

# Kinetix Rotary Motion Specifications

Kinetix VP, MP-Series, Kinetix 6000M, TL-Series, HPK-Series, RDD-Series

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This publication provides catalog numbers and product specifications, including performance, environmental, certifications, load force, and dimension drawings for Allen-Bradley® rotary motors.

Use this publication in conjunction with the Kinetix® Motion Control Selection Guide, publication [KNX-SG001](#), to help make decisions on the motion control products best suited for your system requirements.



## Summary of Changes

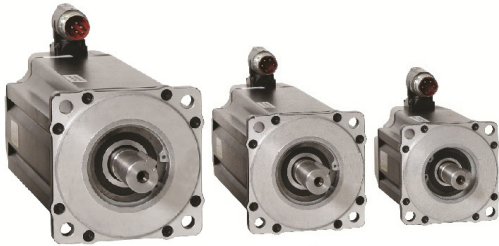
This manual contains new and updated information as indicated in the following table.

Topic	Page
Added Bulletin VPC motors to Servo Drive Compatibility table.	2
Added Kinetix 5700 drive compatibility with Kinetix VP (Bulletin VPL, VPF, VPS), MP-Series™ (Bulletin MPL, MPM, MPF, MPS), RDD-Series™ (Bulletin RDB), and HPK-Series™ motors.	Throughout
Added SIL2/PLd functional safety rating to Bulletin VPL features, catalog numbers, and encoder descriptions.	3...5
Added 2090-CSBM1DE and 2090-CSBM1DG cable compatibility with Bulletin VPL motors.	5
Renamed speed (rpm) specification columns as Rated Speed and Speed, max for Kinetix VP (Bulletin VPL, VPF, and VPS) servo motors.	7, 8, 52, 53, 71
Added Kinetix VP (Bulletin VPC) continuous-duty servo motor features, catalog numbers, and specifications.	26...47
Added SIL2/PLd functional safety rating to Bulletin VPF features, catalog numbers, and encoder descriptions.	48...50
Added 2090-CSBM1DE and 2090-CSBM1DG cable compatibility with Bulletin VPF motors.	50
Corrected the Bulletin VPF shaft seal catalog numbers.	51
Added 2090-CSBM1DE and 2090-CSBM1DG cable compatibility with Bulletin VPS motors.	70
Updated Kinetix VP Single Cable Technology with total cable lengths that includes the Bulletin VPS motor extension cable.	
Renamed speed (rpm) specification columns as Rated Speed and Speed, max for MP-Series (Bulletin MPL, MPM, MPF, and MPS) and RDD-Series motor performance specifications.	78, 79, 94, 95, 105, 113, 131
Corrected the MPM-B1304C motor Rated Speed value.	95
Added the Feedback Connector Kit Compatibility table for RDD-Series compatible drive families.	130
Updated Motor Connector/Cable Compatibility for HPK-Series motors with SpeedTec feedback connectors.	138
<ul style="list-style-type: none"> <li>Added the Speed, max column to HPK-Series performance tables</li> <li>Corrected Motor Rated Output values for HPK-B2212C and HPK-B2010E motors</li> </ul>	139
Added Bulletin VPC motors to Common Rotary Motor Specifications.	162 and 163
Added Kinetix 5500 and Kinetix 5700 drive families to footnote.	164

## Servo Drive Compatibility

Servo Drive Family	Low-inertia Rotary Motors				Continuous Duty	Food Grade		Stainless Steel		Integrated Drive-Motor	Medium Inertia	Direct Drive	Asynchronous
	Bulletin VPL	Bulletin MPL	Bulletin TLY	Bulletin TL	Bulletin VPC	Bulletin VPF	Bulletin MPF	Bulletin VPS	Bulletin MPS	Bulletin MDF	Bulletin MPM	Bulletin RDB	HPK-Series
Kinetix 5700	X	X	–	–	X	X	X	X	X	–	X	X	X
Kinetix 5500	X	X	–	–	–	X	X	X	X	–	X	–	–
Kinetix 6500	–	X	–	–	–	–	X	–	X	–	X	X	–
Kinetix 6200	–	X	–	–	–	–	X	–	X	X	X	X	–
Kinetix 6000	–	X	X (TLY-Axx-H)	–	–	–	X	–	X	X	X	X	–
Kinetix 300/350	–	X	X	–	–	–	X	–	X	–	X	–	–
Kinetix 3	–	–	X (TL-Axx-B)	–	–	–	–	–	–	–	–	–	–
Kinetix 2000	–	X	X	–	–	–	X	–	X	–	X	–	–
Kinetix 7000	–	X	–	–	–	–	–	–	–	–	X	X	X
Ultra™ 3000	–	X	X (TLY-Axx-H)	–	–	–	X	–	X	–	X	–	–

## Kinetix VP Low Inertia Motors



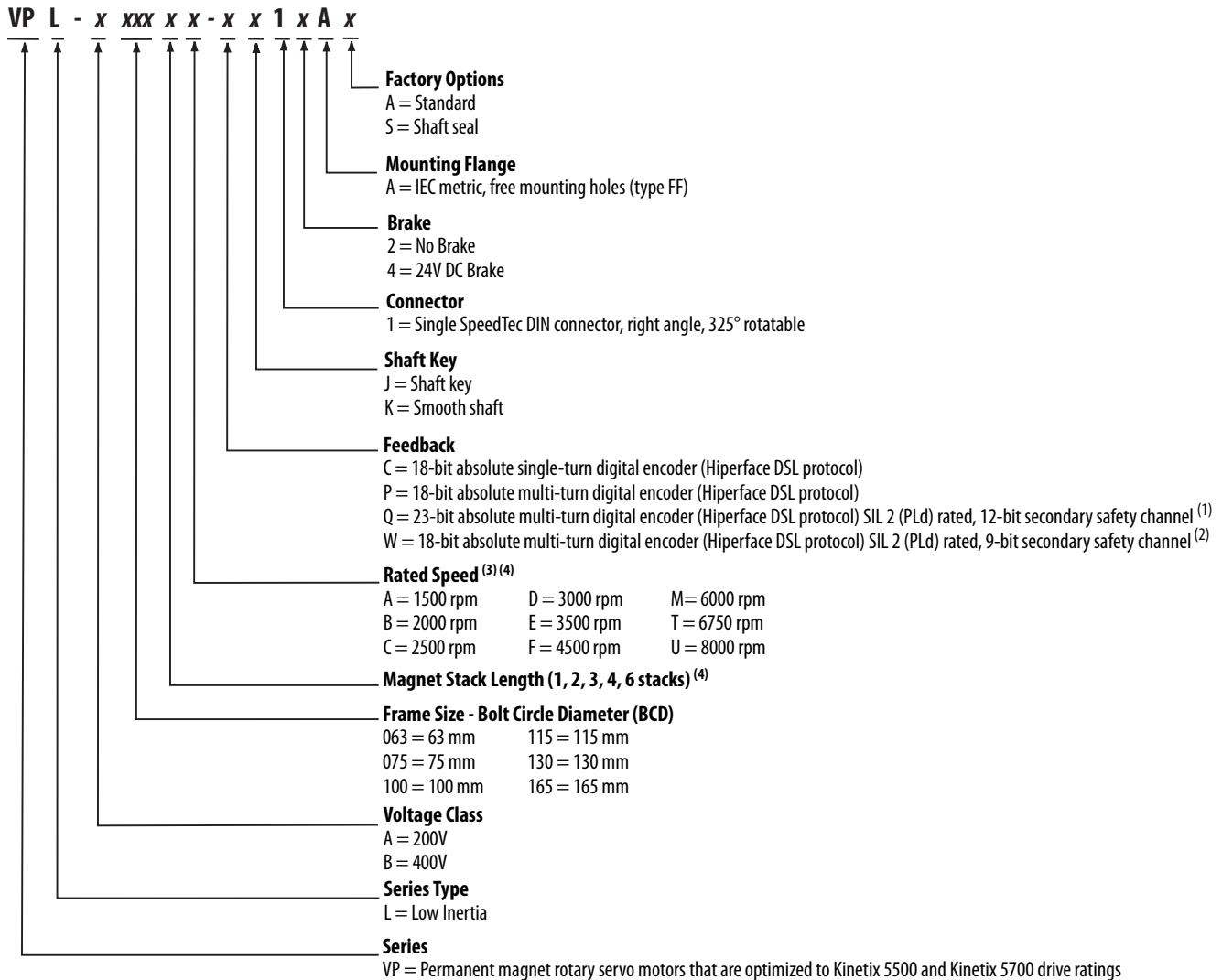
Kinetix VP (Bulletin VPL) low-inertia servo motors are available with winding options matched to the ratings of Kinetix 5500 drives and Kinetix 5700 dual-axis inverters. Optimized system sizing lowers system cost and improves energy efficiency. The digital feedback device provides real-time motor performance information to the control system and the single-cable design between motor and drive simplifies installation. Bulletin VPL motors are based on proven MP-Series technology for dynamic performance, increased reliability, and leverages high volume production.

### Kinetix VP Low Inertia Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• Developed to match the ratings of Kinetix 5500 drives and Kinetix 5700 dual-axis inverters</li> <li>• Single cable technology</li> <li>• Hiperface DSL encoder protocol</li> <li>• High torque to size ratio</li> <li>• Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 200V and 400V-class windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• SIL 2 (PLd) rated encoder options</li> <li>• High-energy rare-earth magnets</li> <li>• Shaft-end threaded hole</li> <li>• SpeedTec DIN connector, rotates 325°</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>• IP50 minimum, without shaft seal (standard)</li> <li>• IP66 with optional shaft seal and use of environmentally sealed cable connectors</li> </ul>
Certifications	Bulletin VPL rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	0.46...33 N·m (4...292 lb·in)
Peak stall torque	1.33...79 N·m (12...702 lb·in)
Rated speed	Up to 8000 rpm
Motor rated output	0.19...7.16 kW (0.25...9.60 Hp)
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5700</li> <li>• Kinetix 5500</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• Packaging</li> <li>• Converting</li> <li>• Material handling</li> <li>• Electronic assembly</li> <li>• Automotive</li> </ul>

## Catalog Numbers - Kinetix VP 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.



- (1) This encoder option is available with only VPL-A/B100xx, VPL-A/B115xx, VPL-A/B130xx, and VPL-B165xx motor frame sizes.
- (2) This encoder option is available with only VPL-B063xx and VPL-B075xx motor frame sizes.
- (3) Rated speed hierarchy is only for comparative purposes. Use Motion Analyzer software to size and select motors for your application, and/or the torque/speed curves in the Kinetix 5500 Drive System Design Guide, publication [KNX-RM009](#), and the Kinetix 5700 Drive System Design Guide, publication [KNX-RM010](#).
- (4) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in Kinetix VP Low Inertia Motor (200V-class) Performance Specifications on [page 7](#) and Kinetix VP Low Inertia Motor (400V-class) Performance Specifications on [page 8](#), are available. Use Motion Analyzer software to size and select motors for your application.



## Kinetix VP Low Inertia Motor High Resolution Encoders

Kinetix VP low-inertia motors are available with high-performance encoders with a choice of single-turn (-C), multi-turn (-P), and SIL 2 rated (-Q and -W) multi-turn high-resolution feedback:

- 18-bit resolution for 262,144 counts per revolution (choice of single-turn or multi-turn)
  - Single-turn encoder (-C) provides absolute position feedback within one turn
  - Multi-turn encoder (-P) provides absolute position feedback within 4096 turns
  - Electromechanical design does not require a battery.
- SIL 2 rated absolute multi-turn digital encoder (Hiperface DSL protocol)
  - 23-bit resolution for 8,388,608 counts per revolution, multi-turn absolute position feedback within 4096 turns (-Q) option has 12-bit secondary safety channel
  - 18-bit resolution for 262,144 multi-turn absolute position feedback within 4096 turns (-W) option has 9-bit secondary safety channel

## Kinetix VP Single Cable Technology

Motor connectivity reduced to a single connector and cable.

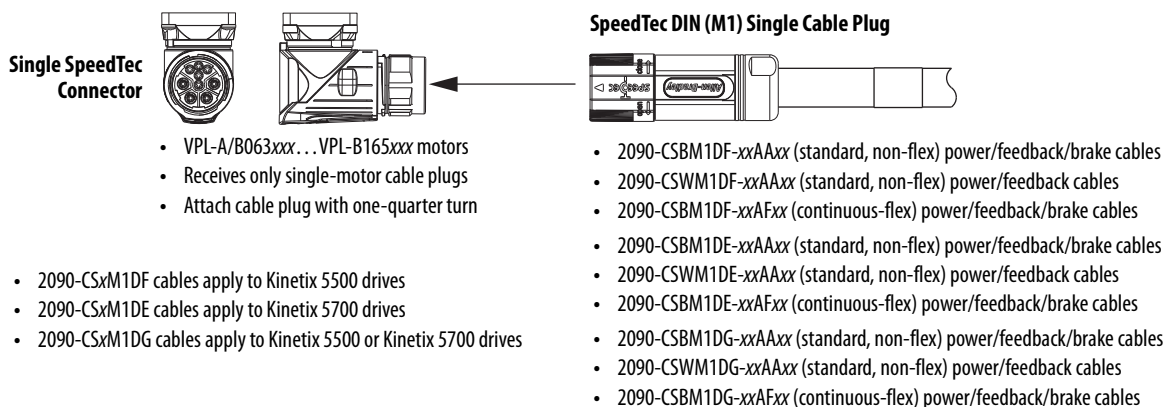
- Single cable eliminates hardware and wire terminations
- Purely digital two-wire communication integrated into the motor power cable
- 2090-CSxM1Dx cables are available in 1.0 m (3.2 ft) increments up to 50 m (164 ft) for Kinetix 5500 drives, 90 m (295 ft) for Kinetix 5700 drives

### IMPORTANT

Due to the unique characteristics of single cable technology, designed for and tested with Kinetix 5500 drives, Kinetix 5700 dual-axis inverters, and Bulletin VPL motors, building your own cables or using third-party cable is not an option.

## Motor Connector/Cable Compatibility

Kinetix VP (Bulletin VPL) motors are equipped with SpeedTec DIN connectors.



For 2090-Series single motor cable specifications, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

## Kinetix VP Low Inertia Motor Options

Kinetix VP low-inertia motors are available with these configurable options:

- Single-turn or multi-turn encoder.
- 24V DC brake.
- Choice of keyed or keyless shaft.
- 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.

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### 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.

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### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPL-A063xx and VPL-B063xx	VPL-SSN-F063075
VPL-A075xx and VPL-B075xx	
VPL-A100xx and VPL-B100xx	MPL-SSN-A3B3
VPL-A115xx and VPL-B115xx	MPL-SSN-A4B4
VPL-A130xx and VPL-B130xx	MPL-SSN-A5B5
VPL-B165xx	MPL-SSN-F165

Refer to the Kinetix VP Low-inertia Servo Motors Installation Instructions, publication [VPL-IN001](#), for more information on motor accessories.

## Technical Specifications - Kinetix VP Low Inertia Motors

### Kinetix VP Low Inertia Motor (200V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
VPL-A0631E	4500	4500	0.46 (4.0)	1.33 (12.0)	0.19 (0.25)	0.000094 (0.000083)	1.04 (2.30)
VPL-A0631M	7200	7200	0.46 (4.0)	1.33 (12.0)	0.28 (0.38)		
VPL-A0632F	4800	4800	0.93 (8.0)	2.69 (24.0)	0.39 (0.52)	0.000017 (0.00015)	1.36 (3.0)
VPL-A0633C	3000	3000	1.27 (11.0)	4.09 (36.0)	0.37 (0.50)	0.0000247 (0.00022)	1.68 (3.70)
VPL-A0633F	4500	4500	1.27 (11.0)	4.09 (36.0)	0.50 (0.67)		
VPL-A0751E	4800	4800	1.01 (9.0)	2.27 (20.0)	0.44 (0.59)	0.0000136 (0.00012)	1.48 (3.26)
VPL-A0752C	3300	3300	1.61 (14.0)	4.39 (39.0)	0.49 (0.66)	0.000025 (0.00022)	2.03 (4.47)
VPL-A0752E	4800	4800	1.61 (14.0)	4.39 (39.0)	0.66 (0.88)		
VPL-A0753C	3300	3300	2.16 (19.0)	7.02 (62.0)	0.59 (0.79)	0.0000365 (0.00032)	2.59 (5.70)
VPL-A0753E	4600	4600	2.28 (20.0)	7.35 (65.0)	0.80 (1.07)		
VPL-A1001C	2800	2800	1.93 (17.0)	3.78 (33.0)	0.56 (0.75)	0.000044 (0.00039)	2.63 (5.80)
VPL-A1001M	6500	6500	1.95 (17.0)	3.78 (33.0)	1.29 (1.73)		
VPL-A1002C	3000	3000	3.39 (30.0)	7.82 (69.0)	1.03 (1.38)	0.000078 (0.00069)	4.52 (9.95)
VPL-A1002F	5000	5000	3.26 (29.0)	7.82 (69.0)	1.60 (2.14)		
VPL-A1003C	2250	2250	4.18 (37.0)	11.15 (99.0)	0.87 (1.17)	0.00012 (0.0010)	4.45 (9.80)
VPL-A1003E	3750	3750	4.18 (37.0)	11.15 (99.0)	1.31 (1.76)		
VPL-A1003F	5500	5500	4.18 (37.0)	11.15 (99.0)	1.90 (2.55)		
VPL-A1152B	2150	2150	5.10 (45.0)	13.12 (116)	1.02 (1.37)	0.00026 (0.0023)	4.43 (9.75)
VPL-A1152E	3300	3300	5.08 (45.0)	13.12 (116)	1.47 (1.97)		
VPL-A1152F	5000	5000	4.70 (42.0)	13.12 (116)	2.16 (2.90)		
VPL-A1153C	2300	2300	6.55 (58.0)	20.33 (180)	1.35 (1.81)	0.00038 (0.0033)	6.01 (13.23)
VPL-A1303B	1950	1950	8.80 (78.0)	20.72 (183)	1.61 (2.16)	0.00040 (0.0035)	7.54 (16.60)
VPL-A1303F	4000	4000	7.75 (69.0)	20.72 (183)	2.50 (3.35)		
VPL-A1304A	1600	1600	10.29 (91.0)	28.45 (252)	1.55 (2.08)	0.00052 (0.0046)	9.10 (20.05)
VPL-A1304D	3000	3000	10.20 (90.0)	27.10 (240)	2.60 (3.50)		
VPL-A1306C	2000	2000	13.38 (118)	34.62 (306)	2.13 (2.86)	0.00078 (0.0069)	12.21 (26.90)

(1) Refer to Kinetix VP Low Inertia Motor Brake Specifications on [page 9](#) for brake rotor inertia and brake motor weight.

## Kinetix VP Low Inertia Motor (400V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
VPL-B0631T	8000	8000	0.46 (4.0)	1.33 (12.0)	0.31 (0.42)	0.000094 (0.000083)	1.04 (2.30)
VPL-B0631U	8000	8000	0.46 (4.0)	1.33 (12.0)	0.31 (0.42)		
VPL-B0632F	4600	4600	0.93 (8.0)	2.69 (24.0)	0.37 (0.50)	0.000017 (0.00015)	1.36 (3.00)
VPL-B0632T	8000	8000	0.93 (8.0)	2.69 (24.0)	0.54 (0.72)		
VPL-B0633M	6500	6700	1.27 (11.0)	4.09 (36.0)	0.57 (0.76)	0.0000247 (0.00022)	1.68 (3.70)
VPL-B0633T	6500	8000	1.27 (11.0)	4.09 (36.0)	0.57 (0.76)		
VPL-B0751M	8000	8000	1.01 (9.0)	2.27 (20.0)	0.54 (0.72)	0.0000250 (0.00022)	2.03 (4.47)
VPL-B0752E	4900	4900	1.61 (14.0)	4.39 (39.0)	0.67 (0.90)		
VPL-B0752F	7000	7000	1.61 (14.0)	4.39 (39.0)	0.80 (1.07)		
VPL-B0752M	8000	8000	1.61 (14.0)	4.39 (39.0)	0.81 (1.09)	0.0000365 (0.00032)	2.59 (5.70)
VPL-B0753E	4500	4500	2.28 (20.0)	7.35 (65.0)	0.81 (1.09)		
VPL-B0753F	4500	6600	2.16 (19.0)	7.02 (62.0)	0.65 (0.87)		
VPL-B0753M	6000	8000	2.28 (20.0)	7.35 (65.0)	0.82 (1.10)	0.000044 (0.00039)	2.63 (5.80)
VPL-B1001M	6000	6000	1.93 (17.0)	3.78 (33.0)	1.14 (1.53)		
VPL-B1002E	3300	3300	3.39 (30.0)	7.82 (69.0)	1.12 (1.50)		
VPL-B1002M	6000	6000	3.39 (30.0)	7.82 (69.0)	1.86 (2.49)	0.00012 (0.0010)	4.45 (9.80)
VPL-B1003C	2500	2500	4.18 (37.0)	11.15 (99.0)	0.96 (1.29)		
VPL-B1003F	4750	4750	4.18 (37.0)	11.15 (99.0)	1.65 (2.21)		
VPL-B1003T	7000	7000	4.18 (37.0)	11.15 (99.0)	1.77 (2.37)	0.00026 (0.0023)	5.43 (11.95)
VPL-B1152C	2250	2250	5.10 (45.0)	13.12 (116)	1.06 (1.42)		
VPL-B1152F	4000	4500	5.10 (45.0)	13.12 (116)	1.40 (1.88)		
VPL-B1152T	6500	6500	5.08 (45.0)	13.12 (116)	2.29 (3.07)	0.00038 (0.0033)	6.01 (13.23)
VPL-B1153E	3200	3200	6.55 (58.0)	20.33 (180)	1.75 (2.35)		
VPL-B1153F	5000	5000	6.55 (58.0)	20.33 (180)	2.30 (3.08)	0.00040 (0.0035)	7.54 (16.60)
VPL-B1303C	2250	2250	8.80 (78.0)	20.72 (183)	1.83 (2.45)		
VPL-B1303F	4000	4000	8.80 (78.0)	20.72 (183)	2.82 (3.78)	0.00052 (0.0046)	9.10 (20.05)
VPL-B1304C	2150	2150	10.29 (91.0)	28.45 (252)	1.75 (2.35)		
VPL-B1304E	3500	3500	10.29 (91.0)	28.45 (252)	2.82 (3.78)	0.00078 (0.0069)	12.21 (26.9)
VPL-B1306C	2500	2500	13.38 (118)	34.62 (306)	2.46 (3.30)		
VPL-B1306F	4250	4250	13.38 (118)	34.62 (306)	2.95 (3.95)	0.000783 (0.0069)	15.30 (33.70)
VPL-B1651C	2750	2750	11.50 (102)	22.45 (199)	2.32 (3.11)		
VPL-B1651F	4750	4750	11.43 (101)	22.45 (199)	4.38 (5.87)	0.00147 (0.013)	17.80 (39.24)
VPL-B1652C	2700	2700	19.40 (172)	48.60 (430)	4.18 (5.60)		
VPL-B1652F	4000	4000	17.60 (156)	48.60 (430)	4.77 (6.40)	0.00213 (0.019)	20.66 (45.50)
VPL-B1653C	2300	2300	25.76 (228)	66.70 (590)	4.38 (5.87)		
VPL-B1653D	3000	3000	24.20 (214)	67.80 (600)	5.50 (7.30)	0.00289 (0.025)	25.65 (56.55)
VPL-B1654B	1850	1850	32.97 (292)	79.30 (702)	5.55 (7.44)		
VPL-B1654D	3000	3000	32.0 (283)	75.30 (666)	7.16 (9.60)		

(1) Refer to Kinetix VP Low Inertia Motor Brake Specifications on [page 9](#) for brake rotor inertia and brake motor weight.

## Kinetix VP Low Inertia Motor Brake Specifications

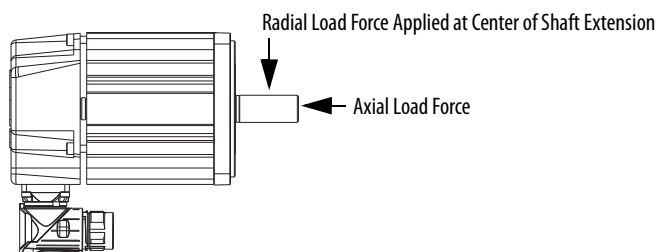
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time		Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage <sup>(1)</sup> ms		
VPL-A/B0631	30	1.50 (13)	0.297...0.363	38	25	0.0000118 (0.00010)	1.36 (3.0)
VPL-A/B0632						0.0000194 (0.00017)	1.70 (3.74)
VPL-A/B0633						0.0000271 (0.00024)	2.02 (4.45)
VPL-A/B0751		3.0 (27)	0.567...0.693	66	42	0.0000182 (0.00016)	2.06 (4.54)
VPL-A/B0752						0.0000297 (0.00026)	2.62 (5.77)
VPL-A/B0753						0.0000412 (0.00036)	3.18 (7.0)
VPL-A/B1001	30	4.18 (37)	0.45...0.55	90	65	0.000059 (0.00052)	3.26 (7.19)
VPL-A/B1002						0.000093 (0.00082)	4.20 (9.24)
VPL-A/B1003						0.000135(0.0012)	5.08 (11.19)
VPL-A/B1152		6.55 (58)	0.621...0.759	90	95	0.000289 (0.0025)	5.30 (11.67)
VPL-A/B1153						0.000409 (0.0036)	6.88 (15.15)
VPL-A/B1303		14.10 (125)	0.738...0.902	125	120	0.000433 (0.0038)	8.64 (19.03)
VPL-A/B1304						0.000553 (0.0049)	10.21 (22.48)
VPL-A/B1306						0.000813 (0.0072)	13.32 (29.33)
VPL-B1651		32.0 (283)	1.053...1.287	140	120	0.000845 (0.0075)	17.15 (37.78)
VPL-B1652						0.00153 (0.013)	19.65 (43.32)
VPL-B1653						0.00219 (0.019)	22.51 (49.58)
VPL-B1654						0.00295 (0.026)	27.50 (60.63)

(1) By using diode and zener diode as arc suppression device in external control circuit.

## Kinetix VP Low Inertia Motor Load Force Ratings

Bulletin VPL 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 L<sub>10</sub> 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.

## Load Forces on Shaft



## Kinetix VP Low Inertia Motors (063...075 frame size)

## Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	–	26.7	–	–	20.8 *	18.5	–	–	16.2	–	–	–	–	–	–
VPL-A0631M	7200	–	–	23.3	–	19.7	–	–	–	16.7 *	–	–	–	–	13.8	–
VPL-A0632F	4800	–	28.9	25.2	–	–	21.0 *	–	–	–	17.1 *	–	–	–	–	–
VPL-A0633C	3000	38.1	30.3	27.4 *	–	–	21.0	–	–	–	–	–	–	–	–	–
VPL-A0633F	4500	38.1	–	26.4	–	–	21.0	–	–	18.3	–	–	–	–	–	–
VPL-A0751E	4800	33.3	26.4	–	–	20.6 *	–	–	–	–	15.7 *	–	–	–	–	–
VPL-A0752C	3300	36.1	28.6	25.9 *	–	–	–	19.2 *	–	–	–	–	–	–	–	–
VPL-A0752E	4800	36.1	28.6	–	–	21.8 *	–	–	–	–	17.0 *	–	–	–	–	–
VPL-A0753C	3300	37.8	30.0	27.5 *	–	–	–	20.2 *	–	–	–	–	–	–	–	–
VPL-A0753E	4600	37.8	30.0	–	–	23.3 *	–	–	–	–	18.0 *	–	–	–	–	–
VPL-B0631T	8000	–	–	23.3	–	–	18.5	–	–	–	–	14.9 *	–	–	–	13.3
VPL-B0631U	8000	–	–	23.3	–	–	18.5	–	–	–	15.6	–	–	–	–	13.3
VPL-B0632F	4600	–	28.9	25.2	–	–	21.0 *	–	–	–	17.1 *	–	–	–	–	–
VPL-B0632T	8000	–	–	–	22.9	–	–	–	18.2	–	–	–	15.6 *	–	–	14.4
VPL-B0633M	6700	–	30.3	–	24.0	–	–	–	19.2 *	–	–	–	–	15.9 *	–	–
VPL-B0633T	8000	–	–	26.4	–	–	21.0	–	–	–	–	16.8 *	–	–	–	15.1
VPL-B0751M	8000	–	–	23.1	–	–	18.3	–	–	–	15.7 *	–	–	–	–	13.2
VPL-B0752E	4900	36.1	28.6	–	–	22.0 *	–	–	–	–	17.0 *	–	–	–	–	–
VPL-B0752F	7000	–	28.6	–	22.7	–	–	19.3 *	–	–	–	–	–	15.0	–	–
VPL-B0752M	8000	–	–	25.0	–	–	20.8	–	–	–	16.8 *	–	–	–	–	14.3
VPL-B0753E	4500	37.8	30.0	–	23.8	–	–	–	–	18.2	–	–	–	–	–	–
VPL-B0753F	6600	–	30.0	–	23.8	–	–	20.6 *	–	–	–	–	16.1	–	–	–
VPL-B0753M	8000	–	–	26.2	–	–	19.8	–	–	–	18.0 *	–	–	–	–	15.0

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings (maximum radial load) for Non-brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	–	22.3	–	–	16.1 *	13.8	–	–	11.6	–	–	–	–	–	–
VPL-A0631M	7200	–	–	18.7	–	15.0	–	–	–	12.1 *	–	–	–	–	9.5 *	–
VPL-A0632F	4800	–	23.5	19.7	–	–	15.5 *	–	–	–	11.9 *	–	–	–	–	–
VPL-A0633C	3000	32.7	24.2	21.3 *	–	–	15.0	–	–	–	–	–	–	–	–	–
VPL-A0633F	4500	32.7	–	20.3	–	–	15.0	–	–	12.6	–	–	–	–	–	–
VPL-A0751E	4800	30.0	22.2	–	–	16.1 *	–	–	–	–	11.2 *	–	–	–	–	–
VPL-A0752C	3300	31.5	23.3	20.5 *	–	–	–	13.9 *	–	–	–	–	–	–	–	–
VPL-A0752E	4800	31.5	23.3	–	–	16.4 *	–	–	–	–	11.8 *	–	–	–	–	–
VPL-A0753C	3300	32.5	24.1	21.5 *	–	–	–	14.3 *	–	–	–	–	–	–	–	–
VPL-A0753E	4600	32.5	24.1	–	–	17.3 *	–	–	–	–	12.4 *	–	–	–	–	–
VPL-B0631T	8000	–	–	18.7	–	–	13.8	–	–	–	–	10.5 *	–	–	–	9.0
VPL-B0631U	8000	–	–	18.7	–	–	13.8	–	–	–	11.1	–	–	–	–	9.0
VPL-B0632F	4600	–	23.5	19.7	–	–	15.5 *	–	–	–	11.9 *	–	–	–	–	–
VPL-B0632T	8000	–	–	–	17.4	–	–	–	12.9	–	–	–	10.6	–	–	9.5
VPL-B0633M	6700	–	24.2	–	17.9	–	–	–	13.4 *	–	–	–	–	10.5 *	–	–
VPL-B0633T	8000	–	–	20.3	–	–	15.0	–	–	–	–	11.3 *	–	–	–	9.8
VPL-B0751M	8000	–	–	18.6	–	–	13.8	–	–	–	11.2 *	–	–	–	–	9.0
VPL-B0752E	4900	31.5	23.3	–	–	16.6 *	–	–	–	–	11.8 *	–	–	–	–	–
VPL-B0752F	7000	–	23.3	–	17.3	–	–	14.0 *	–	–	–	–	–	10.0	–	–
VPL-B0752M	8000	–	–	19.6	–	–	14.5	–	–	–	11.7 *	–	–	–	–	9.5
VPL-B0753E	4500	32.5	24.1	–	17.8	–	–	–	–	12.5	–	–	–	–	–	–
VPL-B0753F	6600	–	24.1	–	17.8	–	–	14.7 *	–	–	–	–	10.7	–	–	–
VPL-B0753M	8000	–	–	20.2	–	–	14.9	–	–	–	12.4 *	–	–	–	–	9.8

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (zero radial load) for Non-brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	–	27.5	–	–	19.9*	17.1	–	–	14.3	–	–	–	–	–	–
VPL-A0631M	7200	–	–	23.0	–	18.5	–	–	–	14.9*	–	–	–	–	11.7*	–
VPL-A0632F	4800	–	27.5	23.0	–	–	18.1*	–	–	–	13.9*	–	–	–	–	–
VPL-A0633C	3000	37.1	27.5	24.1*	–	–	17.1	–	–	–	–	–	–	–	–	–
VPL-A0633F	4500	37.1	–	23.0	–	–	17.1	–	–	14.3	–	–	–	–	–	–
VPL-A0751E	4800	37.1	27.5	–	–	19.9*	–	–	–	–	13.9*	–	–	–	–	–
VPL-A0752C	3300	37.1	27.5	24.1*	–	–	–	16.4*	–	–	–	–	–	–	–	–
VPL-A0752E	4800	37.1	27.5	–	–	19.3*	–	–	–	–	13.9*	–	–	–	–	–
VPL-A0753C	3300	37.1	27.5	24.5*	–	–	–	16.4*	–	–	–	–	–	–	–	–
VPL-A0753E	4600	37.1	27.5	–	–	19.7*	–	–	–	–	14.2*	–	–	–	–	–
VPL-B0631T	8000	–	–	23.0	–	–	17.1	–	–	–	–	12.9*	–	–	–	11.1
VPL-B0631U	8000	–	–	23.0	–	–	17.1	–	–	–	13.7	–	–	–	–	11.1
VPL-B0632F	4600	–	27.5	23.0	–	–	18.1*	–	–	–	13.9*	–	–	–	–	–
VPL-B0632T	8000	–	–	–	20.3	–	–	–	15.1	–	–	–	12.4*	–	–	11.1
VPL-B0633M	6700	–	27.5	–	20.3	–	–	–	15.2*	–	–	–	–	11.9*	–	–
VPL-B0633T	8000	–	–	23.0	–	–	17.1	–	–	–	–	12.8*	–	–	–	11.1
VPL-B0751M	8000	–	–	23.0	–	–	17.1	–	–	–	13.9*	–	–	–	–	11.1
VPL-B0752E	4900	37.1	27.5	–	–	19.5*	–	–	–	–	13.9*	–	–	–	–	–
VPL-B0752F	7000	–	27.5	–	20.3	–	–	16.5*	–	–	–	–	–	11.8	–	–
VPL-B0752M	8000	–	–	23.0	–	–	17.1	–	–	–	13.8*	–	–	–	–	11.1
VPL-B0753E	4500	37.1	27.5	–	20.3	–	–	–	–	14.3	–	–	–	–	–	–
VPL-B0753F	6600	–	27.5	–	20.3	–	–	16.8*	–	–	–	–	12.2	–	–	–
VPL-B0753M	8000	–	–	23.0	–	–	17.1	–	–	–	14.2*	–	–	–	–	11.1

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.



## Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	–	29.2	–	–	22.8*	20.3	–	–	17.7	–	–	–	–	–	–
VPL-A0631M	7200	–	–	25.5	–	21.5	–	–	–	18.3*	–	–	–	–	15.1*	–
VPL-A0632F	4800	–	30.5	26.6	–	–	22.2*	–	–	–	18.1*	–	–	–	–	–
VPL-A0633C	3000	39.5	31.4	28.4*	–	–	21.8	–	–	–	–	–	–	–	–	–
VPL-A0633F	4500	39.5	–	27.4	–	–	21.8	–	–	19.0	–	–	–	–	–	–
VPL-A0751E	4800	36.5	29.0	–	–	22.6*	–	–	–	–	17.2*	–	–	–	–	–
VPL-A0752C	3300	38.1	30.3	27.4	–	–	–	20.3*	–	–	–	–	–	–	–	–
VPL-A0752E	4800	38.1	30.3	–	–	23.1*	–	–	–	–	17.9*	–	–	–	–	–
VPL-A0753C	3300	39.2	31.2	28.5*	–	–	–	20.9*	–	–	–	–	–	–	–	–
VPL-A0753E	4600	39.2	31.2	–	–	24.1*	–	–	–	–	18.7*	–	–	–	–	–
VPL-B0631T	8000	–	–	25.5	–	–	20.3	–	–	–	–	16.4*	–	–	–	14.6
VPL-B0631U	8000	–	–	25.5	–	–	20.3	–	–	–	17.1	–	–	–	–	14.6
VPL-B0632F	4600	–	30.5	26.6	–	–	22.2*	–	–	–	18.1*	–	–	–	–	–
VPL-B0632T	8000	–	–	–	24.2	–	–	–	19.2	–	–	–	16.5*	–	–	15.3
VPL-B0633M	6700	–	31.4	–	24.9	–	–	–	19.9*	–	–	–	–	16.5*	–	–
VPL-B0633T	8000	–	–	27.4	–	–	21.8	–	–	–	–	17.5*	–	–	–	15.7
VPL-B0751M	8000	–	–	25.3	–	–	20.1	–	–	–	17.2*	–	–	–	–	14.5
VPL-B0752E	4900	38.1	30.3	–	–	23.3*	–	–	–	–	17.9*	–	–	–	–	–
VPL-B0752F	7000	–	30.3	–	24.0	–	–	20.4*	–	–	–	–	–	15.8	–	–
VPL-B0752M	8000	–	–	26.4	–	–	21.0	–	–	–	17.8*	–	–	–	–	15.1
VPL-B0753E	4500	39.2	31.2	–	24.7	–	–	–	–	18.9	–	–	–	–	–	–
VPL-B0753F	6600	–	31.2	–	24.7	–	–	21.4*	–	–	–	–	16.7	–	–	–
VPL-B0753M	8000	–	–	27.2	–	–	21.6	–	–	–	18.7*	–	–	–	–	15.6

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (maximum radial load) for Brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	–	23.7	–	–	17.2 *	14.7	–	–	12.3	–	–	–	–	–	–
VPL-A0631M	7200	–	–	19.9	–	15.9	–	–	–	12.8	–	–	–	–	10.0 *	–
VPL-A0632F	4800	–	24.3	20.4	–	–	16.1 *	–	–	–	12.3 *	–	–	–	–	–
VPL-A0633C	3000	33.5	24.8	21.8 *	–	–	15.4	–	–	–	–	–	–	–	–	–
VPL-A0633F	4500	33.5	–	20.8	–	–	15.4	–	–	12.9	–	–	–	–	–	–
VPL-A0751E	4800	31.8	23.5	–	–	17.1 *	–	–	–	–	11.9 *	–	–	–	–	–
VPL-A0752C	3300	32.7	24.2	21.3 *	–	–	–	14.4 *	–	–	–	–	–	–	–	–
VPL-A0752E	4800	32.7	24.2	–	–	17.0 *	–	–	–	–	12.3 *	–	–	–	–	–
VPL-A0753C	3300	33.4	24.7	22.0 *	–	–	–	14.7 *	–	–	–	–	–	–	–	–
VPL-A0753E	4600	33.4	24.7	–	–	17.7 *	–	–	–	–	12.7 *	–	–	–	–	–
VPL-B0631T	8000	–	–	19.9	–	–	14.7	–	–	–	–	11.1 *	–	–	–	9.6
VPL-B0631U	8000	–	–	19.9	–	–	14.7	–	–	–	11.8	–	–	–	–	9.6
VPL-B0632F	4600	–	24.3	20.4	–	–	16.1 *	–	–	–	12.3 *	–	–	–	–	–
VPL-B0632T	8000	–	–	–	18.0	–	–	–	13.3	–	–	–	11.0 *	–	–	9.9
VPL-B0633M	6700	–	24.8	–	18.4	–	–	–	13.7 *	–	–	–	–	10.7 *	–	–
VPL-B0633T	8000	–	–	20.8	–	–	15.4	–	–	–	–	11.6 *	–	–	–	10.1
VPL-B0751M	8000	–	–	19.7	–	–	14.6	–	–	–	11.9 *	–	–	–	–	9.5
VPL-B0752E	4900	32.7	24.2	–	–	17.2 *	–	–	–	–	12.3 *	–	–	–	–	–
VPL-B0752F	7000	–	24.2	–	17.9	–	–	14.5 *	–	–	–	–	–	10.4	–	–
VPL-B0752M	8000	–	–	20.3	–	–	15.0	–	–	–	12.1 *	–	–	–	–	9.8
VPL-B0753E	4500	33.4	24.7	–	18.3	–	–	–	–	12.9	–	–	–	–	–	–
VPL-B0753F	6600	–	24.7	–	18.3	–	–	15.1 *	–	–	–	–	11.0	–	–	–
VPL-B0753M	8000	–	–	20.7	–	–	15.3	–	–	–	12.7 *	–	–	–	–	10.0

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings (zero radial load) for Brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPL-A0631E	4500	–	27.5	–	–	19.9*	17.1	–	–	14.3	–	–	–	–	–	–
VPL-A0631M	7200	–	–	23.0	–	18.5	–	–	–	14.9*	–	–	–	–	11.7*	–
VPL-A0632F	4800	–	27.5	23.0	–	–	18.1*	–	–	–	13.9*	–	–	–	–	–
VPL-A0633C	3000	37.1	27.5	24.1*	–	–	17.1	–	–	–	–	–	–	–	–	–
VPL-A0633F	4500	37.1	–	23.0	–	–	17.1	–	–	14.3	–	–	–	–	–	–
VPL-A0751E	4800	37.1	27.5	–	–	19.9*	–	–	–	–	13.9*	–	–	–	–	–
VPL-A0752C	3300	37.1	27.5	24.1*	–	–	–	16.4*	–	–	–	–	–	–	–	–
VPL-A0752E	4800	37.1	27.5	–	–	19.3*	–	–	–	–	13.9*	–	–	–	–	–
VPL-A0753C	3300	37.1	27.5	24.5*	–	–	–	16.4*	–	–	–	–	–	–	–	–
VPL-A0753E	4600	37.1	27.5	–	–	19.7*	–	–	–	–	14.2*	–	–	–	–	–
VPL-B0631T	8000	–	–	23.0	–	–	17.1	–	–	–	–	12.9*	–	–	–	11.1
VPL-B0631U	8000	–	–	23.0	–	–	17.1	–	–	–	13.7	–	–	–	–	11.1
VPL-B0632F	4600	–	27.5	23.0	–	–	18.1*	–	–	–	13.9*	–	–	–	–	–
VPL-B0632T	8000	–	–	–	20.3	–	–	–	15.1	–	–	–	12.4*	–	–	11.1
VPL-B0633M	6700	–	27.5	–	20.3	–	–	–	15.2*	–	–	–	–	11.9*	–	–
VPL-B0633T	8000	–	–	23.0	–	–	17.1	–	–	–	–	12.8*	–	–	–	11.1
VPL-B0751M	8000	–	–	23.0	–	–	17.1	–	–	–	13.9*	–	–	–	–	11.1
VPL-B0752E	4900	37.1	27.5	–	–	19.5*	–	–	–	–	13.9*	–	–	–	–	–
VPL-B0752F	7000	–	27.5	–	20.3	–	–	16.5*	–	–	–	–	–	11.8	–	–
VPL-B0752M	8000	–	–	23.0	–	–	17.1	–	–	–	13.8*	–	–	–	–	11.1
VPL-B0753E	4500	37.1	27.5	–	20.3	–	–	–	–	14.3	–	–	–	–	–	–
VPL-B0753F	6600	–	27.5	–	20.3	–	–	16.8*	–	–	–	–	12.2	–	–	–
VPL-B0753M	8000	–	–	23.0	–	–	17.1	–	–	–	14.2*	–	–	–	–	11.1

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Kinetix VP Low Inertia Motors (100...165 frame size)

## Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	79.1	–	62.8	–	49.8	–	44.6 *	–	–	–	–	–	–	–	–
VPL-A1001M	6500	–	–	–	54.9	–	46.3	–	–	–	38.0	–	–	–	33.6	–
VPL-A1002C	3000	87.9	–	69.7	–	55.4	–	48.4	–	–	–	–	–	–	–	–
VPL-A1002F	5000	–	–	69.7	60.9	–	–	48.4	–	–	–	40.8	–	–	–	–
VPL-A1003C	2250	93.6	–	74.3	64.9	–	56.7 *	–	–	–	–	–	–	–	–	–
VPL-A1003E	3750	93.6	–	74.3	–	59.0	–	–	–	47.8 *	–	–	–	–	–	–
VPL-A1003F	5500	–	–	–	64.9	–	54.8	–	–	46.8	–	–	42.1	–	–	–
VPL-A1152B	2150	98.8	–	78.4	68.5	–	60.8 *	–	–	–	–	–	–	–	–	–
VPL-A1152E	3300	98.8	–	78.4	–	62.2	–	–	52.7 *	–	–	–	–	–	–	–
VPL-A1152F	5000	–	–	78.4	–	62.2	–	54.4	–	–	–	45.9	–	–	–	–
VPL-A1153C	2300	106.4	–	84.5	73.8	–	64.0 *	–	–	–	–	–	–	–	–	–
VPL-A1303B	1950	132.9	–	105.5	92.2	84.4 *	–	–	–	–	–	–	–	–	–	–
VPL-A1303F	4000	–	–	105.5	–	83.7	–	73.1	–	66.5	–	–	–	–	–	–
VPL-A1304A	1600	140.2	122.5	112.2 *	–	95.2 *	–	–	–	–	–	–	–	–	–	–
VPL-A1304D	3000	140.2	–	111.3	–	88.3	–	77.2	–	–	–	–	–	–	–	–
VPL-A1306C	2000	150.0	–	128.3 *	107.7 *	94.5	–	–	–	–	–	–	–	–	–	–
VPL-B1001M	6000	–	–	–	–	49.8	–	43.5	–	39.6	–	–	–	34.6	–	–
VPL-B1002E	3300	87.9	–	69.7	–	55.4	–	–	46.8 *	–	–	–	–	–	–	–
VPL-B1002M	6000	–	–	–	60.9	–	–	48.4	–	–	42.2	–	–	38.4	–	–
VPL-B1003C	2500	93.6	–	74.3	64.9	–	54.8	–	–	–	–	–	–	–	–	–
VPL-B1003F	4750	–	–	74.3	64.9	–	–	51.5	–	–	–	44.2 *	–	–	–	–
VPL-B1003T	7000	–	–	–	64.9	–	54.8	–	–	–	45.0	–	–	–	–	38.9
VPL-B1152C	2250	98.8	–	78.4	68.5	–	59.8 *	–	–	–	–	–	–	–	–	–
VPL-B1152F	4000	–	–	78.4	–	62.2	–	54.4	–	–	47.5	–	–	–	–	–
VPL-B1152T	6500	–	–	–	68.5	–	57.8	–	–	49.4	–	–	–	–	42.0	–
VPL-B1153E	3200	106.4	–	84.5	–	67.0	–	–	57.3 *	–	–	–	–	–	–	–
VPL-B1153F	5000	–	–	84.5	–	67.0	–	58.6	–	–	–	49.4	–	–	–	–
VPL-B1303C	2250	132.9	–	105.5	92.2	–	80.5 *	–	–	–	–	–	–	–	–	–
VPL-B1303F	4000	–	–	105.5	–	83.7	–	74.0 *	–	66.5	–	–	–	–	–	–
VPL-B1304C	2150	140.2	–	111.3	99.5 *	–	86.2 *	–	–	–	–	–	–	–	–	–
VPL-B1304E	3500	–	–	111.3	97.2	–	84.3 *	–	73.3	–	–	–	–	–	–	–
VPL-B1306C	2500	150.0	–	119.1	–	100.8 *	87.7	–	–	–	–	–	–	–	–	–
VPL-B1306F	4250	–	–	119.0	–	94.5	–	82.6	–	–	73.5 *	–	–	–	–	–
VPL-B1651C	2750	161.3	–	128.0	–	108.3 *	–	91.4 *	–	–	–	–	–	–	–	–
VPL-B1651F	4750	–	–	128.0	–	101.6	–	88.7	–	–	–	76.1 *	–	–	–	–
VPL-B1652C	2700	180.7	–	143.4	125.3	–	–	103.0 *	–	–	–	–	–	–	–	–
VPL-B1652F	4000	–	–	143.4	125.3	–	–	105.7	–	–	90.4	–	–	–	–	–
VPL-B1653C	2300	192.4	–	152.7	136.5 *	–	115.7 *	–	–	–	–	–	–	–	–	–
VPL-B1653D	3000	–	–	152.7	139.9 *	125.5 *	–	105.9	–	–	–	–	–	–	–	–
VPL-B1654B	1850	200.1	174.8	–	152.5 *	129.4 *	–	–	–	–	–	–	–	–	–	–
VPL-B1654D	3000	–	–	158.8	138.8	126.1	–	110.1	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings (maximum radial load) for Non-brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	25.0	–	19.0	–	10.0	–	10.0*	–	–	–	–	–	–	–	–
VPL-A1001M	6500	–	–	–	15.0	–	12.0	–	–	–	9.0	–	–	–	8.0	–
VPL-A1002C	3000	30.0	–	22.0	–	16.0	–	13.0	–	–	–	–	–	–	–	–
VPL-A1002F	5000	–	–	22.0	18.0	–	–	13.0	–	–	–	11.0	–	–	–	–
VPL-A1003C	2250	33.0	–	24.0	20.0	–	17.0*	–	–	–	–	–	–	–	–	–
VPL-A1003E	3750	33.0	–	24.0	–	18.0	–	–	–	13.0*	–	–	–	–	–	–
VPL-A1003F	5500	–	–	–	20.0	–	16.0	–	–	13.0	–	–	11.0	–	–	–
VPL-A1152B	2150	44.0	–	32.0	27.0	–	23.0*	–	–	–	–	–	–	–	–	–
VPL-A1152E	3300	44.0	–	32.0	–	24.0	–	–	15.0*	–	–	–	–	–	–	–
VPL-A1152F	5000	–	–	32.0	–	24.0	–	20.0	–	–	–	16.0	–	–	–	–
VPL-A1153C	2300	48.0	–	35.0	29.0	–	24.0*	–	–	–	–	–	–	–	–	–
VPL-A1303B	1950	39.0	–	29.0	24.0	22.0*	–	–	–	–	–	–	–	–	–	–
VPL-A1303F	4000	–	–	29.0	–	21.0	–	18.0	–	16.0	–	–	–	–	–	–
VPL-A1304A	1600	43.0	36.0	32.0*	–	26.0*	–	–	–	–	–	–	–	–	–	–
VPL-A1304D	3000	43.0	–	32.0	–	23.0	–	20.0	–	–	–	–	–	–	–	–
VPL-A1306C	2000	48.0	–	39.0*	31.0*	26.0	–	–	–	–	–	–	–	–	–	–
VPL-B1001M	6000	–	–	–	–	14.0	–	11.0	–	10.0	–	–	–	8.0	–	–
VPL-B1002E	3300	30.0	–	22.0	–	16.0	–	–	13.0*	–	–	–	–	–	–	–
VPL-B1002M	6000	–	–	–	18.0	–	–	13.0	–	–	11.0	–	–	10.0	–	–
VPL-B1003C	2500	33.0	–	24.0	20.0	–	16.0	–	–	–	–	–	–	–	–	–
VPL-B1003F	4750	–	–	24.0	20.0	–	–	15.0	–	–	–	12.0*	–	–	–	–
VPL-B1003T	7000	–	–	–	20.0	–	16.0	–	–	–	12.0	–	–	–	–	10.0
VPL-B1152C	2250	44.0	–	32.0	27.0	–	22.0*	–	–	–	–	–	–	–	–	–
VPL-B1152F	4000	–	–	32.0	–	24.0	–	20.0	–	–	17.0	–	–	–	–	–
VPL-B1152T	6500	–	–	–	27.0	–	21.0	–	–	17.0	–	–	–	–	14.0	–
VPL-B1153E	3200	48.0	–	35.0	–	26.0	–	–	21.0*	–	–	–	–	–	–	–
VPL-B1153F	5000	–	–	35.0	–	26.0	–	22.0	–	–	–	17.0	–	–	–	–
VPL-B1303C	2250	39.0	–	29.0	–	24.0	20.0*	–	–	–	–	–	–	–	–	–
VPL-B1303F	4000	–	–	29.0	–	21.0	–	18.0*	–	16.0	–	–	–	–	–	–
VPL-B1304C	2150	43.0	–	32.0	27.0*	–	23.0*	–	–	–	–	–	–	–	–	–
VPL-B1304E	3500	–	–	32.0	27.0	–	22.0*	–	18.0	–	–	–	–	–	–	–
VPL-B1306C	2500	48.0	–	36.0	–	29.0*	24.0	–	–	–	–	–	–	–	–	–
VPL-B1306F	4250	–	–	36.0	–	26.0	–	22.0	–	–	19.0*	–	–	–	–	–
VPL-B1651C	2750	48.0	–	35.0	–	28.0*	–	23.0*	–	–	–	–	–	–	–	–
VPL-B1651F	4750	–	–	35.0	–	26.0	–	22.0	–	–	–	18.0*	–	–	–	–
VPL-B1652C	2700	58.0	–	43.0	36.0	–	–	27.0*	–	–	–	–	–	–	–	–
VPL-B1652F	4000	–	–	43.1	36.1	–	28.9	–	–	23.6	–	–	–	–	–	–
VPL-B1653C	2300	64.0	–	47.0	41.0*	–	33.0*	–	–	–	–	–	–	–	–	–
VPL-B1653D	3000	–	–	47.6	42.5*	36.9*	–	29.5	–	–	–	–	–	–	–	–
VPL-B1654B	1850	68.0	–	57.0	48.0*	38.0*	–	–	–	–	–	–	–	–	–	–
VPL-B1654D	3000	–	–	50.7	42.5	37.5	–	31.5	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (zero radial load) for Non-brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	49.4	–	36.5	–	27.0	–	23.4*	–	–	–	–	–	–	–	–
VPL-A1001M	6500	–	–	–	30.6	–	24.5	–	–	–	19.0	–	–	–	16.2	–
VPL-A1002C	3000	49.4	–	36.5	–	27.0	–	22.7	–	–	–	–	–	–	–	–
VPL-A1002F	5000	–	–	36.5	30.6	–	–	22.7	–	–	–	18.2	–	–	–	–
VPL-A1003C	2250	49.4	–	36.5	30.6	–	25.7*	–	–	–	–	–	–	–	–	–
VPL-A1003E	3750	49.4	–	36.5	–	27.0	–	–	–	20.6*	–	–	–	–	–	–
VPL-A1003F	5500	–	–	–	30.6	–	24.5	–	–	20.0	–	–	17.4	–	–	–
VPL-A1152B	2150	68.3	–	50.5	42.4	–	36.0*	–	–	–	–	–	–	–	–	–
VPL-A1152E	3300	68.3	–	50.5	–	37.4	–	–	30.1*	–	–	–	–	–	–	–
VPL-A1152F	5000	–	–	50.5	–	37.4	–	31.4	–	–	–	25.1	–	–	–	–
VPL-A1153C	2300	68.3	–	50.5	42.4	–	35.2*	–	–	–	–	–	–	–	–	–
VPL-A1303B	1950	68.3	–	50.5	42.4	37.8*	–	–	–	–	–	–	–	–	–	–
VPL-A1303F	4000	–	–	50.5	–	37.4	–	31.4	–	27.7	–	–	–	–	–	–
VPL-A1304A	1600	68.3	57.2	51.1*	–	41.2*	–	–	–	–	–	–	–	–	–	–
VPL-A1304D	3000	68.3	–	50.5	–	37.4	–	31.4	–	–	–	–	–	–	–	–
VPL-A1306C	2000	68.3	–	55.7*	44.3*	37.4	–	–	–	–	–	–	–	–	–	–
VPL-B1001M	6000	–	–	–	–	27.0	–	22.7	–	20.0	–	–	–	16.8	–	–
VPL-B1002E	3300	49.4	–	36.5	–	27.0	–	–	21.8*	–	–	–	–	–	–	–
VPL-B1002M	6000	–	–	–	30.6	–	–	22.7	–	–	19.0	–	–	16.8	–	–
VPL-B1003C	2500	49.4	–	36.5	30.6	–	24.5	–	–	–	–	–	–	–	–	–
VPL-B1003F	4750	–	–	36.5	30.6	–	–	22.7	–	–	–	18.6*	–	–	–	–
VPL-B1003T	7000	–	–	–	30.6	–	24.5	–	–	–	19.0	–	–	–	–	15.7
VPL-B1152C	2250	68.3	–	50.5	42.4	–	35.5*	–	–	–	–	–	–	–	–	–
VPL-B1152F	4000	–	–	50.5	–	37.4	–	31.4	–	–	26.3	–	–	–	–	–
VPL-B1152T	6500	–	–	–	42.4	–	33.9	–	–	27.7	–	–	–	–	22.4	–
VPL-B1153E	3200	68.3	–	50.5	–	37.4	–	–	30.5*	–	–	–	–	–	–	–
VPL-B1153F	5000	–	–	50.5	–	37.4	–	31.4	–	–	–	25.1	–	–	–	–
VPL-B1303C	2250	68.3	–	50.5	42.3	–	35.5*	–	–	–	–	–	–	–	–	–
VPL-B1303F	4000	–	–	50.5	–	37.4	–	31.8*	–	27.7	–	–	–	–	–	–
VPL-B1304C	2150	68.3	–	50.5	43.6*	–	36.2*	–	–	–	–	–	–	–	–	–
VPL-B1304E	3500	–	–	50.5	42.4	–	35.2*	–	29.3	–	–	–	–	–	–	–
VPL-B1306C	2500	68.3	–	50.5	–	40.6*	33.9	–	–	–	–	–	–	–	–	–
VPL-B1306F	4250	–	–	50.5	–	37.4	–	31.4	–	–	27.0*	–	–	–	–	–
VPL-B1651C	2750	90.1	–	66.7	–	53.7*	–	43.0*	–	–	–	–	–	–	–	–
VPL-B1651F	4750	–	–	66.7	–	49.4	–	41.4	–	–	–	33.9*	–	–	–	–
VPL-B1652C	2700	90.1	–	66.7	55.9	–	–	43.3*	–	–	–	–	–	–	–	–
VPL-B1652F	4000	–	–	66.7	55.9	–	44.8	–	–	36.5	–	–	–	–	–	–
VPL-B1653C	2300	90.1	–	66.7	57.6*	–	46.4*	–	–	–	–	–	–	–	–	–
VPL-B1653D	3000	–	–	66.7	59.5*	51.7*	–	41.4	–	–	–	–	–	–	–	–
VPL-B1654B	1850	90.1	75.6	–	63.2*	51.1*	–	–	–	–	–	–	–	–	–	–
VPL-B1654D	3000	–	–	66.7	55.9	49.4	–	41.4	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	90.2	–	71.6	–	56.8	–	50.8*	–	–	–	–	–	–	–	–
VPL-A1001M	6500	–	–	–	62.5	–	52.7	–	–	–	43.4	–	–	–	38.4	–
VPL-A1002C	3000	95.3	–	75.6	–	60.0	–	52.4	–	–	–	–	–	–	–	–
VPL-A1002F	5000	–	–	75.6	66.1	–	–	52.4	–	–	–	44.2	–	–	–	–
VPL-A1003C	2250	99.0	–	78.5	68.6	–	59.9*	–	–	–	–	–	–	–	–	–
VPL-A1003E	3750	99.0	–	78.5	–	62.3	–	–	–	50.6*	–	–	–	–	–	–
VPL-A1003F	5500	–	–	–	68.6	–	57.9	–	–	49.5	–	–	44.5	–	–	–
VPL-A1152B	2150	111.3	–	88.4	77.2	–	68.5*	–	–	–	–	–	–	–	–	–
VPL-A1152E	3300	111.3	–	88.4	–	70.1	–	–	59.4*	–	–	–	–	–	–	–
VPL-A1152F	5000	–	–	88.4	–	70.1	–	61.3	–	–	–	51.7	–	–	–	–
VPL-A1153C	2300	115.4	–	91.6	80.0	–	69.4*	–	–	–	–	–	–	–	–	–
VPL-A1303B	1950	145.3	–	115.3	100.7	92.3*	–	–	–	–	–	–	–	–	–	–
VPL-A1303F	4000	–	–	115.3	–	91.5	–	80.0	–	72.7	–	–	–	–	–	–
VPL-A1304A	1600	149.7	130.8	119.8*	–	101.6*	–	–	–	–	–	–	–	–	–	–
VPL-A1304D	3000	149.5	–	118.6	–	94.2	–	82.3	–	–	–	–	–	–	–	–
VPL-A1306C	2000	156.0	–	133.4*	112.1*	98.3	–	–	–	–	–	–	–	–	–	–
VPL-B1001M	6000	–	–	–	–	56.8	–	49.6	–	45.1	–	–	–	39.4	–	–
VPL-B1002E	3300	95.3	–	75.6	–	60.0	–	–	50.8*	–	–	–	–	–	–	–
VPL-B1002M	6000	–	–	–	66.1	–	–	52.4	–	–	45.8	–	–	41.6	–	–
VPL-B1003C	2500	99.0	–	78.5	68.6	–	57.9	–	–	–	–	–	–	–	–	–
VPL-B1003F	4750	–	–	78.5	68.6	–	–	54.5	–	–	–	46.7*	–	–	–	–
VPL-B1003T	7000	–	–	–	68.6	–	57.9	–	–	–	47.6	–	–	–	–	41.1
VPL-B1152C	2250	111.3	–	88.4	77.2	–	67.4*	–	–	–	–	–	–	–	–	–
VPL-B1152F	4000	–	–	88.4	–	70.1	–	61.3	–	–	53.5	–	–	–	–	–
VPL-B1152T	6500	–	–	–	77.2	–	65.1	–	–	55.7	–	–	–	–	47.4	–
VPL-B1153E	3200	115.4	–	91.6	–	72.7	–	–	62.2*	–	–	–	–	–	–	–
VPL-B1153F	5000	–	–	91.6	–	72.7	–	63.5	–	–	–	53.6	–	–	–	–
VPL-B1303C	2250	145.3	–	115.3	100.7	–	88.0*	–	–	–	–	–	–	–	–	–
VPL-B1303F	4000	–	–	115.3	–	91.5	–	80.9*	–	72.7	–	–	–	–	–	–
VPL-B1304C	2150	149.7	–	118.8	106.2*	–	92.0*	–	–	–	–	–	–	–	–	–
VPL-B1304E	3500	–	–	118.8	103.8	–	90.0*	–	78.2	–	–	–	–	–	–	–
VPL-B1306C	2500	156.0	–	123.8	–	104.8*	91.2	–	–	–	–	–	–	–	–	–
VPL-B1306F	4250	–	–	123.8	–	98.3	–	85.9	–	–	76.5*	–	–	–	–	–
VPL-B1651C	2750	180.9	–	143.6	–	121.5*	–	102.5*	–	–	–	–	–	–	–	–
VPL-B1651F	4750	–	–	143.6	–	114.0	–	99.6	–	–	–	85.4*	–	–	–	–
VPL-B1652C	2700	192.5	–	152.8	133.5	–	–	109.7*	–	–	–	–	–	–	–	–
VPL-B1652F	4000	–	–	152.8	133.5	–	112.6	–	–	96.3	–	–	–	–	–	–
VPL-B1653C	2300	200.2	–	158.9	142.1*	–	120.4*	–	–	–	–	–	–	–	–	–
VPL-B1653D	3000	–	–	158.9	145.6*	130.6*	–	110.2	–	–	–	–	–	–	–	–
VPL-B1654B	1850	205.7	179.7	–	156.8*	133.0*	–	–	–	–	–	–	–	–	–	–
VPL-B1654D	3000	–	–	163.3	142.7	129.6	–	113.2	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (maximum radial load) for Brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	31.0	–	23.0	–	17.0	–	14.0*	–	–	–	–	–	–	–	–
VPL-A1001M	6500	–	–	–	19.0	–	15.0	–	–	–	12.0	–	–	–	10.0	–
VPL-A1002C	3000	34.0	–	25.0	–	18.0	–	15.0	–	–	–	–	–	–	–	–
VPL-A1002F	5000	–	–	25.0	21.0	–	–	15.0	–	–	–	12.0	–	–	–	–
VPL-A1003C	2250	36.0	–	26.0	22.0	–	18.0*	–	–	–	–	–	–	–	–	–
VPL-A1003E	3750	36.0	–	26.0	–	19.0	–	–	–	15.0*	–	–	–	–	–	–
VPL-A1003F	5500	–	–	–	22.0	–	18.0	–	–	14.0	–	–	12.0	–	–	–
VPL-A1152B	2150	50.0	–	37.0	31.0	–	26.0*	–	–	–	–	–	–	–	–	–
VPL-A1152E	3300	51.0	–	37.0	–	27.0	–	–	22.0*	–	–	–	–	–	–	–
VPL-A1152F	5000	–	–	37.0	–	27.0	–	23.0	–	–	–	18.0	–	–	–	–
VPL-A1153C	2300	53.0	–	39.0	32.0	–	27.0*	–	–	–	–	–	–	–	–	–
VPL-A1303B	1950	46.0	–	34.0	28.0	25.0*	–	–	–	–	–	–	–	–	–	–
VPL-A1303F	4000	–	–	34.0	–	25.0	–	21.0	–	18.0	–	–	–	–	–	–
VPL-A1304A	1600	48.0	40.0	36.0*	–	29.0*	–	–	–	–	–	–	–	–	–	–
VPL-A1304D	3000	48.0	–	36.0	–	26.0	–	22.0	–	–	–	–	–	–	–	–
VPL-A1306C	2000	52.0	–	42.0*	33.3*	28.0	–	–	–	–	–	–	–	–	–	–
VPL-B1001M	6000	–	–	–	–	17.0	–	14.0	–	12.0	–	–	–	10.0	–	–
VPL-B1002E	3300	34.0	–	25.0	–	18.0	–	–	15.0*	–	–	–	–	–	–	–
VPL-B1002M	6000	–	–	–	21.0	–	–	15.0	–	–	13.0	–	–	11.0	–	–
VPL-B1003C	2500	36.0	–	26.0	22.0	–	18.0	–	–	–	–	–	–	–	–	–
VPL-B1003F	4750	–	–	26.0	22.0	–	–	16.0	–	–	–	13.0*	–	–	–	–
VPL-B1003T	7000	–	–	–	22.0	–	18.0	–	–	–	13.0	–	–	–	–	11.0
VPL-B1152C	2250	51.0	–	37.0	31.0	–	26.0*	–	–	–	–	–	–	–	–	–
VPL-B1152F	4000	–	–	37.0	–	27.0	–	23.0	–	–	19.0	–	–	–	–	–
VPL-B1152T	6500	–	–	–	31.0	–	25.0	–	–	20.0	–	–	–	–	16.0	–
VPL-B1153E	3200	53.0	–	39.0	–	29.0	–	–	23.0*	–	–	–	–	–	–	–
VPL-B1153F	5000	–	–	39.0	–	29.0	–	24.0	–	–	–	19.0	–	–	–	–
VPL-B1303C	2250	46.0	–	34.0	28.0	–	24.0*	–	–	–	–	–	–	–	–	–
VPL-B1303F	4000	–	–	34.0	–	25.0	–	21.0*	–	18.0	–	–	–	–	–	–
VPL-B1304C	2150	48.0	–	36.0	31.0*	–	25.0*	–	–	–	–	–	–	–	–	–
VPL-B1304E	3500	–	–	36.0	30.0	–	25.0*	–	20.0	–	–	–	–	–	–	–
VPL-B1306C	2500	52.0	–	38.0	–	31.0*	25.0	–	–	–	–	–	–	–	–	–
VPL-B1306F	4250	–	–	38.0	–	28.0	–	24.0	–	–	20.0*	–	–	–	–	–
VPL-B1651C	2750	58.0	–	43.0	–	34.0*	–	27.0*	–	–	–	–	–	–	–	–
VPL-B1651F	4750	–	–	43.0	–	31.0	–	26.0	–	–	–	21.0*	–	–	–	–
VPL-B1652C	2700	64.0	–	47.0	39.0	–	–	30.0*	–	–	–	–	–	–	–	–
VPL-B1652F	4000	–	–	47.6	40.0	–	32.0	–	–	26.1	–	–	–	–	–	–
VPL-B1653C	2300	68.0	–	50.0	43.0*	–	35.0*	–	–	–	–	–	–	–	–	–
VPL-B1653D	3000	–	–	50.7	45.3*	39.3*	–	31.5	–	–	–	–	–	–	–	–
VPL-B1654B	1850	71.0	59.0	–	50.0*	40.0*	–	–	–	–	–	–	–	–	–	–
VPL-B1654D	3000	–	–	52.9	44.4	39.2	–	32.9	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.



## Axial Load Force Ratings (zero radial load) for Brake Motors

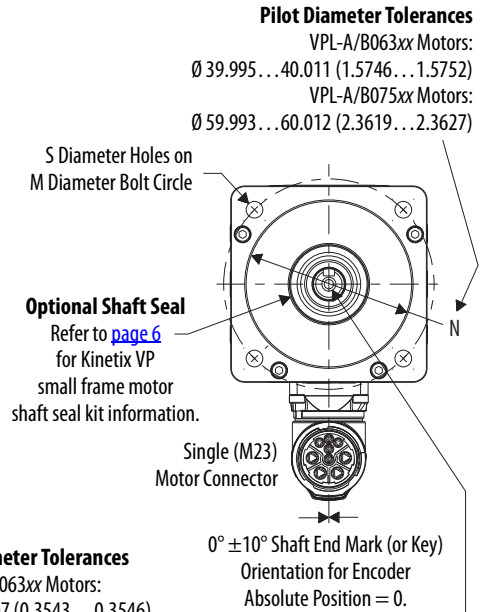
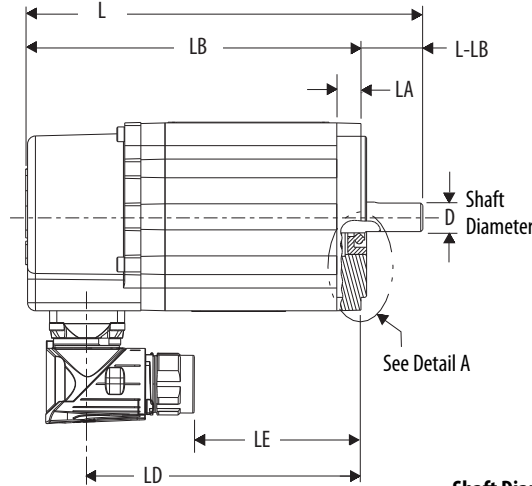
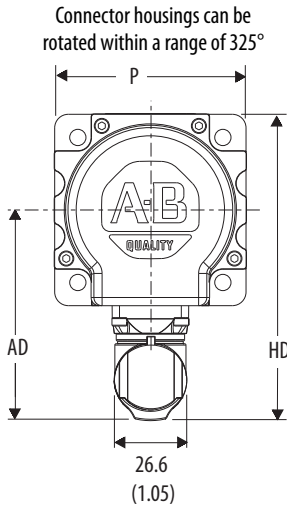
Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPL-A1001C	2800	49.4	–	36.5	–	27.0	–	23.4*	–	–	–	–	–	–	–	–
VPL-A1001M	6500	–	–	–	30.6	–	24.5	–	–	–	19.0	–	–	–	16.2	–
VPL-A1002C	3000	49.4	–	36.5	–	27.0	–	22.7	–	–	–	–	–	–	–	–
VPL-A1002F	5000	–	–	36.5	30.6	–	–	22.7	–	–	–	18.2	–	–	–	–
VPL-A1003C	2250	49.4	–	36.5	30.6	–	25.7*	–	–	–	–	–	–	–	–	–
VPL-A1003E	3750	49.4	–	36.5	–	27.0	–	–	–	20.6*	–	–	–	–	–	–
VPL-A1003F	5500	–	–	–	30.6	–	24.5	–	–	20.0	–	–	17.4	–	–	–
VPL-A1152B	2150	68.3	–	50.5	42.4	–	36.2*	–	–	–	–	–	–	–	–	–
VPL-A1152E	3300	68.3	–	50.5	–	37.4	–	–	30.1*	–	–	–	–	–	–	–
VPL-A1152F	5000	–	–	50.5	–	37.4	–	31.4	–	–	–	25.1	–	–	–	–
VPL-A1153C	2300	68.3	–	50.5	42.4	–	35.2*	–	–	–	–	–	–	–	–	–
VPL-A1303B	1950	68.3	–	50.5	42.4	37.8*	–	–	–	–	–	–	–	–	–	–
VPL-A1303F	4000	–	–	50.5	–	37.4	–	31.4	–	27.7	–	–	–	–	–	–
VPL-A1304A	1600	68.3	57.2	51.1*	–	41.2*	–	–	–	–	–	–	–	–	–	–
VPL-A1304D	3000	68.3	–	50.5	–	37.4	–	31.4	–	–	–	–	–	–	–	–
VPL-A1306C	2000	68.3	–	55.7*	44.3	37.4	–	–	–	–	–	–	–	–	–	–
VPL-B1001M	6000	–	–	–	–	27.0	–	22.7	–	20.0	–	–	–	16.8	–	–
VPL-B1002E	3300	49.4	–	36.5	–	27.0	–	–	21.8*	–	–	–	–	–	–	–
VPL-B1002M	6000	–	–	–	30.6	–	–	22.7	–	–	19.0	–	–	16.8	–	–
VPL-B1003C	2500	49.4	–	36.5	30.6	–	24.5	–	–	–	–	–	–	–	–	–
VPL-B1003F	4750	–	–	36.5	30.6	–	–	22.7	–	–	–	18.6*	–	–	–	–
VPL-B1003T	7000	–	–	–	30.6	–	24.5	–	–	–	19.0	–	–	–	–	15.7
VPL-B1152C	2250	68.3	–	50.5	42.4	–	35.5*	–	–	–	–	–	–	–	–	–
VPL-B1152F	4000	–	–	50.5	–	37.4	–	31.4	–	–	26.3	–	–	–	–	–
VPL-B1152T	6500	–	–	–	42.4	–	33.9	–	–	27.7	–	–	–	–	22.4	–
VPL-B1153E	3200	68.3	–	50.5	–	37.4	–	–	30.5*	–	–	–	–	–	–	–
VPL-B1153F	5000	–	–	50.5	–	37.4	–	31.4	–	–	–	25.1	–	–	–	–
VPL-B1303C	2250	68.3	–	50.5	42.4	–	35.5*	–	–	–	–	–	–	–	–	–
VPL-B1303F	4000	–	–	50.5	–	37.4	–	31.8*	–	27.7	–	–	–	–	–	–
VPL-B1304C	2150	68.3	–	50.5	43.6*	–	36.2*	–	–	–	–	–	–	–	–	–
VPL-B1304E	3500	–	–	50.5	42.4	–	35.2*	–	29.3	–	–	–	–	–	–	–
VPL-B1306C	2500	68.3	–	50.5	–	40.6*	33.9	–	–	–	–	–	–	–	–	–
VPL-B1306F	4250	–	–	50.5	–	37.4	–	31.4	–	–	27.0*	–	–	–	–	–
VPL-B1651C	2750	90.1	–	66.7	–	53.7	–	43.0*	–	–	–	–	–	–	–	–
VPL-B1651F	4750	–	–	66.7	–	49.4	–	41.4	–	–	–	33.9*	–	–	–	–
VPL-B1652C	2700	90.1	–	66.7	55.9	–	–	43.3*	–	–	–	–	–	–	–	–
VPL-B1652F	4000	–	–	66.7	55.9	–	44.8	–	–	36.5	–	–	–	–	–	–
VPL-B1653C	2300	90.1	–	66.7	57.6*	–	46.4*	–	–	–	–	–	–	–	–	–
VPL-B1653D	3000	–	–	66.7	59.5*	51.7*	–	41.4	–	–	–	–	–	–	–	–
VPL-B1654B	1850	90.1	75.6	–	63.2*	51.1*	–	–	–	–	–	–	–	–	–	–
VPL-B1654D	3000	–	–	66.7	55.9	49.4	–	41.4	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Dimensions - Kinetix VP Low Inertia Motors

### VPL-A/B063xx and VPL-A/B075xx Motor Dimensions

Dimensions are in mm (in.)

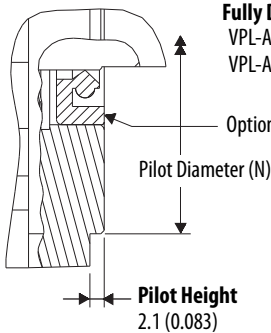


**Shaft Diameter Tolerances**  
 VPL-A/B063xx Motors:  
 $\varnothing 8.998 \dots 9.007$  (0.3543...0.3546)  
 VPL-A/B075xx Motors:  
 $\varnothing 10.997 \dots 11.008$  (0.4330...0.4334)

**Pilot Diameter Tolerances**  
 VPL-A/B063xx Motors:  
 $\varnothing 39.995 \dots 40.011$  (1.5746...1.5752)  
 VPL-A/B075xx Motors:  
 $\varnothing 59.993 \dots 60.012$  (2.3619...2.3627)

**Shaft-end Threaded Hole**  
 VPL-A/B063xx Motors:  
 Thread - M3 x 0.5-6H  
 Thread Depth - 9.0 (0.354)  
 VPL-A/B075xx Motors:  
 Thread - M4 x 0.7-6H  
 Thread Depth - 10.0 (0.393)

**Detail A**



**Fully Developed Keyway Length**  
 VPL-A/B063xx Motors: 14.0 (0.551)  
 VPL-A/B075xx Motors: 16.0 (0.630)

**Shaft Detail with Key**

**Key Supplied**  
 VPL-A/B063xx =  $3_{(+0, -0.025)} \times 3_{(+0, -0.025)} \times 13$  Key  
 VPL-A/B075xx =  $4_{(+0, -0.030)} \times 4_{(+0, -0.030)} \times 15$  Key

Shaft, Pilot, and Keyway Tolerances	VPL-A/B063xx	VPL-A/B075xx
Shaft Runout (T.I.R.)	0.030 (0.0012)	0.035 (0.0014)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Keyway Depth (GE)	1.80...1.90 (0.071...0.075)	2.50...2.60 (0.098...0.102)
Keyway Width (F)	2.971...2.996 (0.117...0.118)	3.970...4.000 (0.156...0.158)

## VPL-A/B063xx and VPL-A/B075xx Motor Dimensions

Motor Cat. No.	AD mm (in.)	HD mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D <sup>(4)</sup> mm (in.)	M mm (in.)	S <sup>(3)</sup> mm (in.)	N <sup>(4)</sup> mm (in.)	P mm (in.)	GE <sup>(4)</sup> mm (in.)	F <sup>(4)</sup> mm (in.)
VPL-A/B0631				100.2 (3.94)	60.3 (2.37)	143.1 (5.63)	123.1 (4.85)								
VPL-A/B0632	69.5 (2.74)	97.0 (3.82)	9.0 (0.35)	125.2 (4.93)	85.3 (3.36)	168.1 (6.61)	148.1 (5.83)	20.0 (0.787)	9.0 (0.354)	63.0 (2.480)	5.80 (0.234)	40.0 (1.575)	55.0 (2.17)	1.90 (0.075)	3.0 (0.118)
VPL-A/B0633				150.2 (5.91)	110.3 (4.34)	193.1 (7.59)	173.1 (6.81)								
VPL-A/B0751				102.0 (4.02)	62.1 (2.44)	147.9 (5.82)	124.9 (4.92)								
VPL-A/B0752	77.0 (3.03)	112.0 (4.41)	9.0 (0.35)	127.0 (5.00)	87.1 (3.43)	172.9 (6.80)	149.9 (5.90)	23.0 (0.906)	11.0 (0.433)	75.0 (2.953)	5.80 (0.234)	60.0 (2.362)	70.0 (2.76)	2.60 (0.102)	4.0 (0.157)
VPL-A/B0753				152.0 (5.98)	112.1 (4.41)	197.9 (7.79)	174.9 (6.89)								

(1) If ordering an VPL-A/B063xx or VPL-A/B075xx motor with brake, add 30.6 mm (1.20 in.) to dimension L, LB, LE, and LD.

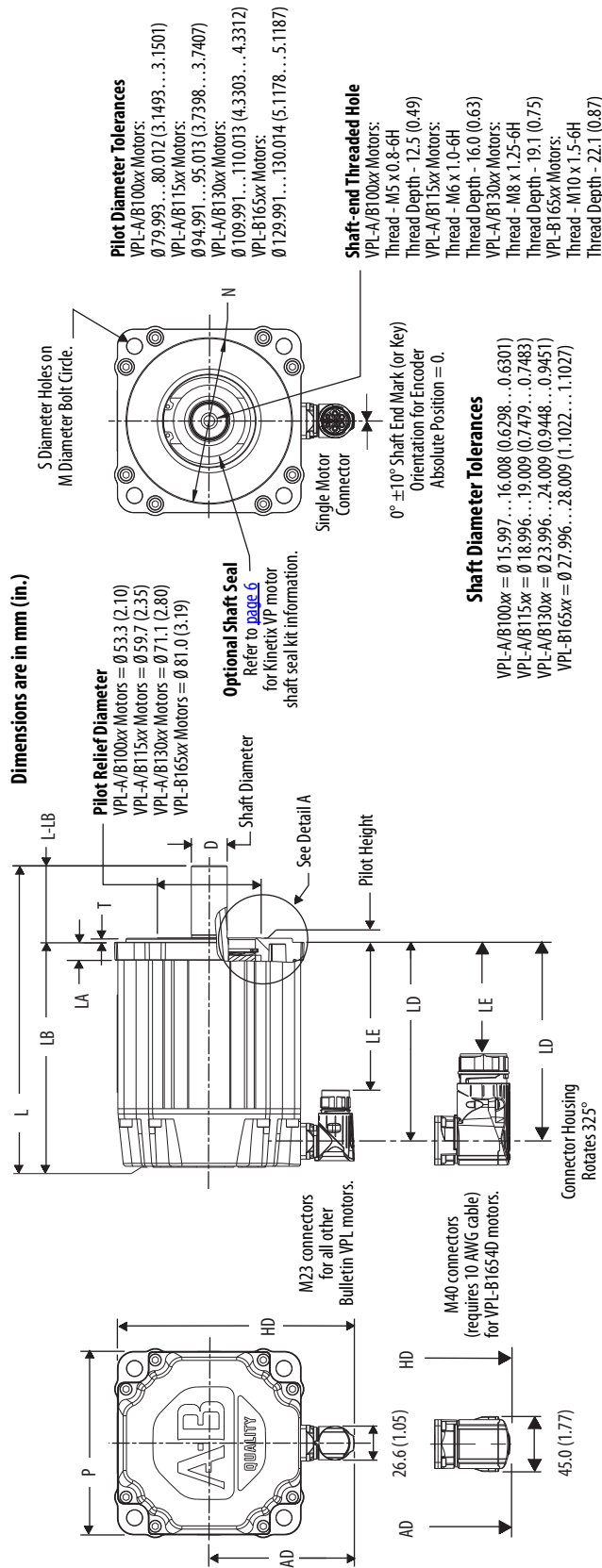
(2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).

(3) Tolerance for this dimension is  $+0.3, -0.0$  mm ( $\pm 0.006$  in.).

(4) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 22](#).

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

VPL-A/B100xx, VPL-A/B115xx, VPL-A/B130xx, and VPL-B165xx Motor Dimensions (SpeedTec DIN connectors)



**Detail A**

**Sealing Surface**  
 VPL-A/B100xx = 16.94 (0.667) (1)  
 VPL-A/B115xx = 19.94 (0.785) (1)  
 VPL-A/B130xx = 24.94 (0.982) (2)  
 VPL-B165xx = 29.92 (1.178) (2)

(1) Tolerance is  $\pm 0.05$  ( $\pm 0.002$ )  
 (2) Tolerance is  $\pm 0.83$  ( $\pm 0.033$ )

**Shaft Shoulder Flush to Pilot Height**  
 $\pm 0.83$  (0.033)

**Pilot Height**  
 VPL-A/B100xx = 2.87 (0.113)  
 VPL-A/B115xx = 2.87 (0.113)  
 VPL-A/B130xx = 3.38 (0.133)  
 VPL-B165xx = 3.38 (0.133)

Motor Cat. No.	Motor Connectors on VPL-B165xx Motors	Motor No.	Shaft, Pilot, and Keyway Tolerances	VPL-A/B100xx	VPL-A/B115xx	VPL-A/B130xx	VPL-B165xx
VPL-B1651x		VPL-B1652x	Shaft Runout (T.I.R.)	0.04 (0.0016)			
VPL-B1653x		VPL-B1654B	Pilot Eccentricity (T.I.R.)	0.078 (0.0031)			
VPL-B1654B			Max Face Runout (T.I.R.)	0.078 (0.0031)			
VPL-B1654D	M40 Connector		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)
			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 (0.314...0.315)

VPL-A/B100xx, VPL-A/B115xx, VPL-A/B130xx, and VPL-B165xx Motor Dimensions (SpeedTec DIN connectors)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D <sup>(3)</sup> mm (in.)	M mm (in.)	S mm (in.)	N <sup>(3)</sup> mm (in.)	P mm (in.)	GE <sup>(3)</sup> mm (in.)	F <sup>(3)</sup> mm (in.)
VPL-A/B1001					108.7 (4.28)	68.9 (2.71)	169.8 (6.68)	129.8 (5.11)								
VPL-A/B1002	86.5 (3.40)	131.2 (5.17)	2.74 (0.108)	9.90 (0.39)	134.1 (5.28)	94.3 (3.71)	195.2 (7.68)	155.2 (6.11)	40.0 (1.575)	16.0 (0.630)	100.0 (3.937)	7.00 <sup>(4)</sup> (0.283)	80.0 (3.15)	89.4 (3.52)	3.0 (0.118)	5.0 (0.197)
VPL-A/B1003					159.5 (6.28)	119.7 (4.71)	220.6 (8.68)	180.6 (7.11)								
VPL-A/B1152	90.8 (3.58)	140.0 (5.51)	2.74 (0.108)	10.16 (0.40)	130.6 (5.14)	90.7 (3.57)	191.6 (7.54)	151.6 (5.97)	40.0 (1.575)	19.0 (0.748)	115.0 (4.528)	10.00 <sup>(4)</sup> (0.401)	95.0 (3.74)	98.3 (3.87)	3.5 (0.138)	6.0 (0.236)
VPL-A/B1153					156.0 (6.14)	116.1 (4.57)	217.0 (8.54)	177.0 (6.97)								
VPL-A/B1303					159.3 (6.27)	119.4 (4.70)	230.3 (9.06)	180.3 (7.10)								
VPL-A/B1304	98.6 (3.88)	155.4 (6.12)	2.74 (0.108)	12.19 (0.48)	184.7 (7.27)	144.8 (5.70)	255.7 (10.06)	205.7 (8.10)	50.0 (1.969)	24.0 (0.945)	130.0 (5.118)	10.00 <sup>(4)</sup> (0.401)	110.0 (4.331)	113.7 (4.48)	4.0 (0.158)	8.0 (0.315)
VPL-A/B1306					235.5 (9.27)	195.6 (7.70)	306.5 (12.06)	256.5 (10.10)								
VPL-B1651					155.4 (6.12)	115.6 (4.55)	235.6 (9.27)	175.6 (6.92)								
VPL-B1652	113.3 (4.46)	185.0 (7.28)	3.12 (0.123)	14.0 (0.55)	206.2 (8.12)	166.4 (6.55)	286.4 (11.27)	226.4 (8.92)	60.0 (2.362)	28.0 (1.102)	165.0 (6.496)	12.00 <sup>(5)</sup> (0.481)	130.0 (5.118)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)
VPL-B1654B					307.8 (12.12)	268.0 (10.55)	388.0 (15.28)	328.0 (12.92)								
VPL-B1654D	132.9 (5.23)	204.6 (8.06)			306.8 (12.08)	235.8 (9.28)										

(1) If ordering a VPL-A/B100xx-xxx4xx motor with brake, add 34.5 mm (1.36 in.) to dimensions L, LB, LE, and LD.  
 If ordering a VPL-A/B115xx-xxx4xx motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD.  
 If ordering a VPL-A/B130xx-xxx4xx motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD.  
 If ordering a VPL-B165xx-xxx4xx motor with brake, add 51.5 mm (2.03 in.) to dimensions L, LB, LE, and LD.

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

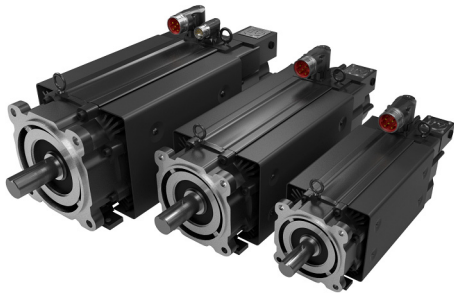
(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 24](#).

(4) Tolerance for this dimension is +0.36, -0.0 mm (±0.007 in.).

(5) Tolerance for this dimension is +0.43 -0.0 mm (±0.008 in.).

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

## Kinetix VP Continuous Duty Motors



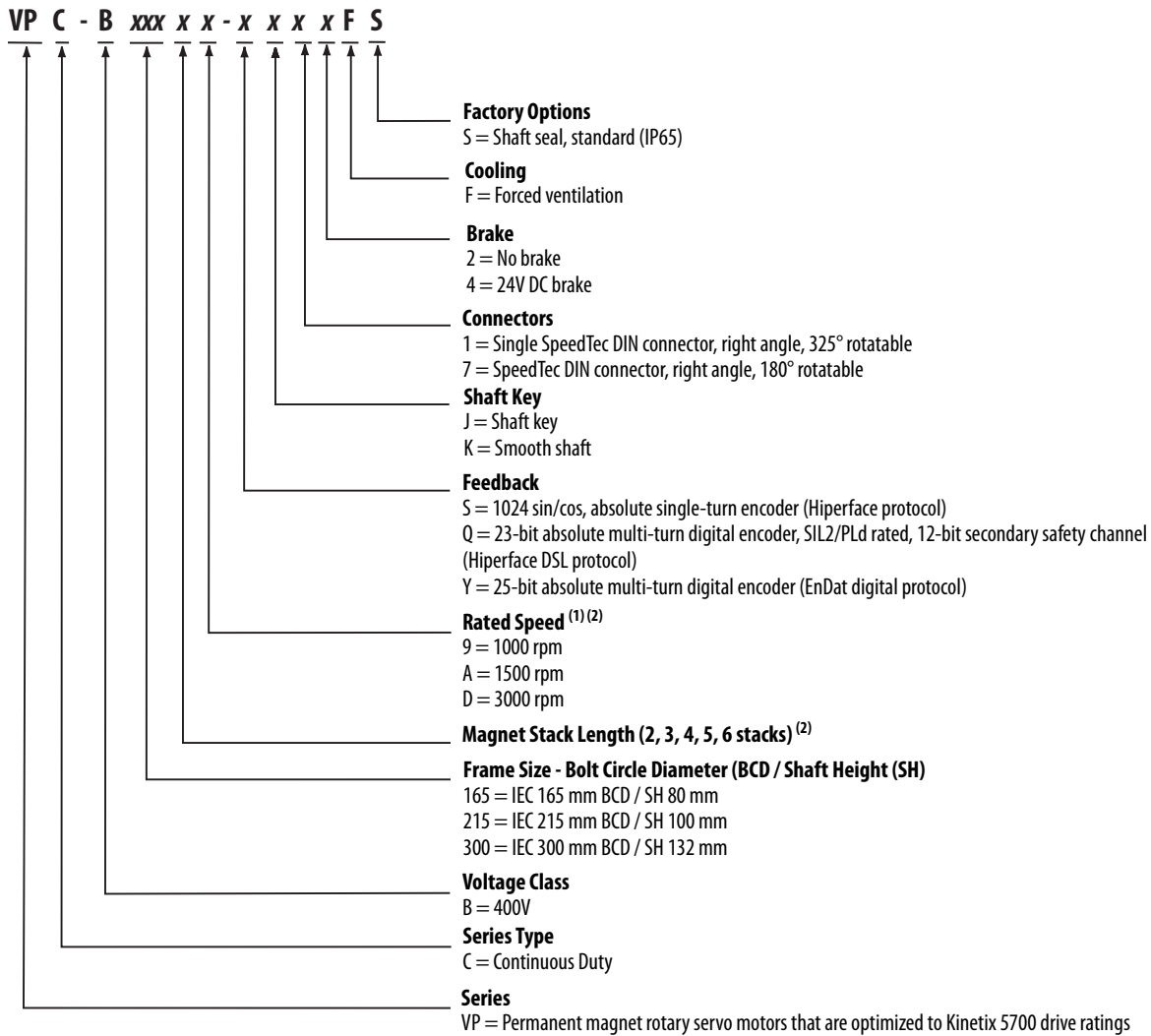
The Kinetix VP (Bulletin VPC) continuous-duty servo motors are available with optimized performance ratings and features aligned to the Kinetix 5700 drive system for applications with high-torque and high-speed demands. With improved encoder offerings, single-cable capability, and a field-replaceable fan, this motor provides a significant boost in functionality and power. Bulletin VPC motors employ cutting-edge interior permanent-magnet technology that enables increased maximum speeds, low-torque ripple, and IE4 energy efficiency to improve and extend machine performance while maintaining a competitive system cost.

### Kinetix VP Continuous Duty Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• Developed to match Kinetix 5700 drives for optimized system sizing and performance</li> <li>• Single cable technology</li> <li>• Fan for increased torque power output</li> <li>• Larger bearings for higher radial loads and longer life</li> <li>• Integrated foot mount for expanded application space</li> <li>• IE4 energy efficiency rated</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 400V-class windings</li> <li>• Single-turn and multi-turn high-resolution absolute encoders</li> <li>• SIL 2 (PLd) rated encoder options</li> <li>• High-accuracy EnDat digital encoder option</li> <li>• Interior permanent-magnet design</li> <li>• Shaft-end threaded hole</li> <li>• SpeedTec DIN connector</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	IP65 with shaft seal and use of environmentally sealed cable connectors
Certifications	Bulletin VPC rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	17.6...191.1 N•m (156...1691 lb•in)
Peak stall torque	40.3...327.8 N•m (357...2901 lb•in)
Rated speed	1000, 1500, and 3000 rpm
Motor rated output	4.0...30 kW (5.4...40.2 Hp)
Compatible servo drives	Kinetix 5700
Typical applications	<ul style="list-style-type: none"> <li>• Converting</li> <li>• Printing</li> <li>• Web handling</li> <li>• Material handling</li> </ul>

## Catalog Numbers - Kinetix VP Continuous Duty 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.



(1) Rated speed hierarchy is only for comparative purposes. Use Motion Analyzer software to size and select motors for your application, and/or the torque/speed curves in the Kinetix 5700 Drive System Design Guide, publication [KNX-RM010](#).

(2) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in Kinetix VP Continuous Duty Motor Performance Specifications on [page 30](#) are available. Use Motion Analyzer software to size and select motors for your application.

## Kinetix VP Continuous Duty Motor High Resolution Encoders

Kinetix VP continuous-duty motors are available with high-performance encoders with a choice of single-turn (-S) and multi-turn (-Q or -Y) high-resolution feedback:

- VPC-Bxxxxx-S motors with Hiperface protocol
  - 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution), absolute single-turn encoder
- VPC-Bxxxxx-Q motor with Hiperface DSL protocol
  - 23-bit resolution for up to 8,388,608 counts per revolution, absolute multi-turn digital encoder, 4096 turns
  - SIL2/PLd rated, 12-bit secondary safety channel
  - Digital two-wire communication integrated into the single motor-power cable
- VPC-Bxxxxx-Y motors with EnDat Digital protocol
  - 25-bit resolution for up to 33,554,432 counts per revolution, absolute multi-turn digital encoder, 4096 turns

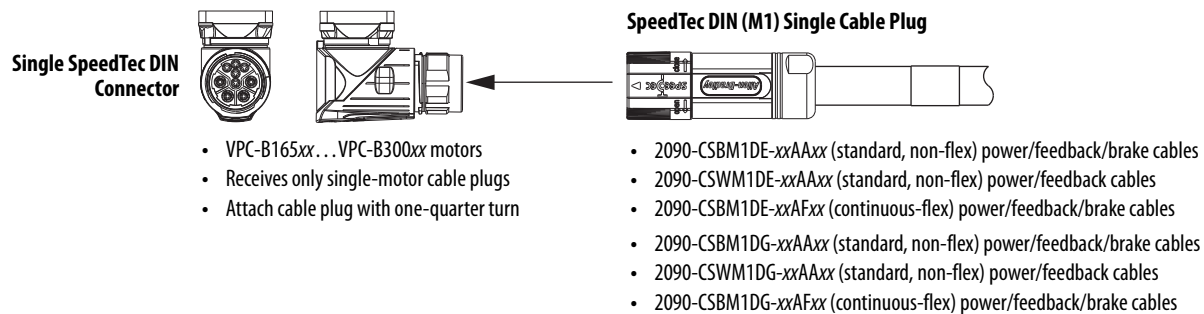
## Kinetix VP Single Cable Technology

Motor connectivity reduced to a single connector and cable with VPC-Bxxxxx-Q motors

- Single cable eliminates hardware and wire terminations
- Purely digital two-wire communication integrated into the motor power cable
- 2090-CSxM1Dx cables are available in 1.0 m (3.2 ft) increments up to 90 m (295 ft) for Kinetix 5700 drives

## Motor Connector/Cable Compatibility

VPC-Bxxxxx-Q motors equipped with DSL encoders.



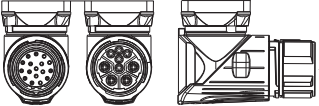
### IMPORTANT

Due to the unique characteristics of single cable technology, designed for and tested with Kinetix 5700 drives and Bulletin VPC-Bxxxxx-Q motors, building your own cables or using third-party cable is not an option.



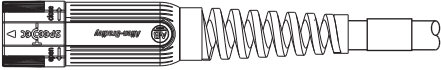
VPC-Bxxxxx-S equipped with Hiperface encoders or VPC-Bxxxxx-Y motors equipped with EnDat encoders.

**SpeedTec DIN Connectors**



- VPC-B165xx...VPC-B300xx motors
- Motor power/brake and feedback connectors
- Attach M7 cable plug with one-quarter turn

**SpeedTec DIN (M7) Cable Plug**



- 2090-CFBM7DF-CEAAxx (standard, non-flex) flying-lead, feedback cables
- 2090-CFBM7DD-CEAAxx (standard, non-flex) drive-end connector, feedback cables
- 2090-CFBM7DF-CEAFxx (continuous-flex) flying-lead, feedback cables
- 2090-CFBM7DD-CEAFxx (continuous-flex) drive-end connector, feedback cables
- 2090-CFBM7DF-CDAFxx (continuous-flex) flying-lead, feedback cables
- 2090-CPWM7DF-xxAAxx (standard, non-flex) power-only cables
- 2090-CPBM7DF-xxAAxx (standard, non-flex) power/brake cables
- 2090-CPWM7DF-xxAFxx (continuous-flex) power-only cables
- 2090-CPBM7DF-xxAFxx (continuous-flex) power/brake cables

For 2090-Series motor cable specifications, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

### Kinetix VP Continuous Duty Motor Options

Kinetix VP continuous-duty motors are available with these configurable options:

- 24V DC brake.
- Choice of keyed or smooth shaft.
- Shaft seal kits are standard and are also available as 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.
VPC-B165xx	MPL-SSN-A6B6
VPC-B215xx	VPL-SS-X256
VPC-B300xx	VPC-SSN-F300

Refer to the Kinetix VP Continuous-duty Servo Motors Installation Instructions, publication [VPC-IN001](#), for more information on motor accessories.

## Technical Specifications - Kinetix VP Continuous Duty Motors

### Kinetix VP Continuous Duty Motor Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max (bus overvoltage speed) <sup>(1)</sup> rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Motor Rated Efficiency <sup>(2)</sup> %	Rotor Inertia <sup>(3)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
VPC-B1652A	1500	4500 (2347)	25.5 (226)	40.3 (357)	4.0 (5.4)	91.1	0.00286 (0.025)	20.1 (44.3)
VPC-B1652D	3000	5000 (4452)	17.6 (156)	40.7 (360)	5.5 (7.4)	93.0		
VPC-B1653A	1500	4500 (2310)	35.1 (311)	60.6 (536)	5.5 (7.4)	92.6	0.00410 (0.036)	25.7 (56.7)
VPC-B1653D	3000	5000 (4294)	24.0 (212)	61.4 (543)	7.5 (10.1)	93.8		
VPC-B1654D	3000	5000 (4494)	35.1 (311)	76.6 (678)	11.0 (14.7)	93.5	0.00532 (0.047)	31.3 (69.1)
VPC-B21539	1000	3000 (1573)	52.5 (465)	118.8 (1051)	5.5 (7.4)	92.7	0.0106 (0.09)	41.8 (92.1)
VPC-B2153A	1500	4500 (2325)	48.0 (425)	111.8 (990)	7.5 (10.1)	93.9		
VPC-B21549	1000	3000 (1573)	72.0 (637)	158.4 (1402)	7.5 (10.1)	92.9	0.0138 (0.12)	50.2 (110.6)
VPC-B2154A	1500	4500 (2333)	70.1 (620)	140.1 (1240)	11.0 (14.7)	94.5		
VPC-B2154D	3000	5000 (4294)	48.0 (425)	131.4 (1163)	15.0 (20.1)	94.5		
VPC-B2155D	3000	5000 (4172)	59.0 (522)	156.7 (1387)	18.5 (24.8)	94.0	0.0170 (0.15)	58.9 (129.9)
VPC-B2156D	3000	5000 (4101)	70.1 (620)	185.5 (1642)	22.0 (29.5)	94.0	0.0203 (0.17)	66.8 (147.3)
VPC-B30029	1000	3000 (1493)	105.1 (930)	183.7 (1626)	11.0 (14.7)	94.9	0.0285 (0.25)	81.4 (179.5)
VPC-B3002A	1500	4000 (2212)	95.5 (845)	170.4 (1508)	15.0 (20.1)	95.2		
VPC-B30039	1000	3000 (1472)	143.3 (1268)	237.9 (2106)	15.0 (20.1)	96.3	0.0399 (0.35)	95.7 (210.9)
VPC-B3003A	1500	3500 (2166)	140.3 (1242)	244.8 (2167)	22.0 (29.5)	96.3		
VPC-B30049	1000	3000 (1429)	176.7 (1564)	327.8 (2901)	18.5 (24.8)	96.5	0.0520 (0.46)	116.7 (257.2)
VPC-B3004A	1500	3500 (2128)	191.1 (1691)	319.0 (2823)	30.0 (40.2)	96.0		
VPC-B3004D	3000	4000 (4054)	95.5 (845)	257.7 (2281)	30.0 (40.2)	94.7		

(1) Operation beyond this speed requires DC-bus protection. See the Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), for more information on bus overvoltage speed, field-weakening mode, and the extended speed feature.

(2) Bulletin VPC motor is rated at or above IE4 efficiency for rated torque, speed, and temperature, with power supplied by a Kinetix 5700 drive, switching at 4kHz PWM frequency.

(3) Refer to Kinetix VP Continuous Duty Motor Brake Specifications for brake rotor inertia and brake motor weight.

