0 (4.43)	304.0 (11.96)	224.0 (8.83)								
B660	154.0 (6.06)	246.5 (9.70)	3.73 (0.147)	17.8 (0.70)	234.0 (9.23)	163.0 (6.43)	355.0 (13.96)	275.0 (10.83)	80.0 (3.15)	38.0 (1.5)	215.0 (8.465)	14.50 (0.579)	180.0 (7.09)	184.9 (7.28)	5.0 (0.197)	10.0 (0.394)
B680					285.0 (11.23)	214.0 (8.43)	405.0 (15.96)	325.0 (12.83)								

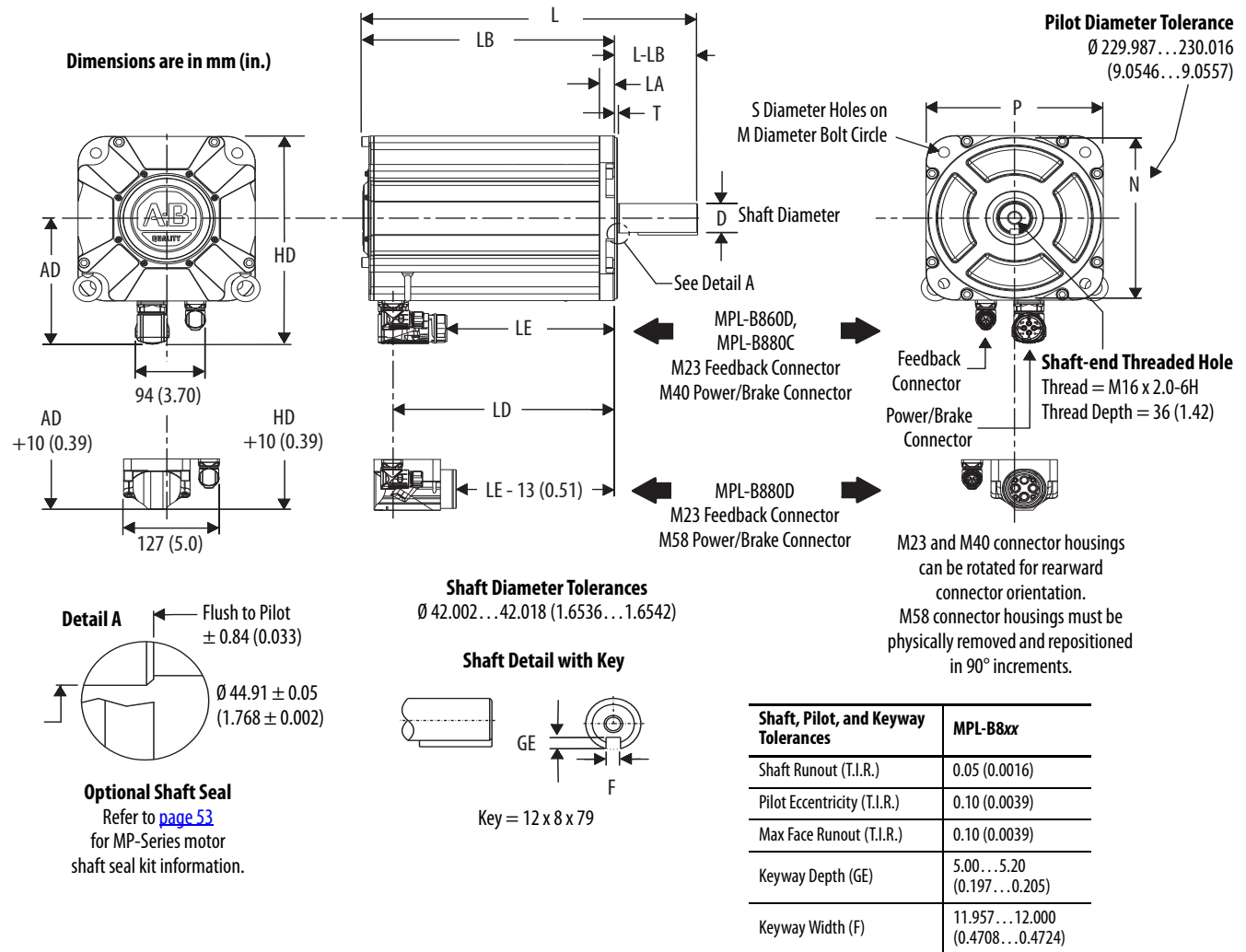
(1) If ordering an MPL-B640, MPL-B660, or MPL-B680 motor with brake, add 89 mm (3.5 in.) to dimensions LD, LE, L, and LB.