### Kinetix VP Continuous Duty Motor Brake Specifications

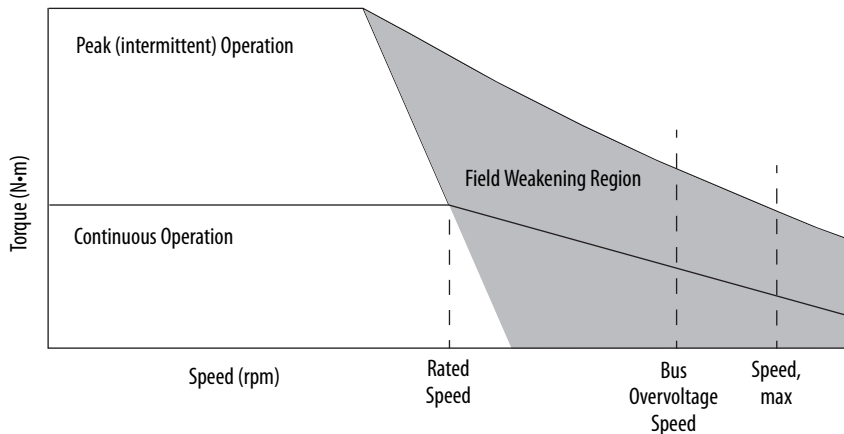
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time		Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage <sup>(1)</sup> ms		
VPC-B1652	30	35.0 (310)	1.01...1.70	50	200	0.00299 (0.026)	23.3 (51.4)
VPC-B1653						0.00421 (0.037)	28.9 (63.7)
VPC-B1654						0.00543 (0.048)	34.3 (75.7)
VPC-B2153		72 (637)	1.73...3.00	200	300	0.0108 (0.09)	52.7 (116.1)
VPC-B2154						0.0141 (0.12)	60.7 (133.7)
VPC-B2155						0.0174 (0.15)	69.8 (153.8)
VPC-B2156						0.0205 (0.18)	77.7 (171.3)
VPC-B3002		200 (1770)	2.35...3.90	300	1000	0.0290 (0.25)	102.9 (226.8)
VPC-B3003						0.0412 (0.36)	117.1 (258.1)
VPC-B3004						0.0539 (0.47)	138.1 (304.5)

(1) By using diode and zener diode as arc suppression device in external control circuit.

## Field Weakening Mode

Kinetix VP (Bulletin VPC) interior permanent magnet (IPM) motors are designed to operate in Field Weakening mode to widen the speed range. Operation in Field Weakening mode can result in Back EMF voltage increasing to a level that exceeds the DC-bus voltage if a loss of control occurs. When this loss of control occurs, the Back EMF voltage can charge the DC-bus to a level that can overvoltage the DC-bus caps and result in a failure of the common DC-bus.

### Field Weakening Region



**ATTENTION:** Operation at speeds exceeding the Bus Overvoltage Speed requires the use of an active shunt, configured in the Studio 5000 Logix Designer® application, to protect the DC bus system from an overvoltage condition. DC-bus failure can cause damage to all drive modules in the bus group, not just the inverter connected to the Bulletin VPC motor. See the Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), for information on active shunt selection and configuration.

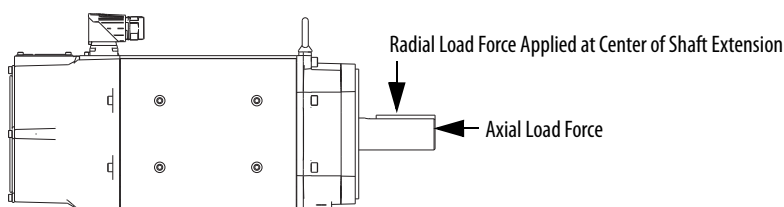
### Extended Speed Feature

The Extended Speed feature is implemented in the Studio 5000 Logix Designer application to help prevent accidental operation at unsafe speeds. With this feature, the Logix5000™ controller calculates a Bus Overvoltage Speed based on the drive's maximum bus-voltage and the Back EMF of the motor. This is the maximum speed that does not risk damaging the drive modules in the bus group. By default, the Extended Speed feature limits motor velocity to the Bus Overvoltage Speed.

## Kinetix VP Continuous Duty Motor Load Force Ratings

Bulletin VPC 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. There are two sets of tables starting below that represent an  $L_{10}$  bearing fatigue life of 20,000 and 40,000 hours. Bearing fatigue 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.

### Load Forces on Shaft



## Kinetix VP Continuous Duty Motors (20,000 hours bearing-fatigue life)

## Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2719 (611.3)	2158 (485.2)	1885 (423.8)	1713 (385.1)	1590 (357.5)	1496 (336.4)	1421 (319.5)	1359 (305.6)	1307 (293.9)	–
VPC-B1653A	4500	2871 (645.5)	2279 (512.3)	1991 (447.6)	1809 (406.6)	1679 (377.5)	1580 (355.2)	1501 (337.4)	1436 (322.7)	1380 (310.3)	–
VPC-B1652D	5000	2719 (611.3)	2158 (485.2)	1885 (423.8)	1713 (385.1)	1590 (357.5)	1496 (336.4)	1421 (319.5)	1359 (305.6)	1307 (293.9)	1262 (283.7)
VPC-B1653D	5000	2871 (645.5)	2279 (512.3)	1991 (447.6)	1809 (406.6)	1679 (377.5)	1580 (355.2)	1501 (337.4)	1436 (322.7)	1380 (310.3)	1333 (299.6)
VPC-B1654D	5000	2952 (663.7)	2343 (526.7)	2047 (460.2)	1860 (418.1)	1726 (388.1)	1625 (365.2)	1543 (346.9)	1476 (331.8)	1419 (319.1)	1370 (308.0)
VPC-B21539	3000	3763 (846.1)	2987 (671.5)	2609 (586.6)	2371 (533.0)	2201 (494.8)	2071 (465.6)	–	–	–	–
VPC-B21549	3000	3862 (868.3)	3066 (689.2)	2678 (602.0)	2433 (547.0)	2259 (507.8)	2126 (477.8)	–	–	–	–
VPC-B2153A	4500	3763 (846.1)	2987 (671.5)	2609 (586.6)	2371 (533.0)	2201 (494.8)	2071 (465.6)	1967 (442.3)	1882 (423.0)	1809 (406.7)	–
VPC-B2154A	4500	3862 (868.3)	3066 (689.2)	2678 (602.0)	2433 (547.0)	2259 (507.8)	2126 (477.8)	2019 (453.9)	1931 (434.1)	1857 (417.4)	–
VPC-B2154D	5000	3862 (868.3)	3066 (689.2)	2678 (602.0)	2433 (547.0)	2259 (507.8)	2126 (477.8)	2019 (453.9)	1931 (434.1)	1857 (417.4)	1793 (403.0)
VPC-B2155D	5000	3941 (886.1)	3128 (703.3)	2733 (614.4)	2483 (558.2)	2305 (518.2)	2169 (487.6)	2060 (463.2)	1971 (443.0)	1895 (426.0)	1829 (411.3)
VPC-B2156D	5000	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	2205 (495.6)	2094 (470.8)	2003 (450.3)	1926 (433.0)	1859 (418.0)
VPC-B30029	3000	5702 (1282.0)	4526 (1017.5)	3954 (888.9)	3592 (807.6)	3335 (749.7)	3138 (705.5)	–	–	–	–
VPC-B30039	3000	5702 (1282.0)	4526 (1017.5)	3954 (888.9)	3592 (807.6)	3335 (749.7)	3138 (705.5)	–	–	–	–
VPC-B30049	3000	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	–	–	–	–
VPC-B3002A	4000	5702 (1282.0)	4526 (1017.5)	3954 (888.9)	3592 (807.6)	3335 (749.7)	3138 (705.5)	2981 (670.2)	2851 (641.0)	–	–
VPC-B3003A	3500	5702 (1282.0)	4526 (1017.5)	3954 (888.9)	3592 (807.6)	3335 (749.7)	3138 (705.5)	2981 (670.2)	–	–	–
VPC-B3004A	3500	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	3064 (688.8)	–	–	–
VPC-B3004D	4000	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	3064 (688.8)	2931 (658.8)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

## Axial Load Force Ratings (maximum radial load) for Non-brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	–
VPC-B1653A	4500	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	–
VPC-B1652D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B1653D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B1654D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B21539	3000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	–	–	–	–
VPC-B21549	3000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	–	–	–	–
VPC-B2153A	4500	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	–
VPC-B2154A	4500	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	–
VPC-B2154D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B2155D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B2156D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B30029	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	–	–	–	–
VPC-B30039	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	–	–	–	–
VPC-B30049	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	–	–	–	–
VPC-B3002A	4000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	737 (165.8)	–	–
VPC-B3003A	3500	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	–	–	–
VPC-B3004A	3500	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	–	–	–
VPC-B3004D	4000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	737 (165.8)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

**Axial Load Force Ratings (zero radial load) for Non-brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	–
VPC-B1653A	4500	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	–
VPC-B1652D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B1653D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B1654D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B21539	3000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	–	–	–	–
VPC-B21549	3000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	–	–	–	–
VPC-B2153A	4500	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	–
VPC-B2154A	4500	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	–
VPC-B2154D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B2155D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B2156D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B30029	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	–	–	–	–
VPC-B30039	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	–	–	–	–
VPC-B30049	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	–	–	–	–
VPC-B3002A	4000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	2160 (485.7)	–	–
VPC-B3003A	3500	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	–	–	–
VPC-B3004A	3500	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	–	–	–
VPC-B3004D	4000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	2160 (485.7)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

## Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2871 (645.5)	2279 (512.3)	1991 (447.6)	1809 (406.6)	1679 (377.5)	1580 (355.2)	1501 (337.4)	1436 (322.7)	1380 (310.3)	–
VPC-B1653A	4500	2952 (663.7)	2343 (526.7)	2047 (460.2)	1860 (418.1)	1726 (388.1)	1625 (365.2)	1543 (346.9)	1476 (331.8)	1419 (319.1)	–
VPC-B1652D	5000	2871 (645.5)	2279 (512.3)	1991 (447.6)	1809 (406.6)	1679 (377.5)	1580 (355.2)	1501 (337.4)	1436 (322.7)	1380 (310.3)	1333 (299.6)
VPC-B1653D	5000	2952 (663.7)	2343 (526.7)	2047 (460.2)	1860 (418.1)	1726 (388.1)	1625 (365.2)	1543 (346.9)	1476 (331.8)	1419 (319.1)	1370 (308.0)
VPC-B1654D	5000	3016 (678.1)	2394 (538.2)	2091 (470.2)	1900 (427.2)	1764 (396.5)	1660 (373.2)	1577 (354.5)	1508 (339.0)	1450 (326.0)	1400 (314.7)
VPC-B21539	3000	3941 (886.1)	3128 (703.3)	2733 (614.4)	2483 (558.2)	2305 (518.2)	2169 (487.6)	–	–	–	–
VPC-B21549	3000	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	2205 (495.6)	–	–	–	–
VPC-B2153A	4500	3941 (886.1)	3128 (703.3)	2733 (614.4)	2483 (558.2)	2305 (518.2)	2169 (487.6)	2060 (463.2)	1971 (443.0)	1895 (426.0)	–
VPC-B2154A	4500	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	2205 (495.6)	2094 (470.8)	2003 (450.3)	1926 (433.0)	–
VPC-B2154D	5000	4006 (900.6)	3180 (714.8)	2778 (624.4)	2524 (567.3)	2343 (526.7)	2205 (495.6)	2094 (470.8)	2003 (450.3)	1926 (433.0)	1859 (418.0)
VPC-B2155D	5000	4106 (923.0)	3259 (732.5)	2847 (639.9)	2586 (581.4)	2401 (539.7)	2259 (507.9)	2146 (482.5)	2053 (461.5)	1974 (443.7)	1906 (428.4)
VPC-B2156D	5000	4106 (923.0)	3259 (732.5)	2847 (639.9)	2586 (581.4)	2401 (539.7)	2259 (507.9)	2146 (482.5)	2053 (461.5)	1974 (443.7)	1906 (428.4)
VPC-B30029	3000	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	–	–	–	–
VPC-B30039	3000	5990 (1346.5)	4754 (1068.7)	4153 (933.6)	3773 (848.3)	3503 (787.5)	3296 (741.0)	–	–	–	–
VPC-B30049	3000	6184 (1390.2)	4908 (1103.4)	4288 (963.9)	3896 (875.8)	3616 (813.0)	3403 (765.1)	–	–	–	–
VPC-B3002A	4000	5861 (1317.7)	4652 (1045.9)	4064 (913.6)	3692 (830.1)	3428 (770.6)	3226 (725.2)	3064 (688.8)	2931 (658.8)	–	–
VPC-B3003A	3500	5990 (1346.5)	4754 (1068.7)	4153 (933.6)	3773 (848.3)	3503 (787.5)	3296 (741.0)	3131 (703.9)	–	–	–
VPC-B3004A	3500	6184 (1390.2)	4908 (1103.4)	4288 (963.9)	3896 (875.8)	3616 (813.0)	3403 (765.1)	3233 (726.8)	–	–	–
VPC-B3004D	4000	6184 (1390.2)	4908 (1103.4)	4288 (963.9)	3896 (875.8)	3616 (813.0)	3403 (765.1)	3233 (726.8)	3092 (695.1)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

**Axial Load Force Ratings (maximum radial load) for Brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	–
VPC-B1653A	4500	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	–
VPC-B1652D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B1653D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B1654D	5000	927 (208.4)	686 (154.2)	575 (129.3)	508 (114.1)	461 (103.6)	426 (95.7)	398 (89.5)	376 (84.4)	357 (80.2)	341 (76.6)
VPC-B21539	3000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	–	–	–	–
VPC-B21549	3000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	–	–	–	–
VPC-B2153A	4500	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	–
VPC-B2154A	4500	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	–
VPC-B2154D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B2155D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B2156D	5000	1196 (269.0)	885 (199.0)	742 (166.9)	655 (147.3)	594 (133.6)	549 (123.5)	514 (115.5)	485 (109.0)	460 (103.5)	440 (98.9)
VPC-B30029	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	–	–	–	–
VPC-B30039	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	–	–	–	–
VPC-B30049	3000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	–	–	–	–
VPC-B3002A	4000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	737 (165.8)	–	–
VPC-B3003A	3500	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	–	–	–
VPC-B3004A	3500	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	–	–	–
VPC-B3004D	4000	1820 (409.2)	1347 (302.8)	1129 (253.9)	997 (224.1)	905 (203.3)	836 (187.9)	782 (175.7)	737 (165.8)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf



## Axial Load Force Ratings (zero radial load) for Brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	–
VPC-B1653A	4500	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	–
VPC-B1652D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B1653D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B1654D	5000	2713 (610.0)	2008 (451.5)	1684 (378.6)	1486 (334.1)	1349 (303.3)	1246 (280.2)	1166 (262.1)	1100 (247.3)	1045 (235.0)	998 (224.5)
VPC-B21539	3000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	–	–	–	–
VPC-B21549	3000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	–	–	–	–
VPC-B2153A	4500	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	–
VPC-B2154A	4500	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	–
VPC-B2154D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B2155D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B2156D	5000	3502 (787.3)	2592 (582.7)	2174 (488.6)	1918 (431.3)	1741 (391.4)	1609 (361.6)	1505 (338.2)	1420 (319.2)	1349 (303.3)	1289 (289.7)
VPC-B30029	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	–	–	–	–
VPC-B30039	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	–	–	–	–
VPC-B30049	3000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	–	–	–	–
VPC-B3002A	4000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	2160 (485.7)	–	–
VPC-B3003A	3500	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	–	–	–
VPC-B3004A	3500	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	–	–	–
VPC-B3004D	4000	5329 (1198.0)	3944 (886.6)	3307 (743.5)	2919 (656.2)	2649 (595.6)	2448 (550.3)	2289 (514.7)	2160 (485.7)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

## Kinetix VP Continuous Duty Motors (40,000 hours bearing-fatigue life)

## Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2158 (485.2)	1713 (385.1)	1496 (336.4)	1359 (305.6)	1262 (283.7)	1188 (267.0)	1128 (253.6)	1079 (242.6)	1037 (233.2)	–
VPC-B1653A	4500	2279 (512.3)	1809 (406.6)	1580 (355.2)	1436 (322.7)	1333 (299.6)	1254 (281.9)	1191 (267.8)	1139 (256.2)	1096 (246.3)	–
VPC-B1652D	5000	2158 (485.2)	1713 (385.1)	1496 (336.4)	1359 (305.6)	1262 (283.7)	1188 (267.0)	1128 (253.6)	1079 (242.6)	1037 (233.2)	1002 (225.2)
VPC-B1653D	5000	2279 (512.3)	1809 (406.6)	1580 (355.2)	1436 (322.7)	1333 (299.6)	1254 (281.9)	1191 (267.8)	1139 (256.2)	1096 (246.3)	1058 (237.8)
VPC-B1654D	5000	2343 (526.7)	1860 (418.1)	1625 (365.2)	1476 (331.8)	1370 (308.0)	1289 (289.9)	1225 (275.4)	1172 (263.4)	1126 (253.2)	1088 (244.5)
VPC-B21539	3000	2987 (671.5)	2371 (533.0)	2071 (465.6)	1882 (423.0)	1747 (392.7)	1644 (369.6)	–	–	–	–
VPC-B21549	3000	3066 (689.2)	2433 (547.0)	2126 (477.8)	1931 (434.1)	1793 (403.0)	1687 (379.3)	–	–	–	–
VPC-B2153A	4500	2987 (671.5)	2371 (533.0)	2071 (465.6)	1882 (423.0)	1747 (392.7)	1644 (369.6)	1562 (351.0)	1494 (335.8)	1436 (322.8)	–
VPC-B2154A	4500	3066 (689.2)	2433 (547.0)	2126 (477.8)	1931 (434.1)	1793 (403.0)	1687 (379.3)	1603 (360.3)	1533 (344.6)	1474 (331.3)	–
VPC-B2154D	5000	3066 (689.2)	2433 (547.0)	2126 (477.8)	1931 (434.1)	1793 (403.0)	1687 (379.3)	1603 (360.3)	1533 (344.6)	1474 (331.3)	1423 (319.9)
VPC-B2155D	5000	3128 (703.3)	2483 (558.2)	2169 (487.6)	1971 (443.0)	1829 (411.3)	1722 (387.0)	1635 (367.6)	1564 (351.6)	1504 (338.1)	1452 (326.4)
VPC-B2156D	5000	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	1750 (393.4)	1662 (373.7)	1590 (357.4)	1529 (343.6)	1476 (331.8)
VPC-B30029	3000	4526 (1017.5)	3592 (807.6)	3138 (705.5)	2851 (641.0)	2647 (595.0)	2491 (559.9)	–	–	–	–
VPC-B30039	3000	4526 (1017.5)	3592 (807.6)	3138 (705.5)	2851 (641.0)	2647 (595.0)	2491 (559.9)	–	–	–	–
VPC-B30049	3000	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	–	–	–	–
VPC-B3002A	4000	4526 (1017.5)	3592 (807.6)	3138 (705.5)	2851 (641.0)	2647 (595.0)	2491 (559.9)	2366 (531.9)	2263 (508.7)	–	–
VPC-B3003A	3500	4526 (1017.5)	3592 (807.6)	3138 (705.5)	2851 (641.0)	2647 (595.0)	2491 (559.9)	2366 (531.9)	–	–	–
VPC-B3004A	3500	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	2432 (546.7)	–	–	–
VPC-B3004D	4000	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	2432 (546.7)	2326 (522.9)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

## Axial Load Force Ratings (maximum radial load) for Non-brake Motors

Motor Cat. No. (1)	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	–
VPC-B1653A	4500	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	–
VPC-B1652D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B1653D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B1654D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B21539	3000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	–	–	–	–
VPC-B21549	3000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	–	–	–	–
VPC-B2153A	4500	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	–
VPC-B2154A	4500	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	–
VPC-B2154D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B2155D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B2156D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B30029	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	–	–	–	–
VPC-B30039	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	–	–	–	–
VPC-B30049	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	–	–	–	–
VPC-B3002A	4000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	546 (122.7)	–	–
VPC-B3003A	3500	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	–	–	–
VPC-B3004A	3500	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	–	–	–
VPC-B3004D	4000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	546 (122.7)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

**Axial Load Force Ratings (zero radial load) for Non-brake Motors**

Motor Cat. No. (1)	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	–
VPC-B1653A	4500	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	–
VPC-B1652D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B1653D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B1654D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B21539	3000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	–	–	–	–
VPC-B21549	3000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	–	–	–	–
VPC-B2153A	4500	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	–
VPC-B2154A	4500	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	–
VPC-B2154D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B2155D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B2156D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B30029	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	–	–	–	–
VPC-B30039	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	–	–	–	–
VPC-B30049	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	–	–	–	–
VPC-B3002A	4000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	1599 (359.4)	–	–
VPC-B3003A	3500	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	–	–	–
VPC-B3004A	3500	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	–	–	–
VPC-B3004D	4000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	1599 (359.4)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

## Radial Load Force Ratings (maximum) for Brake Motors

Motor Cat. No. (1)	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2279 (512.3)	1809 (406.6)	1580 (355.2)	1436 (322.7)	1333 (299.6)	1254 (281.9)	1191 (267.8)	1139 (256.2)	1096 (246.3)	–
VPC-B1653A	4500	2343 (526.7)	1860 (418.1)	1625 (365.2)	1476 (331.8)	1370 (308.0)	1289 (289.9)	1225 (275.4)	1172 (263.4)	1126 (253.2)	–
VPC-B1652D	5000	2279 (512.3)	1809 (406.6)	1580 (355.2)	1436 (322.7)	1333 (299.6)	1254 (281.9)	1191 (267.8)	1139 (256.2)	1096 (246.3)	1058 (237.8)
VPC-B1653D	5000	2343 (526.7)	1860 (418.1)	1625 (365.2)	1476 (331.8)	1370 (308.0)	1289 (289.9)	1225 (275.4)	1172 (263.4)	1126 (253.2)	1088 (244.5)
VPC-B1654D	5000	2394 (538.2)	1900 (427.2)	1660 (373.2)	1508 (339.0)	1400 (314.7)	1317 (296.2)	1251 (281.3)	1197 (269.1)	1151 (258.7)	1111 (249.8)
VPC-B21539	3000	3128 (703.3)	2483 (558.2)	2169 (487.6)	1971 (443.0)	1829 (411.3)	1722 (387.0)	–	–	–	–
VPC-B21549	3000	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	1750 (393.4)	–	–	–	–
VPC-B2153A	4500	3128 (703.3)	2483 (558.2)	2169 (487.6)	1971 (443.0)	1829 (411.3)	1722 (387.0)	1635 (367.6)	1564 (351.6)	1504 (338.1)	–
VPC-B2154A	4500	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	1750 (393.4)	1662 (373.7)	1590 (357.4)	1529 (343.6)	–
VPC-B2154D	5000	3180 (714.8)	2524 (567.3)	2205 (495.6)	2003 (450.3)	1859 (418.0)	1750 (393.4)	1662 (373.7)	1590 (357.4)	1529 (343.6)	1476 (331.8)
VPC-B2155D	5000	3259 (732.5)	2586 (581.4)	2259 (507.9)	2053 (461.5)	1906 (428.4)	1793 (403.1)	1703 (382.9)	1629 (366.3)	1567 (352.2)	1512 (340.0)
VPC-B2156D	5000	3259 (732.5)	2586 (581.4)	2259 (507.9)	2053 (461.5)	1906 (428.4)	1793 (403.1)	1703 (382.9)	1629 (366.3)	1567 (352.2)	1512 (340.0)
VPC-B30029	3000	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	–	–	–	–
VPC-B30039	3000	4754 (1068.7)	3773 (848.3)	3296 (741.0)	2995 (673.3)	2780 (625.0)	2616 (588.2)	–	–	–	–
VPC-B30049	3000	4908 (1103.4)	3896 (875.8)	3403 (765.1)	3092 (695.1)	2870 (645.3)	2701 (607.2)	–	–	–	–
VPC-B3002A	4000	4652 (1045.9)	3692 (830.1)	3226 (725.2)	2931 (658.8)	2721 (611.6)	2560 (575.6)	2432 (546.7)	2326 (522.9)	–	–
VPC-B3003A	3500	4754 (1068.7)	3773 (848.3)	3296 (741.0)	2995 (673.3)	2780 (625.0)	2616 (588.2)	2485 (558.7)	–	–	–
VPC-B3004A	3500	4908 (1103.4)	3896 (875.8)	3403 (765.1)	3092 (695.1)	2870 (645.3)	2701 (607.2)	2566 (576.8)	–	–	–
VPC-B3004D	4000	4908 (1103.4)	3896 (875.8)	3403 (765.1)	3092 (695.1)	2870 (645.3)	2701 (607.2)	2566 (576.8)	2454 (551.7)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

**Axial Load Force Ratings (maximum radial load) for Brake Motors**

Motor Cat. No. (1)	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	–
VPC-B1653A	4500	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	–
VPC-B1652D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B1653D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B1654D	5000	686 (154.2)	508 (114.1)	426 (95.7)	376 (84.4)	341 (76.6)	315 (70.8)	294 (66.2)	278 (62.5)	264 (59.4)	252 (56.7)
VPC-B21539	3000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	–	–	–	–
VPC-B21549	3000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	–	–	–	–
VPC-B2153A	4500	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	–
VPC-B2154A	4500	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	–
VPC-B2154D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B2155D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B2156D	5000	885 (199.0)	655 (147.3)	549 (123.5)	485 (109.0)	440 (98.9)	406 (91.4)	380 (85.4)	359 (80.6)	341 (76.6)	325 (73.2)
VPC-B30029	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	–	–	–	–
VPC-B30039	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	–	–	–	–
VPC-B30049	3000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	–	–	–	–
VPC-B3002A	4000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	546 (122.7)	–	–
VPC-B3003A	3500	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	–	–	–
VPC-B3004A	3500	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	–	–	–
VPC-B3004D	4000	1347 (302.8)	997 (224.1)	836 (187.9)	737 (165.8)	669 (150.5)	618 (139.0)	578 (130.0)	546 (122.7)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

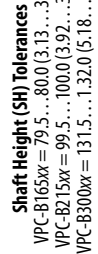
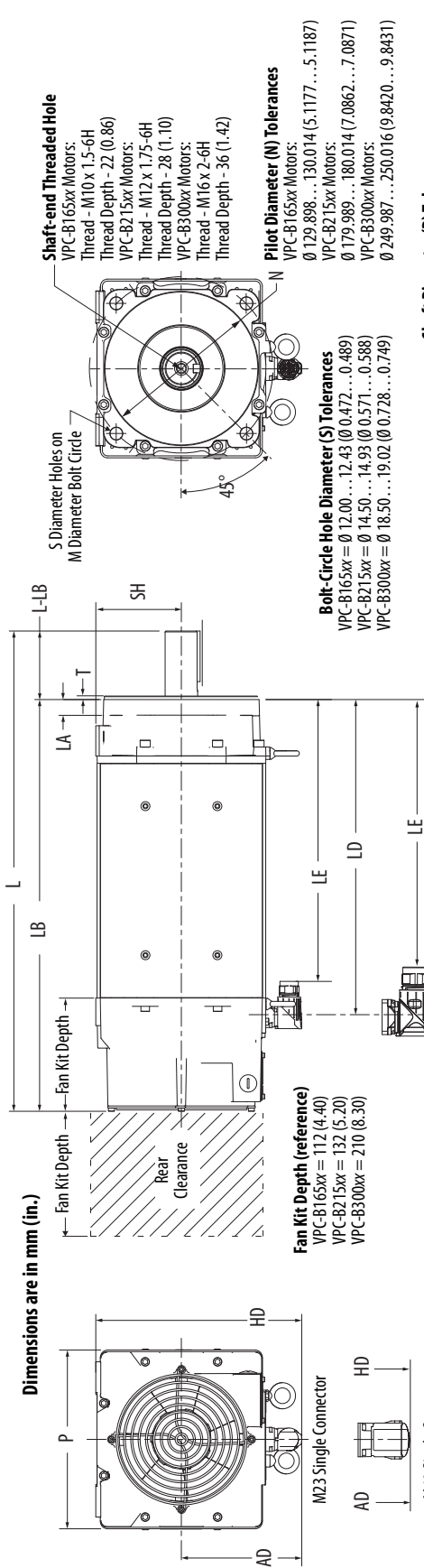
## Axial Load Force Ratings (zero radial load) for Brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM									
		500 N (lb)	1000 N (lb)	1500 N (lb)	2000 N (lb)	2500 N (lb)	3000 N (lb)	3500 N (lb)	4000 N (lb)	4500 N (lb)	5000 N (lb)
VPC-B1652A	4500	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	–
VPC-B1653A	4500	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	–
VPC-B1652D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B1653D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B1654D	5000	2008 (451.5)	1486 (334.1)	1246 (280.2)	1100 (247.3)	998 (224.5)	922 (207.4)	863 (194.0)	814 (183.0)	774 (173.9)	739 (166.1)
VPC-B21539	3000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	–	–	–	–
VPC-B21549	3000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	–	–	–	–
VPC-B2153A	4500	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	–
VPC-B2154A	4500	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	–
VPC-B2154D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B2155D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B2156D	5000	2592 (582.7)	1918 (431.3)	1609 (361.6)	1420 (319.2)	1289 (289.7)	1191 (267.7)	1114 (250.3)	1051 (236.2)	998 (224.4)	954 (214.4)
VPC-B30029	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	–	–	–	–
VPC-B30039	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	–	–	–	–
VPC-B30049	3000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	–	–	–	–
VPC-B3002A	4000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	1599 (359.4)	–	–
VPC-B3003A	3500	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	–	–	–
VPC-B3004A	3500	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	–	–	–
VPC-B3004D	4000	3944 (886.6)	2919 (656.2)	2448 (550.3)	2160 (485.7)	1961 (440.8)	1812 (407.3)	1694 (380.9)	1599 (359.4)	–	–

(1) 1.0 N = 0.225 lb = 0.102 kgf

Dimensions - Kinetix VP Continuous Duty Motors

VPC-B165xx, VPC-B215xx, and VPC-B300xx Motor Dimensions (single motor connector)



**Key Supplied**  
 VPC-B165xx = 10 (+0, -0.036) X 8 (+0, -0.090) X 59 Key  
 VPC-B215xx = 10 (+0, -0.036) X 8 (+0, -0.090) X 59 Key  
 VPC-B300xx = 14 (+0, -0.043) X 9 (+0, -0.090) X 79 Key

**Keyway Length**  
 VPC-B165xx = 60 (2.36)  
 VPC-B215xx = 60 (2.36)  
 VPC-B300xx = 81 (3.19)



**Pilot Height (T) Tolerances**  
 VPC-B165xx = 2.5...3.5 (0.098...0.138)  
 VPC-B215xx = 3.0...4.0 (0.118...0.157)  
 VPC-B300xx = 3.5...5.0 (0.138...0.197)

Shaft, Pilot, and Keyway Tolerances	VPC-B165xx	VPC-B215xx	VPC-B300xx
Shaft Runout (T.I.R.)	0.05 (0.002)		
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)		
Max. Face Runout (T.I.R.)	0.10 (0.0039)		0.125 (0.0049)
Keyway Depth (GE)	5.0...5.2 (0.197...0.205)	5.5...5.7 (0.216...0.224)	13.957...14.000 (0.5495...0.5512)
Keyway Width (F)	9.964...10.000 (0.3923...0.3937)		

Motor Connector on Bulletin VPC Motors	Motor Cat. No.
 M23 Connector	VPC-B1652x
	VPC-B1653x
	VPC-B2153x
	VPC-B21549
 M40 Connector	VPC-B16540
	VPC-B2154A
	VPC-B2154D
	VPC-B2155D
	VPC-B2156D
	VPC-B30029
	VPC-B3002A
	VPC-B30039
VPC-B3003A	
VPC-B30049	

M23 connector housings rotate 325°  
 M40 connector housings rotate 330°



**VPC-B165xx, VPC-B215xx, and VPC-B300xx Motor Dimensions (single motor connector)**

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T <sup>(3)</sup> mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	A mm (in.)	B <sup>(1)</sup> mm (in.)	C mm (in.)	H mm (in.)	D <sup>(3)</sup> mm (in.)	M <sup>(3)</sup> mm (in.)	SH <sup>(3)</sup> mm (in.)	S <sup>(3)</sup> mm (in.)	K <sup>(3)</sup> mm (in.)	N <sup>(3)</sup> mm (in.)	P mm (in.)	GE <sup>(3)</sup> mm (in.)	F <sup>(3)</sup> mm (in.)	
VPC-B1652x	120.5 (4.75)	200.3 (7.89)			251.9 (9.92)	211.9 (8.34)	427.6 (16.83)	347.6 (13.69)			216.9 (8.54)												
VPC-B1653x			3.5 (0.14)	14.3 (0.56)	307.4 (12.10)	267.4 (10.53)	483.1 (19.02)	403.1 (15.87)	80.0 (3.15)	125.0 (4.92)	272.4 (10.72)	34.0 (1.34)	62.5 (2.46)	32.00 (1.260)	165.00 (6.496)	80.00 (3.15)	12.00 (0.472)	10.00 (0.394)	130.00 (5.118)	168.9 (6.65)	5.00 (0.198)	10.00 (0.394)	
VPC-B1654D	140.0 (5.51)	219.8 (8.65)			352.1 (13.86)	281.1 (11.07)	523.6 (20.61)	443.6 (17.46)			312.9 (12.32)												
VPC-B2153x	140.5 (5.53)	240.5 (9.47)			328.4 (12.93)	288.5 (11.36)	520.1 (20.48)	440.1 (17.33)			284.9 (11.22)												
VPC-B21549						329.0 (12.95)																	
VPC-B2154A					368.9 (14.52)	297.9 (11.73)	560.6 (22.07)	480.6 (18.92)			325.4 (12.81)												
VPC-B2154D			4.0 (0.16)	18.4 (0.72)					80.0 (3.15)	160.0 (6.30)	43.0 (1.69)	80.0 (3.15)	38.00 (1.496)	215.00 (8.465)	100.00 (3.94)	14.50 (0.571)	12.00 (0.472)	180.00 (7.087)	210.9 (8.30)	5.00 (0.198)	10.00 (0.394)		
VPC-B2155D	160.5 (6.32)	260.5 (10.25)			409.4 (16.12)	338.4 (13.32)	601.1 (23.67)	521.1 (20.52)			365.9 (14.41)												
VPC-B2156D					449.9 (17.71)	378.9 (14.92)	641.6 (25.26)	561.6 (22.11)			406.4 (16.00)												
VPC-B3002x					400.7 (15.78)	329.7 (12.98)	692.1 (27.23)	582.1 (22.92)			344.7 (13.57)												
VPC-B3003x	192.0 (7.56)	324.0 (12.75)	5.0 (0.20)	22.9 (0.90)	448.2 (17.65)	377.2 (14.85)	739.6 (29.12)	629.6 (24.79)	110.0 (4.33)	216.0 (8.50)	53.0 (2.09)	108.0 (4.25)	48.00 (1.890)	300.00 (11.811)	132.00 (5.20)	18.50 (0.728)	12.00 (0.472)	250.00 (9.843)	275.9 (10.86)	5.50 (0.217)	14.00 (0.551)		
VPC-B30049																							

(1) If ordering VPC-B1652x motors with brake, add 55.5 mm (2.19 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B1653x or VPC-B1654D motors with brake, add 40.5 mm (1.59 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B2153x, VPC-B2154x, or VPC-B2156D motors with brake, add 81.0 mm (3.19 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B2155D motors with brake, add 121.5 mm (4.78 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B3003x motors with brake, add 47.5 mm (1.87 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B3004x motors with brake, add 95.0 mm (3.74 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B3004x motors with brake, add 142.5 mm (5.61 in.) to dimension L, LB, LE, LD and B.  
 (2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).  
 (3) For shaft diameter, mounting hole diameter, pilot diameter, and keyway tolerances, see the figure on [page 44](#).

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

VPC-B165xx, VPC-B215xx, and VPC-B300xx Motor Dimensions (motor power/feedback connectors)

**Dimensions are in mm (in.)**

M23 Power/Brake and M23 Feedback Connectors

M40 Power/Brake and M23 Feedback Connectors

M58 Power/Brake and M23 Feedback Connectors

M23 and M40 connector housings rotate 180°. M58 connector housings do not rotate.

**Fan Kit Depth (reference)**  
 VPC-B165xx = 112 (4.40)  
 VPC-B215xx = 132 (5.20)  
 VPC-B300xx = 210 (8.30)

**Bolt-circle Hole Diameter (S) Tolerances**  
 VPC-B165xx =  $\varnothing$  12.00...12.43 (0.472...0.489)  
 VPC-B215xx =  $\varnothing$  14.50...14.93 (0.571...0.588)  
 VPC-B300xx =  $\varnothing$  18.50...19.02 (0.728...0.749)

**Shaft Diameter (D) Tolerances**  
 VPC-B165xx =  $\varnothing$  32.018...32.002 (1.2605...1.2599)  
 VPC-B215xx =  $\varnothing$  38.018...38.002 (1.4968...1.4961)  
 VPC-B300xx =  $\varnothing$  48.018...48.002 (1.8905...1.8898)

**Shaft Height (SH) Tolerances**  
 VPC-B165xx = 79.5...80.0 (3.13...3.15)  
 VPC-B215xx = 99.5...100.0 (3.92...3.94)  
 VPC-B300xx = 131.5...132.0 (5.18...5.20)

**Key Supplied**  
 VPC-B165xx = 10 (+0, -0.036) x 8 (+0, -0.090) x 59 Key  
 VPC-B215xx = 10 (+0, -0.036) x 8 (+0, -0.090) x 59 Key  
 VPC-B300xx = 14 (+0, -0.043) x 9 (+0, -0.090) x 79 Key

**Keyway Length**  
 VPC-B165xx = 60.0 (2.36)  
 VPC-B215xx = 60.0 (2.36)  
 VPC-B300xx = 81.0 (3.19)

**Foot-mounting Hole Diameter (K) Tolerances**  
 VPC-B165xx =  $\varnothing$  10.00...10.36 (0.394...0.408)  
 VPC-B215xx =  $\varnothing$  12.00...12.43 (0.472...0.489)  
 VPC-B300xx =  $\varnothing$  12.00...12.43 (0.472...0.489)

**Shaft Detail with Key**  
 Keyway Length  
 Key Removed for Clarity  
 GE  
 F

**Detail A**  
 Shaft Seal  
 Refer to [page 6](#) for Kinetix VP motor shaft seal kit information.

**Pilot Diameter (N) Tolerances**  
 VPC-B165xx Motors:  
 $\varnothing$  729.989...130.014 (5.1177...5.1187)  
 VPC-B215xx Motors:  
 $\varnothing$  179.989...180.014 (7.0862...7.0871)  
 VPC-B300xx Motors:  
 $\varnothing$  249.987...250.016 (9.8420...9.8431)

**Pilot Height (T) Tolerances**  
 VPC-B165xx = 2.5...3.5 (0.098...0.138)  
 VPC-B215xx = 3.0...4.0 (0.118...0.157)  
 VPC-B300xx = 3.5...5.0 (0.138...0.197)

**Motor Cat. No.**

Power/Brake Connectors on Bulletin VPC Motors	Motor Cat. No.
M23 Connector	VPC-B1652x VPC-B1653x VPC-B2153x VPC-B21549
M40 Connector	VPC-B1654D VPC-B2154D VPC-B2155D VPC-B2156D VPC-B3002x VPC-B3003x VPC-B30049
M58 Connector	VPC-B3004A VPC-B3004D

**Shaft, Pilot, and Keyway Tolerances**

	VPC-B165xx	VPC-B215xx	VPC-B300xx
Shaft Runout (T.I.R.)	0.05 (0.002)		
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)		
Max Face Runout (T.I.R.)	0.10 (0.0039)		0.125 (0.0049)
Keyway Depth (GE)	5.00...5.20 (0.197...0.205)		5.50...5.70 (0.216...0.224)
Keyway Width (F)	9.364...10.000 (0.3927...0.3937)		13.957...14.000 (0.5495...0.5512)

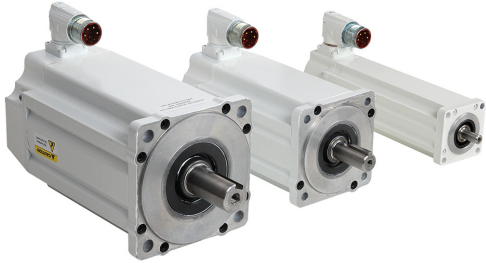
VPC-B165xx, VPC-B215xx, and VPC-B300xx Motor Dimensions (motor power/feedback connectors)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T <sup>(3)</sup> mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	A mm (in.)	B <sup>(1)</sup> mm (in.)	C mm (in.)	H mm (in.)	D <sup>(3)</sup> mm (in.)	M <sup>(3)</sup> mm (in.)	SH <sup>(3)</sup> mm (in.)	S <sup>(3)</sup> mm (in.)	K <sup>(3)</sup> mm (in.)	N <sup>(3)</sup> mm (in.)	P mm (in.)	GE <sup>(3)</sup> mm (in.)	F <sup>(3)</sup> mm (in.)	
VPC-B1652x	120.5 (4.75)	200.3 (7.89)	3.5 (0.14)	14.3 (0.56)	251.9 (9.92)	211.9 (8.34)	427.6 (16.83)	347.6 (13.69)	80.0 (3.15)	125.0 (4.92)	216.9 (8.54)	34.0 (1.34)	62.5 (2.46)	32.0 (1.260)	165.0 (6.496)	80.00 (3.15)	12.00 (0.472)	10.00 (0.394)	130.0 (5.118)	168.9 (6.65)	5.00 (0.198)	10.00 (0.394)	
VPC-B1653x					307.4 (12.10)	267.4 (10.53)	483.1 (19.02)	403.1 (15.87)			272.4 (10.72)												
VPC-B1654D	140.0 (5.51)	219.9 (8.66)			352.1 (13.86)	281.1 (11.07)	523.6 (20.61)	443.6 (17.46)			312.9 (12.32)												
VPC-B2153x	140.5 (5.53)	240.5 (9.47)			328.4 (12.93)	288.5 (11.40)	520.1 (20.48)	440.1 (17.33)			284.9 (11.22)												
VPC-B21549						329.0 (12.95)																	
VPC-B2154A			4.0 (0.16)	18.4 (0.72)	368.9 (14.52)	297.9 (11.73)	560.6 (22.07)	480.6 (18.92)	80.0 (3.15)	160.0 (6.30)	325.4 (12.81)	43.0 (1.69)	80.00 (3.15)	38.00 (1.496)	215.00 (8.465)	100.00 (3.94)	14.50 (0.571)	12.00 (0.472)	180.00 (7.087)	210.9 (8.30)	5.00 (0.198)	10.00 (0.394)	
VPC-B2154D						409.4 (16.12)	338.4 (13.32)	601.1 (23.67)			365.9 (14.41)												
VPC-B2155D	160.1 (6.30)	260.1 (10.24)			449.9 (17.71)	378.9 (14.92)	641.6 (25.26)	561.6 (22.11)			406.4 (16.00)												
VPC-B2156D						400.7 (15.78)	329.7 (12.98)	582.1 (22.92)			344.7 (13.57)												
VPC-B3002x	192.0 (7.56)	324.0 (12.76)	5.0 (0.20)	22.9 (0.90)	448.2 (17.65)	377.2 (14.85)	739.6 (29.12)	629.6 (24.79)	110.0 (4.33)	216.0 (8.50)	392.2 (15.44)	53.0 (2.09)	108.0 (4.25)	48.00 (1.890)	300.00 (11.811)	132.00 (5.20)	18.50 (0.728)	12.00 (0.472)	250.00 (9.843)	275.9 (10.86)	5.50 (0.217)	14.00 (0.551)	
VPC-B3003x						400.2 (15.76)																	
VPC-B30049																							
VPC-B3004A	203.3 (8.00)	335.3 (13.20)																					
VPC-B3004D																							

(1) If ordering VPC-B1652x motors with brake, add 55.5 mm (2.19 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B1653x or VPC-B1654D motors with brake, add 40.5 mm (1.59 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B2153x, VPC-B2154x or VPC-B2156D motors with brake, add 81.0 mm (3.19 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B2155D motors with brake, add 121.5 mm (4.78 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B3002x motors with brake, add 47.5 mm (1.87 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B3003x motors with brake, add 95.0 mm (3.74 in.) to dimension L, LB, LE, LD and B.  
 If ordering VPC-B3004x motors with brake, add 142.5 mm (5.61 in.) to dimension L, LB, LE, LD and B.  
 (2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).  
 (3) For shaft diameter, mounting hole diameter, pilot diameter, and keyway tolerances, see the figure on [page 46](#).

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

## Kinetix VP Food Grade Motors



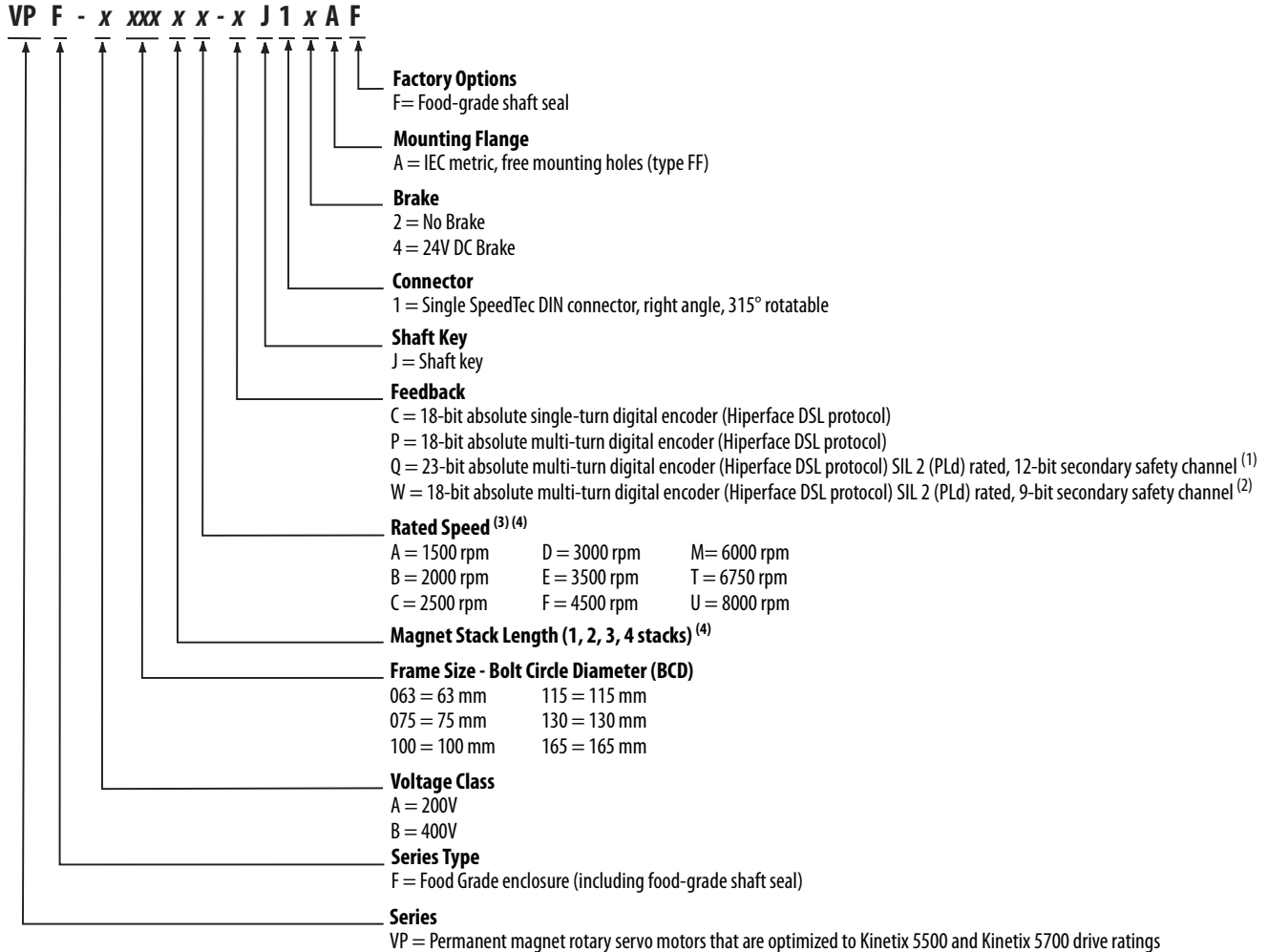
Kinetix VP (Bulletin VPF) food-grade motors combine the characteristics of the Bulletin VPL low-inertia servo motors with features specifically designed to meet the unique needs of many food and beverage applications. Windings are matched to the ratings of Kinetix 5500 drives and Kinetix 5700 dual-axis inverters to optimize system sizing, lower system cost, and improve energy efficiency. The Kinetix VP single-cable design between motor and drive simplifies installation. These high-performance servo motors address the challenges of food environments by incorporating food-grade paint and shaft seal, along with noncorrosive fasteners and stainless steel shaft.

### Kinetix VP Food Grade Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Configurable winding options, brakes, and encoder feedback</li> <li>Developed to match the ratings of Kinetix 5500 drives and Kinetix 5700 dual-axis inverters</li> <li>Single cable technology</li> <li>Hiperface DSL encoder protocol</li> <li>Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>Food-grade epoxy coated</li> <li>200V and 400V-class windings</li> <li>Single-turn and multi-turn absolute feedback</li> <li>SIL 2 (PLd) rated encoder options</li> <li>High-energy rare-earth magnets</li> <li>Shaft end threaded hole</li> <li>SpeedTec DIN connector, rotates 315°</li> <li>Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connector</li> <li>Food grade grease on shaft seal</li> </ul>
Certifications	Bulletin VPF rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	0.93...19 N·m (8...172 lb·in)
Peak stall torque	2.69...49 N·m (24...430 lb·in)
Rated speed	Up to 8000 rpm
Motor rated output	0.34...4.18 kW (0.46...5.60 Hp)
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 5700</li> <li>Kinetix 5500</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>Food packaging</li> <li>Volumetric filling</li> <li>Form, fill, seal</li> <li>Food handling</li> <li>For meat and poultry applications, the Kinetix VP stainless-steel motors are recommended</li> </ul>

## Catalog Numbers - Kinetix VP Food Grade 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.



- (1) This encoder option is available with only VPF-A/B100xx, VPF-A/B115xx, VPF-A/B130xx, and VPF-B165xx motor frame sizes.
- (2) This encoder option is available with only VPF-B063xx and VPF-B075xx motor frame sizes.
- (3) Rated speed hierarchy is only for comparative purposes. Use Motion Analyzer software to size and select motors for your application, and/or the torque/speed curves in the Kinetix 5500 Drive System Design Guide, publication [KNX-RM009](#), and the Kinetix 5700 Drive System Design Guide, publication [KNX-RM010](#).
- (4) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in Kinetix VP Food Grade Motor (200V-class) Performance Specifications on [page 52](#) and Kinetix VP Food Grade Motor (400V-class) Performance Specifications on [page 53](#), are available. Use Motion Analyzer software to size and select motors for your application.

## Kinetix VP Food Grade Motor High-resolution Encoders

Kinetix VP food-grade motors are available with high performance encoders with a choice of single-turn (-C), multi-turn (-P), and SIL 2 rated (-Q and -W) high-resolution feedback:

- 18-bit resolution for 262,144 counts per revolution (choice of single-turn or multi-turn)
  - Single-turn encoder (-C) provides absolute position feedback within one turn
  - Multi-turn encoder (-P) provides absolute position feedback within 4096 turns
  - Electromechanical design does not require a battery.
- SIL 2 rated absolute multi-turn digital encoder (Hiperface DSL protocol)
  - 23-bit resolution for 8,388,608 counts per revolution, multi-turn absolute position feedback within 4096 turns (-Q) option has 12-bit secondary safety channel
  - 18-bit resolution for 262,144 multi-turn absolute position feedback within 4096 turns (-W) option has 9-bit secondary safety channel

## Kinetix VP Single Cable Technology

Motor connectivity reduced to a single connector and cable

- Single cable eliminates hardware and wire terminations
- Purely digital two-wire communication integrated into the motor power cable
- 2090-CSxM1Dx cables are available in 1.0 m (3.2 ft) increments up to 50 m (164 ft) for Kinetix 5500 drives, 90 m (295 ft) for Kinetix 5700 drives

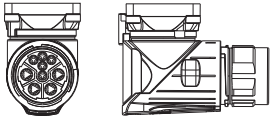
### IMPORTANT

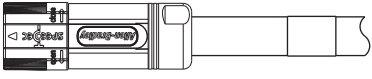
Due to the unique characteristics of single cable technology, designed for and tested with Kinetix 5500 drives, Kinetix 5700 dual-axis inverters, and Bulletin VPF motors, building your own cables or using third-party cable is not an option.

## Motor Connector/Cable Compatibility

Kinetix VP (Bulletin VPF) motors are equipped with SpeedTec DIN connectors.

**Single SpeedTec DIN Connector**





**SpeedTec DIN (M1) Single Cable Plug**

- VPF-A/B063xxx...VPF-B165xxx motors
- Receives only single motor cable plugs
- Attach cable plug with one-quarter turn

- 2090-CSBM1DF-xxAAxx (standard, non-flex) power/feedback/brake cables
- 2090-CSWM1DF-xxAAxx (standard, non-flex) power/feedback cables
- 2090-CSBM1DF-xxAFxx (continuous-flex) power/feedback/brake cables
- 2090-CSBM1DE-xxAAxx (standard, non-flex) power/feedback/brake cables
- 2090-CSWM1DE-xxAAxx (standard, non-flex) power/feedback cables
- 2090-CSBM1DE-xxAFxx (continuous-flex) power/feedback/brake cables
- 2090-CSBM1DG-xxAAxx (standard, non-flex) power/feedback/brake cables
- 2090-CSWM1DG-xxAAxx (standard, non-flex) power/feedback cables
- 2090-CSBM1DG-xxAFxx (continuous-flex) power/feedback/brake cables

- 2090-CSxM1DF cables apply to Kinetix 5500 drives
- 2090-CSxM1DE cables apply to Kinetix 5700 drives
- 2090-CSxM1DG cables apply to Kinetix 5500 or Kinetix 5700 drives

For 2090-Series single motor cable specifications, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

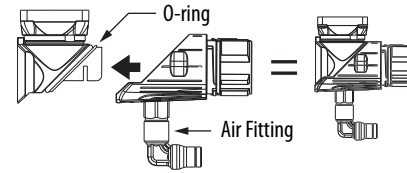
## Kinetix VP Food Grade Motor Options

Kinetix VP food-grade motors are available with these configurable options:

- Single-turn or multi-turn encoder.
- 24V DC brake.
- Positive Air Pressure kit (catalog number VPF-AIR-PURGE) is mounted on the feedback connector to provide positive air pressure to further reduce the chance of contamination inside the motor.

Refer to the Kinetix VP Food Grade Servo Motors Installation Instructions, publication [VPF-IN001](#), for more information.

- Shaft seal kits are food-grade, available for field replacement, and include a food-grade 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.	Shaft Seal Material
VPF-A063xx and VPF-B063xx	VPF-SSN-F063075	Teflon
VPF-A075xx and VPF-B075xx		
VPF-A100xx and VPF-B100xx	MPF-SST-A3B3	PTFE
VPF-A115xx and VPF-B115xx	MPF-SST-A4B4	
VPF-A130xx and VPF-B130xx	MPF-SST-A45B45	
VPF-B165xx	MPF-SST-F165	

## Technical Specifications - Kinetix VP Food Grade Motors

### Kinetix VP Food Grade Motor (200V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
VPF-A0632F	4800	4800	0.93 (8.0)	2.69 (24.0)	0.36 (0.48)	0.0000170 (0.00015)	1.36 (3.0)
VPF-A0633C	3000	3000	1.27 (11.0)	4.09 (36.0)	0.37 (0.50)	0.0000247 (0.00022)	1.68 (3.70)
VPF-A0633F	4500	4500	1.27 (11.0)	4.09 (36.0)	0.47 (0.63)		
VPF-A0752C	3300	3300	1.61 (14.0)	4.39 (39.0)	0.49 (0.66)	0.0000250 (0.00022)	2.03 (4.47)
VPF-A0752E	4800	4800	1.61 (14.0)	4.39 (39.0)	0.63 (0.84)		
VPF-A0753C	3300	3300	2.16 (19.0)	7.02 (62.0)	0.59 (0.79)	0.0000365 (0.00032)	2.59 (5.70)
VPF-A0753E	4600	4600	2.28 (20.0)	7.35 (65.0)	0.76 (1.02)		
VPF-A1001C	2800	2800	1.93 (17.0)	3.78 (33.0)	0.56 (0.75)	0.000044 (0.00039)	2.63 (5.80)
VPF-A1001M	6500	6500	1.95 (17.0)	3.78 (33.0)	1.29 (1.73)		
VPF-A1002C	3000	3000	3.39 (30.0)	7.82 (69.0)	1.03 (1.38)	0.000078 (0.00069)	4.52 (9.95)
VPF-A1002F	5000	5000	3.26 (29.0)	7.82 (69.0)	1.60 (2.14)		
VPF-A1003C	2250	2250	4.18 (37.0)	11.15 (99.0)	0.83 (1.11)	0.00012 (0.0010)	4.45 (9.80)
VPF-A1003E	3750	3750	4.18 (37.0)	11.15 (99.0)	1.25 (1.67)		
VPF-A1003F	5500	5500	4.18 (37.0)	11.15 (99.0)	1.81 (2.42)		
VPF-A1153C	2300	2300	6.50 (58.0)	20.33 (180)	1.16 (1.56)	0.00038 (0.0033)	6.01 (13.23)
VPF-A1303B	1950	1950	8.80 (78.0)	20.72 (183)	1.53 (2.05)	0.00040 (0.0035)	7.54 (16.60)
VPF-A1303F	4000	4000	7.75 (69.0)	20.72 (183)	2.25 (3.02)		
VPF-A1304A	1600	1600	10.29 (91.0)	28.45 (252)	1.47 (1.98)	0.00052 (0.0046)	9.10 (20.05)
VPF-A1304D	3000	3000	10.20 (90.0)	27.10 (240)	1.98 (2.65)		

(1) Refer to Kinetix VP Food Grade Motor Brake Specifications on [page 54](#) for brake rotor inertia and brake motor weight.



## Kinetix VP Food Grade Motor (400V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
VPF-B0632F	4600	4600	0.93 (8.0)	2.69 (24.0)	0.34 (0.46)	0.000017 (0.00015)	1.36 (3.00)
VPF-B0632T	7200	8000	0.93 (8.0)	2.69 (24.0)	0.41 (0.55)		
VPF-B0633M	6700	6700	1.27 (11.0)	4.09 (36.0)	0.49 (0.66)	0.0000247 (0.00022)	1.68 (3.70)
VPF-B0633T	6000	8000	1.27 (11.0)	4.09 (36.0)	0.48 (0.64)		
VPF-B0752E	4900	4900	1.61 (14.0)	4.39 (39.0)	0.64 (0.86)	0.000025 (0.00022)	2.03 (4.47)
VPF-B0752F	7000	7000	1.61 (14.0)	4.39 (39.0)	0.76 (1.02)		
VPF-B0752M	8000	8000	1.61 (14.0)	4.39 (39.0)	0.77 (1.04)		
VPF-B0753E	4500	4500	2.28 (20.0)	7.35 (65.0)	0.77 (1.04)	0.0000365 (0.00032)	2.59 (5.70)
VPF-B0753F	4500	6600	2.16 (19.0)	7.02 (62.0)	0.61 (0.82)		
VPF-B0753M	6000	8000	2.28 (20.0)	7.35 (65.0)	0.78 (1.05)		
VPF-B1001M	6000	6000	1.93 (17.0)	3.78 (34.0)	1.14 (1.53)	0.000044 (0.00039)	2.63 (5.80)
VPF-B1002E	3300	3300	3.39 (30.0)	7.82 (69.0)	1.12 (1.50)	0.000078 (0.00069)	3.56 (7.85)
VPF-B1002M	6000	6000	3.39 (30.0)	7.82 (69.0)	1.86 (2.49)		
VPF-B1003C	2500	2500	4.18 (37.0)	11.15 (99.0)	0.91 (1.23)	0.00012 (0.0010)	4.45 (9.80)
VPF-B1003F	4750	4750	4.18 (37.0)	11.15 (99.0)	1.57 (2.10)		
VPF-B1003T	7000	7000	4.18 (37.0)	11.15 (99.0)	1.68 (2.25)		
VPF-B1153E	3200	3200	6.50 (58.0)	20.33 (180)	1.40 (1.88)	0.00038 (0.0033)	6.01 (13.23)
VPF-B1153F	4000	5000	6.50 (58.0)	20.33 (180)	1.49 (2.00)		
VPF-B1303C	2250	2250	8.80 (78.0)	20.72 (183)	1.74 (2.33)	0.00040 (0.0035)	7.54 (16.60)
VPF-B1303F	4000	4000	8.80 (78.0)	20.72 (183)	2.54 (3.40)		
VPF-B1304C	2150	2150	10.29 (91.0)	28.45 (252)	1.49 (2.00)	0.00052 (0.0046)	9.10 (20.05)
VPF-B1304E	3500	3500	10.29 (91.0)	28.45 (252)	2.40 (3.21)		
VPF-B1652C	2700	2700	19.40 (172)	48.60 (430)	4.18 (5.60)	0.00147 (0.013)	17.80 (39.24)

(1) Refer to Kinetix VP Food Grade Motor Brake Specifications on [page 54](#) for brake rotor inertia and brake motor weight.

**Kinetix VP Food Grade Motor Brake Specifications**

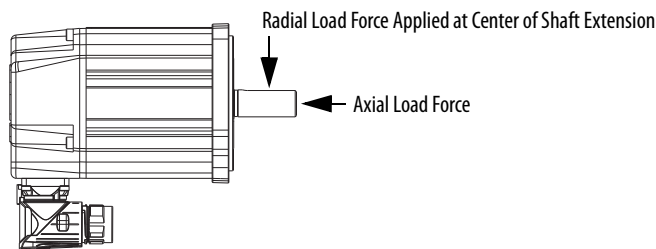
Motor Cat. No.	Backlash, max (brake engaged) arc minutes	Holding Torque N·m (lb·in)	Coil Current at 24V DC A	Brake Response Time		Brake Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage <sup>(1)</sup> ms		
VPF-A/B0632	30	1.50 (13)	0.297...0.363	38	25	0.0000194 (0.00017)	1.70 (3.74)
VPF-A/B0633						0.0000271 (0.00024)	2.02 (4.45)
VPF-A/B0752		3.0 (27)	0.567...0.693	66	42	0.0000297 (0.00026)	2.62 (5.77)
VPF-A/B0753						0.0000412 (0.00036)	3.18 (7.0)
VPF-A/B1001		4.18 (37)	0.45...0.55	90	65	0.000059 (0.00052)	3.26 (7.19)
VPF-A/B1002						0.000093 (0.00082)	4.20 (9.24)
VPF-A/B1003		6.55 (58)	0.621...0.759	90	95	0.000135 (0.0012)	5.08 (11.19)
VPF-A/B1153						0.000409 (0.0036)	6.88 (15.15)
VPF-A/B1303		14.10 (125)	0.738...0.902	125	120	0.000433 (0.0038)	8.64 (19.03)
VPF-A/B1304						0.000553 (0.0049)	10.21 (22.48)
VPF-B1652		32.0 (283)	1.053...1.287	140	120	0.00153 (0.013)	19.65 (43.32)

(1) By using diode and zener diode as arc suppression device in external control circuit.

**Kinetix VP Food Grade Motor Load Force Ratings**

Bulletin VPF 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 L<sub>10</sub> 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.

**Load Forces on Shaft**



## Kinetix VP Food Grade Motors (063...075 frame size)

## Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	–	28.9	25.2	–	–	21.0 *	–	–	–	17.1 *	–	–	–	–	–
VPF-A0633C	3000	38.1	30.3	27.4 *	–	–	21.0	–	–	–	–	–	–	–	–	–
VPF-A0633F	4500	38.1	–	26.4	–	–	21.0	–	–	18.3	–	–	–	–	–	–
VPF-A0752C	3300	36.1	28.6	25.9 *	–	–	–	19.2 *	–	–	–	–	–	–	–	–
VPF-A0752E	4800	36.1	28.6	–	–	21.8 *	–	–	–	–	17.0 *	–	–	–	–	–
VPF-A0753C	3300	37.8	30.0	27.5 *	–	–	–	20.2 *	–	–	–	–	–	–	–	–
VPF-A0753E	4600	37.8	30.0	–	–	23.3 *	–	–	–	–	18.0 *	–	–	–	–	–
VPF-B0632F	4600	–	28.9	25.2	–	–	21.0 *	–	–	–	17.1 *	–	–	–	–	–
VPF-B0632T	8000	–	–	–	22.9	–	–	–	18.2	–	–	–	15.6 *	–	–	14.4
VPF-B0633M	6700	–	30.3	–	24.0	–	–	–	19.2 *	–	–	–	–	15.9 *	–	–
VPF-B0633T	8000	–	–	26.4	–	–	21.0	–	–	–	–	16.8 *	–	–	–	15.1
VPF-B0752E	4900	36.1	28.6	–	–	22.0 *	–	–	–	–	17.0 *	–	–	–	–	–
VPF-B0752F	7000	–	28.6	–	22.7	–	–	19.3 *	–	–	–	–	–	15.0	–	–
VPF-B0752M	8000	–	–	25.0	–	–	20.8	–	–	–	16.8 *	–	–	–	–	14.3
VPF-B0753E	4500	37.8	30.0	–	23.8	–	–	–	–	18.2	–	–	–	–	–	–
VPF-B0753F	6600	–	30.0	–	23.8	–	–	20.6 *	–	–	–	–	16.1	–	–	–
VPF-B0753M	8000	–	–	26.2	–	–	19.8	–	–	–	18.0 *	–	–	–	–	15.0

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (maximum radial load) for Non-brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	–	23.5	19.7	–	–	15.5 *	–	–	–	11.9 *	–	–	–	–	–
VPF-A0633C	3000	32.7	24.2	21.3 *	–	–	15.0	–	–	–	–	–	–	–	–	–
VPF-A0633F	4500	32.7	–	20.3	–	–	15.0	–	–	12.6	–	–	–	–	–	–
VPF-A0752C	3300	31.5	23.3	20.5 *	–	–	–	13.9 *	–	–	–	–	–	–	–	–
VPF-A0752E	4800	31.5	23.3	–	–	16.4 *	–	–	–	–	11.8 *	–	–	–	–	–
VPF-A0753C	3300	32.5	24.1	21.5 *	–	–	–	14.3 *	–	–	–	–	–	–	–	–
VPF-A0753E	4600	32.5	24.1	–	–	17.3 *	–	–	–	–	12.4 *	–	–	–	–	–
VPF-B0632F	4600	–	23.5	19.7	–	–	15.5 *	–	–	–	11.9 *	–	–	–	–	–
VPF-B0632T	8000	–	–	–	17.4	–	–	–	12.9	–	–	–	10.6	–	–	9.5
VPF-B0633M	6700	–	24.2	–	17.9	–	–	–	13.4 *	–	–	–	–	10.5 *	–	–
VPF-B0633T	8000	–	–	20.3	–	–	15.0	–	–	–	11.3 *	–	–	–	–	9.8
VPF-B0752E	4900	31.5	23.3	–	–	16.6 *	–	–	–	–	11.8 *	–	–	–	–	–
VPF-B0752F	7000	–	23.3	–	17.3	–	–	14.0 *	–	–	–	–	–	10.0	–	–
VPF-B0752M	8000	–	–	19.6	–	–	14.5	–	–	–	11.7 *	–	–	–	–	9.5
VPF-B0753E	4500	32.5	24.1	–	17.8	–	–	–	–	12.5	–	–	–	–	–	–
VPF-B0753F	6600	–	24.1	–	17.8	–	–	14.7 *	–	–	–	–	10.7	–	–	–
VPF-B0753M	8000	–	–	20.2	–	–	14.9	–	–	–	12.4 *	–	–	–	–	9.8

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (zero radial load) for Non-brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	–	27.5	23.0	–	–	18.1 *	–	–	–	13.9 *	–	–	–	–	–
VPF-A0633C	3000	37.1	27.5	24.1 *	–	–	17.1	–	–	–	–	–	–	–	–	–
VPF-A0633F	4500	37.1	–	23.0	–	–	17.1	–	–	14.3	–	–	–	–	–	–
VPF-A0752C	3300	37.1	27.5	24.1 *	–	–	–	16.4 *	–	–	–	–	–	–	–	–
VPF-A0752E	4800	37.1	27.5	–	–	19.3 *	–	–	–	–	13.9 *	–	–	–	–	–
VPF-A0753C	3300	37.1	27.5	24.5 *	–	–	–	16.4 *	–	–	–	–	–	–	–	–
VPF-A0753E	4600	37.1	27.5	–	–	19.7 *	–	–	–	–	14.2 *	–	–	–	–	–
VPF-B0632F	4600	–	27.5	23.0	–	–	18.1 *	–	–	–	13.9 *	–	–	–	–	–
VPF-B0632T	8000	–	–	–	20.3	–	–	–	15.1	–	–	–	12.4 *	–	–	11.1
VPF-B0633M	6700	–	27.5	–	20.3	–	–	–	15.2 *	–	–	–	–	11.9 *	–	–
VPF-B0633T	8000	–	–	23.0	–	–	17.1	–	–	–	–	12.8 *	–	–	–	11.1
VPF-B0752E	4900	37.1	27.5	–	–	19.5 *	–	–	–	–	13.9 *	–	–	–	–	–
VPF-B0752F	7000	–	27.5	–	20.3	–	–	16.5 *	–	–	–	–	–	11.8	–	–
VPF-B0752M	8000	–	–	23.0	–	–	17.1	–	–	–	13.8 *	–	–	–	–	11.1
VPF-B0753E	4500	37.1	27.5	–	20.3	–	–	–	–	14.3	–	–	–	–	–	–
VPF-B0753F	6600	–	27.5	–	20.3	–	–	16.8 *	–	–	–	–	12.2	–	–	–
VPF-B0753M	8000	–	–	23.0	–	–	17.1	–	–	–	14.2 *	–	–	–	–	11.1

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Radial Load Force Ratings (maximum) for Brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	–	30.5	26.6	–	–	22.2 *	–	–	–	18.1 *	–	–	–	–	–
VPF-A0633C	3000	39.5	31.4	28.4 *	–	–	21.8	–	–	–	–	–	–	–	–	–
VPF-A0633F	4500	39.5	–	27.4	–	–	21.8	–	–	19.0	–	–	–	–	–	–
VPF-A0752C	3300	38.1	30.3	27.4	–	–	–	20.3 *	–	–	–	–	–	–	–	–
VPF-A0752E	4800	38.1	30.3	–	–	23.1 *	–	–	–	–	17.9 *	–	–	–	–	–
VPF-A0753C	3300	39.2	31.2	28.5 *	–	–	–	20.9 *	–	–	–	–	–	–	–	–
VPF-A0753E	4600	39.2	31.2	–	–	24.1 *	–	–	–	–	18.7 *	–	–	–	–	–
VPF-B0632F	4600	–	30.5	26.6	–	–	22.2 *	–	–	–	18.1 *	–	–	–	–	–
VPF-B0632T	8000	–	–	–	24.2	–	–	–	19.2	–	–	–	16.5 *	–	–	15.3
VPF-B0633M	6700	–	31.4	–	24.9	–	–	–	19.9 *	–	–	–	–	16.5 *	–	–
VPF-B0633T	8000	–	–	27.4	–	–	21.8	–	–	–	–	17.5 *	–	–	–	15.7
VPF-B0752E	4900	38.1	30.3	–	–	23.3 *	–	–	–	–	17.9 *	–	–	–	–	–
VPF-B0752F	7000	–	30.3	–	24.0	–	–	20.4 *	–	–	–	–	–	15.8	–	–
VPF-B0752M	8000	–	–	26.4	–	–	21.0	–	–	–	17.8 *	–	–	–	–	15.1
VPF-B0753E	4500	39.2	31.2	–	24.7	–	–	–	–	18.9	–	–	–	–	–	–
VPF-B0753F	6600	–	31.2	–	24.7	–	–	21.4 *	–	–	–	–	16.7	–	–	–
VPF-B0753M	8000	–	–	27.2	–	–	21.6	–	–	–	18.7 *	–	–	–	–	15.6

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (maximum radial load) for Brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	–	24.3	20.4	–	–	16.1 *	–	–	–	12.3 *	–	–	–	–	–
VPF-A0633C	3000	33.5	24.8	21.8 *	–	–	15.4	–	–	–	–	–	–	–	–	–
VPF-A0633F	4500	33.5	–	20.8	–	–	15.4	–	–	12.9	–	–	–	–	–	–
VPF-A0752C	3300	32.7	24.2	21.3 *	–	–	–	14.4 *	–	–	–	–	–	–	–	–
VPF-A0752E	4800	32.7	24.2	–	–	17.0 *	–	–	–	–	12.3 *	–	–	–	–	–
VPF-A0753C	3300	33.4	24.7	22.0 *	–	–	–	14.7 *	–	–	–	–	–	–	–	–
VPF-A0753E	4600	33.4	24.7	–	–	17.7 *	–	–	–	–	12.7 *	–	–	–	–	–
VPF-B0632F	4600	–	24.3	20.4	–	–	16.1 *	–	–	–	12.3 *	–	–	–	–	–
VPF-B0632T	8000	–	–	–	18.0	–	–	–	13.3	–	–	–	11.0 *	–	–	9.9
VPF-B0633M	6700	–	24.8	–	18.4	–	–	–	13.7 *	–	–	–	–	10.7 *	–	–
VPF-B0633T	8000	–	–	20.8	–	–	15.4	–	–	–	–	11.6 *	–	–	–	10.1
VPF-B0752E	4900	32.7	24.2	–	–	17.2 *	–	–	–	–	12.3 *	–	–	–	–	–
VPF-B0752F	7000	–	24.2	–	17.9	–	–	14.5 *	–	–	–	–	–	10.4	–	–
VPF-B0752M	8000	–	–	20.3	–	–	15.0	–	–	–	12.1 *	–	–	–	–	9.8
VPF-B0753E	4500	33.4	24.7	–	18.3	–	–	–	–	12.9	–	–	–	–	–	–
VPF-B0753F	6600	–	24.7	–	18.3	–	–	15.1 *	–	–	–	–	11.0	–	–	–
VPF-B0753M	8000	–	–	20.7	–	–	15.3	–	–	–	12.7 *	–	–	–	–	10.0

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (zero radial load) for Brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	6000 kgf	6500 kgf	7000 kgf	7500 kgf	8000 kgf
VPF-A0632F	4800	–	27.5	23.0	–	–	18.1 *	–	–	–	13.9 *	–	–	–	–	–
VPF-A0633C	3000	37.1	27.5	24.1 *	–	–	17.1	–	–	–	–	–	–	–	–	–
VPF-A0633F	4500	37.1	–	23.0	–	–	17.1	–	–	14.3	–	–	–	–	–	–
VPF-A0752C	3300	37.1	27.5	24.1 *	–	–	–	16.4 *	–	–	–	–	–	–	–	–
VPF-A0752E	4800	37.1	27.5	–	–	19.3 *	–	–	–	–	13.9 *	–	–	–	–	–
VPF-A0753C	3300	37.1	27.5	24.5 *	–	–	–	16.4 *	–	–	–	–	–	–	–	–
VPF-A0753E	4600	37.1	27.5	–	–	19.7 *	–	–	–	–	14.2 *	–	–	–	–	–
VPF-B0632F	4600	–	27.5	23.0	–	–	18.1 *	–	–	–	13.9 *	–	–	–	–	–
VPF-B0632T	8000	–	–	–	20.3	–	–	–	15.1	–	–	–	12.4 *	–	–	11.1
VPF-B0633M	6700	–	27.5	–	20.3	–	–	–	15.2 *	–	–	–	–	11.9 *	–	–
VPF-B0633T	8000	–	–	23.0	–	–	17.1	–	–	–	–	12.8 *	–	–	–	11.1
VPF-B0752E	4900	37.1	27.5	–	–	19.5 *	–	–	–	–	13.9 *	–	–	–	–	–
VPF-B0752F	7000	–	27.5	–	20.3	–	–	16.5 *	–	–	–	–	–	11.8	–	–
VPF-B0752M	8000	–	–	23.0	–	–	17.1	–	–	–	13.8 *	–	–	–	–	11.1
VPF-B0753E	4500	37.1	27.5	–	20.3	–	–	–	–	14.3	–	–	–	–	–	–
VPF-B0753F	6600	–	27.5	–	20.3	–	–	16.8 *	–	–	–	–	12.2	–	–	–
VPF-B0753M	8000	–	–	23.0	–	–	17.1	–	–	–	14.2 *	–	–	–	–	11.1

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Kinetix VP Food Grade Motors (100...165 frame size)

## Radial Load Force Ratings (maximum) for Non-brake Motors

Motor Cat. No. (1)	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	79.1	–	62.8	–	49.8	–	44.6*	–	–	–	–	–	–	–	–
VPF-A1001M	6500	–	–	–	54.9	–	46.3	–	–	–	38.0	–	–	–	33.6	–
VPF-A1002C	3000	87.9	–	69.7	–	55.4	–	48.4	–	–	–	–	–	–	–	–
VPF-A1002F	5000	–	–	69.7	60.9	–	–	48.4	–	–	–	40.8	–	–	–	–
VPF-A1003C	2250	93.6	–	74.3	64.9	–	56.7*	–	–	–	–	–	–	–	–	–
VPF-A1003E	3750	93.6	–	74.3	–	59.0	–	–	–	47.8*	–	–	–	–	–	–
VPF-A1003F	5500	–	–	–	64.9	–	54.8	–	–	46.8	–	–	42.1	–	–	–
VPF-A1153C	2300	106.4	–	84.5	73.8	–	64.0*	–	–	–	–	–	–	–	–	–
VPF-A1303B	1950	132.9	–	105.5	92.2	84.4*	–	–	–	–	–	–	–	–	–	–
VPF-A1303F	4000	–	–	105.5	–	83.7	–	73.1	–	66.5	–	–	–	–	–	–
VPF-A1304A	1600	140.2	122.5	112.2*	–	95.2*	–	–	–	–	–	–	–	–	–	–
VPF-A1304D	3000	140.2	–	111.3	–	88.3	–	77.2	–	–	–	–	–	–	–	–
VPF-B1001M	6000	–	–	–	–	49.8	–	43.5	–	39.6	–	–	–	34.6	–	–
VPF-B1002E	3300	87.9	–	69.7	–	55.4	–	–	46.8*	–	–	–	–	–	–	–
VPF-B1002M	6000	–	–	–	60.9	–	–	48.4	–	–	42.2	–	–	38.4	–	–
VPF-B1003C	2500	93.6	–	74.3	64.9	–	54.8	–	–	–	–	–	–	–	–	–
VPF-B1003F	4750	–	–	74.3	64.9	–	–	51.5	–	–	–	44.2*	–	–	–	–
VPF-B1003T	7000	–	–	–	64.9	–	54.8	–	–	–	45.0	–	–	–	–	38.9
VPF-B1153E	3200	106.4	–	84.5	–	67.0	–	–	57.3*	–	–	–	–	–	–	–
VPF-B1153F	5000	–	–	84.5	–	67.0	–	58.6	–	–	–	49.4	–	–	–	–
VPF-B1303C	2250	132.9	–	105.5	92.2	–	80.5*	–	–	–	–	–	–	–	–	–
VPF-B1303F	4000	–	–	105.5	–	83.7	–	74.0*	–	66.5	–	–	–	–	–	–
VPF-B1304C	2150	140.2	–	111.3	99.5*	–	86.2*	–	–	–	–	–	–	–	–	–
VPF-B1304E	3500	–	–	111.3	97.2	–	84.3*	–	73.3	–	–	–	–	–	–	–
VPF-B1652C	2700	180.7	–	143.4	125.3	–	–	103.0*	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Axial Load Force Ratings (maximum radial load) for Non-brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	25.0	–	19.0	–	10.0	–	10.0*	–	–	–	–	–	–	–	–
VPF-A1001M	6500	–	–	–	15.0	–	12.0	–	–	–	9.0	–	–	–	8.0	–
VPF-A1002C	3000	30.0	–	22.0	–	16.0	–	13.0	–	–	–	–	–	–	–	–
VPF-A1002F	5000	–	–	22.0	18.0	–	–	13.0	–	–	–	11.0	–	–	–	–
VPF-A1003C	2250	33.0	–	24.0	20.0	–	17.0*	–	–	–	–	–	–	–	–	–
VPF-A1003E	3750	33.0	–	24.0	–	18.0	–	–	–	13.0*	–	–	–	–	–	–
VPF-A1003F	5500	–	–	–	20.0	–	16.0	–	–	13.0	–	–	11.0	–	–	–
VPF-A1153C	2300	48.0	–	35.0	29.0	–	24.0*	–	–	–	–	–	–	–	–	–
VPF-A1303B	1950	39.0	–	29.0	24.0	22.0*	–	–	–	–	–	–	–	–	–	–
VPF-A1303F	4000	–	–	29.0	–	21.0	–	18.0	–	16.0	–	–	–	–	–	–
VPF-A1304A	1600	43.0	36.0	32.0*	–	26.0*	–	–	–	–	–	–	–	–	–	–
VPF-A1304D	3000	43.0	–	32.0	–	23.0	–	20.0	–	–	–	–	–	–	–	–
VPF-B1001M	6000	–	–	–	–	14.0	–	11.0	–	10.0	–	–	–	8.0	–	–
VPF-B1002E	3300	30.0	–	22.0	–	16.0	–	–	13.0*	–	–	–	–	–	–	–
VPF-B1002M	6000	–	–	–	18.0	–	–	13.0	–	–	11.0	–	–	10.0	–	–
VPF-B1003C	2500	33.0	–	24.0	20.0	–	16.0	–	–	–	–	–	–	–	–	–
VPF-B1003F	4750	–	–	24.0	20.0	–	–	15.0	–	–	–	12.0*	–	–	–	–
VPF-B1003T	7000	–	–	–	20.0	–	16.0	–	–	–	12.0	–	–	–	–	10.0
VPF-B1153E	3200	48.0	–	35.0	–	26.0	–	–	21.0*	–	–	–	–	–	–	–
VPF-B1153F	5000	–	–	35.0	–	26.0	–	22.0	–	–	–	17.0	–	–	–	–
VPF-B1303C	2250	39.0	–	29.0	–	24.0	20.0*	–	–	–	–	–	–	–	–	–
VPF-B1303F	4000	–	–	29.0	–	21.0	–	18.0*	–	16.0	–	–	–	–	–	–
VPF-B1304C	2150	43.0	–	32.0	27.0*	–	23.0*	–	–	–	–	–	–	–	–	–
VPF-B1304E	3500	–	–	32.0	27.0	–	22.0*	–	18.0	–	–	–	–	–	–	–
VPF-B1652C	2700	58.0	–	43.0	36.0	–	–	27.0*	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.



## Axial Load Force Ratings (zero radial load) for Non-brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	49.4	–	36.5	–	27.0	–	23.4*	–	–	–	–	–	–	–	–
VPF-A1001M	6500	–	–	–	30.6	–	24.5	–	–	–	19.0	–	–	–	16.2	–
VPF-A1002C	3000	49.4	–	36.5	–	27.0	–	22.7	–	–	–	–	–	–	–	–
VPF-A1002F	5000	–	–	36.5	30.6	–	–	22.7	–	–	–	18.2	–	–	–	–
VPF-A1003C	2250	49.4	–	36.5	30.6	–	25.7*	–	–	–	–	–	–	–	–	–
VPF-A1003E	3750	49.4	–	36.5	–	27.0	–	–	–	20.6*	–	–	–	–	–	–
VPF-A1003F	5500	–	–	–	30.6	–	24.5	–	–	20.0	–	–	17.4	–	–	–
VPF-A1153C	2300	68.3	–	50.5	42.4	–	35.2*	–	–	–	–	–	–	–	–	–
VPF-A1303B	1950	68.3	–	50.5	42.4	37.8*	–	–	–	–	–	–	–	–	–	–
VPF-A1303F	4000	–	–	50.5	–	37.4	–	31.4	–	27.7	–	–	–	–	–	–
VPF-A1304A	1600	68.3	57.2	51.1*	–	41.2*	–	–	–	–	–	–	–	–	–	–
VPF-A1304D	3000	68.3	–	50.5	–	37.4	–	31.4	–	–	–	–	–	–	–	–
VPF-B1001M	6000	–	–	–	–	27.0	–	22.7	–	20.0	–	–	–	16.8	–	–
VPF-B1002E	3300	49.4	–	36.5	–	27.0	–	–	21.8*	–	–	–	–	–	–	–
VPF-B1002M	6000	–	–	–	30.6	–	–	22.7	–	–	19.0	–	–	16.8	–	–
VPF-B1003C	2500	49.4	–	36.5	30.6	–	24.5	–	–	–	–	–	–	–	–	–
VPF-B1003F	4750	–	–	36.5	30.6	–	–	22.7	–	–	–	18.6*	–	–	–	–
VPF-B1003T	7000	–	–	–	30.6	–	24.5	–	–	–	19.0	–	–	–	–	15.7
VPF-B1153E	3200	68.3	–	50.5	–	37.4	–	–	30.5*	–	–	–	–	–	–	–
VPF-B1153F	5000	–	–	50.5	–	37.4	–	31.4	–	–	–	25.1	–	–	–	–
VPF-B1303C	2250	68.3	–	50.5	42.3	–	35.5*	–	–	–	–	–	–	–	–	–
VPF-B1303F	4000	–	–	50.5	–	37.4	–	31.8*	–	27.7	–	–	–	–	–	–
VPF-B1304C	2150	68.3	–	50.5	43.6*	–	36.2*	–	–	–	–	–	–	–	–	–
VPF-B1304E	3500	–	–	50.5	42.4	–	35.2*	–	29.3	–	–	–	–	–	–	–
VPF-B1652C	2700	90.1	–	66.7	55.9	–	–	43.3*	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

**Radial Load Force Ratings (maximum) for Brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	90.2	–	71.6	–	56.8	–	50.8 *	–	–	–	–	–	–	–	–
VPF-A1001M	6500	–	–	–	62.5	–	52.7	–	–	–	43.4	–	–	–	38.4	–
VPF-A1002C	3000	95.3	–	75.6	–	60.0	–	52.4	–	–	–	–	–	–	–	–
VPF-A1002F	5000	–	–	75.6	66.1	–	–	52.4	–	–	–	44.2	–	–	–	–
VPF-A1003C	2250	99.0	–	78.5	68.6	–	59.9 *	–	–	–	–	–	–	–	–	–
VPF-A1003E	3750	99.0	–	78.5	–	62.3	–	–	–	50.6 *	–	–	–	–	–	–
VPF-A1003F	5500	–	–	–	68.6	–	57.9	–	–	49.5	–	–	44.5	–	–	–
VPF-A1153C	2300	115.4	–	91.6	80.0	–	69.4 *	–	–	–	–	–	–	–	–	–
VPF-A1303B	1950	145.3	–	115.3	100.7	92.3 *	–	–	–	–	–	–	–	–	–	–
VPF-A1303F	4000	–	–	115.3	–	91.5	–	80.0	–	72.7	–	–	–	–	–	–
VPF-A1304A	1600	149.7	130.8	119.8 *	–	101.6 *	–	–	–	–	–	–	–	–	–	–
VPF-A1304D	3000	149.5	–	118.6	–	94.2	–	82.3	–	–	–	–	–	–	–	–
VPF-B1001M	6000	–	–	–	–	56.8	–	49.6	–	45.1	–	–	–	39.4	–	–
VPF-B1002E	3300	95.3	–	75.6	–	60.0	–	–	50.8 *	–	–	–	–	–	–	–
VPF-B1002M	6000	–	–	–	66.1	–	–	52.4	–	–	45.8	–	–	41.6	–	–
VPF-B1003C	2500	99.0	–	78.5	68.6	–	57.9	–	–	–	–	–	–	–	–	–
VPF-B1003F	4750	–	–	78.5	68.6	–	–	54.5	–	–	–	46.7 *	–	–	–	–
VPF-B1003T	7000	–	–	–	68.6	–	57.9	–	–	–	47.6	–	–	–	–	41.1
VPF-B1153E	3200	115.4	–	91.6	–	72.7	–	–	62.2 *	–	–	–	–	–	–	–
VPF-B1153F	5000	–	–	91.6	–	72.7	–	63.5	–	–	–	53.6	–	–	–	–
VPF-B1303C	2250	145.3	–	115.3	100.7	–	88.0 *	–	–	–	–	–	–	–	–	–
VPF-B1303F	4000	–	–	115.3	–	91.5	–	80.9 *	–	72.7	–	–	–	–	–	–
VPF-B1304C	2150	149.7	–	118.8	106.2 *	–	92.0 *	–	–	–	–	–	–	–	–	–
VPF-B1304E	3500	–	–	118.8	103.8	–	90.0 *	–	78.2	–	–	–	–	–	–	–
VPF-B1652C	2700	192.5	–	152.8	133.5	–	–	109.7 *	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Axial Load Force Ratings (maximum radial load) for Brake Motors

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	31.0	–	23.0	–	17.0	–	14.0*	–	–	–	–	–	–	–	–
VPF-A1001M	6500	–	–	–	19.0	–	15.0	–	–	–	12.0	–	–	–	10.0	–
VPF-A1002C	3000	34.0	–	25.0	–	18.0	–	15.0	–	–	–	–	–	–	–	–
VPF-A1002F	5000	–	–	25.0	21.0	–	–	15.0	–	–	–	12.0	–	–	–	–
VPF-A1003C	2250	36.0	–	26.0	22.0	–	18.0*	–	–	–	–	–	–	–	–	–
VPF-A1003E	3750	36.0	–	26.0	–	19.0	–	–	–	15.0*	–	–	–	–	–	–
VPF-A1003F	5500	–	–	–	22.0	–	18.0	–	–	14.0	–	–	12.0	–	–	–
VPF-A1153C	2300	53.0	–	39.0	32.0	–	27.0*	–	–	–	–	–	–	–	–	–
VPF-A1303B	1950	46.0	–	34.0	28.0	25.0*	–	–	–	–	–	–	–	–	–	–
VPF-A1303F	4000	–	–	34.0	–	25.0	–	21.0	–	18.0	–	–	–	–	–	–
VPF-A1304A	1600	48.0	40.0	36.0*	–	29.0*	–	–	–	–	–	–	–	–	–	–
VPF-A1304D	3000	48.0	–	36.0	–	26.0	–	22.0	–	–	–	–	–	–	–	–
VPF-B1001M	6000	–	–	–	–	17.0	–	14.0	–	12.0	–	–	–	10.0	–	–
VPF-B1002E	3300	34.0	–	25.0	–	18.0	–	–	15.0*	–	–	–	–	–	–	–
VPF-B1002M	6000	–	–	–	21.0	–	–	15.0	–	–	13.0	–	–	11.0	–	–
VPF-B1003C	2500	36.0	–	26.0	22.0	–	18.0	–	–	–	–	–	–	–	–	–
VPF-B1003F	4750	–	–	26.0	22.0	–	–	16.0	–	–	–	13.0*	–	–	–	–
VPF-B1003T	7000	–	–	–	22.0	–	18.0	–	–	–	13.0	–	–	–	–	11.0
VPF-B1153E	3200	53.0	–	39.0	–	29.0	–	–	23.0*	–	–	–	–	–	–	–
VPF-B1153F	5000	–	–	39.0	–	29.0	–	24.0	–	–	–	19.0	–	–	–	–
VPF-B1303C	2250	46.0	–	34.0	28.0	–	24.0*	–	–	–	–	–	–	–	–	–
VPF-B1303F	4000	–	–	34.0	–	25.0	–	21.0*	–	18.0	–	–	–	–	–	–
VPF-B1304C	2150	48.0	–	36.0	31.0*	–	25.0*	–	–	–	–	–	–	–	–	–
VPF-B1304E	3500	–	–	36.0	30.0	–	25.0*	–	20.0	–	–	–	–	–	–	–
VPF-B1652C	2700	64.0	–	47.0	39.0	–	–	30.0*	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

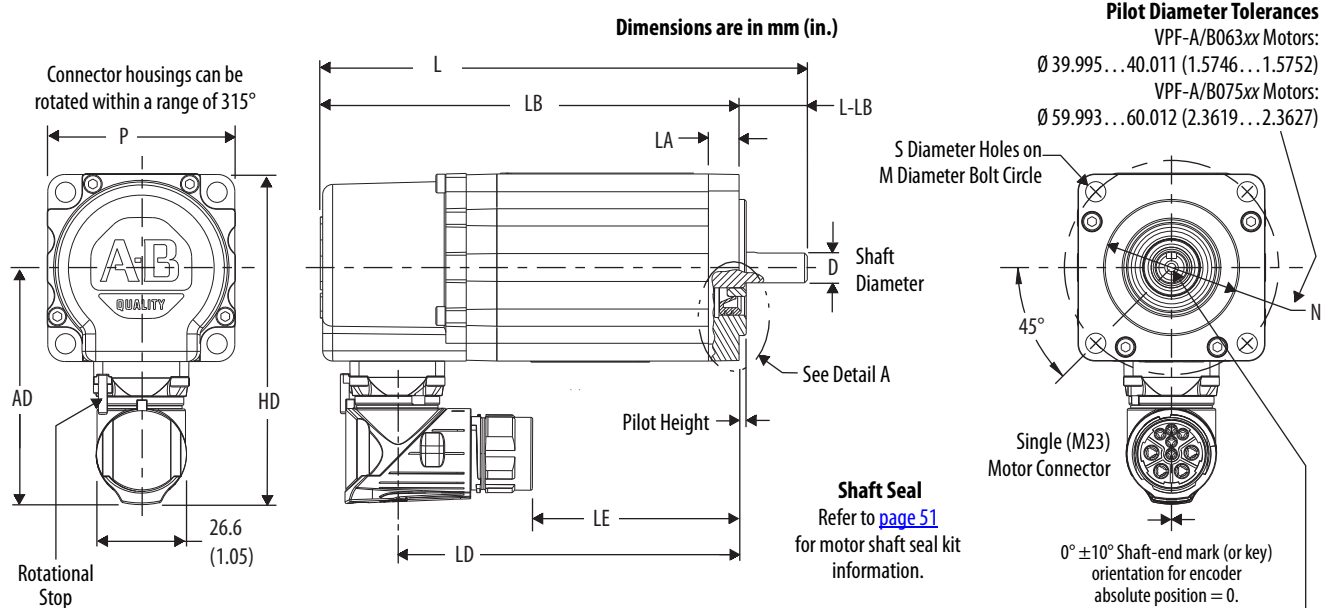
**Axial Load Force Ratings (zero radial load) for Brake Motors**

Motor Cat. No. <sup>(1)</sup>	Speed, max rpm	RPM														
		500 kgf	750 kgf	1000 kgf	1500 kgf	2000 kgf	2500 kgf	3000 kgf	3500 kgf	4000 kgf	4500 kgf	5000 kgf	5500 kgf	6000 kgf	6500 kgf	7000 kgf
VPF-A1001C	2800	49.4	–	36.5	–	27.0	–	23.4*	–	–	–	–	–	–	–	–
VPF-A1001M	6500	–	–	–	30.6	–	24.5	–	–	–	19.0	–	–	–	16.2	–
VPF-A1002C	3000	49.4	–	36.5	–	27.0	–	22.7	–	–	–	–	–	–	–	–
VPF-A1002F	5000	–	–	36.5	30.6	–	–	22.7	–	–	–	18.2	–	–	–	–
VPF-A1003C	2250	49.4	–	36.5	30.6	–	25.7*	–	–	–	–	–	–	–	–	–
VPF-A1003E	3750	49.4	–	36.5	–	27.0	–	–	–	20.6*	–	–	–	–	–	–
VPF-A1003F	5500	–	–	–	30.6	–	24.5	–	–	20.0	–	–	17.4	–	–	–
VPF-A1153C	2300	68.3	–	50.5	42.4	–	35.2*	–	–	–	–	–	–	–	–	–
VPF-A1303B	1950	68.3	–	50.5	42.4	37.8*	–	–	–	–	–	–	–	–	–	–
VPF-A1303F	4000	–	–	50.5	–	37.4	–	31.4	–	27.7	–	–	–	–	–	–
VPF-A1304A	1600	68.3	57.2	51.1*	–	41.2*	–	–	–	–	–	–	–	–	–	–
VPF-A1304D	3000	68.3	–	50.5	–	37.4	–	31.4	–	–	–	–	–	–	–	–
VPF-B1001M	6000	–	–	–	–	27.0	–	22.7	–	20.0	–	–	–	16.8	–	–
VPF-B1002E	3300	49.4	–	36.5	–	27.0	–	–	21.8*	–	–	–	–	–	–	–
VPF-B1002M	6000	–	–	–	30.6	–	–	22.7	–	–	19.0	–	–	16.8	–	–
VPF-B1003C	2500	49.4	–	36.5	30.6	–	24.5	–	–	–	–	–	–	–	–	–
VPF-B1003F	4750	–	–	36.5	30.6	–	–	22.7	–	–	–	18.6*	–	–	–	–
VPF-B1003T	7000	–	–	–	30.6	–	24.5	–	–	–	19.0	–	–	–	–	15.7
VPF-B1153E	3200	68.3	–	50.5	–	37.4	–	–	30.5*	–	–	–	–	–	–	–
VPF-B1153F	5000	–	–	50.5	–	37.4	–	31.4	–	–	–	25.1	–	–	–	–
VPF-B1303C	2250	68.3	–	50.5	42.4	–	35.5*	–	–	–	–	–	–	–	–	–
VPF-B1303F	4000	–	–	50.5	–	37.4	–	31.8*	–	27.7	–	–	–	–	–	–
VPF-B1304C	2150	68.3	–	50.5	43.6*	–	36.2*	–	–	–	–	–	–	–	–	–
VPF-B1304E	3500	–	–	50.5	42.4	–	35.2*	–	29.3	–	–	–	–	–	–	–
VPF-B1652C	2700	90.1	–	66.7	55.9	–	–	43.3*	–	–	–	–	–	–	–	–

(1) 1.0 kgf = 2.2 lbf or 9.8 N. An asterisk (\*) indicates a load rating measured at an rpm value that is less than the value listed for that column.

## Dimensions - Kinetix VP Food Grade Motors

### VPF-A/B063xx and VPF-A/B075xx Motor Dimensions



#### Pilot Diameter Tolerances

VPF-A/B063xx Motors:

Ø 39.995...40.011 (1.5746...1.5752)

VPF-A/B075xx Motors:

Ø 59.993...60.012 (2.3619...2.3627)

#### Shaft Diameter Tolerances

VPF-A/B063xx Motors: Ø 8.998...9.007 (0.3543...0.3546)

VPF-A/B075xx Motors: Ø 10,997...11.008 (0.4330...0.4334)

#### Shaft End Threaded Hole

VPF-A/B063xx Motors:

Thread - M3 x 0.5-6H

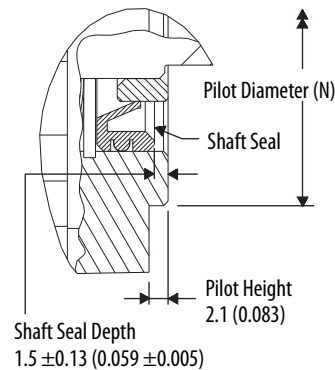
Thread Depth - 9.0 (0.354)

VPF-A/B075xx Motors:

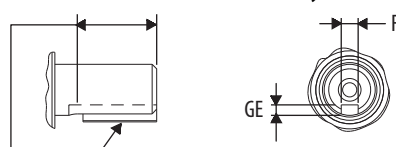
Thread - M4 x 0.7-6H

Thread Depth - 10.0 (0.393)

#### Detail A



#### Shaft Detail with Key



#### Key Supplied

VPF-A/B063xx = 3<sub>(+0, -0.025)</sub> x 3<sub>(+0, -0.025)</sub> x 13 Key

VPF-A/B075xx = 4<sub>(+0, -0.030)</sub> x 4<sub>(+0, -0.030)</sub> x 15 Key

#### Fully Developed Keyway Length

VPF-A/B063xx Motors: 14.0 (0.551)

VPF-A/B075xx Motors: 16.0 (0.630)

Shaft, Pilot, and Keyway Tolerances	VPF-A/B063xx	VPF-A/B075xx
Shaft Runout (T.I.R.)	0.030 (0.0012)	0.035 (0.0014)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Keyway Depth (GE)	1.80...1.90 (0.071...0.075)	2.50...2.60 (0.098...0.102)
Keyway Width (F)	2.971...2.996 (0.117...0.118)	3.970...4.000 (0.156...0.158)

### VPF-A/B063xx and VPF-A/B075xx Motor Dimensions

Motor Cat. No.	AD mm (in.)	HD mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D <sup>(4)</sup> mm (in.)	M mm (in.)	S <sup>(3)</sup> mm (in.)	N <sup>(4)</sup> mm (in.)	P mm (in.)	GE <sup>(4)</sup> mm (in.)	F <sup>(4)</sup> mm (in.)
VPF-A/B0632	69.5 (2.74)	97.0 (3.82)	9.0 (0.35)	125.2 (4.93)	85.3 (3.36)	168.1 (6.61)	148.1 (5.83)	20.0 (0.787)	9.0 (0.354)	63.0 (2.480)	5.80 (0.234)	40.0 (1.575)	55.0 (2.17)	1.90 (0.075)	3.0 (0.118)
VPF-A/B0633				150.2 (5.91)	110.3 (4.34)	193.1 (7.59)	173.1 (6.81)								
VPF-A/B0752	77.0 (3.03)	112.0 (4.41)	9.0 (0.35)	127.0 (5.00)	87.1 (3.43)	172.9 (6.80)	149.9 (5.90)	23.0 (0.906)	11.0 (0.433)	75.0 (2.953)	5.80 (0.234)	60.0 (2.362)	70.0 (2.76)	2.60 (0.102)	4.0 (0.157)
VPF-A/B0753				152.0 (5.98)	112.1 (4.41)	197.9 (7.79)	174.9 (6.89)								

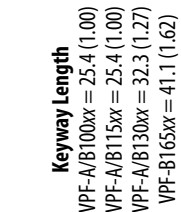
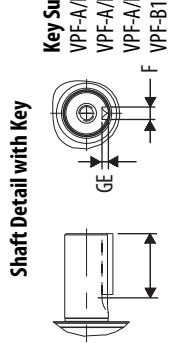
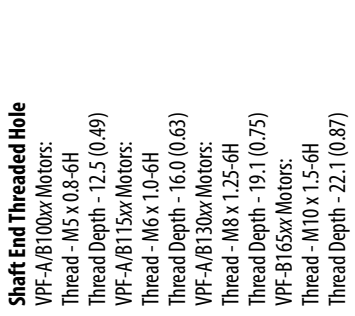
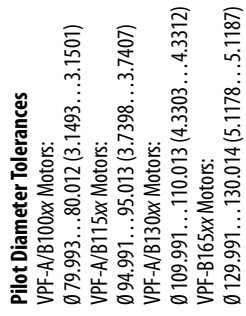
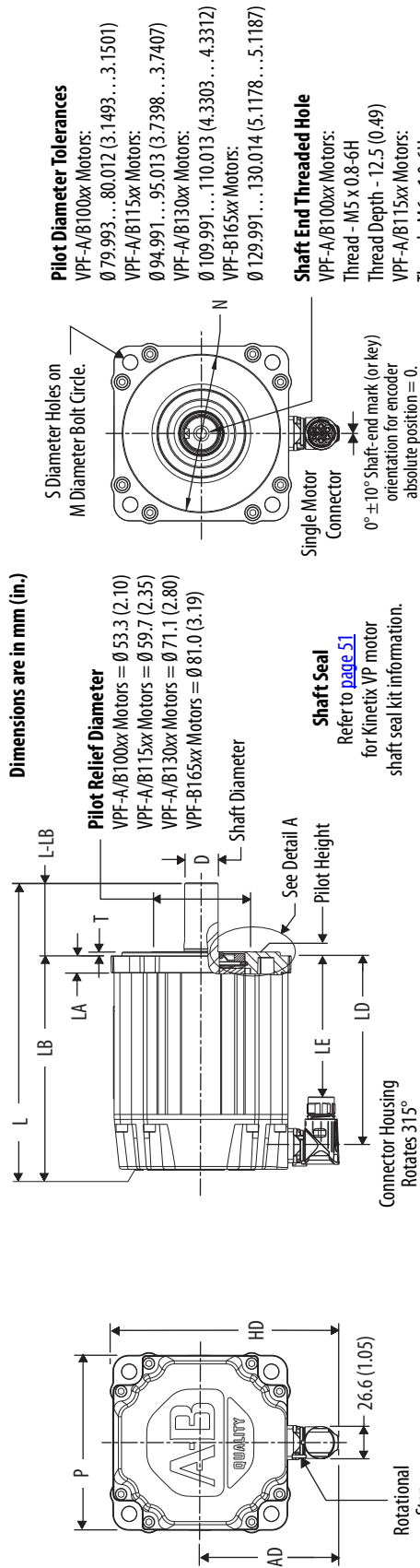
(1) If ordering an VPF-A/B063xx or VPF-A/B075xx motor with brake, add 30.6 mm (1.20 in.) to dimension L, LB, LE, and LD.