(2) Tolerance for this dimension is ± 0.7 mm (± 0.028 in.).

(3) Tolerance for this dimension is ± 0.215 mm (± 0.008 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

MPL-B8xx Motor Dimensions (SpeedTec DIN connectors)



Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD ⁽¹⁾ mm (in.)	LE ⁽¹⁾ mm (in.)	L ⁽¹⁾ mm (in.)	LB ⁽¹⁾ mm (in.)	L-LB ⁽²⁾ mm (in.)	D mm (in.)
MPL-B860	179 (7.05)	297 (11.67)	3.86 (0.152)	20.3 (0.80)	243 (9.55)	171 (6.75)	394 (15.53)	284 (11.20)	110 (4.33)	42.0 (1.654)
MPL-B880					293 (11.55)	222 (8.75)	445 (17.53)	335 (13.20)		

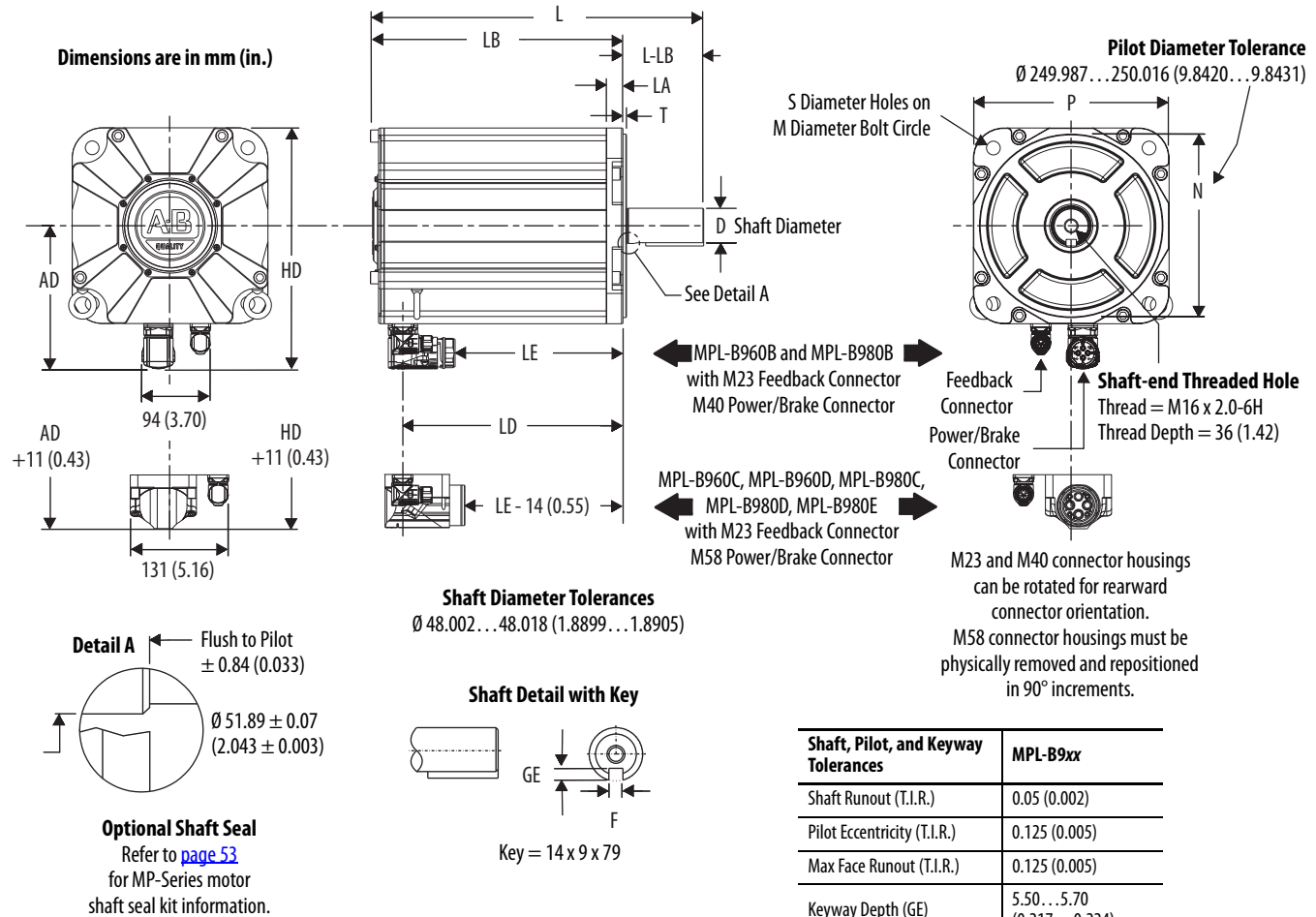
(1) If ordering an MPL-B860 or MPL-B880 motor with brake, add 108 mm (4.24 in.) to dimensions LD, LE, L, and LB.

(2) Tolerance for this dimension is ± 0.7 mm (± 0.028 in.).

Motor Cat. No.	M mm (in.)	S ⁽¹⁾ mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
MPL-B860	265 (10.43)	14.50 (0.579)	230 (9.055)	235 (9.25)	5.0 (0.197)	12.0 (0.4724)
MPL-B880						

(1) Tolerance for this dimension is ± 0.43 mm (± 0.008 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

MPL-B9xx Motor Dimensions (SpeedTec DIN connectors)

Shaft, Pilot, and Keyway Tolerances	MPL-B9xx
Shaft Runout (T.I.R.)	0.05 (0.002)
Pilot Eccentricity (T.I.R.)	0.125 (0.005)
Max Face Runout (T.I.R.)	0.125 (0.005)
Keyway Depth (GE)	5.50...5.70 (0.217...0.224)
Keyway Width (F)	13.957...14.000 (0.5495...0.5512)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD ⁽¹⁾ mm (in.)	LE ⁽¹⁾ mm (in.)	L ⁽¹⁾ mm (in.)	LB ⁽¹⁾ mm (in.)	L-LB ⁽²⁾ mm (in.)	D mm (in.)
MPL-B960	195 (7.68)	328 (12.92)	4.88 (0.192)	22.9 (0.90)	249 (9.80)	178 (7.0)	403 (15.87)	293 (11.55)	110 (4.33)	48.0 (1.89)
MPL-B980					300 (11.80)	229 (9.0)	454 (17.87)	344 (13.55)		

(1) If ordering an MPL-B960 or MPL-B980 motor with brake, add 127 mm (5.0 in.) to dimensions LD, LE, L, and LB.

(2) Tolerance for this dimension is ± 0.7 mm (± 0.028 in.).

Motor Cat. No.	M mm (in.)	S ⁽¹⁾ mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
MPL-B960	300 (11.81)	18.50 (0.738)	250 (9.84)	267 (10.50)	5.50 (0.217)	14.0 (0.5512)
MPL-B980						

(1) Tolerance for this dimension is ± 0.52 mm (± 0.010 in.).

Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.