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

(3) Tolerance for this dimension is 0.3, -0.0 mm (±0.006 in.).

(4) For keyway, shaft diameter, and pilot diameter tolerances, see the [Shaft, Pilot, and Keyway Tolerances](#) table above.

**VPF-A/B100xx, VPF-A/B115xx, VPF-A/B130xx, and VPF-B165xx Motor Dimensions (SpeedTec DIN connectors)**



Shaft, Pilot, and Keyway Tolerances	VPF-A/B100xx	VPF-A/B115xx	VPF-A/B130xx VPF-B165xx
Shaft Runout (T.I.R.)	0.04 (0.0016)		
Pilot Eccentricity (T.I.R.)	0.078 (0.0031)		
Max Face Runout (T.I.R.)	0.078 (0.0031)		
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)
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)

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

**VPF-A/B100xx, VPF-A/B115xx, VPF-A/B130xx, and VPF-B165xx Motor Dimensions (SpeedTec DIN connectors)**

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D <sup>(3)</sup> mm (in.)	M mm (in.)	S mm (in.)	N <sup>(3)</sup> mm (in.)	P mm (in.)	GE <sup>(3)</sup> mm (in.)	F <sup>(3)</sup> mm (in.)
VPF-A/B1001					108.7 (4.28)	68.9 (2.71)	169.8 (6.68)	129.8 (5.11)								
VPF-A/B1002	86.5 (3.40)	131.2 (5.17)	2.74 (0.108)	9.90 (0.39)	134.1 (5.28)	94.3 (3.71)	195.2 (7.68)	155.2 (6.11)	40.0 (1.575)	16.0 (0.630)	100.0 (3.937)	7.00 <sup>(4)</sup> (0.283)	80.0 (3.15)	89.4 (3.52)	3.0 (0.118)	5.0 (0.197)
VPF-A/B1003					159.5 (6.28)	119.7 (4.71)	220.6 (8.68)	180.6 (7.11)								
VPF-A/B1153	90.8 (3.58)	140.0 (5.51)	2.74 (0.108)	10.16 (0.40)	156.0 (6.14)	116.1 (4.57)	217.0 (8.54)	177.0 (6.97)	40.0 (1.575)	19.0 (0.748)	115.0 (4.528)	10.00 <sup>(4)</sup> (0.401)	95.0 (3.74)	98.3 (3.87)	3.5 (0.138)	6.0 (0.236)
VPF-A/B1303	98.6 (3.88)	155.4 (6.12)	2.74 (0.108)	12.19 (0.48)	159.3 (6.27)	119.4 (4.70)	230.3 (9.06)	180.3 (7.10)	50.0 (1.969)	24.0 (0.945)	130.0 (5.118)	10.00 <sup>(4)</sup> (0.401)	110.0 (4.331)	113.7 (4.48)	4.0 (0.158)	8.0 (0.315)
VPF-A/B1304					184.7 (7.27)	144.8 (5.70)	255.7 (10.06)	205.7 (8.10)								
VPF-B1652	113.3 (4.46)	185.0 (7.28)	3.12 (0.123)	14.0 (0.55)	206.2 (8.12)	166.4 (6.55)	286.4 (11.27)	226.4 (8.92)	60.0 (2.362)	28.0 (1.102)	165.0 (6.496)	12.00 <sup>(5)</sup> (0.481)	130.0 (5.118)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)

(1) If ordering a VPF-A/B100xx-xxx4xx motor with brake, add 34.5 mm (1.36 in.) to dimensions L, LB, LE, and LD.  
 If ordering a VPF-A/B115xx-xxx4xx motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD.  
 If ordering a VPF-A/B130xx-xxx4xx motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD.  
 If ordering a VPF-B165xx-xxx4xx motor with brake, add 51.5 mm (2.03 in.) to dimensions L, LB, LE, and LD.

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

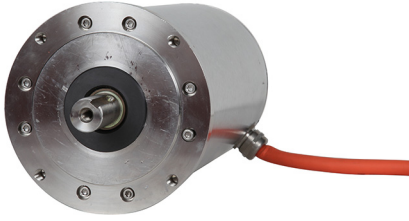
(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 66](#).

(4) Tolerance for this dimension is +0.36, -0.0 mm (±0.007 in.).

(5) Tolerance for this dimension is +0.43 -0.0 mm (±0.008 in.).

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

## Kinetix VP Stainless Steel Motors



Kinetix VP (Bulletin VPS) stainless-steel servo motors are specifically designed to meet the unique needs of sanitary processing environments. They also feature a digital feedback device that delivers real-time motor performance information back to the control system through a single-cable design between motor and drive that simplifies system installation. Bulletin VPS motors are based on proven MP-Series technology for use in washdown environments such as those found in food, beverage, brewing, dairy, pharmaceutical, and health and beauty manufacturing equipment.

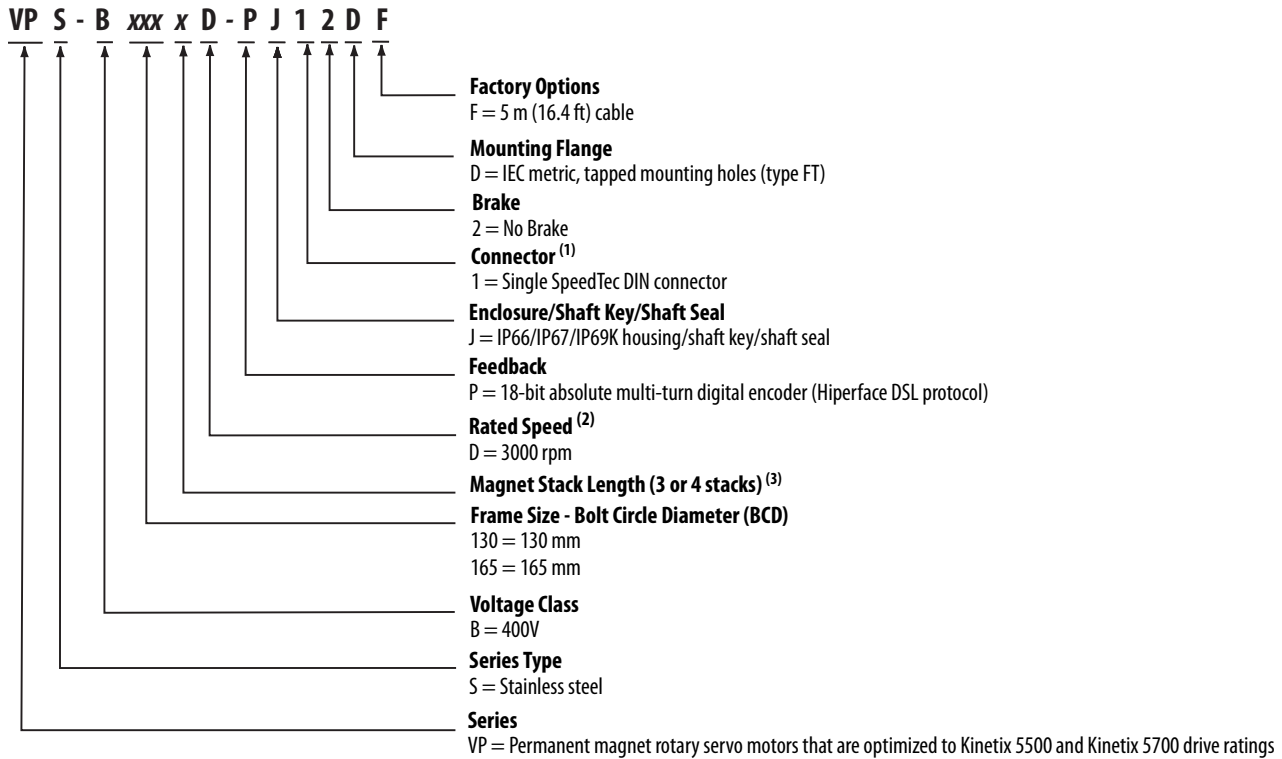
### Kinetix VP Stainless Steel Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Specifically designed for sanitary environments for use with high-pressure, highly-caustic washdown applications</li> <li>Single cable technology</li> <li>Hiperface DSL encoder protocol</li> <li>Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>Smooth, passivated 300 series stainless-steel cylindrical exterior</li> <li>Complies with NSF/ANSI Standard 169</li> <li>400V-class windings</li> <li>Shaft-end threaded hole</li> <li>Cable extended 5 m (16.4 ft) from motor to protect connector</li> <li>Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connector</li> <li>IP69K for 1200 psi motor washdown</li> </ul>
Certifications	Bulletin VPS rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	8.1 and 21.0 N·m (72 and 186 lb·in)
Peak stall torque	27.1 and 67.8 N·m (240 and 600 lb·in)
Rated speed	3000 rpm
Motor rated output	1.4 and 3.3 kW (1.9 and 4.4 Hp)
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 5700</li> <li>Kinetix 5500</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>Meat and poultry</li> <li>Food slicing and filling</li> <li>Raw food handling</li> <li>Processing</li> <li>Life science</li> <li>Consumer products</li> </ul>



## Catalog Numbers - Kinetix VP Stainless Steel 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.



(1) The motor has 5 m (16.4 ft) cables with nickel-plated connector extensions.

(2) Rated speed hierarchy is only for comparative purposes. Use Motion Analyzer software to size and select motors for your application, and/or the torque/speed curves in the Kinetix 5500 Drive System Design Guide, publication [KNX-RM009](#), and the Kinetix 5700 Drive System Design Guide, publication [KNX-RM010](#).

(3) Not all combinations are available. Only the configurations for magnet stack length as listed in Kinetix VP Stainless Steel Motor (400V-class) Performance Specifications on [page 71](#) are available.

### IMPORTANT

The connectors are O-ring sealed, but not designed to withstand direct high-pressure washdown with aggressive cleaning compounds. The 5 m (16.4 ft) cables are provided so the connectors can be positioned in an area away from direct exposure to the cleaning process, such as within washdown-rated conduit or junction boxes.

## Kinetix VP Stainless Steel Motor High-resolution Encoders

Kinetix VP stainless-steel motors are available with high-performance encoders with multi-turn (-P) high resolution feedback:

- 18-bit resolution for 262,144 counts per revolution, multi-turn encoder (-P) provides absolute position feedback within 4096 turns
- Electromechanical design does not require a battery.

## Kinetix VP Single Cable Technology

Motor connectivity reduced to a single connector and cable.

- Single cable eliminates hardware and wire terminations
- Purely digital two-wire communication integrated into the motor power cable
- Mating 2090-CSxM1Dx cables are available in 1.0 m (3.2 ft) increments. Total cable length includes the 5 m (16.4 ft) extension cable attached to the motor and varies depending on cable type and drive family.

### Maximum Cable Length Including Cable Extension

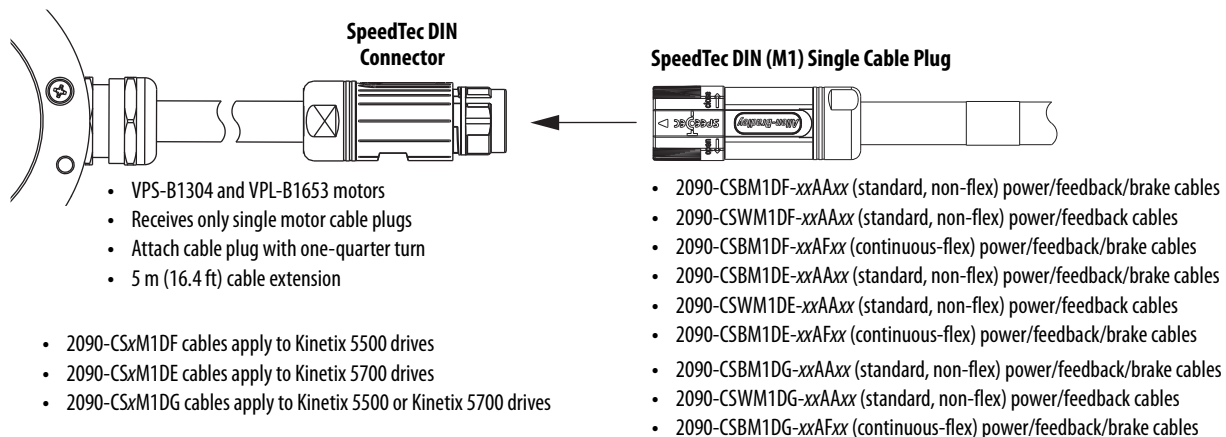
Cable Cat. No.	Motor Cable Type	Kinetix 5500 Drives m (ft)	Kinetix 5700 Drives m (ft)
2090-CSxM1Dx-xxAAxx	Single, standard (non-flex) cable	Cable length, max = 45 (148) Plus extension cable $\pm 5$ (16.4) Total cable length = 50 (164)	Cable length, max = 85 (279) Plus extension cable $\pm 5$ (16.4) Total cable length = 90 (295)
2090-CSxM1Dx-xxAFxx	Single, continuous-flex cable	Cable length, max = 25 (82.0) Plus extension cable $\pm 5$ (16.4) Total cable length = 30 (98.4)	

### IMPORTANT

Due to the unique characteristics of single cable technology, designed for and tested with Kinetix 5500 drives, Kinetix 5700 dual-axis inverters, and Bulletin VPS motors, building your own cables or using third-party cable is not an option.

## Motor Connector/Cable Compatibility

Kinetix VP (Bulletin VPS) motors are equipped with SpeedTec DIN connectors.



For 2090-Series single motor cable specifications, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

## Kinetix VP Stainless Steel Motor Options

Kinetix VP stainless-steel motors are available with these configurable options:

- The positive air pressure accessory kit (catalog number MPS-AIR-PURGE) is mounted to the rear cover of the motor to provide positive air pressure and further reduce the chance of contamination inside the motor. No special tool is required for installation and removal.
- Shaft seal kits (with slinger) are available for field replacement. Shaft seals are made of PTFE and include a lubricant to reduce wear.

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### 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.

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### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPS-B1304D	MPS-SST-A45B45
VPS-B1653D	MPS-SST-F165

Refer to the Kinetix VP Stainless Steel Servo Motor Installation Instructions, publication [VPS-IN002](#), for more information.

## Technical Specifications - Kinetix VP Stainless Steel Motors

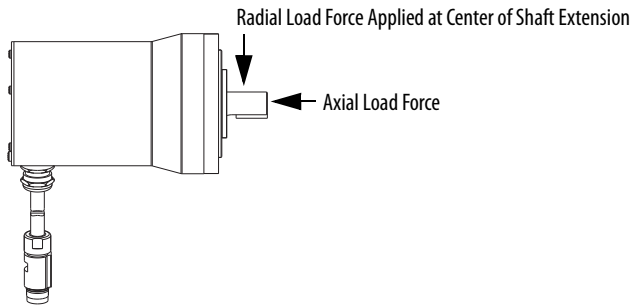
### Kinetix VP Stainless Steel Motor (400V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
VPS-B1304D	3000	3000	8.1 (72.0)	27.1 (240)	1.4 (1.9)	0.00052 (0.0046)	13.4 (29.4)
VPS-B1653D	3000	3000	21.0 (186)	67.8 (600)	3.3 (4.4)	0.0023 (0.0203)	30.4 (66.8)

## Kinetix VP Stainless Steel Motor Load Force Ratings

Bulletin VPS 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 L<sub>10</sub> 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.

### Load Forces on Shaft



### Radial Load Force Ratings (maximum)

Motor Cat. No.	Speed, max rpm	RPM			
		500 kgf (lbf)	1000 kgf (lbf)	2000 kgf (lbf)	3000 kgf (lbf)
VPS-B1304D	3000	140 (308)	111 (244)	89 (196)	77 (169)
VPS-B1653D	3000	–	154 (338)	122 (268)	106 (234)

### Axial Load Force Ratings (maximum radial load)

Motor Cat. No.	Speed, max rpm	RPM			
		500 kgf (lbf)	1000 kgf (lbf)	2000 kgf (lbf)	3000 kgf (lbf)
VPS-B1304D	3000	49 (108)	36 (79)	27 (59)	22 (48)
VPS-B1653D	3000	–	52 (115)	39 (85)	32 (71)

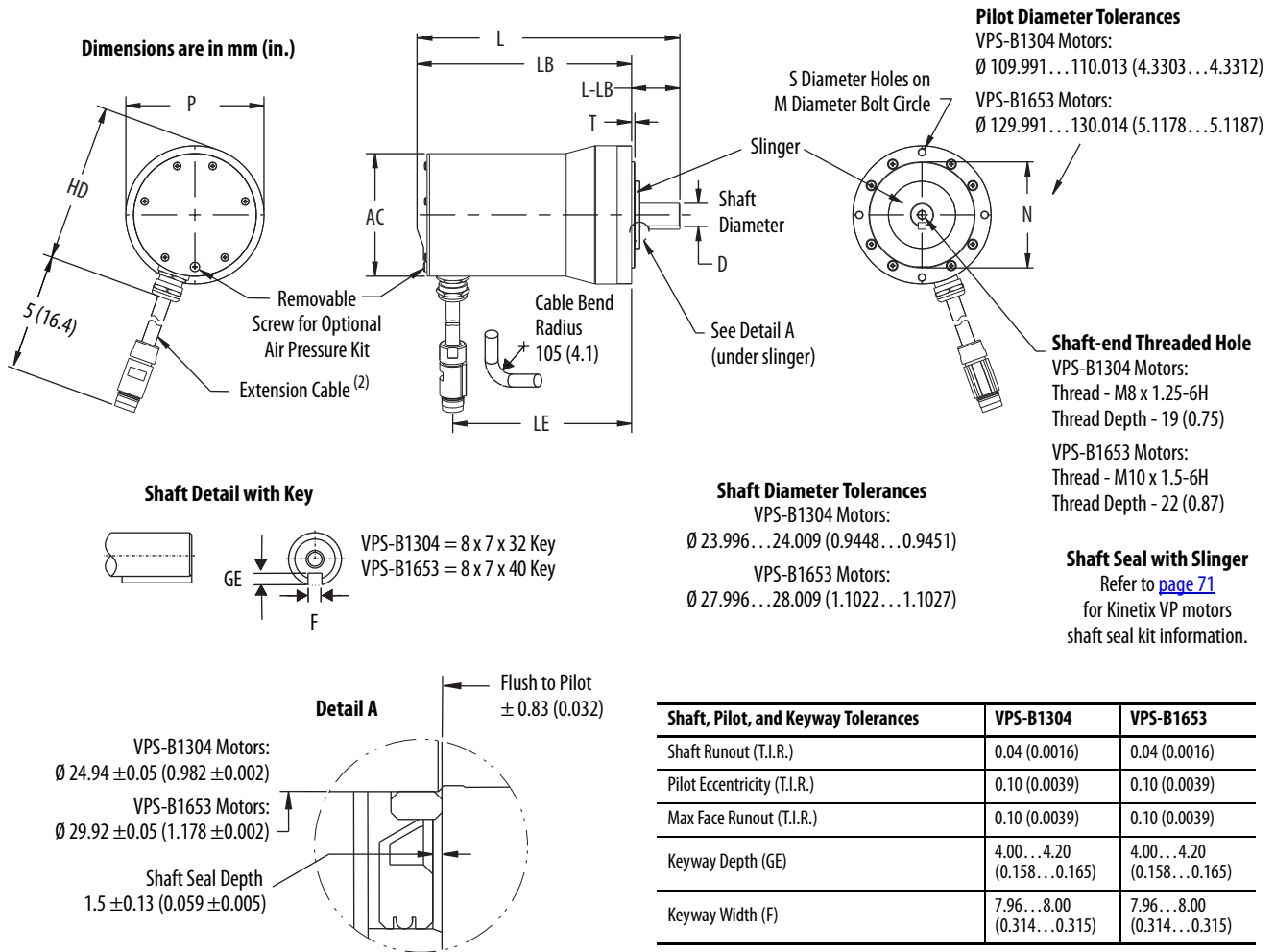
### Axial Load Force Ratings (zero radial load)

Motor Cat. No.	Speed, max rpm	RPM			
		500 kgf (lbf)	1000 kgf (lbf)	2000 kgf (lbf)	3000 kgf (lbf)
VPS-B1304D	3000	69 (152)	51 (112)	38 (83)	31 (68)
VPS-B1653D	3000	–	68 (149)	50 (109)	42 (92)

Loads are measured in kilograms-force. Pound-force loads are approximate conversions from kilograms-force.

## Dimensions - Kinetix VP Stainless Steel Motors

### VPS-B1304D and VPS-B1653D Motor Dimensions



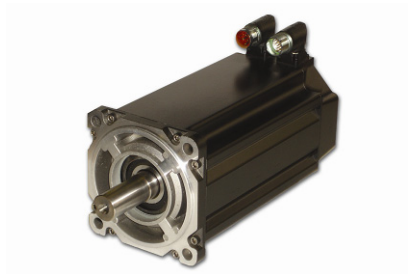
Motor Cat. No.	HD mm (in.)	AC mm (in.)	T mm (in.)	LE mm (in.)	L mm (in.)	LB mm (in.)	L-LB <sup>(1)</sup> mm (in.)	D mm (in.)	M mm (in.)	S mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
VPS-B1304	164.0 (6.40)	127.1 (5.00)	3.38 (0.133)	185.0 (7.30)	266.0 (10.47)	216.0 (8.50)	50.0 (1.97)	24.0 (0.945)	130.0 (5.118)	9.0 (0.35)	110.0 (4.33)	143.2 (5.64)	4.0 (0.158)	8.0 (0.315)
VPS-B1653	198.0 (7.80)	168.3 (6.63)	3.38 (0.13)	302.0 (11.90)	396.4 (15.60)	336.4 (13.24)	60.0 (2.36)	28.0 (1.10)	165.0 (6.49)	11.0 (0.43)	130.0 (5.12)	181.0 (7.13)	4.0 (0.158)	8.0 (0.315)

(1) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.03$  in.).

(2) Specifications for the 5 m (16.4 ft) cable extensions are identical to those of the 2090-CSxM1DF-xxAAxx single motor cables. Refer to Kinetix Motion Accessories Technical Data, publication [KNX-TD004](#), for cable specifications.

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

## 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

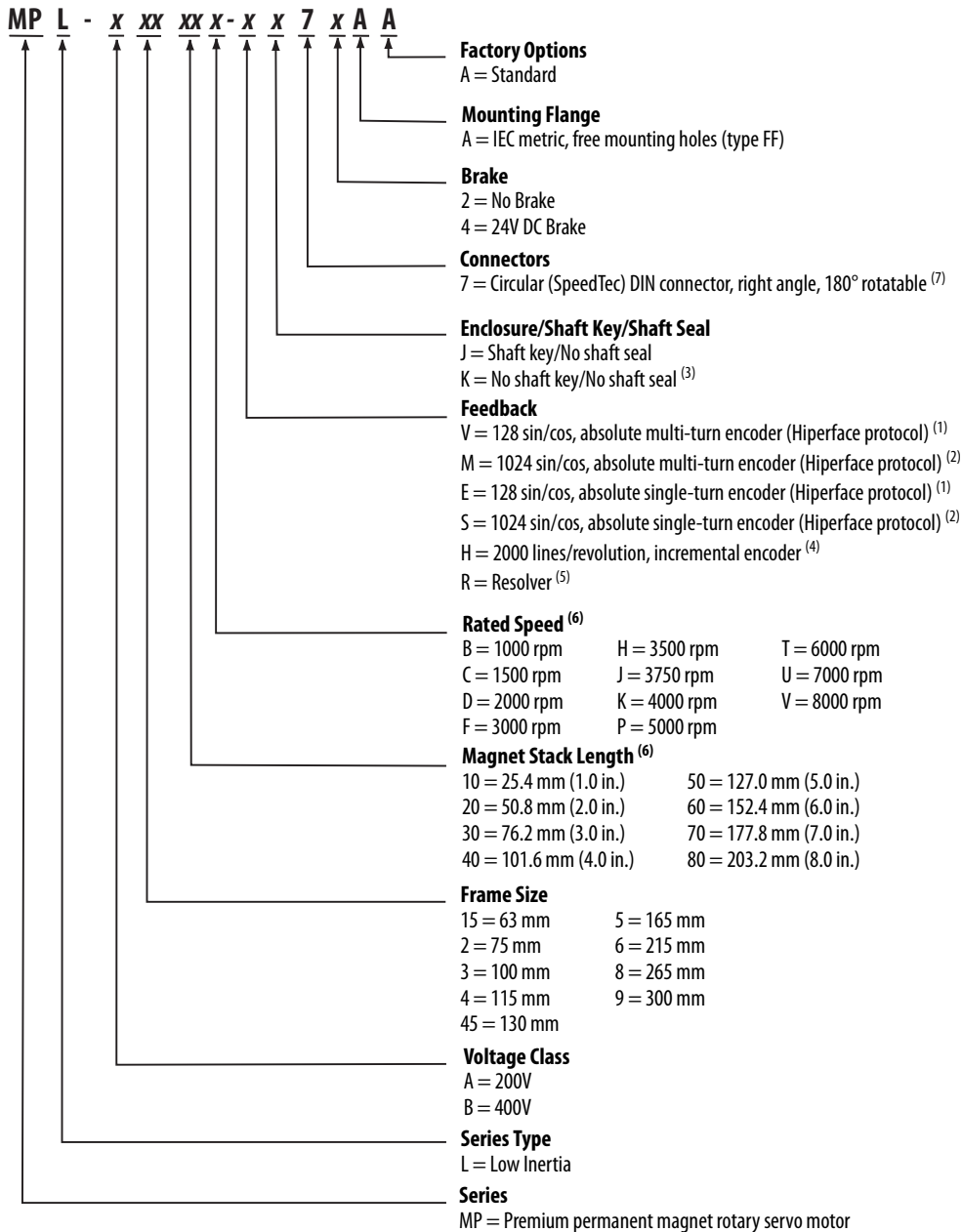
Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• High torque to size ratio</li> <li>• Smart Motor Technology</li> <li>• Hiperface (Stegmann) encoder protocol</li> <li>• Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 200V and 400V-class windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• Incremental and resolver feedback options</li> <li>• High-energy rare-earth magnets</li> <li>• Shaft-end threaded hole</li> <li>• DIN connectors, rotates 180°</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>• IP50 minimum, without shaft seal (standard).</li> <li>• IP66 with optional shaft seal and use of environmentally sealed cable connectors.</li> </ul>
Certifications	Bulletin MPL rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> 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)
Rated speed	Up to 8000 rpm
Motor rated output	0.16...18.6 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5500 <sup>(1)</sup></li> <li>• Kinetix 5700 <sup>(2)</sup></li> <li>• Kinetix 6200/6500</li> <li>• Kinetix 6000</li> <li>• Kinetix 300/350</li> <li>• Kinetix 2000</li> <li>• Kinetix 7000</li> <li>• Ultra3000</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• Packaging</li> <li>• Converting</li> <li>• Material handling</li> <li>• Electronic assembly</li> <li>• Automotive</li> </ul>

(1) Requires the 2198-H2DCK (series B or later) Hiperface-to-DSL feedback converter kit.

(2) Requires the 2198-K57CK-D15M universal feedback 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.



(1) Applies to MPL-A/B15xx and MPL-A/B2xx motors.

(2) Applies to MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx, MPL-B6xx, MPL-B8xx, and MPL-B9xx motors.

(3) Requires longer lead times. Applies to only limited frame sizes.

(4) Applies to MPL-A/B15xxx-H, MPL-A/B2xxx-H, MPL-A/B3xxx-H, MPL-A/B4xxx-H, MPL-A/B45xxx-H motors.

(5) Applies to MPL-B3xxx-R, MPL-B4xxx-R, and MPL-B45xxx-R motors.

(6) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in MP-Series Low Inertia Motor (200V-class) Performance Specifications on [page 78](#) and MP-Series Low Inertia Motor (400V-class) Performance Specifications on [page 79](#), are available. Use Motion Analyzer software to size and select motors for your application.

(7) Applies to all Bulletin MPL motors with M23 and M40 cable connectors. M58 connectors (MPL-B8xxx and MPL-B9xxx motors) must be physically removed and repositioned in 90° increments.

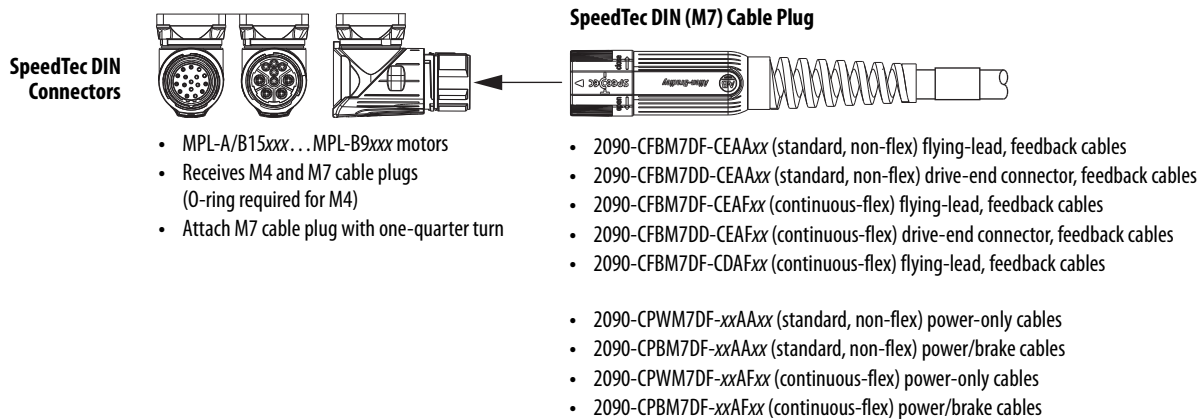
## MP-Series Low Inertia Motor High Resolution Encoders

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:

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx, MPL-B6xx, MPL-B8xx, and MPL-B9xx motors).
- 128 sin/cos cycles per revolution for up to 18-bit resolution (262,144 counts per revolution) -E and -V (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 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 [KNX-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.

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### **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.

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### 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.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPL-A1510V	8000	8000	0.26 (2.3)	0.77 (6.8)	0.16	0.000074 (0.000065)	1.0 (2.2)
MPL-A1520U	7000	7000	0.49 (4.3)	1.58 (14)	0.27	0.000013 (0.00012)	1.2 (2.6)
MPL-A1530U	7000	7000	0.90 (8.0)	2.80 (25)	0.39	0.000023 (0.00020)	1.6 (3.4)
MPL-A210V	8000	8000	0.55 (4.9)	1.50 (13.5)	0.37	0.000015 (0.00013)	1.4 (3.1)
MPL-A220T	6000	6000	1.61 (14.2)	4.74 (42)	0.62	0.000039 (0.00035)	2.0 (4.4)
MPL-A230P	5000	5000	2.10 (18.6)	8.20 (73)	0.86	0.000063 (0.00056)	2.6 (5.7)
MPL-A310P	4750	5000	1.58 (14)	3.61 (32)	0.73	0.000044 (0.00039)	2.7 (5.8)
MPL-A310F	3000	3000	1.58 (14)	3.61 (32)	0.46		
MPL-A320P	4750	5000	3.05 (27)	7.91 (70)	1.3	0.000078 (0.00069)	3.7 (8.0)
MPL-A320H	3350	3500	3.05 (27)	7.91 (70)	1.0		
MPL-A330P	5000	5000	4.18 (37)	11.1 (98)	1.8	0.00012 (0.0010)	4.6 (10)
MPL-A420P	5000	5000	4.74 (42)	10.2 (90)	2.0	0.00026 (0.0023)	4.3 (9.4)
MPL-A430P	5000	5000	5.99 (53)	19.8 (175)	2.2	0.00038 (0.0033)	5.5 (12)
MPL-A430H	3500	3500	6.21 (55)	19.8 (175)	1.8		
MPL-A4530K	4000	4000	8.13 (72)	20.3 (180)	2.5	0.00040 (0.0036)	7.3 (16)
MPL-A4530F	2800	2800	8.36 (74)	20.3 (180)	1.9		
MPL-A4540C	1500	1500	10.2 (90)	27.1 (240)	1.5	0.00052 (0.0046)	8.6 (19)
MPL-A4540F	3000	3000	10.2 (90)	27.1 (240)	2.6		
MPL-A4560F	3000	3000	14.1 (125)	34.4 (305)	3.0	0.00078 (0.0067)	11.82 (26)
MPL-A520K	3500	4000	10.7 (95)	24.3 (215)	3.5	0.000783 (0.0069)	9.8 (21.5)
MPL-A540K	4000	4000	19.4 (172)	48.6 (430)	5.5	0.00147 (0.013)	15.0 (33)
MPL-A560F	3000	3000	26.8 (237)	61.0 (540)	5.3	0.00213 (0.019)	20.2 (44.5)

(1) Refer to MP-Series Low Inertia Motor Brake Specifications on [page 80](#) for brake rotor inertia and brake motor weight.

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

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

(1) Refer to MP-Series Low Inertia Motor Brake Specifications on [page 80](#) 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 <sup>2</sup> (lb·in·s <sup>2</sup> )	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	0.000099 (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)

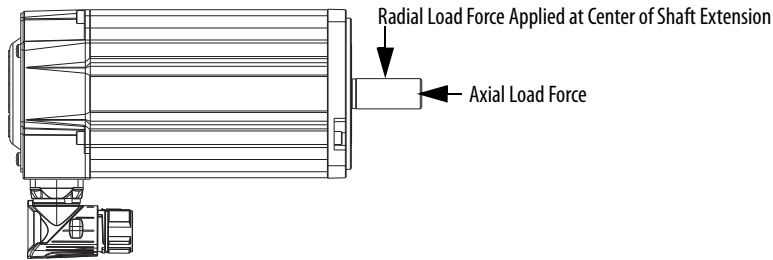
### MP-Series Low Inertia Motor Load Force Ratings

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 L<sub>10</sub> 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)	–	–	–	–	–	–	–

**Load Forces on Shaft**



**Axial Load Force Ratings (maximum radial load)**

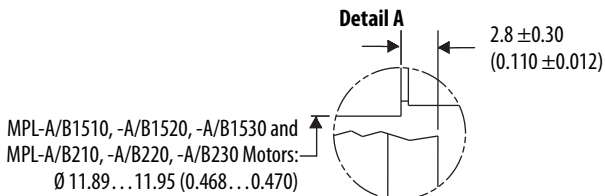
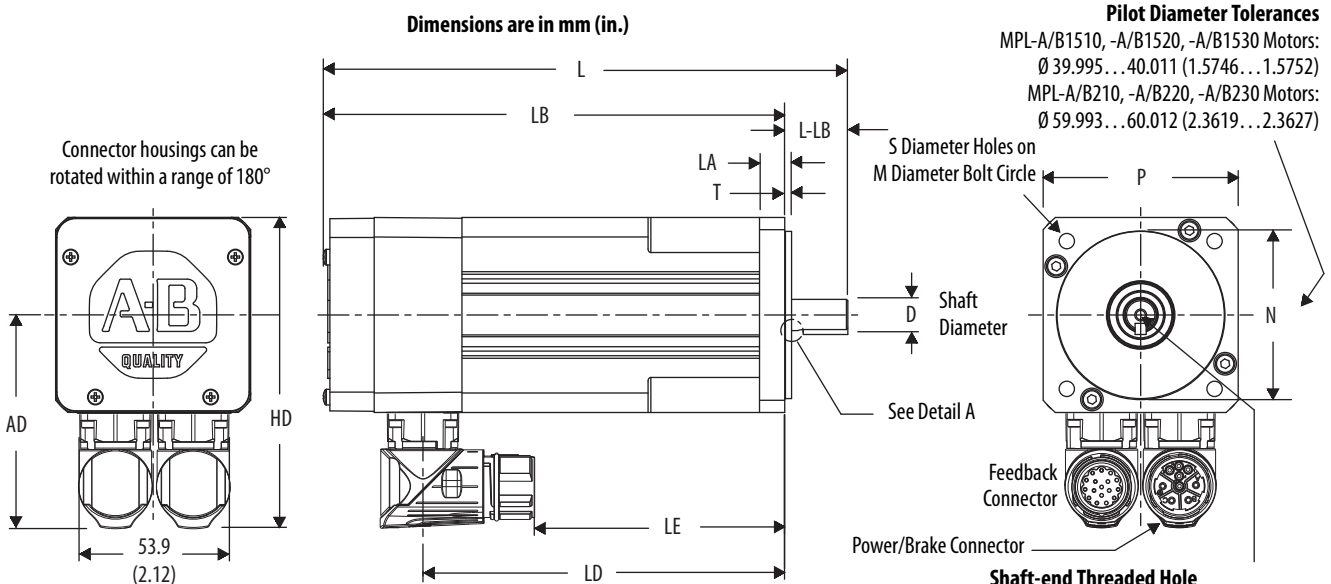
Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)	6000 rpm kg (lb)	7000 rpm kg (lb)	8000 rpm kg (lb)
MPL-A/B1510	–	15 (33)	10 (22)	–	–	7 (15)	–	–	–	5 (11)
MPL-A/B1520	–	14 (31)	10 (22)	–	–	6 (13)	–	–	4 (9)	–
MPL-A/B1530	–	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)**

<b>Motor Cat. No.</b>	<b>500 rpm</b> kg (lb)	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>3500 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)	<b>6000 rpm</b> kg (lb)	<b>7000 rpm</b> kg (lb)	<b>8000 rpm</b> 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)



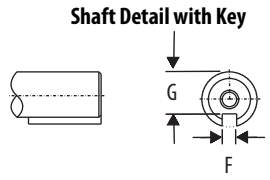
**Shaft Diameter Tolerances**

MPL-A/B1510, -A/B1520, -A/B1530 Motors:  
 $\varnothing 8.998 \dots 9.007$  (0.3543...0.3546)  
 MPL-A/B210, -A/B220, -A/B230 Motors:  
 $\varnothing 10.997 \dots 11.008$  (0.4330...0.4334)

**Shaft-end Threaded Hole**

MPL-A/B1510, -A/B1520, -A/B1530 Motors:  
 Thread - M3 x 0.5-6H  
 Thread Depth - 9.0 (0.35)  
 MPL-A/B210, -A/B220, -A/B230 Motors:  
 Thread - M4 x 0.7-6H  
 Thread Depth - 10.0 (0.39)

**Optional Shaft Seal**  
 Refer to [page 77](#)  
 for MP-Series  
 small frame motor  
 shaft seal kit information.



MPL-A/B1510, -A/B1520, -A/B1530 = 3 x 3 x 14 Key  
 MPL-A/B210, -A/B220, -A/B230 = 4 x 4 x 16 Key

Shaft, Pilot, and Keyway Tolerances	MPL-A/B15xx	MPL-A/B2xx
Shaft Runout (T.I.R.)	0.030 (0.0012)	0.035 (0.0014)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)
Keyway Depth (G)	7.10...7.20 (0.280...0.283)	8.40...8.50 (0.331...0.335)
Keyway Width (F)	2.971...2.996 (0.117...0.118)	3.97...4.00 (0.156...0.157)



**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 <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D <sup>(3)</sup> mm (in.)	M mm (in.)	S <sup>(4)</sup> mm (in.)	N <sup>(3)</sup> mm (in.)	P mm (in.)	G <sup>(3)</sup> mm (in.)	F <sup>(3)</sup> mm (in.)
MPL-A/B1510					78.3 (3.08)	37.8 (1.49)	133.2 (5.25)	113.5 (4.47)								
MPL-A/B1520	68.9 (2.71)	96.4 (3.80)	2.50 (0.098)	9.0 (0.35)	91.3 (3.60)	50.9 (2.00)	146.2 (5.76)	126.5 (4.98)	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/B1530					116.3 (4.58)	76.7 (2.98)	171.2 (6.74)	151.5 (5.96)								
MPL-A/B210					78.6 (3.09)	38.4 (1.51)	137.3 (5.40)	114.6 (4.51)								
MPL-A/B220	76.2 (3.00)	111.2 (4.38)	2.50 (0.098)	9.0 (0.35)	104.1 (4.10)	63.9 (2.52)	162.8 (6.41)	140.1 (5.52)	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/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.

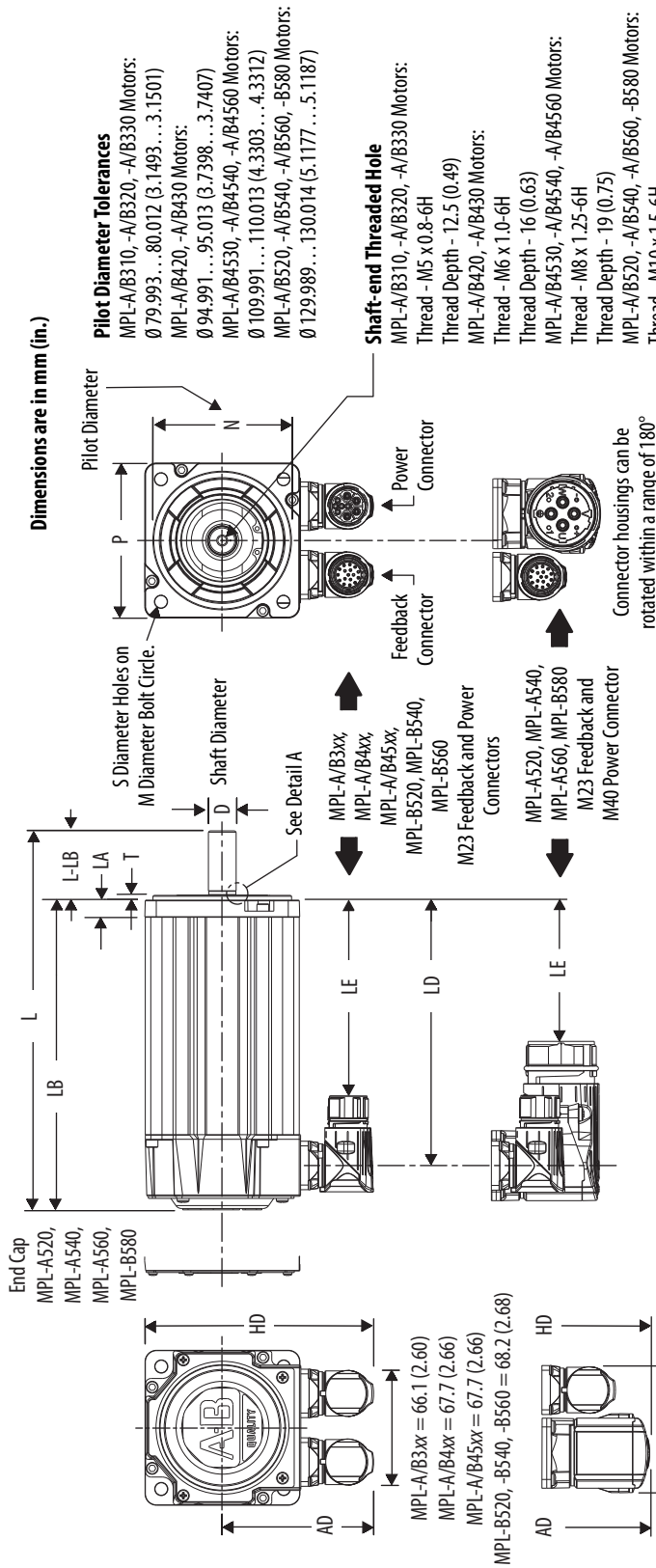
(2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).

(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 84](#).

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

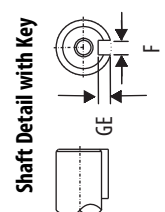
Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

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



**Shaft Diameter Tolerances**

MPL-A/B310, -A/B320, -A/B330 Motors:  
 Ø 15.997...16.008 (0.6298...0.6301)  
 MPL-A/B420, -A/B430 Motors:  
 Ø 18.996...19.009 (0.7479...0.7483)  
 MPL-B580 Motors:  
 Ø 32.018...32.002 (1.2605...1.2599)



**Optional Shaft Seal**

Refer to [page ZI](#) 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 (0.314...0.315)	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 <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D <sup>(3)</sup> mm (in.)	M mm (in.)	S <sup>(4)</sup> mm (in.)	N <sup>(3)</sup> mm (in.)	P mm (in.)	GE <sup>(3)</sup> mm (in.)	F <sup>(3)</sup> 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.  
 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.  
 If ordering an MPL-A/B520, MPL-A/B540, MPL-A/B560, or MPL-B580 motor with brake, add 52.0 mm (2.05 in.) to dimensions L, LB, LE, and LD.

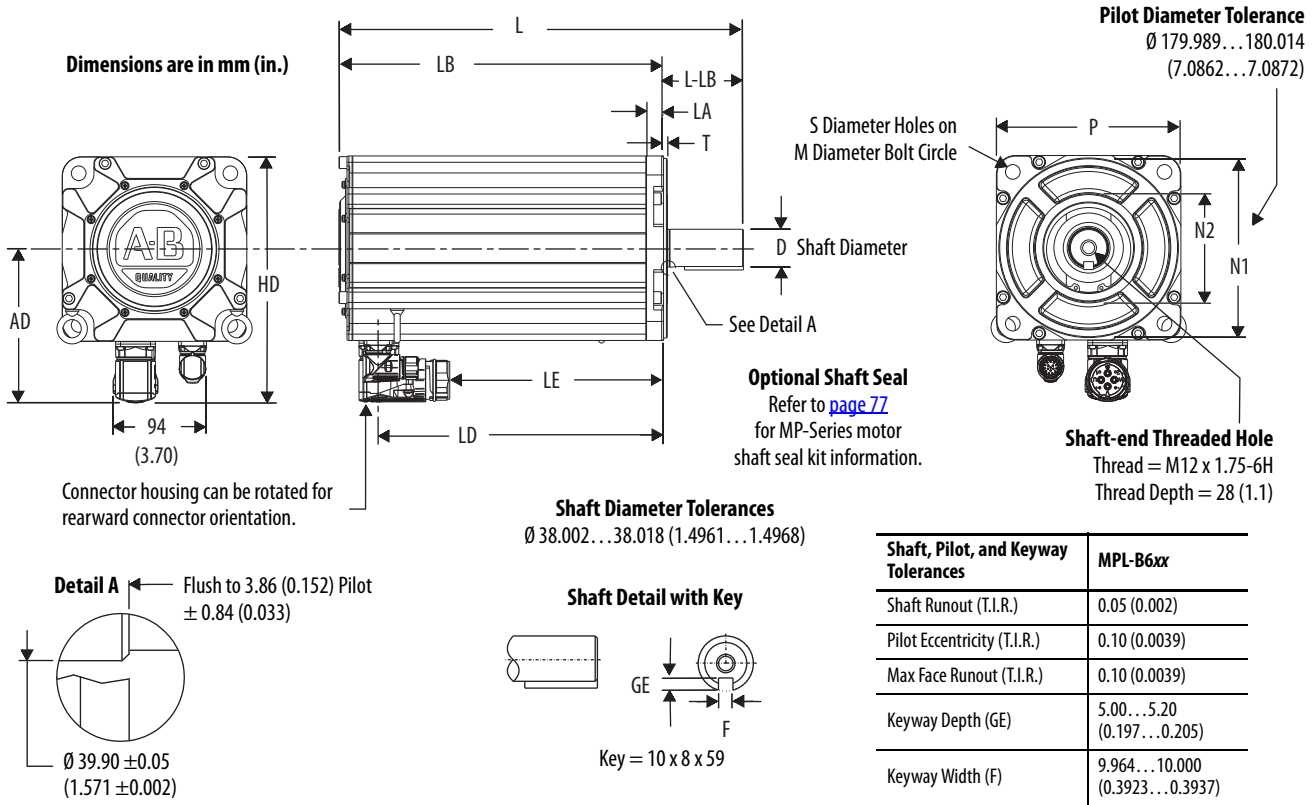
(2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).

(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 86](#).

(4) 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 mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D mm (in.)	M mm (in.)	S <sup>(3)</sup> mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
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)								

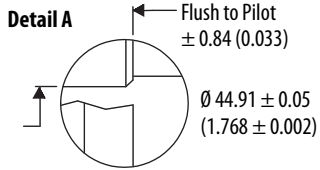
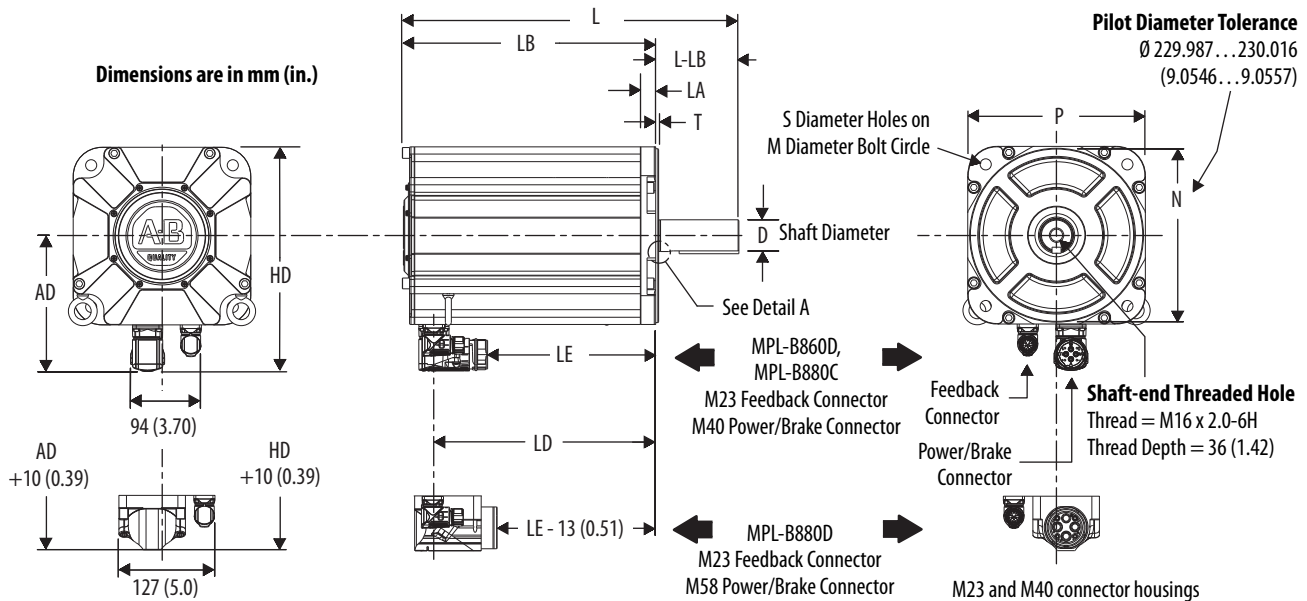
(1) If ordering an MPL-B640, MPL-B660, or MPL-B680 motor with brake, add 89 mm (3.5 in.) to dimensions LD, LE, L, and LB.

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

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

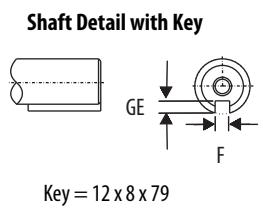
Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

**MPL-B8xx Motor Dimensions (SpeedTec DIN connectors)**



**Optional Shaft Seal**  
 Refer to [page 77](#) for MP-Series motor shaft seal kit information.

**Shaft Diameter Tolerances**  
 $\varnothing 42.002 \dots 42.018$  (1.6536...1.6542)



Shaft, Pilot, and Keyway Tolerances	MPL-B8xx
Shaft Runout (T.I.R.)	0.05 (0.0016)
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.10 (0.0039)
Keyway Depth (GE)	5.00...5.20 (0.197...0.205)
Keyway Width (F)	11.957...12.000 (0.4708...0.4724)

Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> 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)		

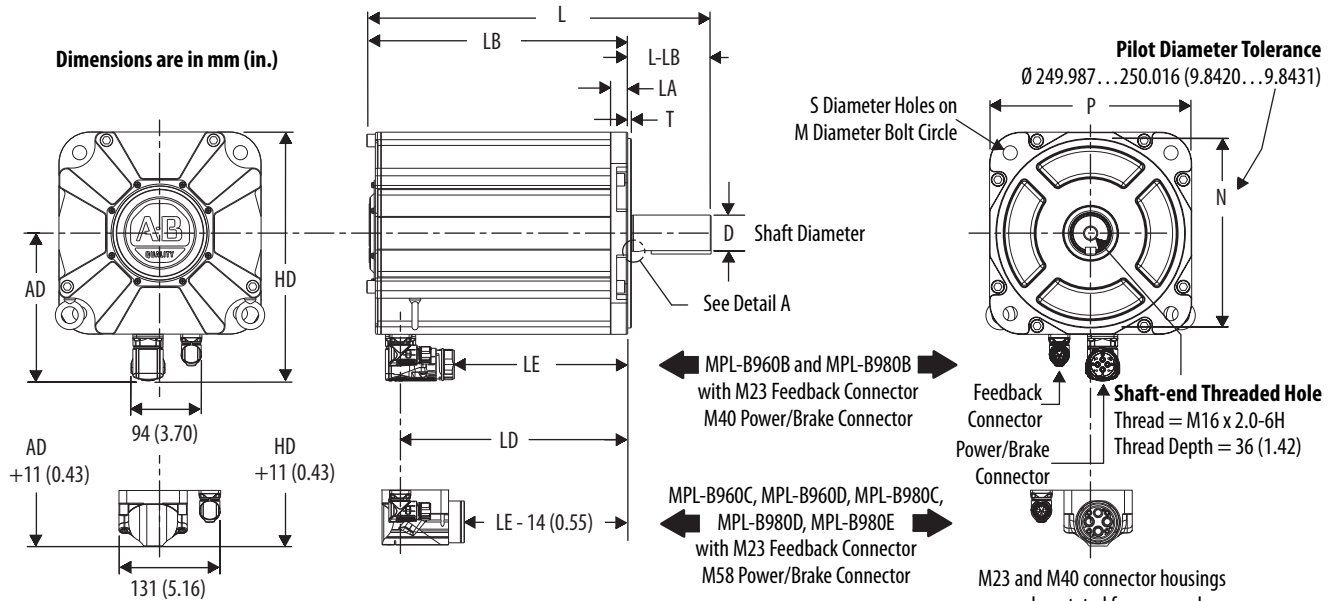
(1) If ordering an MPL-B860 or MPL-B880 motor with brake, add 108 mm (4.24 in.) to dimensions LD, LE, L, and LB.  
 (2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).

Motor Cat. No.	M mm (in.)	S <sup>(1)</sup> 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						

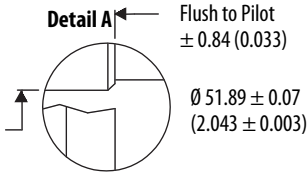
(1) Tolerance for this dimension is  $\pm 0.43$  mm ( $\pm 0.008$  in.).

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

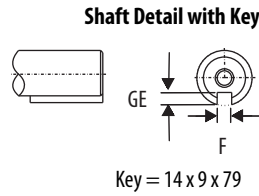
**MPL-B9xx Motor Dimensions (SpeedTec DIN connectors)**



**Shaft Diameter Tolerances**  
 Ø 48.002...48.018 (1.8899...1.8905)



**Optional Shaft Seal**  
 Refer to [page 77](#) for MP-Series motor shaft seal kit information.



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 <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> 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 <sup>(1)</sup> 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.

## MP-Series Medium Inertia Motors



The MP-Series (Bulletin MPM) medium-inertia servo motors offer a compact, power dense, feature-rich solution for applications with heavier loads and greater inertia. Leveraging the proven MP-Series motor technology and quality standards, these new servo motors are ideal for users with print, converting, web handling, automotive, and other applications requiring more power in a smaller package.

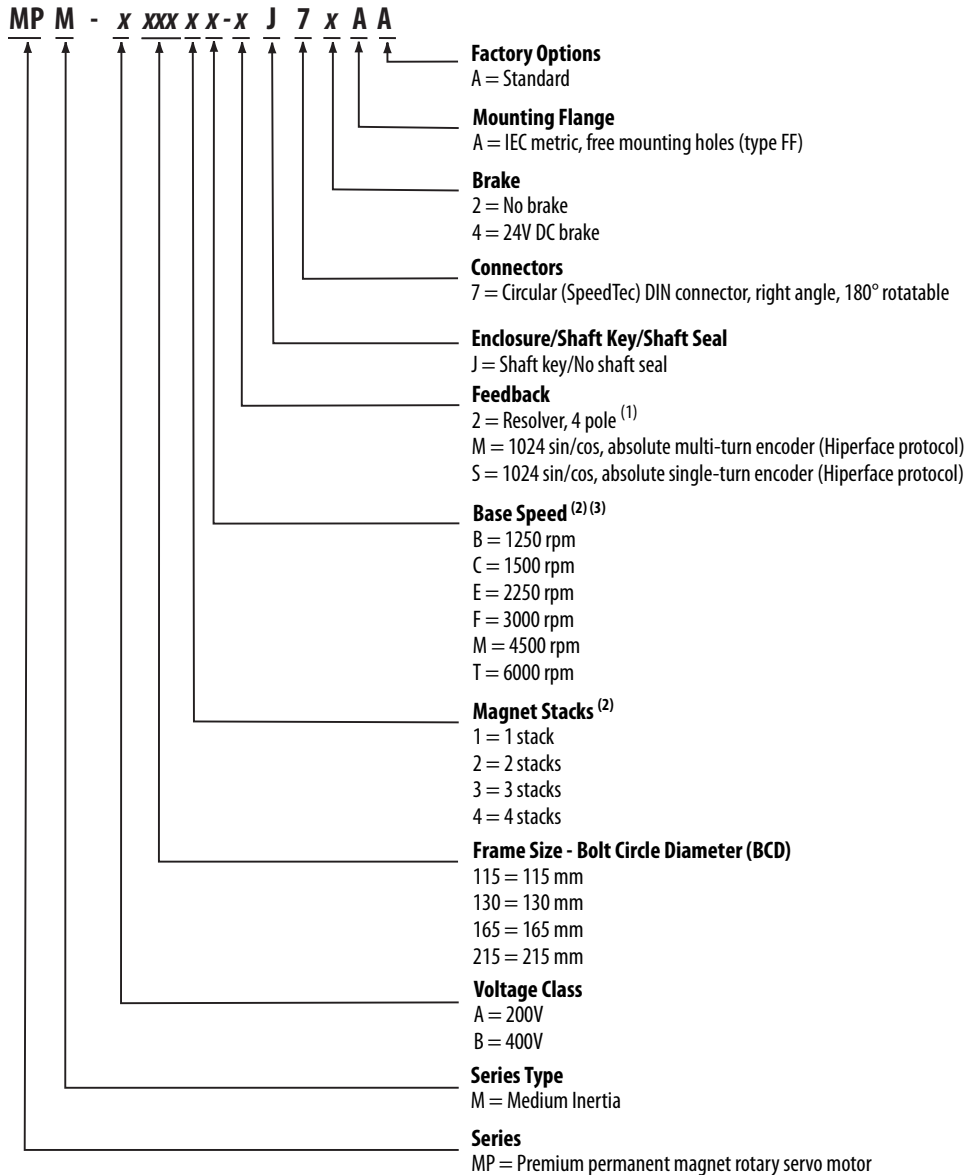
### MP-Series Medium Inertia Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• High torque to size ratio</li> <li>• Smart Motor Technology</li> <li>• Hiperface encoder protocol</li> <li>• Medium rotor inertia</li> <li>• Easy migration from 1326AB motors</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 200V and 400V-class windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• Resolver feedback option</li> <li>• Multiple winding speed options</li> <li>• High-energy rare-earth magnets</li> <li>• Shaft-end threaded hole</li> <li>• SpeedTec DIN connectors, rotates 180°</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>• IP50 minimum, without shaft seal (standard).</li> <li>• IP66 with optional shaft seal and use of environmentally sealed cable connectors.</li> </ul>
Certifications	Bulletin MPM rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	2.18...62.8 N·m (19.3...556 lb·in)
Peak stall torque	6.6...154.2 N·m (58...1365 lb·in)
Rated speed	Up to 7000 rpm
Motor rated output	0.75...7.50 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5500 <sup>(1)</sup></li> <li>• Kinetix 5700</li> <li>• Kinetix 6200/6500</li> <li>• Kinetix 6000</li> <li>• Kinetix 300/350</li> <li>• Kinetix 2000</li> <li>• Kinetix 7000</li> <li>• Ultra3000</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• Printing</li> <li>• Web handling</li> <li>• Converting</li> <li>• Automotive</li> </ul>

(1) Requires the 2198-H2DCK Hiperface-to-D5L feedback converter kit. MP-Series (200V-class) medium-inertia motors require the 2198-H2DCK (series B or later) converter kit.

## Catalog Numbers - MP-Series Medium 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.



(1) Resolver feedback is not available on all models.

(2) Not all combinations are available. Only the configurations for rated speed and magnet stacks, as listed in MP-Series Medium Inertia Motor (200V-class) Performance Specifications on [page 94](#) and MP-Series Medium Inertia Motor (400V-class) Performance Specifications on [page 95](#), are available. Use Motion Analyzer software to size and select motors for your application.

(3) Base speed equals maximum speed at peak torque. Maximum speed is servo drive dependent.



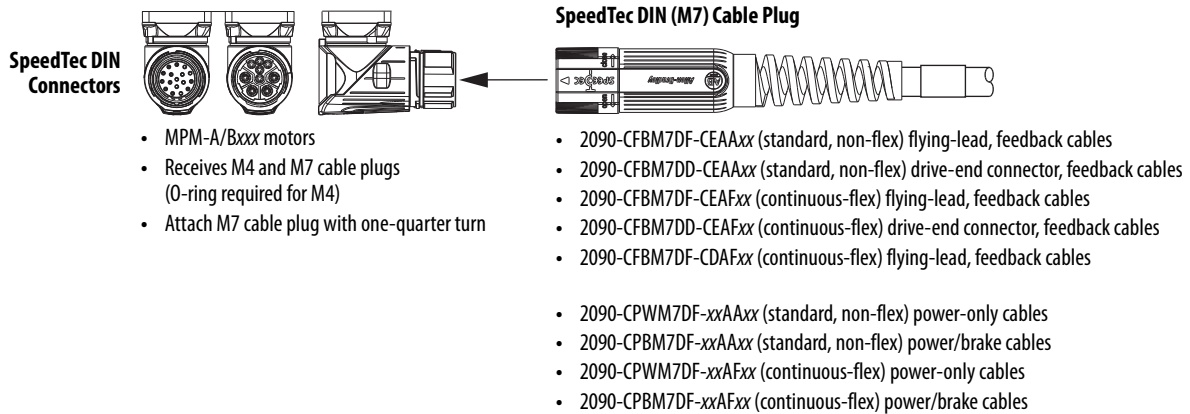
## MP-Series Medium Inertia Motor High Resolution Encoders

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

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (MPM-A/B115x, MPM-A/B130x, MPM-A/B165x, and MPM-A/B215x 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

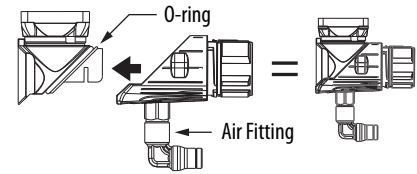
MP-Series (Bulletin MPM) motors are equipped with SpeedTec DIN connectors.



## MP-Series Medium Inertia Motor Options

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

- 24V DC brake.
- The positive air-pressure kit (catalog number MPF-7-AIR-PURGE) is mounted on the feedback connector to provide positive air pressure to further reduce the chance of contamination inside the motor.
- 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.
MPM-A115xx and MPL-B115xx	MPL-SSN-A4B4
MPM-A130xx and MPL-B130xx	MPL-SSN-A5B5
MPM-A165xx and MPM-B165xx	MPL-SSN-F165
MPM-A215xx and MPL-B215xx	MPL-SSN-A6B6

Refer to the MP-Series Medium Inertia Servo Motor Installation Instructions, publication [MPM-IN001](#), for more information on motor accessories.

## Technical Specifications - MP-Series Medium Inertia Motors

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

Motor Cat. No.	Base Speed rpm	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
MPM-A1151M	4500	5000	6000	2.18 (19.3)	6.60 (58.0)	0.90	0.00065 (0.00575)	3.45 (7.6)
MPM-A1152F	3000	4000	5000	4.74 (42.0)	13.5 (119)	1.40	0.00077 (0.00682)	5.20 (11.4)
MPM-A1153F	3000	4000	5000	6.55 (58.0)	19.8 (175)	1.45	0.00089 (0.00784)	6.4 (14.0)
MPM-A1302F	3000	4000	4500	5.99 (53.0)	13.5 (119)	1.65	0.000983 (0.00870)	6.8 (15.0)
MPM-A1304F	3000	3500	4000	9.30 (82.0)	19.3 (171)	2.20	0.001223 (0.01082)	9.6 (21.2)
MPM-A1651F	3000	3000	5000	10.7 (95.0)	20.5 (181)	2.50	0.006605 (0.05846)	15.3 (33.8)
MPM-A1652F	3000	3500	4000	13.5 (119)	36.0 (319)	4.03	0.007265 (0.06430)	20.6 (45.4)
MPM-A1653F	3000	3000	4000	18.6 (165)	42.0 (372)	5.10	0.008025 (0.07103)	25.6 (56.4)
MPM-A2152F	3000	2000	4000	27.0 (239)	56.0 (496)	5.20	0.02059 (0.18223)	35.8 (79.0)
MPM-A2153F	3000	2000	3600	34.0 (301)	58.0 (513)	5.80	0.02254 (0.19950)	44.6 (98.3)
MPM-A2154C	1500	1750	2000	55.0 (487)	106 (938)	6.50	0.02449 (0.21675)	53.6 (118)
MPM-A2154E	2250	2000	2650	44.0 (389)	84.0 (743)	7.00		

(1) Refer to MP-Series Medium Inertia Motor Brake Specifications on [page 96](#) for brake rotor inertia and brake motor weight.

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

Motor Cat. No.	Base Speed rpm	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, <sup>(1)</sup> approx kg (lb)
MPM-B1151F	3000	4000	5000	2.18 (19.3)	6.6 (58.0)	0.75	0.00065 (0.00575)	3.45 (7.6)
MPM-B1151T	6000	5000	7000			0.90		
MPM-B1152C	1500	2500	3000	4.74 (42.0)	13.5 (119)	1.20	0.00077 (0.00681)	5.20 (11.4)
MPM-B1152F	3000	4000	5200			1.40		
MPM-B1152T	6000		7000					
MPM-B1153E	2250	3000	3500	6.55 (58.0)	19.8 (175)	1.40	0.00089 (0.00788)	6.40 (14.0)
MPM-B1153F	3000	4000	5500			1.45		
MPM-B1153T	6000		7000					
MPM-B1302F	3000	4000	4500	5.99 (53.0)	13.5 (119)	1.65	0.000983 (0.00870)	6.80 (15.0)
MPM-B1302M	4500		6000					
MPM-B1302T	6000		7000					
MPM-B1304C	1500	1870	2750	10.2 (90.0)	27.1 (240)	2.00	0.001223 (0.01082)	9.60 (21.2)
MPM-B1304E	2250	3500	4000			2.20		
MPM-B1304M	4500		6000					
MPM-B1651C	1500	3000	3500	10.7 (95.0)	23.2 (205)	2.50	0.006605 (0.05846)	15.3 (33.8)
MPM-B1651F	3000		5000					
MPM-B1651M	4500		5000					
MPM-B1652C	1500	2500	2500	16.0 (142)	40.0 (354)	3.80	0.007265 (0.06430)	20.6 (45.4)
MPM-B1652E	2250	3500	3500	19.4 (172)	48.0 (425)	4.30		
MPM-B1652F	3000		4500					
MPM-B1653C	1500	2000	2500	26.8 (237)	67.8 (600)	4.60	0.008025 (0.07103)	25.6 (56.4)
MPM-B1653E	2250	3000	3500		62.0 (549)	5.10		
MPM-B1653F	3000		4000		56.0 (496)			
MPM-B2152C	1500		2000		2500	36.7 (325)		
MPM-B2152F	3000	2500	4500	33.0 (292)	50.0 (443)	5.90		
MPM-B2152M	4500		5000					
MPM-B2153B	1250	1750	2000	48.0 (425)	101.1 (895)	6.80	0.02254 (0.19949)	44.6 (98.3)
MPM-B2153E	2250	2000	3000			7.20		
MPM-B2153F	3000		3800			45.0 (398)		
MPM-B2154B	1250	1750	2000	62.8 (556)	154.2 (1365)	6.90	0.02449 (0.21675)	53.6 (118.2)
MPM-B2154E	2250	2000	3000	56.0 (496)	112.0 (991)	7.50		
MPM-B2154F	3000		3300		88.0 (779)			

(1) Refer to MP-Series Medium Inertia Motor Brake Specifications on [page 96](#) for brake rotor inertia and brake motor weight.

**MP-Series Medium 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 <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage (by using external arc suppression device)			
					MOV ms	Diode ms		
MPM-A/B1151	45	4.18 (37)	0.45...0.55	50	20	110	0.00065 (0.00575)	5.2 (11.4)
MPM-A/B1152							0.00077 (0.00681)	6.9 (15.2)
MPM-A/B1153							0.00089 (0.00788)	8.1 (17.8)
MPM-A/B1302	48	10.2 (90)	0.576...0.704	110	25	160	0.000983 (0.00870)	8.6 (19.0)
MPM-A/B1304							0.001223 (0.01082)	11.7 (25.7)
MPM-A/B1651	25	28.3 (250)	1.05...1.28	70	50	250	0.006605 (0.05846)	17.9 (39.5)
MPM-A/B1652							0.007265 (0.06430)	23.2 (51.1)
MPM-A/B1653							0.008025 (0.07103)	28.2 (62.1)
MPM-A/B2152	25	70 (619)	1.84...2.25	200	120	900	0.02059 (0.18224)	43.8 (96.5)
MPM-A/B2153							0.02254 (0.19949)	53.6 (115.8)
MPM-A/B2154							0.02449 (0.21675)	61.6 (135.7)

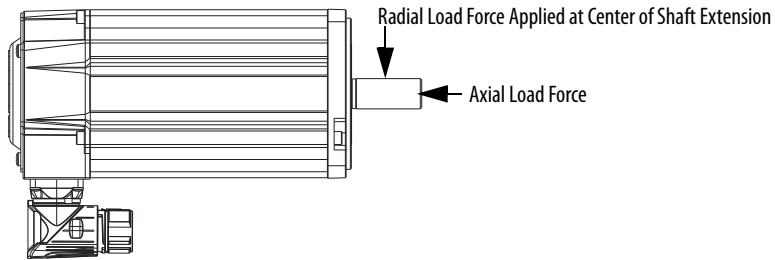
*MP-Series Medium Inertia Motor Load Force Ratings*

Bulletin MPM 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 L<sub>10</sub> 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.	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	5000 rpm kg (lb)	7000 rpm kg (lb)
MPM-A/B1151	77 (170)	61 (134)	54 (119)	45 (99)	40 (88)
MPM-A/B1152	84 (185)	66 (145)	58 (128)	49 (108)	43 (95)
MPM-A/B1153	88 (194)	70 (154)	61 (134)	51 (112)	46 (101)
MPM-A/B1302	105 (231)	83 (183)	72 (159)	61 (134)	54 (119)
MPM-A/B1304	115 (253)	91 (200)	80 (176)	67 (148)	–
MPM-A/B1651	141 (311)	112 (247)	97 (214)	82 (181)	–
MPM-A/B1652	151 (333)	119 (262)	104 (229)	–	–
MPM-A/B1653	156 (344)	123 (271)	107 (236)	–	–
MPM-A/B2152	216 (476)	171 (377)	149 (328)	–	–
MPM-A/B2153	228 (502)	180 (396)	156 (344)	–	–
MPM-A/B2154	235 (518)	185 (407)	161 (355)	–	–

## Load Forces on Shaft



### Axial Load Force Ratings (maximum radial load)

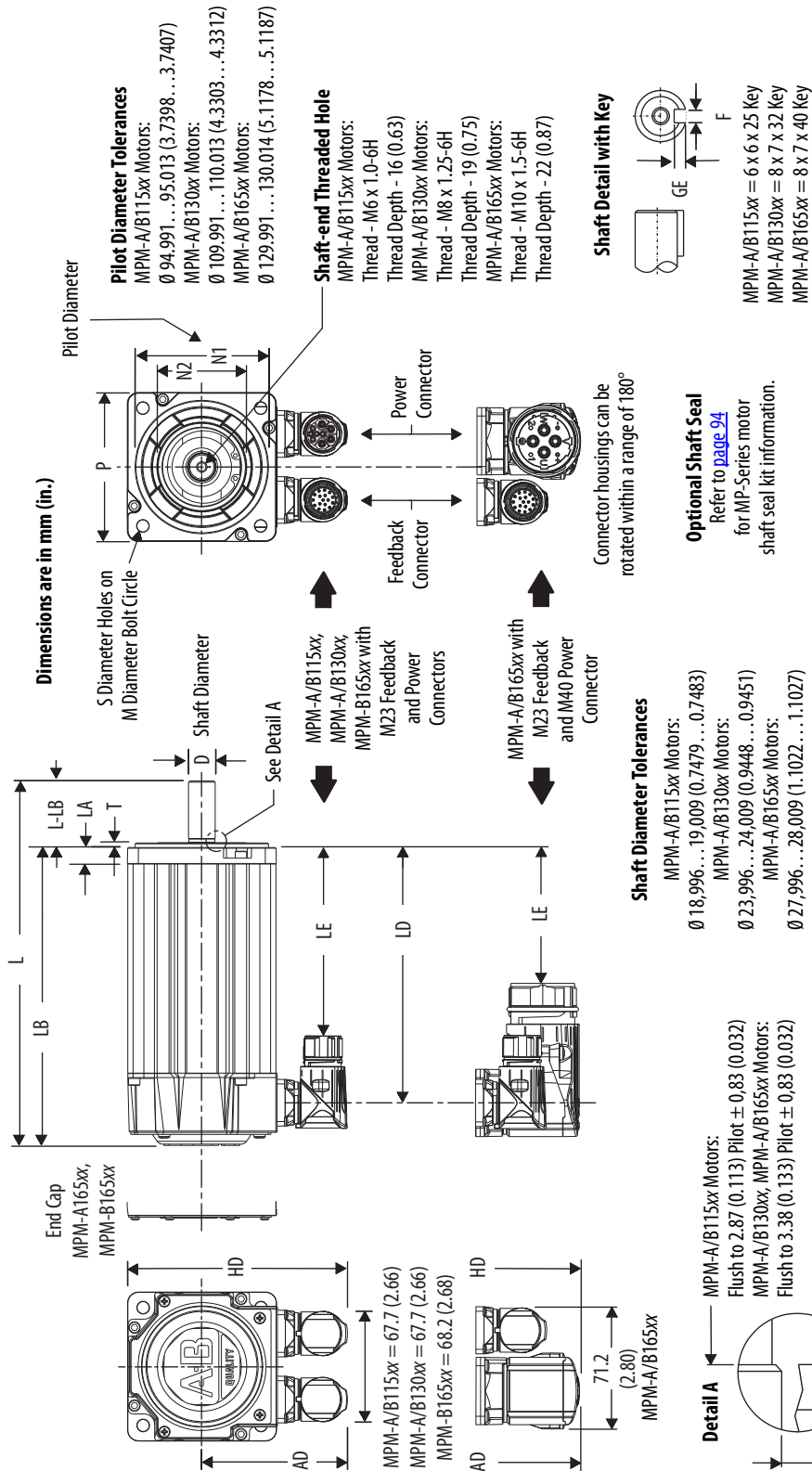
Motor Cat. No.	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	5000 rpm kg (lb)	7000 rpm kg (lb)
MPM-A/B1151	29 (64)	22 (48)	18 (40)	14 (31)	12 (26)
MPM-A/B1152	31 (68)	23 (51)	19 (42)	15 (33)	13 (29)
MPM-A/B1153	33 (73)	24 (53)	20 (44)	16 (35)	14 (31)
MPM-A/B1302	26 (57)	19 (42)	16 (35)	13 (29)	11 (24)
MPM-A/B1304	30 (66)	22 (48)	18 (40)	15 (33)	–
MPM-A/B1651	37 (81)	28 (62)	23 (51)	18 (40)	–
MPM-A/B1652	41 (90)	30 (66)	25 (55)	–	–
MPM-A/B1653	43 (95)	32 (70)	27 (59)	–	–
MPM-A/B2152	55 (121)	40 (88)	34 (75)	–	–
MPM-A/B2153	60 (132)	44 (97)	36 (79)	–	–
MPM-A/B2154	63 (139)	46 (101)	38 (84)	–	–

### Axial Load Force Ratings (zero radial load)

Motor Cat. No.	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	5000 rpm kg (lb)	7000 rpm kg (lb)
MPM-A/B1151	46 (101)	34 (75)	28 (62)	23 (51)	19 (42)
MPM-A/B1152	46 (101)	34 (75)	28 (62)	23 (51)	19 (42)
MPM-A/B1153	46 (101)	34 (75)	28 (62)	23 (51)	19 (42)
MPM-A/B1302	46 (101)	34 (75)	28 (62)	23 (51)	19 (42)
MPM-A/B1304	46 (101)	34 (75)	28 (62)	23 (51)	–
MPM-A/B1651	61 (134)	44 (97)	38 (84)	30 (66)	–
MPM-A/B1652	61 (134)	44 (97)	38 (84)	–	–
MPM-A/B1653	61 (134)	44 (97)	38 (84)	–	–
MPM-A/B2152	90 (198)	65 (143)	54 (119)	–	–
MPM-A/B2153	90 (198)	65 (143)	54 (119)	–	–
MPM-A/B2154	90 (198)	65 (143)	54 (119)	–	–

## Dimensions - MP-Series Medium Inertia Motors

### MPM-A/B115xx, MPM-A/B130xx, MPM-A/B165xx Motor Dimensions



Shaft, Pilot, and Keyway Tolerances	MPM-A/B115xx	MPM-A/B130xx	MPM-A/B165xx
Shaft Runout (T.I.R.)	0.04 (0.0016)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Keyway Depth (GE)	3.50...3.60 (0.138...0.142)	4.00...4.20 (0.158...0.165)	4.00...4.20 (0.158...0.165)
Keyway Width (F)	5.97...6.00 (0.235...0.236)	7.96...8.00 (0.314...0.315)	7.964...8.000 (0.3135...0.3150)

Power Connectors on MPM-A/B165xx Motors	MPM-A165xx Cat. No.	MPM-B165xx Cat. No.
M23 Power Connector	N/A	MPM-B1651F, MPM-B1651C, MPM-B1652C, MPM-B1653C
M40 Power Connector	MPM-A165xx	MPM-B1651M, MPM-B1652F, MPM-B1653E, MPM-B1653F

**MPM-A/B115x, MPM-A/B130x, MPM-A/B165x Motor Dimensions**

Motor Cat. No.	AD <sup>(1)</sup> mm (in.)	HD <sup>(1)</sup> mm (in.)	T mm (in.)	LA mm (in.)	LD <sup>(2)(3)</sup> mm (in.)	LE <sup>(2)(4)</sup> mm (in.)	L <sup>(2)</sup> mm (in.)	LB <sup>(2)</sup> mm (in.)	L-LB <sup>(5)</sup> mm (in.)	D <sup>(6)</sup> mm (in.)	M mm (in.)	S <sup>(7)</sup> mm (in.)	N1 <sup>(6)</sup> mm (in.)	N2 mm (in.)	P mm (in.)	GE <sup>(6)</sup> mm (in.)	F <sup>(6)</sup> mm (in.)
MPM-A/B1151					124 (4.89)	84.1 (3.31)	190 (7.48)	150 (5.90)									
MPM-A/B1152	90.9 (3.58)	140.1 (5.52)	2.74 (0.108)	10.16 (0.40)	150 (5.89)	110 (4.31)	215 (8.48)	175 (6.90)	40.0 (1.58)	19.0 (0.748)	115.0 (4.528)	10.0 (0.401)	95.0 (3.74)	59.0 (2.32)	98.3 (3.87)	3.5 (0.138)	6.0 (0.236)
MPM-A/B1153					175 (6.89)	135 (5.31)	241 (9.48)	201 (7.90)									
MPM-A/B1302	98.6 (3.88)	155.4 (6.12)	2.74 (0.108)	12.19 (0.48)	153 (6.02)	113 (4.44)	229 (9.0)	179 (7.03)	50.0 (1.97)	24.0 (0.945)	130.0 (5.118)	10.0 (0.401)	110.0 (4.331)	70.3 (2.77)	113.7 (4.48)	4.0 (0.158)	8.0 (0.315)
MPM-A/B1304					204 (8.02)	164 (6.44)	279 (11.0)	229 (9.03)									
MPM-A/B1651					200 (7.88)	160 (6.30)	287 (11.28)	227 (8.92)									
MPM-A/B1652	113.4 (4.47)	185.2 (7.29)	3.12 (0.123)	14.0 (0.55)	251 (9.88)	211 (8.30)	337 (13.28)	277 (10.92)	60.0 (2.36)	28.0 (1.102)	165.0 (6.496)	12.0 (0.481)	130.0 (5.118)	81.0 (3.19)	143.5 (5.65)	4.0 (0.158)	8.0 (0.315)
MPM-A/B1653					302 (11.88)	262 (10.30)	388 (15.28)	328 (12.92)									

(1) This dimension applies to MPM-B165x motors with M23 connectors. For MPM-A/B165x motors with M40 connectors, add 23 mm (0.91 in.).

(2) If ordering an MPM-A/B115x or MPM-A/B130x motor with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LE, and LD. If ordering an MPM-A/B165x motor with brake, add 51.5 mm (2.03 in.) to dimensions L, LB, LE, and LD.

(3) This dimension applies to MPM-B165x motors with M23 connectors. For MPM-A/B165x motors with M40 connectors, add 2.0 mm (0.07 in.).

(4) This dimension applies to MPM-B165x motors with M23 connectors. For MPM-A/B165x motors with M40 connectors, subtract 29.0 mm (1.15 in.).

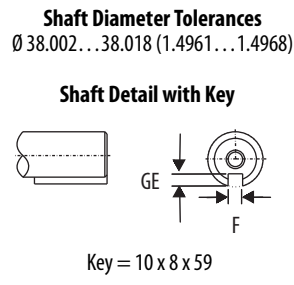
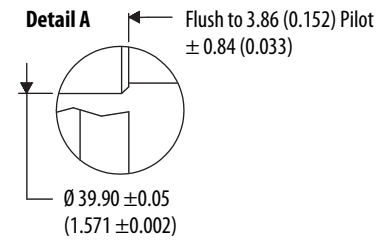
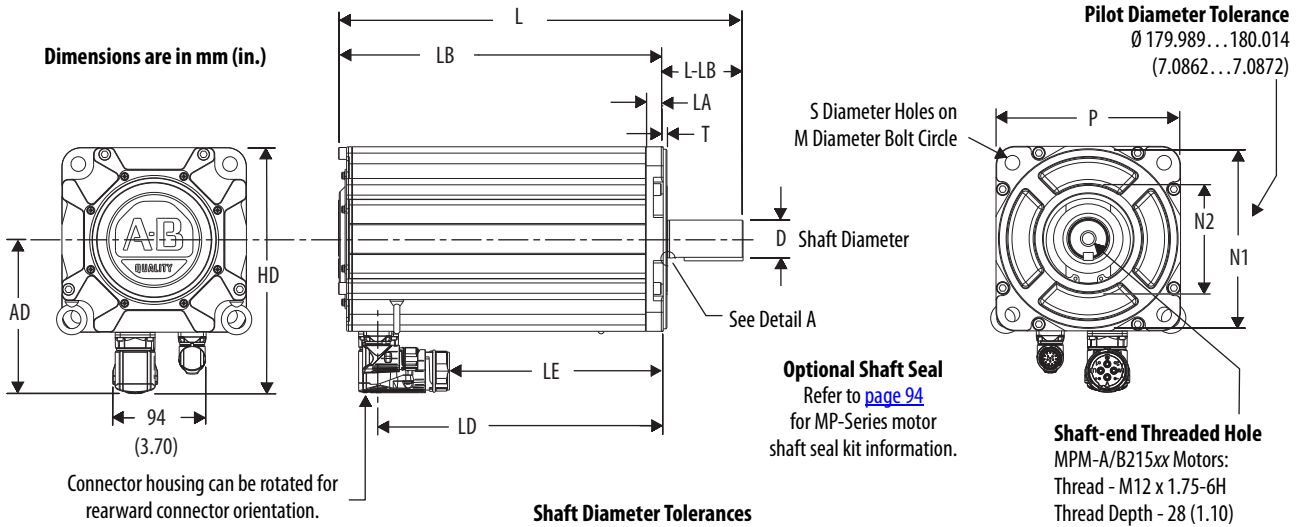
(5) The tolerance for this dimension is ±0.7 mm (±0.028 in.).

(6) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 98](#).

(7) For MPM-A/B115x and MPM-A/B130x motors, the tolerance for this dimension is +0.36 mm (±0.007 in.). For MPM-A/B165x motors, the tolerance 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.

**MPM-A/B215x Motor Dimensions**



Shaft, Pilot, and Keyway Tolerances	MPM-A/B215x
Shaft Runout (T.I.R.)	0.05 (0.002)
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.10 (0.0039)
Keyway Depth (GE)	5.00...5.20 (0.197...0.205)
Keyway Width (F)	9.964...10.000 (0.3923...0.3937)

Motor Cat. No.	AD	HD	T	LA	LD <sup>(1)</sup>	LE <sup>(1)</sup>	L <sup>(1)</sup>	LB <sup>(1)</sup>	L-LB <sup>(2)</sup>	D	M	S <sup>(3)</sup>	N1	N2	P	GE	F
MPM-	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.)
A/B2152					234 (9.23)	163 (6.43)	355 (13.96)	275 (10.81)									
A/B2153	154 (6.06)	247 (9.70)	3.73 (0.147)	17.8 (0.70)	285 (11.23)	214 (8.43)	405 (15.96)	325 (12.81)	80.0 (3.150)	38.0 (1.50)	215 (8.465)	14.50 (0.579)	180 (7.09)	108 (4.25)	185 (7.28)	5.0 (0.197)	10.0 (0.394)
A/B2154					336 (13.23)	265 (10.43)	456 (17.96)	376 (14.81)									

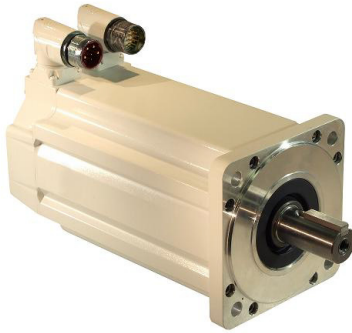
(1) If ordering an MPM-A/B215x motor with brake, add 88.9 mm (3.5 in.) to dimensions LD, LE, L, and LB.  
 (2) Tolerance for this dimension is ±0.7 mm (±0.028 in.).  
 (3) Tolerance for this dimension is +0.43 mm (±0.008 in.).

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



**Notes:**

## MP-Series Food Grade Motors



MP-Series (Bulletin MPF) food-grade motors combine the characteristics of the MP-Series low-inertia servo motors with features specifically designed to meet the unique needs of many food and beverage applications. These high-performance servo motors address the challenges of food environments by incorporating food-grade paint and shaft seal, along with noncorrosive fasteners and stainless steel shaft. For meat and poultry applications, and for applications with high pressure wash and caustic chemicals, the MP-Series stainless-steel servo motors are recommended.

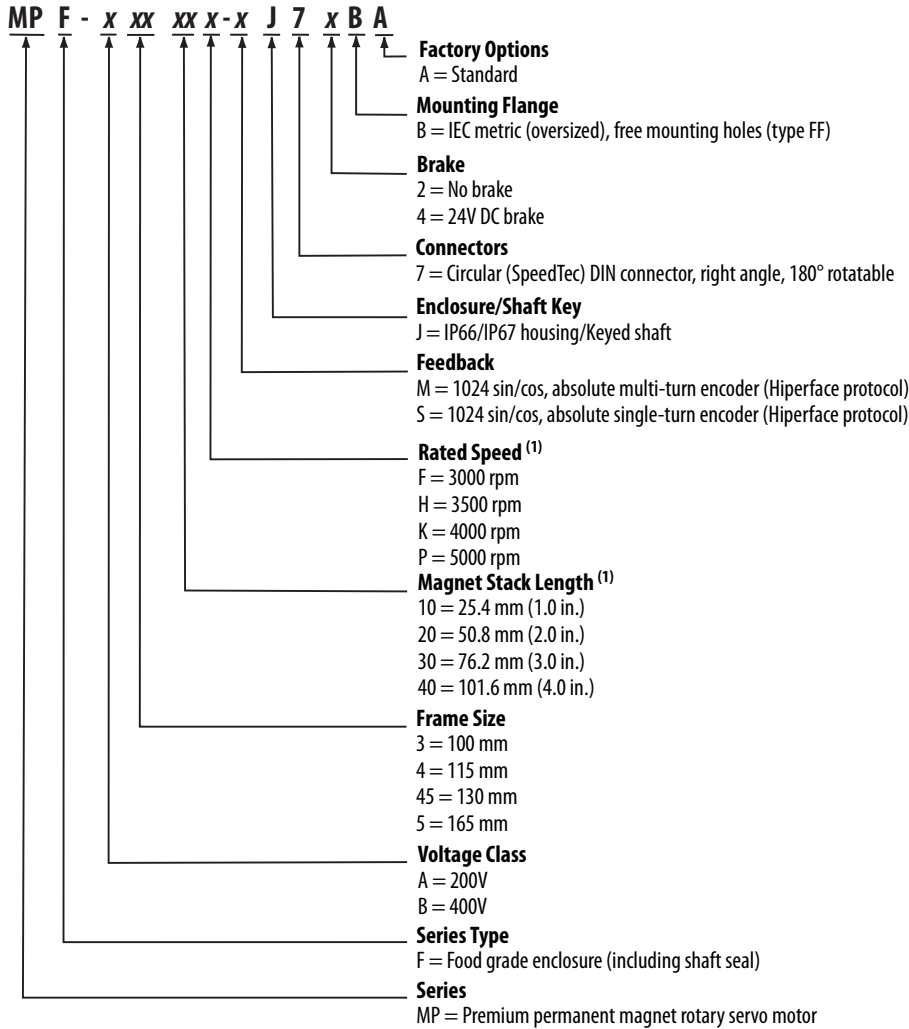
### MP-Series Food Grade Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Configurable winding options, brakes, and encoder feedback</li> <li>Hiperface encoder protocol</li> <li>Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>Food-grade epoxy coated</li> <li>200V and 400V-class windings</li> <li>Single-turn and multi-turn absolute feedback</li> <li>Shaft-end threaded hole</li> <li>SpeedTec DIN connectors, rotates 180°</li> <li>Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connectors</li> <li>Food grade grease on shaft seal</li> </ul>
Certifications	Bulletin MPF rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	1.6...19.4 N·m (14...172 lb·in)
Peak stall torque	3.61...48.6 N·m (32...430 lb·in)
Rated speed	Up to 5000 rpm
Motor rated output	0.73...4.1 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 5500 <sup>(1)</sup></li> <li>Kinetix 5700</li> <li>Kinetix 6200/6500</li> <li>Kinetix 6000</li> <li>Kinetix 300/350</li> <li>Kinetix 2000</li> <li>Ultra3000</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>Food packaging</li> <li>Volumetric filling</li> <li>Form, fill, seal</li> <li>Food handling</li> <li>For meat and poultry applications, the MP-Series Stainless Steel motors are recommended</li> </ul>

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

## Catalog Numbers - MP-Series Food Grade 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.



(1) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in MP-Series Food Grade Motor (200V-class) Performance Specifications on [page 105](#) and MP-Series Food Grade Motor (400V-class) Performance Specifications on [page 105](#), are available. Use Motion Analyzer software to size and select motors for your application.

## MP-Series Food Grade Motor High Resolution Encoders

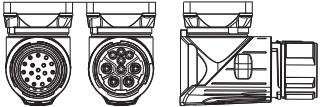
MP-Series Food Grade motors are available with high performance encoders with a choice of single-turn (-S) or multi-turn (-M) high resolution feedback:

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (MPF-A/B3xx, MPF-A/B4xx, MPF-A/B45xx, and MPF-A/B5xx 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

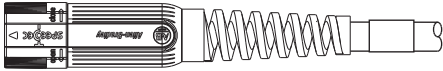
MP-Series (Bulletin MPF) motors are equipped with SpeedTec DIN connectors.

**SpeedTec DIN Connectors**



- MPF-A/Bxxx motors
- Receives M4 and M7 cable plugs (O-ring required for M4)
- Attach M7 cable plug with one-quarter turn

**SpeedTec DIN (M7) Cable Plug**

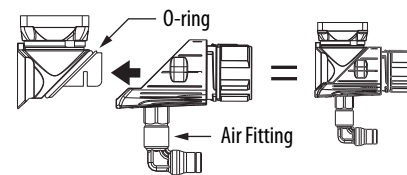


- 2090-CFBM7DF-CEAAxx (standard, non-flex) flying-lead, feedback cables
- 2090-CFBM7DD-CEAAxx (standard, non-flex) drive-end connector, feedback cables
- 2090-CFBM7DF-CEAFxx (continuous-flex) flying-lead, feedback cables
- 2090-CFBM7DD-CEAFxx (continuous-flex) drive-end connector, feedback cables
- 2090-CFBM7DF-CDAFxx (continuous-flex) flying-lead, feedback cables
  
- 2090-CPWM7DF-xxAAxx (standard, non-flex) power-only cables
- 2090-CPBM7DF-xxAAxx (standard, non-flex) power/brake cables
- 2090-CPWM7DF-xxAFxx (continuous-flex) power-only cables
- 2090-CPBM7DF-xxAFxx (continuous-flex) power/brake cables

## MP-Series Food Grade Motor Options

MP-Series Food Grade motors are available with these options:

- 24V DC brake.
- The positive air-pressure kit (catalog number MPF-7-AIR-PURGE) is mounted on the feedback connector to provide positive air pressure to further reduce the chance of contamination inside the motor.



- Shaft seal kits are available for field replacement. Shaft seals are made of PTFE and the kit includes 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.
MPF-A3xx and MPF-B3xx	MPF-SST-A3B3
MPF-A4xx and MPF-B4xx	MPF-SST-A4B4
MPF-A45xx and MPF-B45xx	MPF-SST-A45B45
MPF-A5xx and MPF-B5xx	MPF-SST-F165

Refer to the MP-Series Food Grade Servo Motor Installation Instructions, publication [MP-IN004](#), for motor accessory information.

**Technical Specifications - MP-Series Food Grade Motors****MP-Series Food Grade Motor (200V-class) Performance Specifications**

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPF-A310P	4750	5000	1.58 (14)	3.61 (32)	0.73	0.000044 (0.00039)	2.8 (6.1)
MPF-A320P	4750	5000	3.05 (27)	7.91 (70)	1.3	0.000078 (0.00069)	3.8 (8.3)
MPF-A320H	3350	3500	3.05 (27)	7.91 (70)	1.0		
MPF-A330P	5000	5000	4.18 (37)	11.1 (98)	1.6	0.00012 (0.0010)	4.7 (10)
MPF-A430P	5000	5000	5.99 (53)	19.8 (175)	1.9	0.00038 (0.0033)	5.6 (12)
MPF-A430H	3500	3500	6.21 (55)	19.8 (175)	1.8		
MPF-A4530K	4000	4000	8.13 (72)	20.3 (180)	2.3	0.00040 (0.0036)	7.4 (16)
MPF-A4540F	3000	3000	10.2 (90)	27.1 (240)	2.5	0.00052 (0.0046)	8.7 (19)
MPF-A540K	4000	4000	19.4 (172)	48.6 (430)	4.1	0.00147 (0.013)	16 (35)

(1) Refer to MP-Series Food Grade Motor Brake Specifications on [page 106](#) for brake rotor inertia and brake motor weight.

**MP-Series Food Grade Motor (400V-class) Performance Specifications**

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPF-B310P	5000	5000	1.58 (14)	3.61 (32)	0.77	0.000044 (0.00039)	2.8 (6.1)
MPF-B320P	5000	5000	3.05 (27)	7.91 (70)	1.5	0.000078 (0.00069)	3.8 (8.3)
MPF-B330P	5000	5000	4.18 (37)	11.1 (98)	1.6	0.00012 (0.0010)	4.7 (10)
MPF-B430P	5000	5000	6.55 (58)	19.8 (175)	2.0	0.00038 (0.0033)	5.6 (12)
MPF-B4530K	4000	4000	8.25 (73)	20.3 (180)	2.4	0.00040 (0.0036)	7.4 (16)
MPF-B4540F	3000	3000	10.2 (90)	27.1 (240)	2.5	0.00052 (0.0046)	8.7 (19)
MPF-B540K	4000	4000	19.4 (172)	48.6 (430)	4.1	0.00147 (0.013)	16 (35)

(1) Refer to MP-Series Food Grade Motor Brake Specifications on [page 106](#) for brake rotor inertia and brake motor weight.

**MP-Series Food Grade 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 <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage (by using external arc suppression device)			
					MOV ms	Diode ms		
MPF-A/B310	45	4.18 (37)	0.45...0.55	50	20	110	0.000057 (0.00050)	3.8 (8.3)
MPF-A/B320							0.000092 (0.00081)	4.7 (10)
MPF-A/B330							0.00013 (0.0011)	5.7 (13)
MPF-A/B430	37	10.2 (90)	0.576...0.704	110	25	160	0.00042 (0.0038)	7.4 (16)
MPF-A/B4530							0.00044 (0.0039)	9.2 (20)
MPF-A/B4540							0.00056 (0.0050)	11 (24)
MPF-A/B540	25	28.3 (250)	1.05...1.28	70	50	250	0.00157 (0.0139)	19 (41)

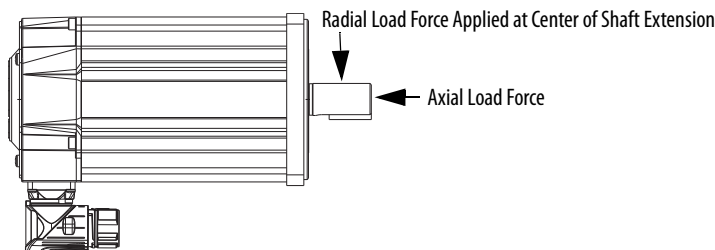
*MP-Series Food Grade Motor Load Force Ratings*

Bulletin MPF 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 below represent an L<sub>10</sub> 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)
MPF-A/B310	78 (172)	62 (137)	49 (108)	–	40 (88)	–	36 (79)
MPF-A/B320	87 (192)	69 (152)	55 (121)	–	45 (99)	–	40 (88)
MPF-A/B330	–	74 (163)	59 (130)	–	49 (108)	–	43 (95)
MPF-A/B430	106 (234)	84 (185)	67 (148)	–	55 (121)	–	49 (108)
MPF-A/B4530	133 (293)	105 (232)	84 (185)	73 (161)	–	66 (146)	–
MPF-A/B4540	140 (309)	111 (245)	89 (196)	77 (170)	–	–	–
MPF-A/B540	–	143 (316)	114 (251)	99 (219)	–	90 (199)	–

**Load Forces on Shaft**



**Axial Load Force Ratings (maximum radial load)**

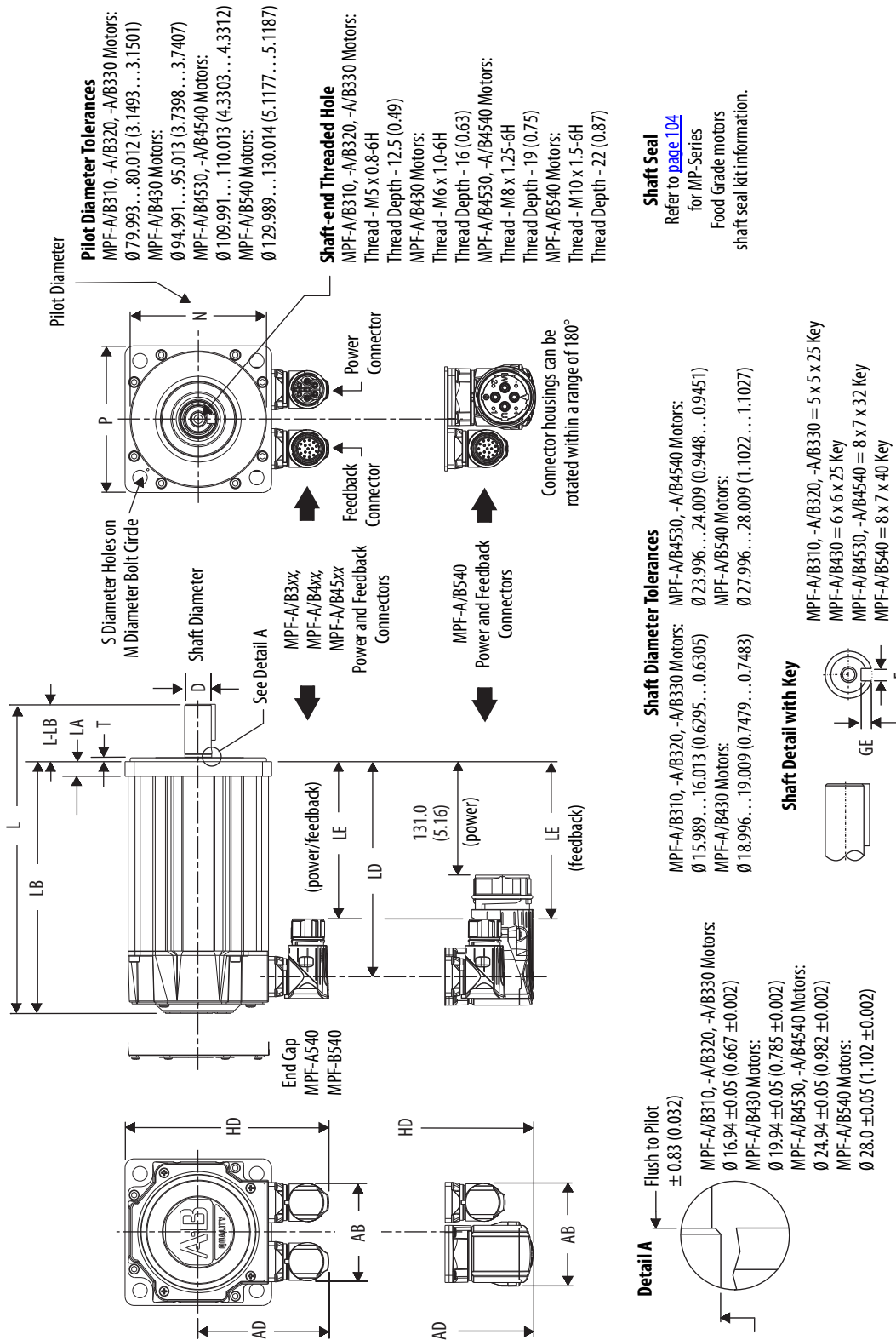
<b>Motor Cat. No.</b>	<b>500 rpm</b> kg (lb)	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>3500 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)
MPF-A/B310	30 (66)	23 (51)	16 (35)	–	13 (29)	–	11 (24)
MPF-A/B320	34 (75)	25 (55)	19 (42)	–	15 (33)	–	13 (29)
MPF-A/B330	–	27 (60)	20 (44)	–	16 (35)	–	13 (29)
MPF-A/B430	52 (115)	39 (86)	29 (64)	–	22 (49)	–	19 (42)
MPF-A/B4530	45 (99)	34 (75)	25 (55)	21 (46)	–	19 (42)	–
MPF-A/B4540	49 (108)	36 (79)	27 (60)	22 (49)	–	–	–
MPF-A/B540	–	48 (107)	35 (79)	30 (66)	–	26 (58)	–

**Axial Load Force Ratings (zero radial load)**

<b>Motor Cat. No.</b>	<b>500 rpm</b> kg (lb)	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>3500 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)
MPF-A/B310	49 (108)	36 (79)	27 (60)	–	21 (46)	–	18 (40)
MPF-A/B320	49 (108)	36 (79)	27 (60)	–	21 (46)	–	18 (40)
MPF-A/B330	–	36 (79)	27 (60)	–	21 (46)	–	18 (40)
MPF-A/B430	69 (152)	51 (112)	38 (84)	–	30 (66)	–	25 (55)
MPF-A/B4530	69 (152)	51 (112)	38 (84)	31 (68)	–	28 (62)	–
MPF-A/B4540	69 (152)	51 (112)	38 (84)	31 (68)	–	–	–
MPF-A/B540	–	67 (149)	49 (109)	41 (92)	–	36 (81)	–

# Dimensions - MP-Series Food Grade Motors

## MPF-A/B3xx, MPF-A/B4xx, MPF-A/B45xx, MPF-A/B5xx Motor Dimensions



Shaft, Pilot, and Keyway Tolerances	MPF-A/B3xx	MPF-A/B4xx	MPF-A/B45xx	MPF-A/B540
Shaft Runout (T.I.R.)	0.035 (0.0014)	0.04 (0.0016)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.08 (0.0031)	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)
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)
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)	7.964 ... 8.000 (0.3135 ... 0.3150)



## MPF-A/B3xx, MPF-A/B4xx, MPF-A/B45xx, MPF-A/B5xx Motor Dimensions

Motor Cat. No.	AB mm (in.)	AD mm (in.)	HD mm (in.)	T mm (in.)	LA mm (in.)	LD <sup>(1)</sup> mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D <sup>(3)</sup> mm (in.)	M mm (in.)	S <sup>(4)</sup> mm (in.)	N <sup>(3)</sup> mm (in.)	P mm (in.)	GE <sup>(3)</sup> mm (in.)	F <sup>(3)</sup> mm (in.)
MPF-A/B310						102.0 (4.03)	62.0 (2.45)	168.0 (6.62)	128.0 (5.04)								
MPF-A/B320	66.0 (2.60)	87.25 (3.43)	133.4 (5.25)	2.74 (0.11)	9.91 (0.39)	128.0 (5.03)	88.0 (3.45)	193.0 (7.62)	153.0 (6.04)	40.0 (1.57)	16.0 (0.629)	100.0 (3.94)	7.0 (0.283)	80.0 (3.15)	92.39 (3.64)	3.0 (0.118)	5.0 (0.197)
						153.0 (6.03)	113.0 (4.45)	219.0 (8.62)	179.0 (7.04)								
MPF-A/B330																	
MPF-A/B430	67.7 (2.66)	90.9 (3.58)	142.0 (5.59)	2.74 (0.11)	10.16 (0.40)	150.0 (5.89)	110.0 (4.31)	215.0 (8.48)	175.0 (6.90)	40.0 (1.57)	19.0 (0.748)	115.0 (4.53)	10.0 (0.401)	95.0 (3.74)	102.1 (4.02)	3.5 (0.138)	6.0 (0.236)
MPF-A/B4530	67.7 (2.66)	98.6 (3.88)	157.6 (6.20)	2.74 (0.11)	12.19 (0.48)	153.0 (6.02)	113.0 (4.44)	229.0 (9.0)	179.0 (7.03)	50.0 (1.97)	24.0 (0.945)	130.0 (5.12)	10.0 (0.401)	110.0 (4.33)	118.1 (4.65)	4.0 (0.158)	8.0 (0.315)
						178.0 (7.02)	138.0 (5.44)	254.0 (10.0)	204.0 (8.03)								
MPF-A/B540	71.2 (2.80)	136.4 (5.37)	209.0 (8.23)	3.12 (0.12)	13.97 (0.55)	202.0 (7.95)	162.0 (6.38)	287.0 (11.30)	227.0 (8.92)	60.0 (2.36)	28.0 (1.102)	165.0 (6.50)	12.0 (0.481)	130.0 (5.12)	145.3 (5.72)	4.0 (0.158)	8.0 (0.315)

(1) If ordering an MPF-A/B310, MPF-A/B320, or MPF-A/B330 motor with brake, add 35 mm (1.38 in.) to dimensions L, LB, LD, and LE.

If ordering an MPF-A/B430 motor with brake, add 48 mm (1.89 in.) to dimensions L, LB, LD, and LE.

If ordering an MPF-A/B4530 or MPF-A/B4540 motor with brake, add 23 mm (0.90 in.) to dimensions L, LB, LD, and LE.

If ordering an MPF-A/B540 motor with brake, add 51 mm (2.0 in.) to dimensions L, LB, LD, and LE.

(2) Tolerance for this dimension is  $\pm 0.7$  mm ( $\pm 0.028$  in.).

(3) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 108](#).

(4) Tolerance for this dimension is: MPF-A/B3xx, MPF-A/B4xx, or MPF-A/B45xx  $\pm 0.36$  mm ( $\pm 0.007$  in.) and MPF-A/B5xx  $\pm 0.43$  mm ( $\pm 0.008$  in.).

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

## MP-Series Stainless Steel Motors



MP-Series (Bulletin MPS) stainless-steel motors are specifically designed to meet the unique needs of hygienic environments. With these servo motors, the benefits of Kinetix Integrated Motion are available to a greater range of applications, allowing the use of servo motors even in high pressure, highly caustic washdown environments. The MP-Series Stainless Steel motors extend the wide range of Allen-Bradley servo motors into new applications on food, beverage, brewing, dairy, pharmaceutical, and health and beauty manufacturing equipment.

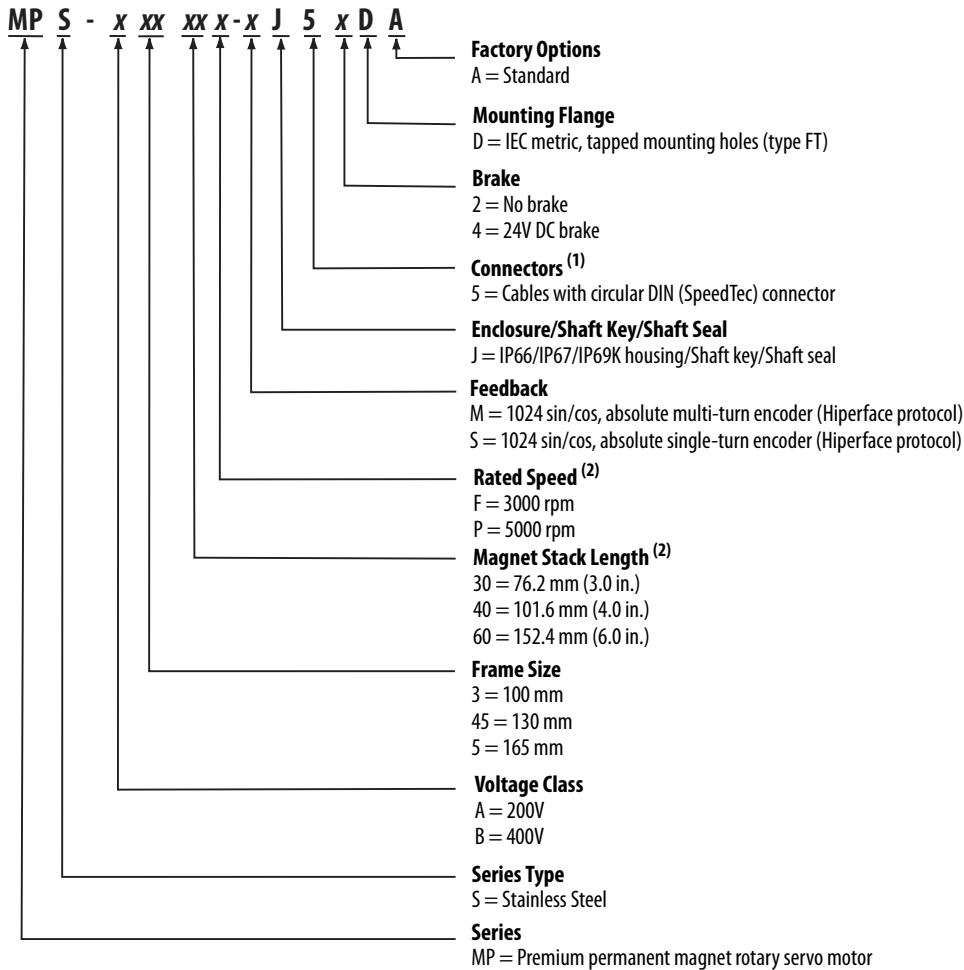
### MP-Series Stainless Steel Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Specifically designed for hygienic environments for use with high pressure, highly caustic washdown applications</li> <li>Hiperface encoder protocol</li> <li>Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>Smooth, passivated 300 series stainless-steel cylindrical exterior</li> <li>Certified and listed to NSF/ANSI Standard 169</li> <li>200V and 400V-class windings</li> <li>Single-turn and multi-turn absolute feedback options</li> <li>Shaft-end threaded hole</li> <li>Cable extensions, 3 m (9.8 ft)</li> <li>Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connectors</li> <li>IP69K for 1200 psi washdown</li> </ul>
Certifications	Bulletin MPS rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	3.6...21.5 N•m (32...190 lb•in)
Peak stall torque	11.1...98 N•m (67.8...600 lb•in)
Rated speed	3000 and 5000 rpm
Motor rated output	1.3...3.5 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 5500<sup>(1)</sup></li> <li>Kinetix 5700</li> <li>Kinetix 6200/6500</li> <li>Kinetix 6000</li> <li>Kinetix 300/350</li> <li>Kinetix 2000</li> <li>Ultra3000</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>Meat and poultry</li> <li>Food slicing and filling</li> <li>Raw food handling</li> <li>Processing</li> <li>Life science</li> <li>Consumer products</li> </ul>

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

## Catalog Numbers - MP-Series Stainless Steel 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.



(1) The motor has 3 m (9.8 ft) cables with nickel-plated connector extensions.

**IMPORTANT**

The connectors are O-ring sealed, but not designed to withstand direct high-pressure washdown with aggressive cleaning compounds. The 3 m (9.8 ft) cables are provided so the connectors can be positioned in an area away from direct exposure to the cleaning process, such as within washdown-rated conduit or junction boxes.

(2) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in MP-Series Stainless Steel Motor (200V-class) Performance Specifications on [page 113](#) and MP-Series Stainless Steel Motor (400V-class) Performance Specifications on [page 113](#), are available. Use Motion Analyzer software to size and select motors for your application.

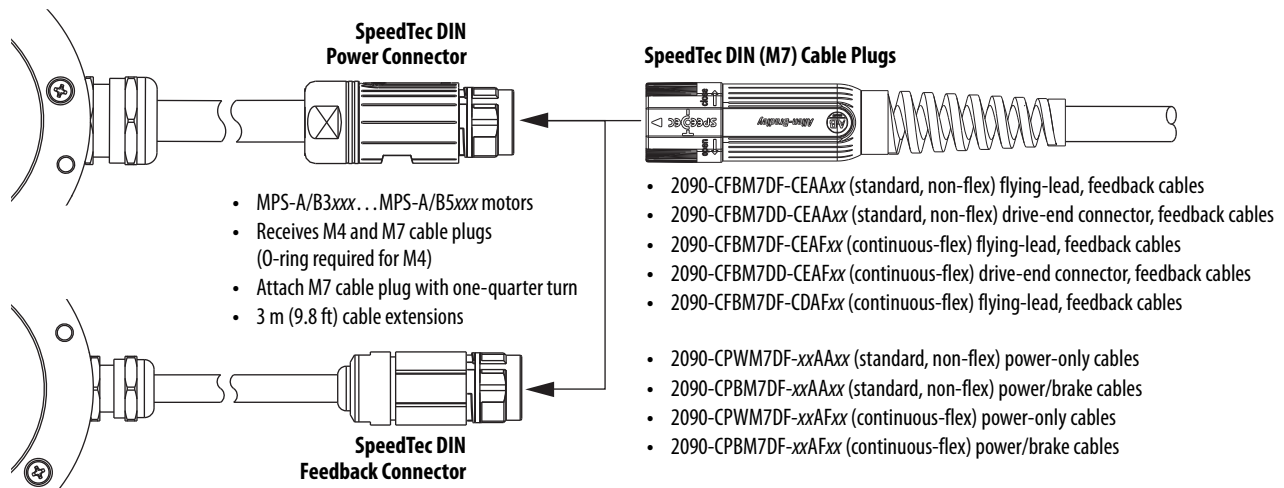
## MP-Series Stainless Steel Motor High Resolution Encoders

MP-Series stainless-steel motors are available with high-performance encoders with a choice of single-turn (-S) or multi-turn (-M) high-resolution feedback:

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (MPS-A/B3xx, MPS-A/B45xx, and MPS-B5xx 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 MPS) motors are equipped with SpeedTec DIN connectors.



## MP-Series Stainless Steel Motor Options

MP-Series Stainless Steel motors are available with these options:

- 24V DC brake.
- The positive air-pressure accessory kit (catalog number MPS-AIR-PURGE) is mounted to the rear cover of the motor to provide positive air pressure and further reduce the chance of contamination inside the motor. No special tool is required for installation and removal.
- Shaft seal kits (with slinger) are available for field replacement. Shaft seals are made of PTFE 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.
MPS-A3xx and MPS-B3xx	MPS-SST-A3B3
MPS-A45xx and MPS-B45xx	MPS-SST-A45B45
MPS-B5xx	MPS-SST-F165

Refer to the MP-Series Stainless Steel Servo Motor Installation Instructions, publication [MP-IN005](#), for more information.

## Technical Specifications - MP-Series Stainless Steel Motors

### MP-Series Stainless Steel Motor (200V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPS-A330P	5000	5000	3.6 (32)	11.1 (98)	1.3	0.00012 (0.0010)	7.4 (16.2)
MPS-A4540F	3000	3000	8.1 (72)	27.1 (240)	1.4	0.00052 (0.0046)	13 (28.5)

(1) Refer to MP-Series Stainless Steel Motor Brake Specifications on [page 113](#) for brake rotor inertia and brake motor weight.

### MP-Series Stainless Steel Motor (400V-class) Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)(2)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx <sup>(1)</sup> kg (lb)
MPS-B330P	5000	5000	3.6 (32)	11.1 (98)	1.3	0.00012 (0.0010)	7.4 (16.2)
MPS-B4540F	3000	3000	8.1 (72)	27.1 (240)	1.4	0.00052 (0.0046)	13 (28.5)
MPS-B560F	3000	3000	21.5 (190)	67.8 (600)	3.5	0.00227 (0.0200)	30 (66)

(1) Refer to MP-Series Stainless Steel Motor Brake Specifications on [page 113](#) for brake rotor inertia and brake motor weight.

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

### MP-Series Stainless Steel 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 <sup>2</sup> (lb·in·s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage (by using external arc suppression device)			
					MOV ms	Diode ms		
MPS-A/B330	45	4.18 (37)	0.45...0.55	50	20	110	0.00013 (0.0011)	8.8 (19.3)
MPS-A/B4540	48	10.2 (90)	0.576...0.704	110	25	160	0.00052 (0.0046)	15.4 (34.0)
MPS-B560	25	28.3 (250)	1.05...1.28	70	50	250	0.00227 (0.0200)	32.2 (70.8)

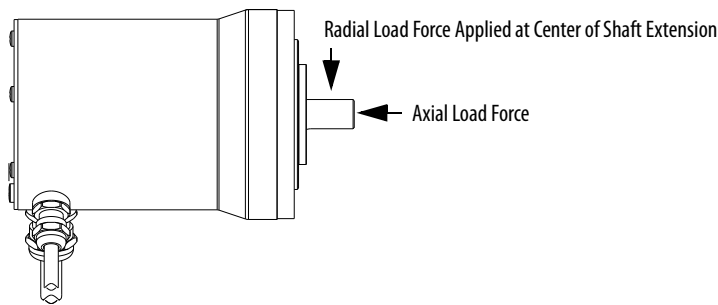
### MP-Series Stainless Steel Motor Load Force Ratings

Bulletin MPS 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  $L_{10}$  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)
MPS-A/B330	–	74 (163)	59 (130)	–	49 (108)	–	43 (95)
MPS-A/B4540	140 (309)	111 (245)	89 (195)	77 (170)	–	–	–
MPS-B560	–	154 (338)	122 (268)	106 (234)	–	–	–

#### Load Forces on Shaft



#### Axial Load Force Ratings (maximum radial load)

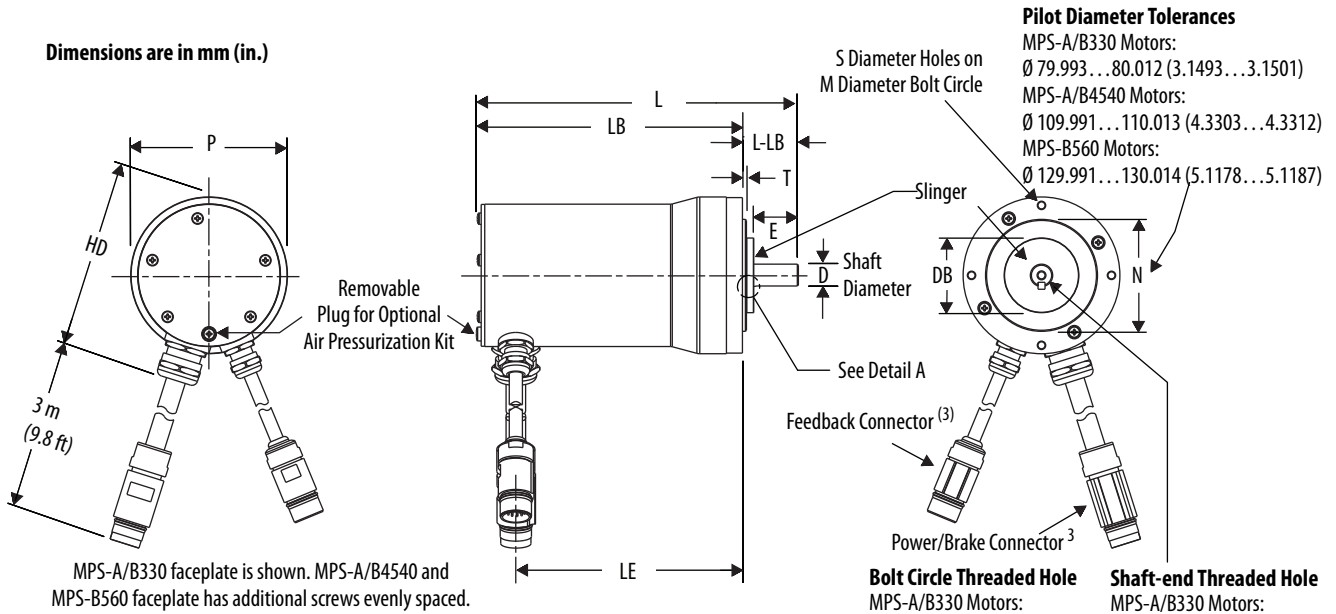
Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	4000 rpm kg (lb)	5000 rpm kg (lb)
MPS-A/B330	–	27 (59)	20 (44)	–	16 (35)	–	13 (29)
MPS-A/B4540	49 (107)	36 (80)	27 (59)	22 (49)	–	–	–
MPS-B560	–	52 (115)	39 (85)	32 (71)	–	–	–

#### 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)
MPS-A/B330	–	36 (79)	27 (59)	–	21 (46)	–	18 (40)
MPS-A/B4540	69 (152)	51 (112)	38 (83)	31 (69)	–	–	–
MPS-B560	–	68 (149)	50 (109)	42 (92)	–	–	–

## Dimensions - MP-Series Stainless Steel Motors

### MPS-A/B330, MPS-A/B4540, MPS-B560 Motor Dimensions



**Pilot Diameter Tolerances**

MPS-A/B330 Motors:  
 $\varnothing 79.993 \dots 80.012$  (3.1493...3.1501)

MPS-A/B4540 Motors:  
 $\varnothing 109.991 \dots 110.013$  (4.3303...4.3312)

MPS-B560 Motors:  
 $\varnothing 129.991 \dots 130.014$  (5.1178...5.1187)

**Shaft Diameter Tolerances**

MPS-A/B330 Motors:  
 $\varnothing 15.997 \dots 16.008$  (0.6298...0.6301)

MPS-A/B4540 Motors:  
 $\varnothing 23.996 \dots 24.009$  (0.9448...0.9451)

MPS-B560 Motors:  
 $\varnothing 27.996 \dots 28.009$  (1.1022...1.1027)

**Bolt Circle Threaded Hole**

MPS-A/B330 Motors:  
 Thread - M6 x 1.0  
 Thread Depth - 7.0 (0.28)

MPS-A/B4540 Motors:  
 Thread - M8 x 1.25-6H  
 Thread Depth - 9.0 (0.35)

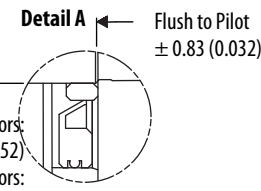
MPS-B560 Motors:  
 Thread - M10 x 1.5-6H  
 Thread Depth - 11 (0.43)

**Shaft-end Threaded Hole**

MPS-A/B330 Motors:  
 Thread - M5 x 0.8-6H  
 Thread Depth - 12.5 (0.49)

MPS-A/B4540 Motors:  
 Thread - M8 x 1.25-6H  
 Thread Depth - 19 (0.75)

MPS-B560 Motors:  
 Thread - M10 x 1.5-6H  
 Thread Depth - 22 (0.87)

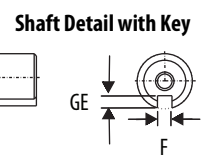


**Detail A**

MPS-A/B330 Motors:  
 $\varnothing 16.891 \dots 16.896$  (0.6650...0.6652)

MPS-A/B4540 Motors:  
 $\varnothing 24.94 \pm 0.05$  (0.982 ± 0.002)

MPS-A/B560 Motors:  
 $\varnothing 29.92 \pm 0.05$  (1.178 ± 0.002)



**Shaft Seal (with slinger)**  
 Refer to [page 112](#) for MP-Series stainless-steel motor shaft seal kit information.

MPS-A/B330 = 5 x 5 x 25 Key  
 MPS-A/B4540 = 8 x 7 x 32 Key  
 MPS-B560 = 8 x 7 x 40 Key

Shaft, Pilot, and Keyway Tolerances	MPS-A/B330	MPS-A/B4540	MPS-B560
Shaft Runout (T.I.R.)	0.035 (0.0014)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.08 (0.0031)	0.10 (0.0039)	0.10 (0.0039)
Keyway Depth (GE)	3.00...3.10 (0.118...0.122)	4.00...4.20 (0.158...0.165)	4.00...4.20 (0.158...0.165)
Keyway Width (F)	4.97...5.00 (0.196...0.197)	7.96...8.00 (0.314...0.315)	7.96...8.00 (0.314...0.315)

Motor Cat. No.	HD mm (in.)	T mm (in.)	E mm (in.)	LE <sup>(1)</sup> mm (in.)	L <sup>(1)</sup> mm (in.)	LB <sup>(1)</sup> mm (in.)	L-LB <sup>(2)</sup> mm (in.)	D mm (in.)	DB mm (in.)	M mm (in.)	S mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
MPS-A/B330	135 (5.31)	2.87 (0.113)	32.1 (1.26)	162 (6.38)	230 (9.05)	190 (7.49)	40.0 (1.57)	16.0 (0.63)	50.8 (2.0)	100 (3.94)	7.0 (0.28)	80.0 (3.15)	112 (4.41)	3.0 (0.118)	5.0 (0.197)
MPS-A/B4540	164 (6.46)	3.38 (0.133)	41.4 (1.63)	185 (7.30)	266 (10.45)	216 (8.48)	50.0 (1.97)	24.0 (0.945)	70.0 (2.75)	130 (5.12)	9.0 (0.35)	110 (4.33)	143.2 (5.64)	4.0 (0.158)	8.0 (0.315)
MPS-B560	198 (7.79)	3.38 (0.13)	51.52 (2.03)	302 (11.90)	396 (15.60)	336 (13.24)	60.0 (2.36)	28.0 (1.10)	82.6 (3.25)	165 (6.49)	11.0 (0.43)	130 (5.12)	181 (7.13)	4.0 (0.158)	8.0 (0.315)

(1) If ordering an MPS-A/B330 motor with brake, add 35 mm (1.38 in.) to dimensions L and LB, and 34 mm (1.34 in.) to dimension LE.  
 If ordering an MPS-A/B4540 motor with brake add 48.5 mm (1.91 in.) to dimensions L, LB, and LE.

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

(3) Specifications for the 3 m (9.8 ft) power and feedback cable leads are identical to those of the 2090-XXNPMF-xxSxx (power) and 2090-XXNFMF-Sxx (feedback) cables. Refer to Kinetix Motion Accessories Technical Data, publication [KNX-TD004](#), for more information.

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

## Kinetix 6000M Integrated Drive-Motor Systems



The Kinetix 6000M integrated drive-motor system combines the reliable high-performance MP-Series food-grade servo motor and Kinetix 6000 servo drive technologies into a single, compact package that provides significant space savings and machine control system simplification.

The Kinetix 6000M integrated drive-motor (IDM) units feature mounting flanges and shaft dimensions that are identical to MP-Series motors of the same frame size, making it easy to upgrade to integrated drive-motor technology.

Hybrid and network cables connect the Kinetix 6000M power interface module (IPIM) and daisy-chain to as many as 16 Kinetix 6000M integrated drive-motor (IDM) units.

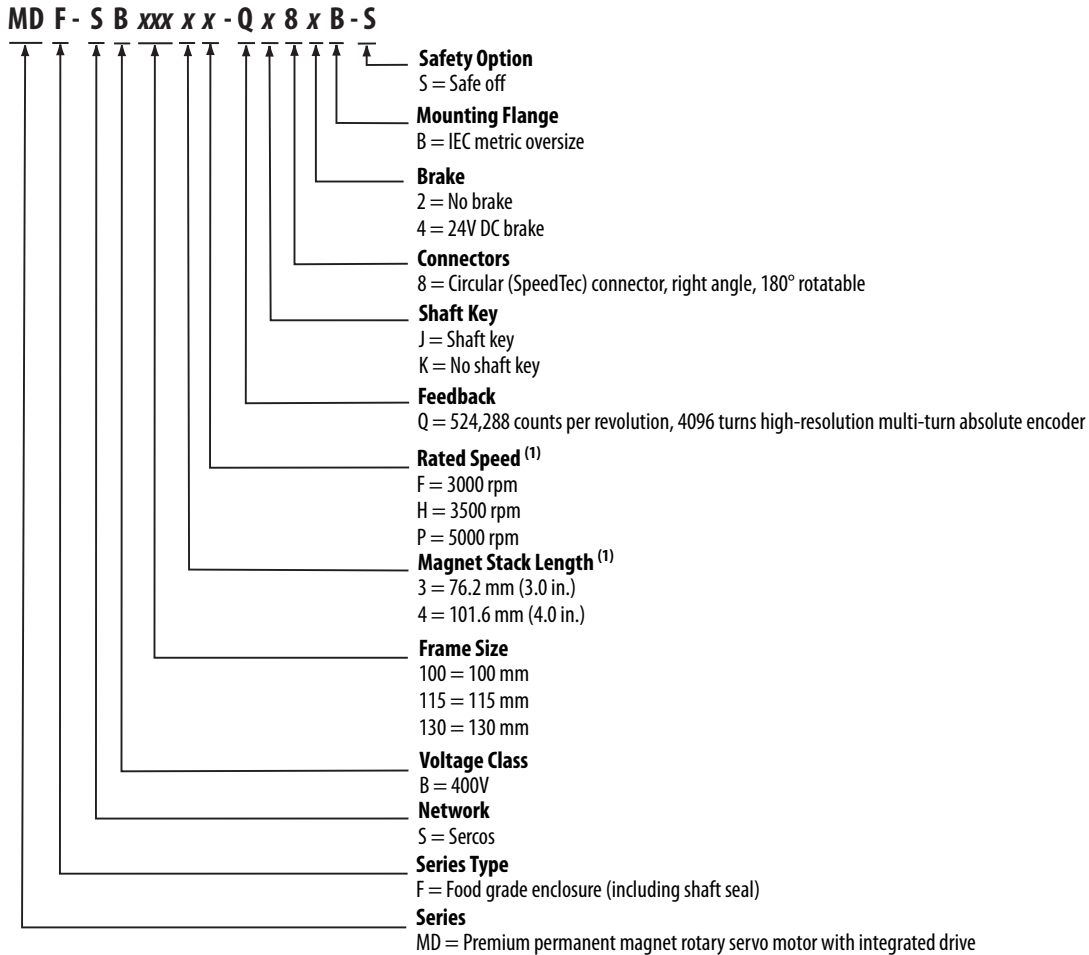
### Kinetix 6000M Integrated Drive-Motor System Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>Combines the reliable high-performance MP-Series servo motors and Kinetix 6000 servo drives</li> <li>Compatible with 400V-class Kinetix 6000 and Kinetix 6200 drive systems</li> <li>Integrated SIL2/PLd safe torque-off capability</li> <li>Motor mounting flanges and shaft dimensions same as MP-Series motors</li> <li>Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>As many as 4 Kinetix 6000M IPIM modules on a single 2094 power rail.</li> <li>As many as 16 Kinetix 6000M integrated drive-motor (IDM) units connect to a single IPIM module</li> <li>5 digital inputs on each integrated drive-motor (home, over-travel, and registration)</li> <li>USDA compliant food-grade paint</li> <li>180° rotatable hybrid cable connectors</li> </ul>
Motor type	Brushless AC synchronous servo motors
Environmental rating	<ul style="list-style-type: none"> <li>IP66 with shaft seal (standard) and use of environmentally sealed cable connectors</li> <li>Food grade grease on shaft seal</li> </ul>
Continuous stall torque	3.0...7.25 N·m (27...64 lb-in)
Peak stall torque	11.0...22.0 N·m (93...192 lb-in)
Rated speed	3000, 3500, and 5000 rpm
Motor rated output	1.0...1.4 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>Kinetix 6200 (400V-class) drives</li> <li>Kinetix 6000 (400V-class) drives</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>Food packaging</li> <li>Volumetric filling</li> <li>Form, fill, seal</li> <li>Food handling</li> <li>For meat and poultry applications, the MP-Series Stainless Steel motors are recommended</li> </ul>



## Catalog Numbers - Kinetix 6000M Integrated Drive-Motors

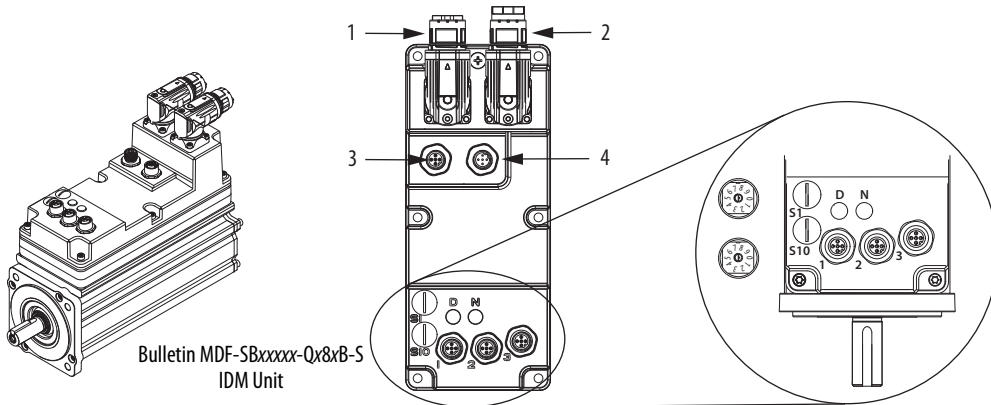
Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering table chart below to understand the configuration of your motor. For questions regarding product availability, contact your Allen-Bradley distributor.



(1) Not all combinations are available. Only the configurations for rated speed and magnet stack length, as listed in Kinetix 6000M Integrated Drive-Motor Unit (400V-class) Performance Specifications on [page 120](#), are available. Use Motion Analyzer software to size and select motors for your application.

## Kinetix 6000M Integrated Drive-Motor System Connectors and Indicators

### Kinetix 6000M IDM Units

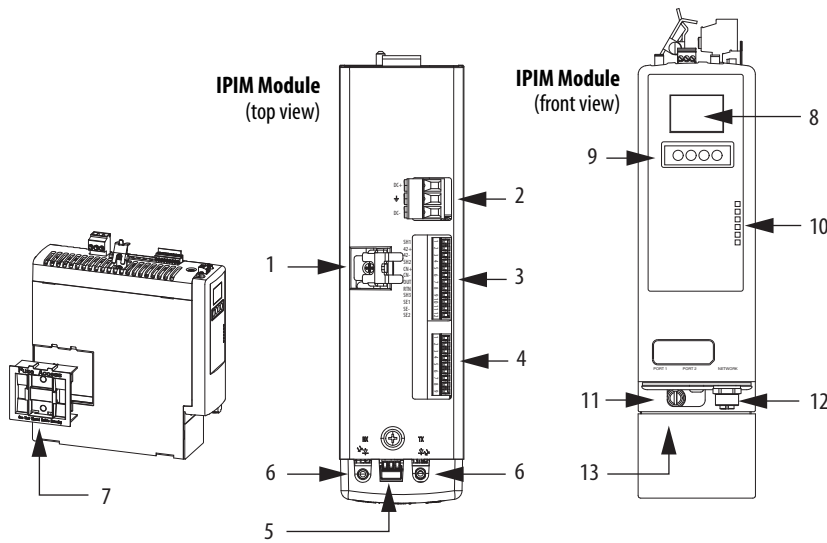


Bulletin MDF-5Bxxxxx-Qx&xB-S  
IDM Unit

Item	Description
1	Hybrid output connector
2	Hybrid input connector
3	Network output connector
4	Network input connector

Item	Description
1, 2, 3	Digital input connectors (M12)
S1	Network node address switch (least significant digit)
S10	Network node address switch (most significant digit)
D, N	Status indicators

### Kinetix 6000M IPIM Modules



Item	Description
1	Hybrid cable shield clamp
2	Hybrid DC bus connector
3	Hybrid communication connector
4	Safe-off connector
5	Enable connector
6	Sercos (Rx and Tx) connectors
7	Fuse holder, fuses (2)
8	System display
9	System display programming switches
10	Status indicators
11	Mounting screw
12	Network connector
13	EtherNet/IP connectors, (not visible)

## Kinetix 6000M Integrated Drive-Motor High Resolution Encoders

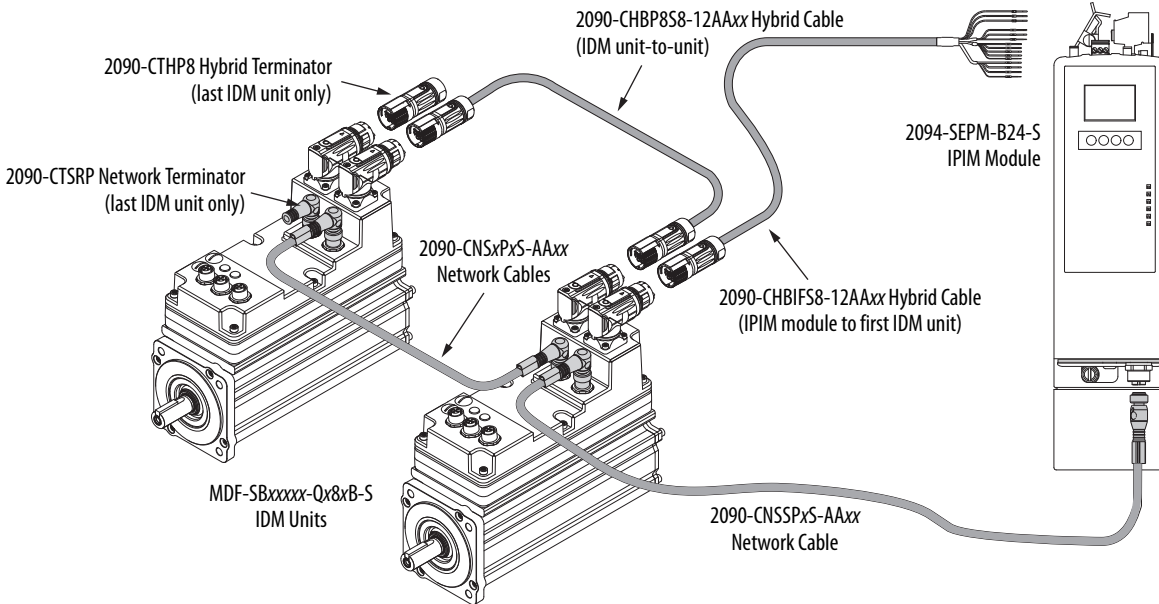
Kinetix 6000M integrated drive-motors are available with high performance digital encoders with multi-turn high resolution feedback:

- 524,288 counts per revolution for smooth performance
- High-resolution multi-turn absolute position feedback within 4096 turns

## Kinetix 6000M Integrated Drive-Motor System Cables

Kinetix 6000M integrated drive-motor (IDM) system is compatible with Kinetix 6000 and Kinetix 6200 (400V-class) power rail configurations. The Kinetix 6000M IDM system includes one 2094-SEPM-B24-S IDM power interface module (IPIM), as many as 16 MDF-SBxxxxx IDM units, and cables and terminators as illustrated below.

### Kinetix 6000M Hybrid and Network Cables



Cat. No.	Cable Type	Description	Quantity
2090-CHBIF8S-12AAxx <sup>(1)</sup>	Hybrid (SpeedTec)	Connects IPIM module (flying-leads) with the first IDM unit	1 required per system
2090-CHBP8S8-12AAxx <sup>(2)</sup>		Connects from IDM unit-to-unit	1 required for each downstream IDM unit
20990-CBKS8-16AA03		Manual brake release cable	Optional
2090-CTHP8		Hybrid bus terminator, install on the last IDM unit	1 required per system (included with IPIM module)
2090-CNSSPSS-AAxx <sup>(2)</sup>	Network	Straight (pin) connector and straight (socket) connector	1 required per system <sup>(3)</sup> (IPIM module to first IDM unit) Plus, 1 required for the second IDM unit and each additional downstream IDM unit
2090-CNSRPRS-AAxx <sup>(2)</sup>		Right-angle (pin) connector and right-angle (socket) connector	
2090-CNSRPSS-AAxx <sup>(2)</sup>		Right-angle (pin) connector and straight (socket) connector	
2090-CNSSPRS-AAxx <sup>(2)</sup>		Straight (pin) connector and right-angle (socket) connector	
2090-CTSRP		Network bus terminator, right-angle (pin), to the last IDM unit	1 required per system (included with IPIM module)

(1) Cables are available in standard lengths of 1, 2, 3, 4, 5, 7, 9, 12, 15, 20, and 25 m (3.2, 6.6, 9.8, 13.1, 16.4, 22.9, 29.5, 39.3, 49.2, 65.5, and 82.0 ft).

(2) Cables are available in standard lengths of 0.5, 1, 2, 3, 4, 5, 7, 9, 12, 15, 20, and 25 m (1.6, 3.2, 6.6, 9.8, 13.1, 16.4, 22.9, 29.5, 39.3, 49.2, 65.5, and 82.0 ft).

(3) Use of straight or right-angle connectors depends on application. Right-angle (pin) connectors are not compatible for connection to the IPIM module. Only straight (pin) connectors fit properly.

## Digital Input Cables

Kinetix 6000M IDM units have three 5-pin, M12, digital input connectors. Allen-Bradley (Bulletin 889D) DC micro-style patchcords, splitters, and V-cables are available with straight and right-angle connectors for making connections from the IDM unit to input sensors.

Refer to the Kinetix 6000 and Kinetix 6200/6500 Drive Systems Design Guide, publication [GMC-RM003](#), for catalog numbers and example diagrams.

## Kinetix 6000M Integrated Drive-Motor Options

Kinetix 6000M integrated drive-motor units are available with these options:

- Holding brake.
- Choice of keyed or keyless shaft. Replacement shaft seal kits are available for field installation. Shaft seals are made of PTFE and kits include a lubricant to reduce wear.

### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Cat. No.
MDF-SB1003	MPF-SST-A3B3
MDF-SB1153	MPF-SST-A4B4
MDF-SB1304	MPF-SST-A45B45

### 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.

- The positive air-pressure kit (catalog number MPS-AIR-PURGE) is mounted on the rear of the IDM unit to provide positive air pressure to further reduce the chance of contamination inside the motor.

Refer to the Kinetix 6000M Integrated Drive-Motor Installation Instructions, publication [MDF-IN001](#), for motor accessory information.

## Technical Specifications - Kinetix 6000M Integrated Drive-Motor System

### Kinetix 6000M Integrated Drive-Motor Unit (400V-class) Performance Specifications

Attribute	Units	MDF-SB1003P		MDF-SB1153H		MDF-SB1304F	
		No Brake	Brake	No Brake	Brake	No Brake	Brake
Bandwidth <sup>(1)</sup>							
Velocity loop	Hz	500		500		500	
Current loop	Hz	1300		1300		1300	
PWM frequency	kHz	4		4		4	
Nominal bus input voltage	V DC	650		650		650	
Control power							
Input voltage	V DC	32...44		32...44		32...44	
Power on load	W	8		8		8	
Digital input load	W	0...6		0...6		0...6	
Brake load	W	N/A	15.0	N/A	19.2	N/A	19.2
Digital inputs							
Supply voltage	V DC	21.6...26.4		21.6...26.4		21.6...26.4	
Supply voltage current	mA	200		200		200	
Rated speed	rpm	5000		3500		3000	
Speed, max	rpm	5000		3500		3000	
Continuous stall torque	N·m (lb·in)	3.0 (26.5)		4.8 (42.5)		7.25 (64.2)	
Peak stall torque	N·m (lb·in)	10.5 (92.9)		18.5 (164)		21.75 (192)	
Rated output power	kW	1.10	1.02	1.15	1.0	1.39	1.24
Rated input power	kVA	1.27	1.28	1.36	1.26	1.61	1.44
Rotor inertia	kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	0.00012 (0.0010)	0.00013 (0.0011)	0.00038 (0.0033)	0.00042 (0.0038)	0.00052 (0.0046)	0.00056 (0.0050)
Bus overvoltage	V DC	825		825		825	
Bus undervoltage	V DC	275		275		275	
Weight	kg (lb)	7.2 (15.9)	8.4 (18.5)	8.1 (17.9)	9.9 (21.9)	11.3 (25.0)	13.6 (30.1)

(1) Bandwidth values vary based on tuning parameters and mechanical components.

**Kinetix 6000M Integrated Drive-Motor Unit Brake Specifications**

IDM 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 <sup>2</sup> (lb•in•s <sup>2</sup> )	Brake Motor Weight, approx kg (lb)
				Release ms	Engage ms		
MDF-SB1003	45	4.18 (37)	0.45...0.55	100	40	0.00013 (0.0011)	8.4 (18.5)
MDF-SB1153	48	10.2 (90)	0.576...0.704	120	65	0.00042 (0.0038)	9.9 (21.9)
MDF-SB1304						0.00056 (0.0050)	13.6 (30.1)

**Kinetix 6000M IPIM Module Specifications**

The Kinetix 6000M integrated drive-motor (IDM) power interface module (IPIM), catalog number 2094-SEPM-B24-S, is compatible with Kinetix 6000 and Kinetix 6200 (400V-class) drive families and mounts to the 2094 power rail.

**IMPORTANT** The 2094-SEPM-B24-S IPIM module is compatible with only 400V-class drive systems.

**DC Bus Power Specifications**

Attribute	Value
Bus output voltage, nom	650V DC
Bus continuous output current	24 A, rms
Instantaneous output current, max	60 A
Intermittent current duration	400 ms
Intermittent current duty cycle	16%
Continuous power output, nom	15 kW
Internal shunt Continuous power Peak power	200 W 22.5 kW
Internal shunt resistor	28.75 Ω
Capacitance	840 μF
Short circuit current rating	200,000 A (rms) symmetrical

**Control Power Specifications**

Attribute	Value
Control power output Voltage Power Current	40.4...41.7V DC 270 W 6.5 A
24V output voltage	21.6...26.4V DC
24V output current, max Enable input Safety bypass	50 mA 320 mA

Control power line-loss ride-through is used to determine how long you can remove control power without causing the system to shut down and reset. For the IPIM module, it is highly dependent on the load current and applied voltage. For an example of these calculations, refer to Kinetix 6000M Integrated Drive-Motor User Manual, publication [2094-UM003](#).

**Control Power Line-loss Ride- through Specifications**

Control Power Input Voltage	Control Power Line-loss Ride-through as % of IPIM Module Control Power Current Output Rating				
	ms				
AC	20%	40%	60%	80%	100%
120V	67	34	23	18	14
240V	448	246	173	135	112

You can calculate power (heat) dissipation as it applies to sizing the enclosure for the 2094 power rail that includes your IPIM module by using these tables. For an example, refer to Kinetix 6000M Integrated Drive-Motor User Manual, publication [2094-UM003](#).

**Power Dissipation Specifications**

Power Dissipation as % of DC Bus Current Output Rating					Heat Dissipation Formula <sup>(1)</sup>
Watts					
20%	40%	60%	80%	100%	
2	7	14	25	38	$Y = 33.95x^2 + 3.18x$

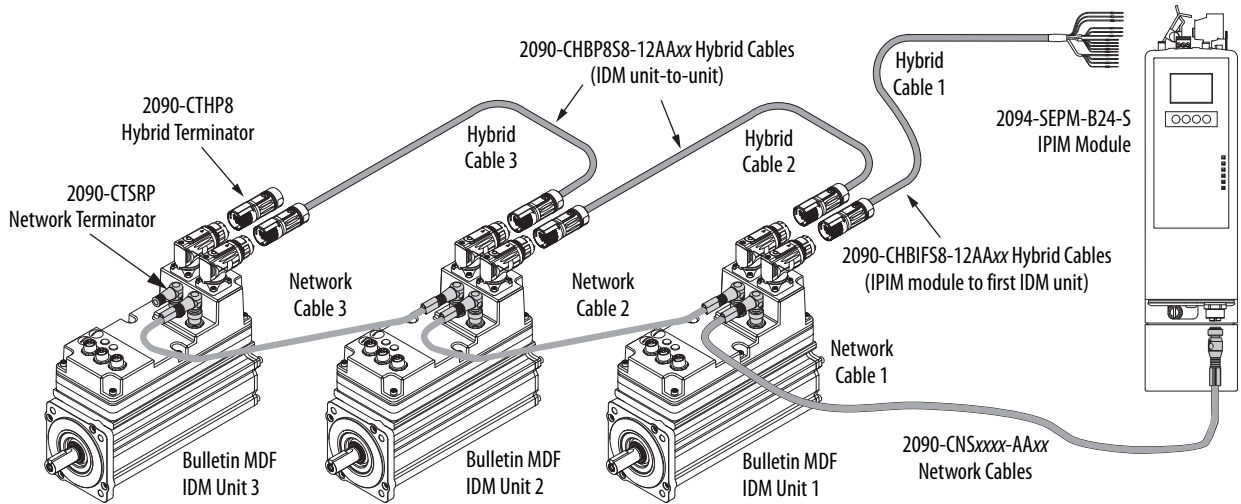
(1) x = percent of DC bus current output rating; any value between 0.0 and 1.0.

Control Power Input		Power Dissipation as % of IPIM Module Control Power Output Rating					Heat Dissipation Formulas <sup>(1)</sup>
		Watts					
Frequency Hz	Voltage AC	20%	40%	60%	80%	100%	
50	120V	22	29	38	48	61	$Y = 23.76x^2 + 20.73x + 16.54$
	240V	34	42	52	63	76	$Y = 18.56x^2 + 30.19x + 27.41$
60	120V	23	27	32	39	46	$Y = 14.57x^2 + 11.40x + 20.01$
	240V	38	49	62	76	92	$Y = 19.63x^2 + 43.22x + 28.75$

(1) x = percent of IPIM module control power output rating; any value between 0.0 and 1.0.

**Maximum System Cable Lengths**

The maximum length for hybrid and network cables is 25 m (82 ft). The maximum combined cable length for all axes daisy-chained from the same IPIM module is 100 m (328 ft).



For example, in this Kinetix 6000M system, if each cable length is the maximum 25 m (82 ft), the combined cable length is 75 m (246 ft).

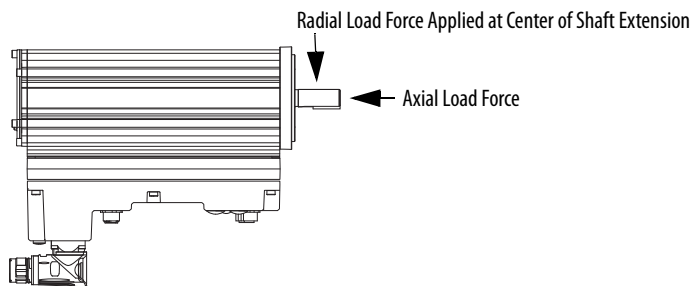
### Kinetix 6000M Integrated Drive-Motor Load Force Ratings

Bulletin MDF 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. These tables represent an L<sub>10</sub> 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)	5000 rpm kg (lb)
MDF-SB1003	–	74 (163)	59 (129)	–	49 (107)	43 (95)
MDF-SB1153	106 (234)	84 (185)	67 (148)	–	55 (121)	–
MDF-SB1304	140 (309)	111 (245)	89 (195)	77 (170)	–	–

#### Load Forces on Shaft



#### Axial Load Force Ratings (maximum radial load)

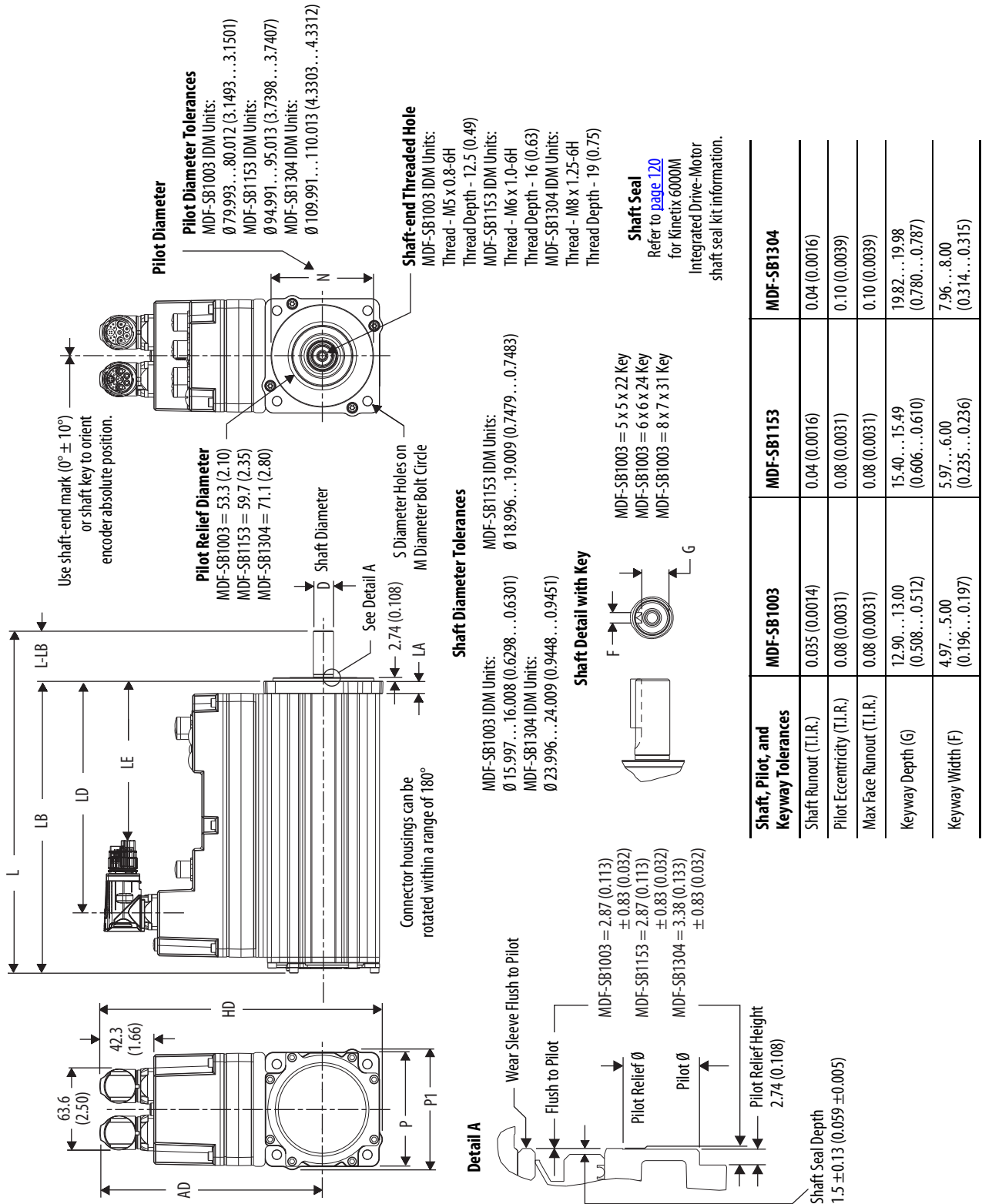
Motor Cat. No.	500 rpm kg (lb)	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	3500 rpm kg (lb)	5000 rpm kg (lb)
MDF-SB1003	–	27 (59)	20 (44)	–	16 (35)	13 (29)
MDF-SB1153	52 (115)	39 (86)	29 (64)	–	22 (49)	–
MDF-SB1304	49 (107)	36 (80)	27 (60)	22 (49)	–	–

#### 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)	5000 rpm kg (lb)
MDF-SB1003	–	36 (80)	27 (59)	–	21 (47)	18 (40)
MDF-SB1153	69 (152)	51 (112)	38 (83)	–	30 (66)	–
MDF-SB1304	69 (152)	51 (112)	38 (83)	31 (69)	–	–

## Dimensions - Kinetix 6000M Integrated Drive-Motor System

### MDF-SB1003, MDF-SB1153, MDF-SB1304 IDM Unit Dimensions





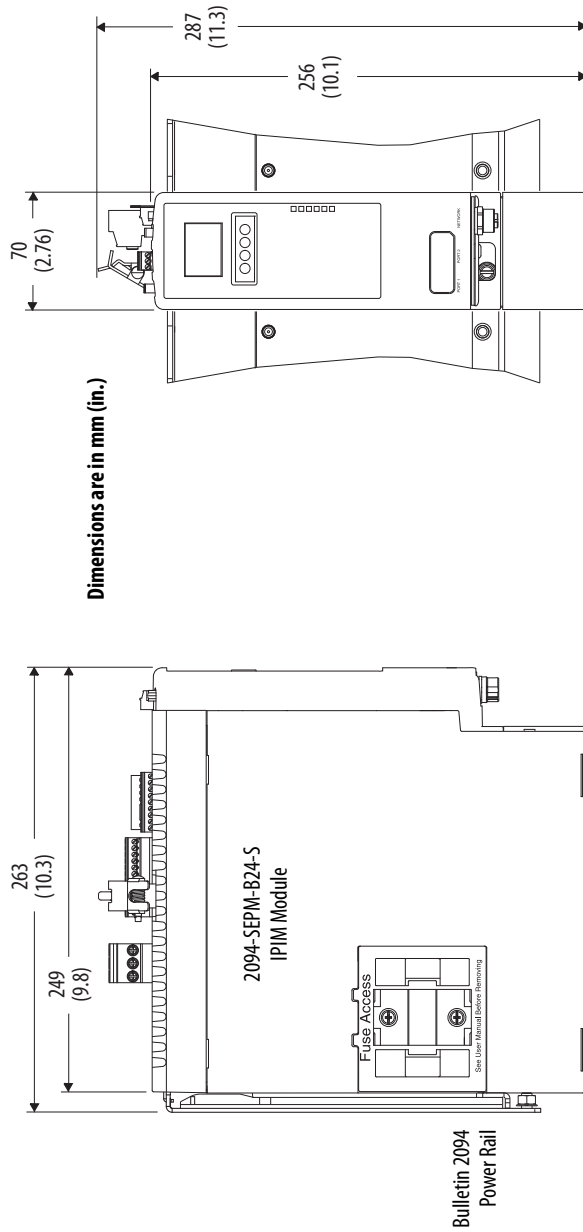
**MDF-SB1003, MDF-SB1153, MDF-SB1304 IDM Unit Dimensions**

IDM Unit Cat. No.	AD	HD	LA	LD <sup>(1)</sup>	LE <sup>(1)</sup>	L <sup>(1)</sup>	LB <sup>(1)</sup>	L-LB <sup>(2)</sup>	D <sup>(3)</sup>	M	S <sup>(4)</sup>	N <sup>(3)</sup>	P	P1	G <sup>(3)</sup>	F <sup>(3)</sup>
	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.)
MDF-SB1003	173.8 (6.84)	221.0 (8.70)	9.90 (0.39)	183.0 (7.21)	126.3 (4.97)	271.3 (10.68)	231.3 (9.11)	40.0 (1.575)	16.0 (0.629)	100.0 (3.937)	7.0 (0.283)	80.0 (3.15)	89.4 (3.52)	94.4 (3.72)	12.95 (0.510)	5.0 (0.197)
MDF-SB1153	178.2 (7.02)	229.0 (9.02)	10.20 (0.40)	183.3 (7.22)	126.5 (4.98)	271.2 (10.67)	231.2 (9.10)		19.0 (0.740)	115.0 (4.528)	10.0 (0.401)	95.0 (3.74)	98.3 (3.87)	101.6 (4.0)	15.40 (0.606)	6.0 (0.236)
MDF-SB1304	185.8 (7.31)	244.7 (9.63)	12.20 (0.48)	212.0 (8.35)	155.2 (6.11)	310.6 (12.23)	260.6 (10.26)	50.0 (1.969)	24.0 (0.945)	130.0 (5.118)		110.0 (4.33)	113.7 (4.48)	117.7 (4.63)	19.82 (0.780)	8.0 (0.315)

- (1) If ordering an MDF-SB1003 IDM unit with brake, add 34.5 mm (1.36 in.) to dimensions L, LB, LD, and LE. If ordering an MPF-SB1153 IDM unit with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, LD, and LE. If ordering an MPF-SB1304 IDM unit with brake, add 48.5 mm (1.91 in.) to dimensions L, LB, 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 124](#).
- (4) Tolerance for this dimension is +0.36 mm (±0.007 in.).

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

**2094-SEPM-B24-S IPIM Module Dimensions**



Modules are shown mounted to the 2094 power rail and the dimensions reflect that.

## Environmental Specifications - Kinetix 6000M IPIM Module

Attribute	Operational Range	Storage Range (nonoperating)
Temperature, ambient	0...50 °C (32...122 °F)	-40...70 °C (-40...158 °F)
Relative humidity	5...95% noncondensing	5...95% noncondensing
Altitude	1000 m (3281 ft) 3000 m (9843 ft) with derating	3000 m (9843 ft) during transport
Vibration	5...55 Hz @ 0.35 mm (0.014 in.) double amplitude, continuous displacement; 55...500 Hz @ 2.0 g peak constant acceleration (10 sweeps in each of 3 mutually perpendicular directions)	
Shock	15 g, 11 ms half-sine pulse (3 pulses in each direction of 3 mutually perpendicular directions)	
Weight	3.5 kg (7.8 lb)	

## Certifications - Kinetix 6000M IDM System

Agency Certification <sup>(1)</sup>	Standards
c-UL-us <sup>(2)</sup>	UL Listed to U.S. and Canadian safety standards (UL 508C File E59272).
	Solid-state motor overload protection provides dynamic fold-back of motor current when 110% of the motor rating is reached with a peak current limit based on the peak rating of the motor as investigated by UL to comply with UL 508C (UL File E59272, volume 1, section 22).
CE	European Union 2004/108/EC EMC Directive compliant with EN 61800-3:2004: Adjustable Speed Electrical Power Drive Systems - Part 3; EMC requirements and specific test methods.
	European Union 2006/95/EC Low Voltage Directive compliant with: <ul style="list-style-type: none"> <li>EN 61800-5-1:2007 - Adjustable speed electrical power drive systems.</li> <li>EN 50178:1997 - Electronic Equipment for use in Power Installations.</li> </ul>
Functional Safety	TÜV Certified for Functional Safety: up to SIL CL2, according to EN 61800-5-2, EN 61508, and EN 62061; up to Performance Level PLd and Category 3, according to EN ISO 13849-1; when used as described in the Kinetix 6000M Integrated Drive-Motor User Manual, publication <a href="#">2094-UM003</a> .
C-Tick	Australian Radio Communications Act, compliant with: <ul style="list-style-type: none"> <li>AS/NZS CISPR 11; Industrial Emissions</li> <li>Radio Communications Act: 1992</li> <li>Radio Communications (Electromagnetic Compatibility) Standard: 1998</li> <li>Radio Communications (Compliance Labelling - Incidental Emissions) Notice: 1998</li> <li>AS/NZS CISPR 11: 2003 (Group 2, Class A)</li> </ul>
KC	Korean Registration of Broadcasting and Communications Equipment, compliant with: <ul style="list-style-type: none"> <li>Article 58-2 of Radio Waves Act, Clause 3</li> <li>IDM unit registration number, KCC-REM-RAA-MDF</li> <li>IPIM module registration number, KCC-REM-RAA-2094</li> </ul>
ODVA	EtherNet/IP conformance tested (applies to IPIM module).

(1) When product is marked, refer to <http://ab.rockwellautomation.com> for Declarations of Conformity Certificates.

(2) Underwriters Laboratories Inc. has not evaluated the safe-off, safe torque-off, or safe speed-monitoring options in these products.

**Notes:**

## RDD-Series Direct Drive Motors



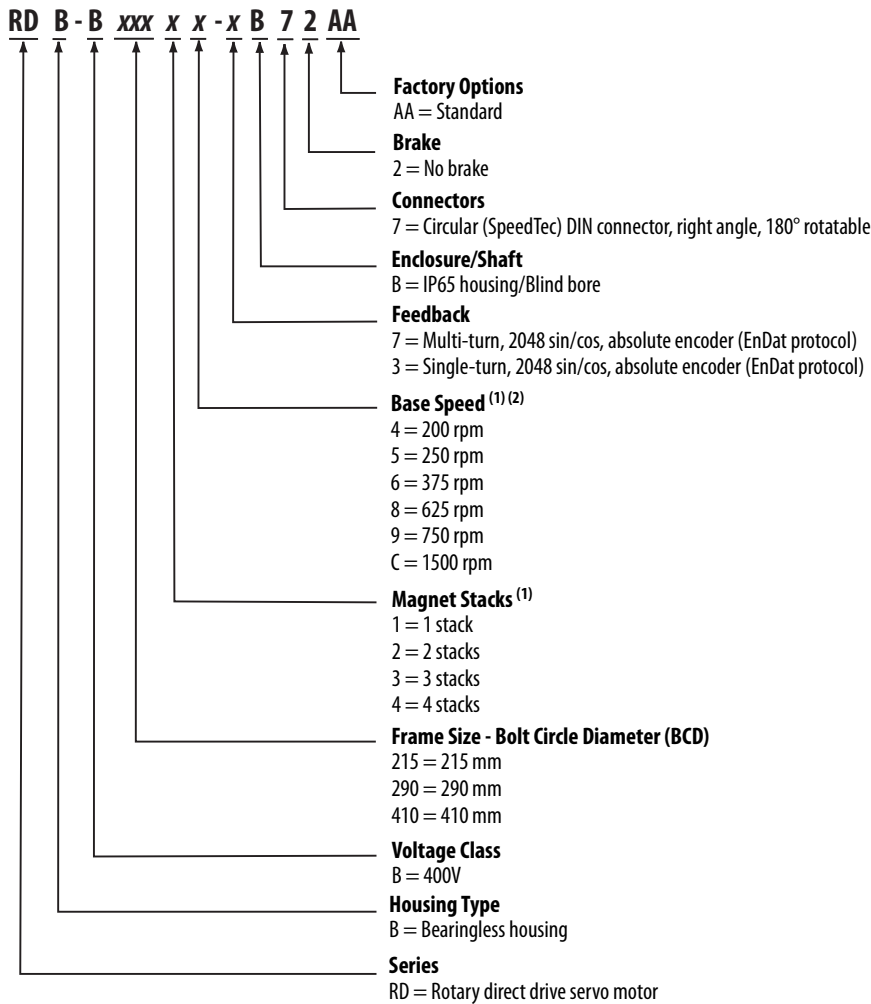
RDD-Series (Bulletin RDB) direct-drive servo motor design provides direct-coupling to the load, thus improving system performance and efficiency by eliminating the need for inefficient mechanical power transmission devices, such as gearboxes, timing belts and pulleys. The RDD-Series direct-drive motors incorporate a bearingless housed configuration designed for applications where the load is already supported by its own bearings.

### RDD-Series Direct Drive Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• Direct coupling to the load</li> <li>• Smart Motor Technology</li> <li>• Heidenhain (EnDat analog) encoder protocol</li> <li>• Bearingless housed configuration</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 400V-class windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• Multiple winding speed options</li> <li>• SpeedTec DIN connectors, rotates 180°</li> <li>• Standard IEC 72-1 mounting dimensions</li> </ul>
Motor type	Direct-drive rotary servo motor
Environmental rating	IP65 with use of environmentally sealed cable connectors
Certifications	Bulletin RDB rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	32.7...426 N·m (289...3770 lb·in)
Peak stall torque	86.5...1050 N·m (766...9293 lb·in)
Rated speed	Rated speeds between 177...1836 rpm
Motor rated output	1.97...8.69 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5700</li> <li>• Kinetix 6200/6500</li> <li>• Kinetix 6000</li> <li>• Kinetix 7000</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• Use to replace mechanical gear reduction (gear boxes, belts, pulleys)</li> <li>• Tight space constraints</li> <li>• Axes with high-power and high-performance requirements</li> </ul>

## Catalog Numbers - RDD-Series Direct Drive 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.



- (1) Not all combinations are available. Only the configurations for rated speed and magnet stacks, as listed in RDD-Series Direct Drive Motor Performance Specifications on [page 131](#), are available. Use Motion Analyzer software to size and select motors for your application.
- (2) Base speed equals maximum speed at peak torque. Maximum speed is servo drive dependent.

## RDD-Series Direct Drive Motor High-resolution Encoders

RDD-Series direct-drive motors are available with high performance encoders with a choice of single-turn (-3) or multi-turn (-7) high-resolution feedback:

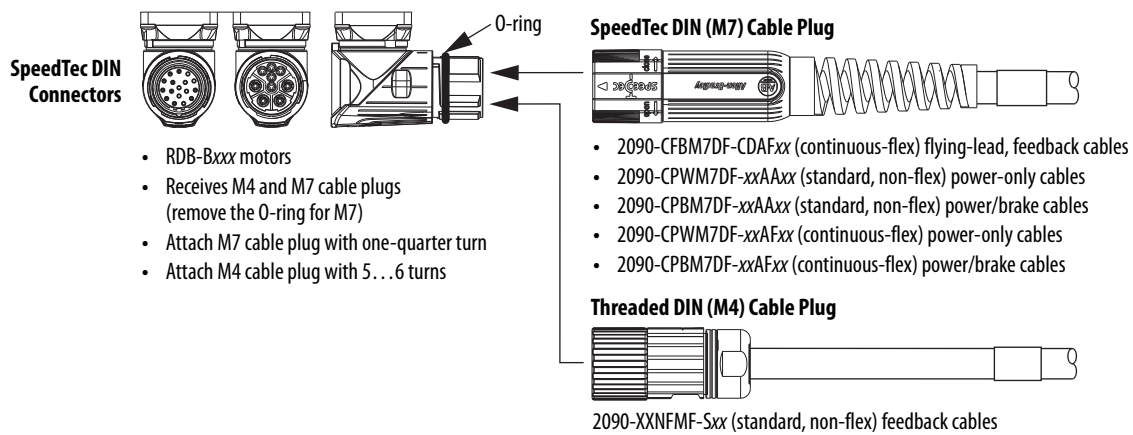
- Up to 4 million counts per revolution (-3 and -7) for smooth performance.
- Single-turn encoder provides high-resolution absolute position feedback within one turn.
- Multi-turn encoder provides high-resolution absolute position feedback within 4096 turns. The electromechanical design does not require a battery.

### Feedback Connector Kit Compatibility

Servo Drive System	Connector Kit Cat. No.
Kinetix 5700	2198-K57CK-D15M
<ul style="list-style-type: none"> <li>• Kinetix 6200</li> <li>• Kinetix 6500</li> </ul>	2090-K6CK-D15M
Kinetix 6000	2090-K6CK-KENDAT
Kinetix 7000	2090-K7CK-KENDAT

## Motor Connector/Cable Compatibility

RDD-Series motors are equipped with SpeedTec DIN connectors, however, EnDat encoder feedback requires the additional conductors included in the cables listed.



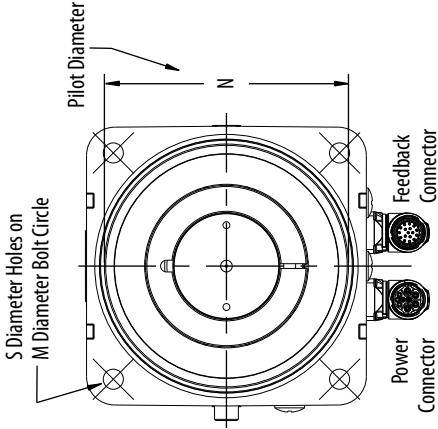
## Technical Specifications - RDD-Series Direct Drive Motors

### RDD-Series Direct Drive Motor Performance Specifications

Motor Cat. No.	Base Speed rpm	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
RDB-B21519	750	1235	1235	32.7 (289)	86.5 (766)	3.64	0.0094 (0.083)	19.1 (42)
RDB-B2151C	1500	2125	2125			5.23		
RDB-B21529	750	1035	1035	45.4 (402)	116 (1027)	4.33	0.0126 (0.112)	24.5 (54)
RDB-B2152C	1500	2125	2125			6.41		
RDB-B21539	750	1250	1250	53.7 (475)	143 (1266)	5.34	0.0157 (0.139)	29.5 (65)
RDB-B2153C	1500	1772	2250			5.87		
RDB-B29014	200	391	450	49.2 (435)	110 (974)	1.97	0.028 (0.25)	28.6 (63)
RDB-B29016	375	729	785			3.18		
RDB-B29019	750	1128	1500			3.63		
RDB-B29024	200	413	435	98.0 (867)	214 (1894)	3.33	0.047 (0.42)	42.7 (94)
RDB-B29026	375	632	885			4.05		
RDB-B29029	750		1200					
RDB-B29034	200	493	500	140 (1239)	318 (2815)	5.16	0.066 (0.58)	55.4 (122)
RDB-B29036	375	646	750			5.49		
RDB-B29039	750	578	1000	122 (1080)	318 (2815)	4.41		
RDB-B41014	200	360	385	183 (1620)	340 (3009)	5.20	0.123 (1.09)	67.6 (149)
RDB-B41016	375	440	700			4.83		
RDB-B41018	625		700					
RDB-B41024	200	350	365	332 (2938)	690 (6107)	7.29	0.225 (1.99)	108 (238)
RDB-B41026	375		600	308 (2726)				
RDB-B41035	250	361	490	426 (3770)	1050 (9293)	8.69	0.302 (2.67)	136 (300)

## Dimensions - RDD-Series Direct Drive Motors

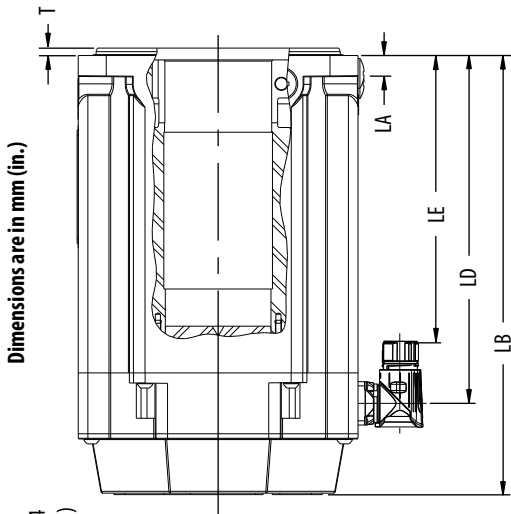
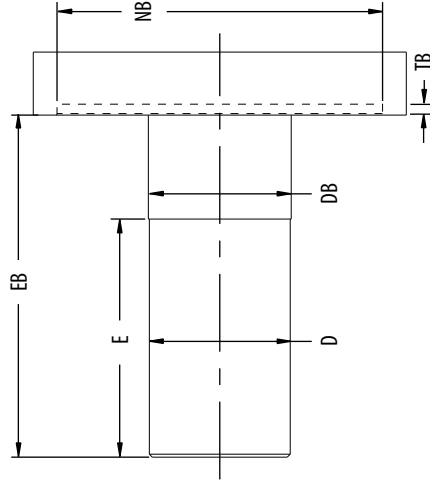
### Bulletin RDB-B215xx Motor Dimensions



**Pilot Diameter (N) Tolerance**  
 $\emptyset$  163.989...164.014  
 (6.4563...6.4572)

**Pilot Diameter (NB) Tolerance**  
 $\emptyset$  164.040...164.090  
 (6.4583...6.4602)

#### Machine Mounting Dimensions

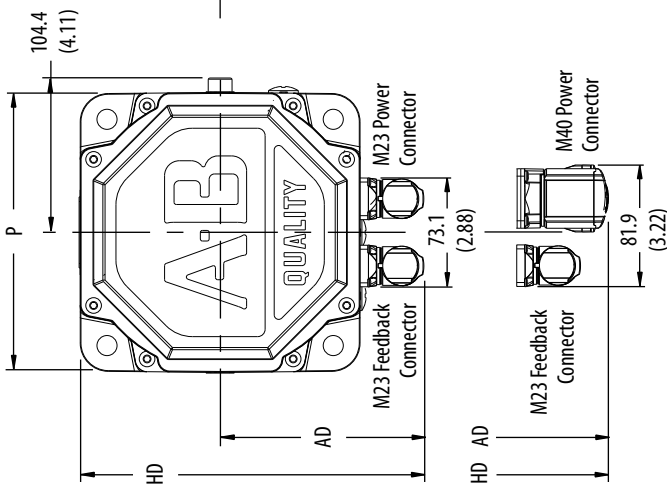


Dimensions are in mm (in.)

**Shaft Diameter (D) Tolerance**  
 $\emptyset$  70.985...71.000  
 (2.7947...2.7953)

**Shaft Diameter (DB) Tolerance**  
 $\emptyset$  71.985...72.000  
 (2.8340...2.8346)

Shaft and Pilot Tolerances	RDB-B215xx
Shaft Runout (T.I.R.)	0.13 (0.005)
Pilot Concentricity (T.I.R.)	0.10 (0.004)
Mounting Surface Perpendicularity	0.10 (0.004)





**Bulletin RDB-B215xx Motor Dimensions**

Motor Cat. No.	AD <sup>(1)</sup> mm (in.)	HD <sup>(1)</sup> mm (in.)	T mm (in.)	LA mm (in.)	LD mm (in.)	LE mm (in.)	LB <sup>(2)</sup> mm (in.)	D mm (in.)	DB mm (in.)	E <sup>(3)</sup> mm (in.)	EB <sup>(4)</sup> mm (in.)	TB mm (in.)	M mm (in.)	S <sup>(5)</sup> mm (in.)	N mm (in.)	NB mm (in.)	P mm (in.)
RDB-B2151					166 (6.52)	124 (4.90)	226 (8.90)			49.0 (1.93)	104 (4.09)						
RDB-B2152	136.7 (5.38)	230.9 (9.09)	5.0 (0.197)	14.0 (0.55)	200 (7.86)	158 (6.24)	260 (10.24)	71.0 (2.795)	72.0 (2.834)	83.0 (3.27)	138 (5.43)	5.5 (0.22)	215 (8.465)	13.50 (0.5315)	164 (6.456)	164 (6.459)	189 (7.44)
RDB-B2153					234 (9.20)	192 (7.58)	294 (11.58)			117 (4.61)	172 (6.77)						

(1) Dimension is for motor with M23 power connector. For motor with M40 power connector, add 18.6 (0.73 in.).

(2) Tolerance for this dimension is ±0.52 mm (±0.02 in.).

(3) Tolerance for this dimension is ±0.40 mm (±0.015 in.).

(4) Tolerance for this dimension is ±1.50 mm (±0.06 in.) static, ±0.13 mm (±0.005 in.) dynamic.

(5) Tolerance for this dimension is +0.430, -0.000 mm (+0.0169, -0.0000 in.).

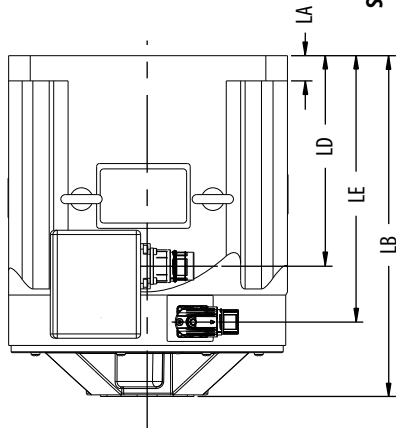
Power Connectors on RDD-Series Motors	Motor Cat. No.
M23 Power Connector	RDB-B21519, RDB-B21529, RDB-B2151C, RDB-B21539, RDB-B2152C
M40 Power Connector	RDB-B2153C

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

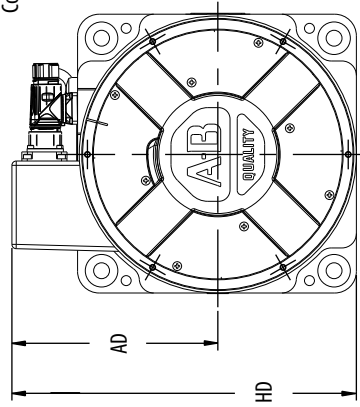
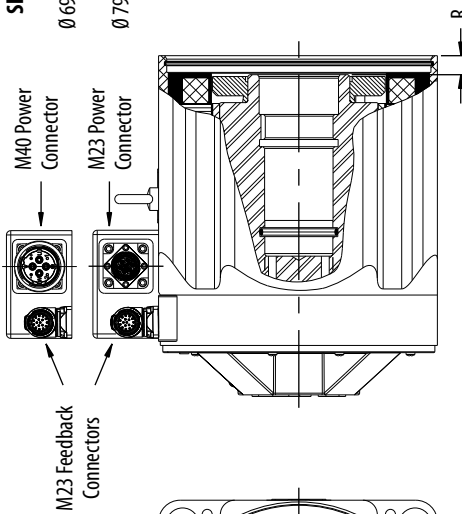
**Bulletin RDB-B290xx and RDB-B410xx Motor Dimensions**

Shaft, Pilot, and Keyway Tolerances	RDB-B290xx	RDB-B410xx
Shaft Runout (T.I.R.)	0.038 (0.0015)	
Pilot Concentricity (T.I.R.)	0.05 (0.002)	
Mounting Surface Perpendicularity	0.05 (0.002)	
Keyway Depth (G)	24.80...24.99 (0.976...0.984)	29.80...29.99 (1.173...1.181)
Keyway Depth (GD)	7.90...8.00 (0.311...0.315)	
Keyway Width (F)	11.957...12.000 (0.4707...0.4724)	

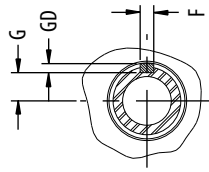
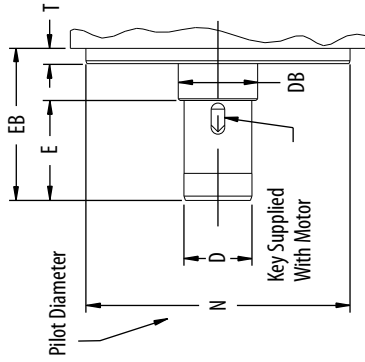
Dimensions are in mm (in.)



RDB-B290xx and RDB-B410xx motors have either M23 or M40 power connectors, with no significant difference in dimensions.



Machine Mounting Dimensions

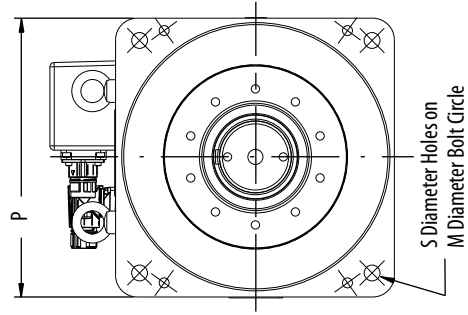


**Shaft Key Detail**

**Shaft Diameter (D) Tolerance**  
 RDB-B290xx Motors:  
 Ø 59.988...59.999 (2.3617...2.3622)  
 RDB-B410xx Motors:  
 Ø 69.988...69.999 (2.7554...2.7559)

**Shaft Diameter (DB) Tolerance**  
 RDB-B290xx Motors:  
 Ø 69.988...69.999 (2.7554...2.7559)  
 RDB-B410xx Motors:  
 Ø 79.988...79.999 (3.1491...3.1496)

**Pilot Diameter Tolerance**  
 RDB-B290xx Motors:  
 Ø 232.92...232.96 (9.170...9.172)  
 RDB-B410xx Motors:  
 Ø 333.94...333.98 (13.147...13.149)



S Diameter Holes on  
M Diameter Bolt Circle

**Bulletin RDB-B290xx and RDB-B410xx Motor Dimensions**

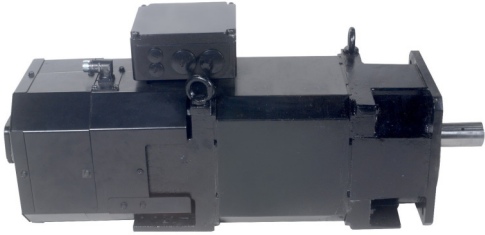
Motor Cat. No.	AD mm (in.)	HD mm (in.)	T mm (in.)	LA <sup>(1)</sup> mm (in.)	LD mm (in.)	LE mm (in.)	LB <sup>(2)</sup> mm (in.)	D mm (in.)	DB mm (in.)	E <sup>(3)</sup> mm (in.)	EB <sup>(4)</sup> mm (in.)	M mm (in.)	S mm (in.)	N mm (in.)	P <sup>(5)</sup> mm (in.)	G mm (in.)	GD mm (in.)	F mm (in.)
RDB-B2901					86.5 (3.40)	136 (5.34)	201 (7.92)			43.94 (1.730)	88.92 (3.540)							
RDB-B2902	182.3 (7.18)	305.9 (12.05)	13.5 (0.53)	22.2 (0.88)	136 (5.36)	185 (7.30)	251 (9.90)	59.9 (2.362)	69.9 (2.755)	88.14 (3.470)	134.11 (5.280)	290 (11.417)	14.0 (0.551)	232.9 (9.17)	245.9 (9.68)	24.99 (0.984)	8.00 (0.315)	12.0 (0.472)
RDB-B2903					186 (7.31)	235 (9.25)	301 (11.83)			124.7 (4.910)	170.69 (6.720)							
RDB-B4101					105 (4.14)	164 (6.46)	230 (9.05)			40.39 (1.590)	114.05 (4.490)							
RDB-B4102	256.3 (10.09)	432.1 (17.01)	17.8 (0.70)	25.4 (1.00)	174 (6.86)	233 (9.18)	300 (11.77)	69.9 (2.755)	79.9 (3.149)	83.82 (3.300)	167.89 (6.610)	410 (16.142)	17.5 (0.689)	333.9 (13.14)	350.0 (13.78)	29.99 (1.181)	8.00 (0.315)	12.0 (0.472)
RDB-B4103					243 (9.58)	302 (11.90)	368 (14.49)			118.62 (4.670)	253.49 (9.980)							

- (1) Tolerance for this dimension is  $\pm 2.15$  mm ( $\pm 0.085$  in.).
- (2) Tolerance for this dimension is  $\pm 2.30$  mm ( $\pm 0.09$  in.).
- (3) Tolerance for this dimension is  $\pm 0.13$  mm ( $\pm 0.005$  in.).
- (4) Tolerance for this dimension is  $\pm 1.50$  mm ( $\pm 0.060$  in.) static,  $\pm 0.05$  mm ( $\pm 0.002$  in.) dynamic.
- (5) Tolerance for this dimension is  $\pm 1.52$  mm ( $\pm 0.06$  in.).

Power Connectors on RDD-Series Motors	RDB-B290xx Cat. No.	RDB-B410xx Cat. No.
M23 Power Connector	RDB-B29014, RDB-B29016, RDB-B29024, RDB-B29019, RDB-B29034, RDB-B29026	N/A
M40 Power Connector	RDB-B29036, RDB-B29029, RDB-B29039	RDB-B410xx

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

## HPK-Series Asynchronous Servo Motors



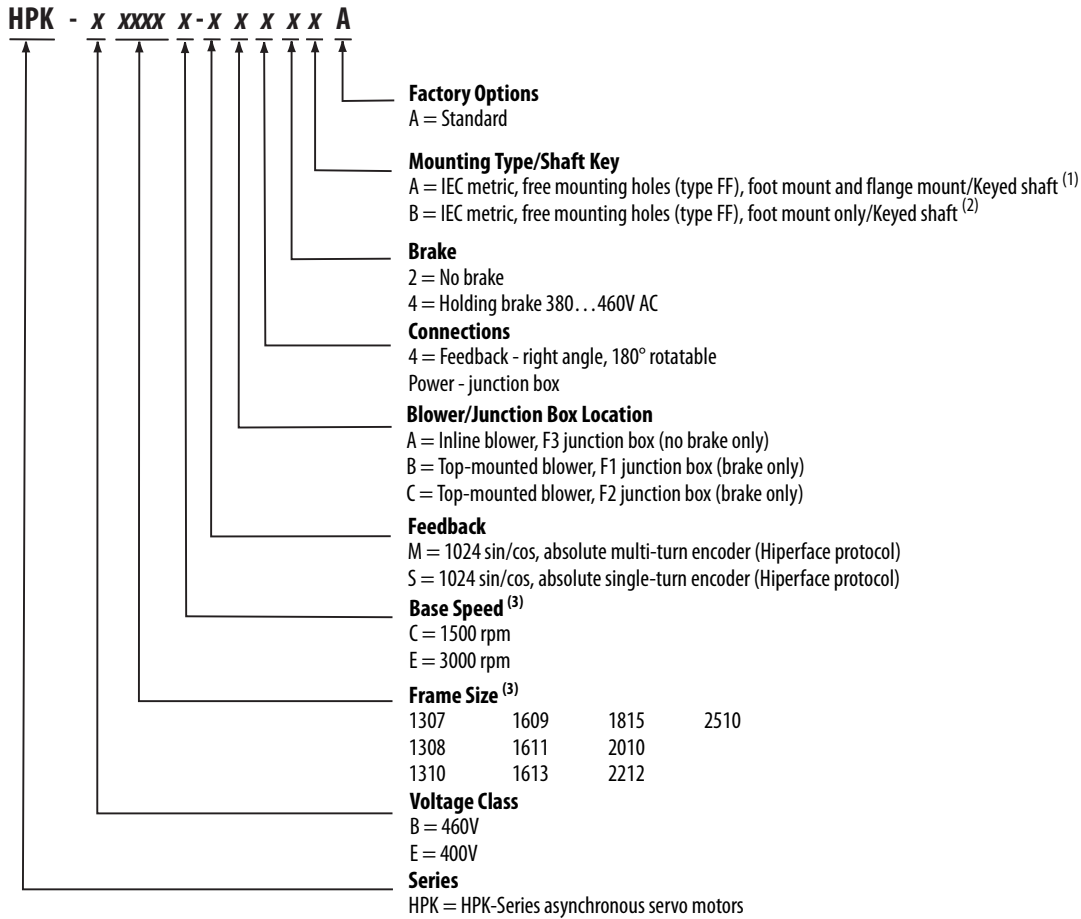
HPK-Series Asynchronous Servo Motors employ proven induction motor technology optimized for servo system performance. These high horsepower motors offer exceptional performance for rapid acceleration and deceleration. Team these AC motors with the Kinetix 5700 single-axis inverters or Kinetix 7000 high-power servo drives to extend the range of Kinetix Integrated Motion solutions up to 150 kW.

### HPK-Series Asynchronous Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• High-power</li> <li>• Hiperface encoder protocol</li> <li>• Large load inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 400V and 460V windings</li> <li>• Single-turn and multi-turn absolute feedback</li> <li>• DIN connectors, rotates 180°</li> <li>• Blower cooled</li> <li>• IEC flange or foot mount</li> </ul>
Motor type	Asynchronous servo motors
Environmental rating	IP54
Certifications	HPK-Series rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	96...955 N·m (849...8452 lb·in)
Peak stall torque	165...1927 N·m (1460...17,054 lb·in)
Rated speed	Rated speeds of 1500 and 3000 rpm
Motor rated output	17.1...150 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 5700</li> <li>• Kinetix 7000</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• High power packaging</li> <li>• Converting</li> <li>• Wind/unwind/rewind</li> <li>• Sheeters</li> <li>• Flying knife</li> <li>• Material handling</li> </ul>

## Catalog Numbers - HPK-Series Asynchronous Servo 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.



(1) Applies to only HPK-B/E13xx and HPK-B/E16xx motors.

(2) Applies to only HPK-B/E18xx, HPK-B/E20xx, HPK-B22xx, and HPK-B25xx motors.

(3) Not all combinations are available. Only the configurations for rated speed and frame size, as listed in HPK-Series Asynchronous Servo Motor (460V) Performance Specifications on [page 139](#) and HPK-Series Asynchronous Servo Motor (400V) Performance Specifications on [page 139](#), are available. Use Motion Analyzer software to size and select motors for your application.

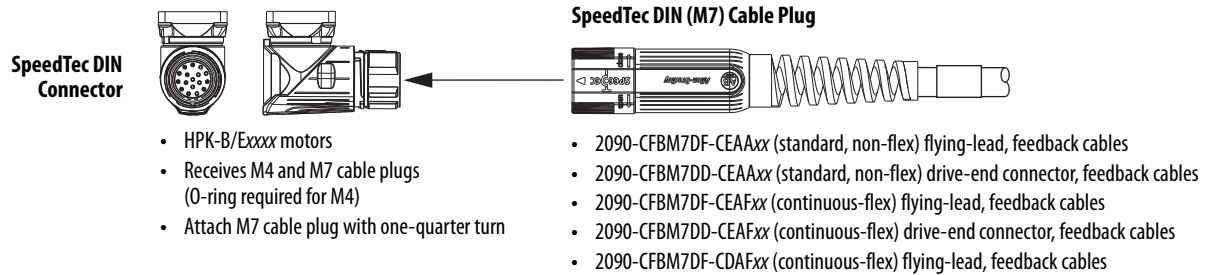
## HPK-Series Asynchronous Servo Motor Encoders

HPK-Series motors are available with high performance encoders with a choice of single-turn (-S) or multi-turn (-M) high-resolution feedback:

- 1024 sin/cos cycles per revolution for up to 21-bit resolution (2,097,152 counts per revolution) -M and -S (HPK-Bxxxx and HPK-Exxxx 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.

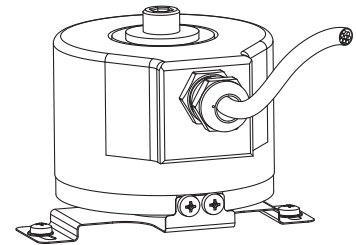
## Motor Connector/Cable Compatibility

HPK-Series motors are equipped with SpeedTec DIN connectors.



## HPK-Series Asynchronous Servo Motor Options

- Multiple junction box mounting locations (F1, F2, and F3).
- Holding brake, 380V...460V AC.
- 460V and 400V windings.
- Encoder kit (catalog number HPK-xxxxxxx-ENC-xx) available for field replacement. Kits are pre-programmed for a specific motor catalog number. Kit includes cable and DIN connector.



## Technical Specifications - HPK-Series Asynchronous Servo Motors

### HPK-Series Asynchronous Servo Motor (460V) Performance Specifications

Motor Cat. No.	Base Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
HPK-B1307C	1500	3000	112 (991)	257 (2274)	17.1 (22.9)	0.081 (0.7168)	135 (297)
HPK-B1308C			141 (1247)	262 (2319)	21.6 (28.9)	0.098 (0.8673)	152 (335)
HPK-B1310C			155 (1372)	325 (2876)	23.8 (31.9)	0.111 (0.9823)	166 (366)
HPK-B1613C			271 (2398)	542 (4797)	41.7 (55.9)	0.206 (1.8231)	275 (606)
HPK-B1815C			360 (3186)	850 (7523)	55.9 (74.9)	0.468 (4.1418)	474 (1045)
HPK-B2010C			482 (4266)	970 (8585)	75.0 (100.5)	0.885 (7.8322)	531 (1170)
HPK-B2212C			607 (5371)	1105 (9780)	94.0 (127)	1.900 (16.829)	847 (1867)
HPK-B2510C		2000	955 (8452)	1927 (17,054)	150 (200)	3.070 (27.192)	1005 (2216)
HPK-B1307E	3000	5000	96 (849)	165 (1460)	29.8 (39.9)	0.081 (0.7168)	135 (297)
HPK-B1308E			115 (1018)	230 (2035)	35.7 (47.8)	0.098 (0.8673)	152 (335)
HPK-B1609E			156 (1381)	270 (2390)	48.4 (64.8)	0.147 (1.3009)	231 (469)
HPK-B1611E			183 (1619)	400 (3540)	57.0 (76.4)	0.177 (1.5664)	244 (538)
HPK-B1613E			237 (2097)	459 (4062)	73.7 (98.8)	0.206 (1.8231)	275 (606)
HPK-B2010E			295 (2610)	500 (4425)	92.0 (125)	0.885 (7.8322)	576 (1270)

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

### HPK-Series Asynchronous Servo Motor (400V) Performance Specifications

Motor Cat. No.	Base Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW (Hp)	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	Motor Weight, approx kg (lb)
HPK-E1307C	1500	3000	112 (991)	263 (2327)	17.1 (22.9)	0.081 (0.7168)	135 (297)
HPK-E1310C			155 (1372)	380 (3363)	23.8 (32.4)	0.111 (0.9823)	166 (366)
HPK-E1613C			271 (2398)	625 (5531)	41.7 (55.9)	0.206 (1.8231)	275 (606)
HPK-E1815C			360 (3186)	840 (7434)	55.9 (74.9)	0.468 (4.1418)	474 (1045)
HPK-E2010C			482 (4266)	870 (7700)	75.0 (100.5)	0.885 (7.8322)	531 (1170)
HPK-E1307E	3000	5000	96.0 (849)	202 (1788)	29.8 (39.9)	0.081 (0.7168)	135 (297)
HPK-E1308E			107 (947)	200 (1770)	33.2 (45.0)	0.098 (0.8673)	152 (335)
HPK-E1609E			156 (1381)	359 (3176)	48.4 (64.9)	0.147 (1.3009)	213 (469)
HPK-E1611E			183 (1619)	430 (3805)	57.0 (76.4)	0.177 (1.5664)	244 (538)
HPK-E1613E			237 (2097)	430 (3805)	73.7 (98.8)	0.206 (1.8231)	275 (606)

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

**HPK-Series Asynchronous Servo Motor Brake Specifications**

<b>Motor Cat. No.</b>	<b>Holding Torque</b> N·m (lb·in)
HPK-B/E1307C	20 (177)
HPK-B/E1308C	
HPK-B/E1310C	
HPK-B/E1613C	
HPK-B/E1815C	48 (425)
HPK-B/E2010C	
HPK-B2212C	102 (903)

<b>Motor Cat. No.</b>	<b>Holding Torque</b> N·m (lb·in)
HPK-B/E1307E	20 (177)
HPK-B/E1308E	
HPK-B/E1609E	
HPK-B/E1611E	
HPK-B/E1613E	
HPK-B/E2010E	48 (425)



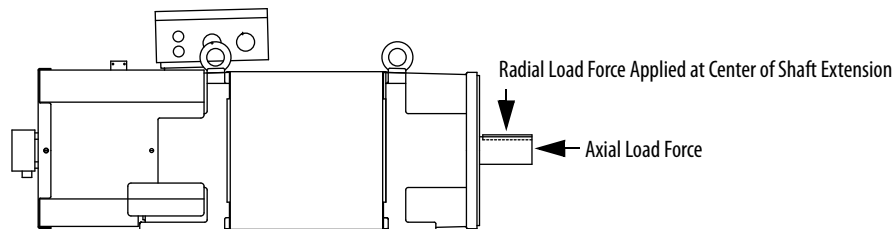
### HPK-Series Asynchronous Servo Motor Load Force Ratings

HPK-Series 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  $L_{10}$  bearing fatigue life of 10,000 hours. This 10,000-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 (zero axial load)

Motor Cat. No.	850 rpm kg (lb)	1150 rpm kg (lb)	1750 rpm kg (lb)	2500 rpm kg (lb)
HPK-B/E1307	320 (704)	290 (638)	250 (550)	220 (485)
HPK-B/E1308	320 (704)	290 (638)	250 (550)	220 (485)
HPK-B/E1310	320 (704)	290 (638)	250 (550)	220 (485)
HPK-B/E1609	500 (1100)	450 (990)	390 (858)	350 (770)
HPK-B/E1611	500 (1100)	450 (990)	390 (858)	350 (770)
HPK-B/E1613	500 (1100)	450 (990)	390 (858)	350 (770)
HPK-B/E1815	530 (1166)	530 (1166)	530 (1166)	450 (990)
HPK-B/E2010	660 (1452)	660 (1452)	660 (1452)	580 (1276)
HPK-B2212	730 (1609)	690 (1521)	600 (1323)	530 (1168)
HPK-B2510				

#### Load Forces on Shaft

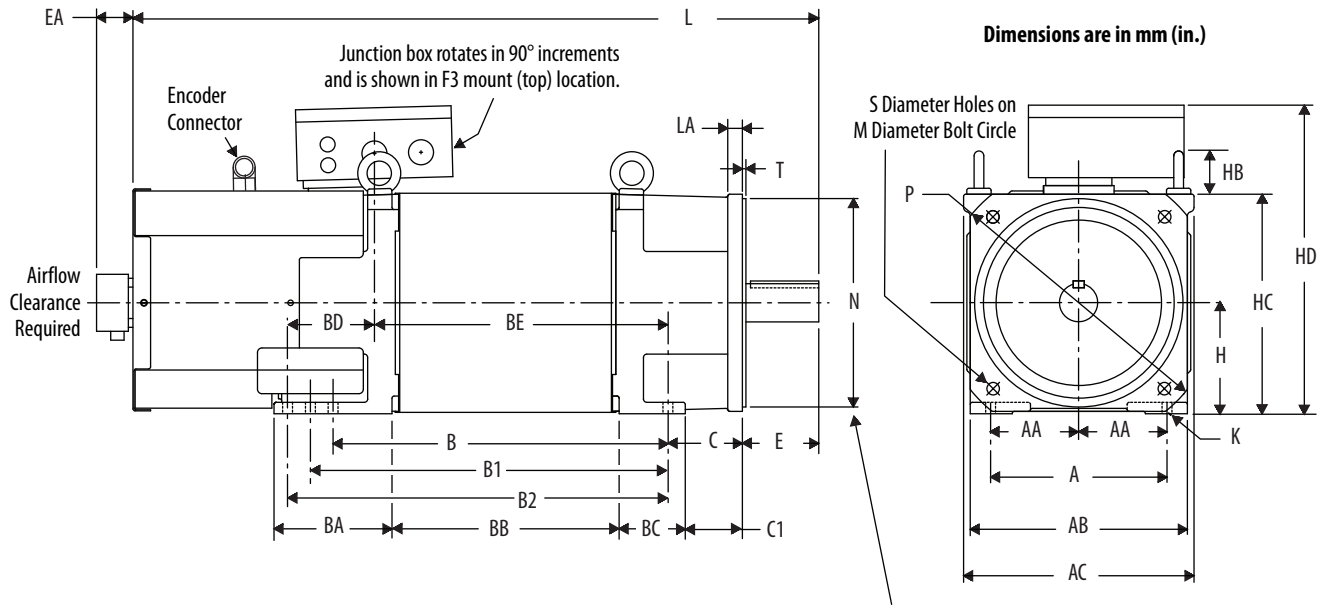


#### Axial Load Force Ratings (zero radial load)

Motor Cat. No.	850 rpm kg (lb)	1150 rpm kg (lb)	1750 rpm kg (lb)	2500 rpm kg (lb)
HPK-B/E1307	260 (572)	240 (528)	210 (462)	180 (396)
HPK-B/E1308	260 (572)	240 (528)	210 (462)	180 (396)
HPK-B/E1310	260 (572)	240 (528)	210 (462)	180 (396)
HPK-B/E1609	360 (796)	330 (726)	290 (638)	250 (550)
HPK-B/E1611	360 (796)	330 (726)	290 (638)	250 (550)
HPK-B/E1613	360 (796)	330 (726)	290 (638)	250 (550)
HPK-B/E1815	440 (970)	380 (838)	310 (682)	260 (572)
HPK-B/E2010	530 (1166)	460 (1012)	370 (814)	310 (682)
HPK-B2212	800 (1764)	730 (1609)	630 (1389)	560 (1235)
HPK-B2510				

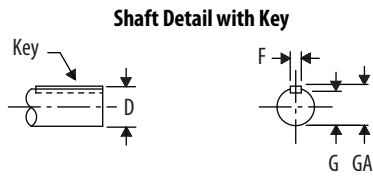
## Dimensions - HPK-Series Asynchronous Servo Motors

### HPK-B/E13xx and HPK-B/E16xx Motor (non-brake) Dimensions



**Shaft Diameter Tolerances**  
 HPK-B/E1307, 1308, 1310  
 Ø 48.003...48.016 (1.8899...1.8904)  
 HPK-B/E1609, 1611, 1613  
 Ø 55.011...55.030 (2.1658...2.1665)

**Pilot Diameter Tolerances**  
 HPK-B/E1307, 1308, 1310  
 Ø 249.99...250.02 (9.842...9.844)  
 HPK-B/E1609, 1611, 1613  
 Ø 299.99...300.02 (11.809...11.811)



HPK-B/E1307, 1308, 1310 = 14 x 9 x 80 Key  
 HPK-B/E1609, 1611, 1613 = 16 x 10 x 90 Key

Shaft, Pilot, and Keyway Tolerances	HPK-B/E13xx	HPK-B/E16xx
Shaft Runout (T.I.R.)	0.06 (0.002)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)	0.13 (0.005)
Keyway Depth (GA)	51.30...51.9 (2.02...2.04)	58.67...58.92 (2.31...2.32)
Keyway Depth (G)	42.42...42.92 (1.67...1.69)	48.50...49.00 (1.91...1.93)
Keyway Width (F)	13.94...13.99 (0.549...0.551)	15.95...16.00 (0.628...0.630)

## HPK-B/E13xx and HPK-B/E16xx Motor (non-brake) Dimensions

Motor Cat. No.	H mm (in.)	HC mm (in.)	HD mm (in.)	HB mm (in.)	L mm (in.)	EA mm (in.)	LA mm (in.)	T mm (in.)	P mm (in.)	M mm (in.)	S <sup>(1)</sup> mm (in.)	N <sup>(2)</sup> mm (in.)	D <sup>(2)</sup> mm (in.)	G <sup>(2)</sup> mm (in.)	GA <sup>(2)</sup> mm (in.)	F <sup>(2)</sup> mm (in.)
HPK-B/E1307					806 (31.7)											
HPK-B/E1308	132 (5.20)	262 (10.3)	366 (14.4)	53.0 (2.09)	845 (33.2)	52.0 (2.05)	17.0 (0.67)	5.0 (0.20)	350 (13.7)	300 (11.8)	18.5 (0.73)	250 (9.84)	48.0 (1.89)	42.4 (1.67)	51.3 (2.02)	13.9 (0.55)
HPK-B/E1310					876 (34.4)											
HPK-B/E1609			444 (17.4)		886 (34.8)											
HPK-B/E1611	160 (6.30)	316 (12.4)	450 (17.7)	62.0 (2.44)	937 (36.8)	52.0 (2.05)	21.0 (0.83)	5.0 (0.20)	400 (15.7)	350 (13.7)	18.5 (0.73)	300 (11.8)	55.0 (2.16)	48.5 (1.91)	58.7 (2.31)	16.0 (0.63)
HPK-B/E1613					987 (38.8)											

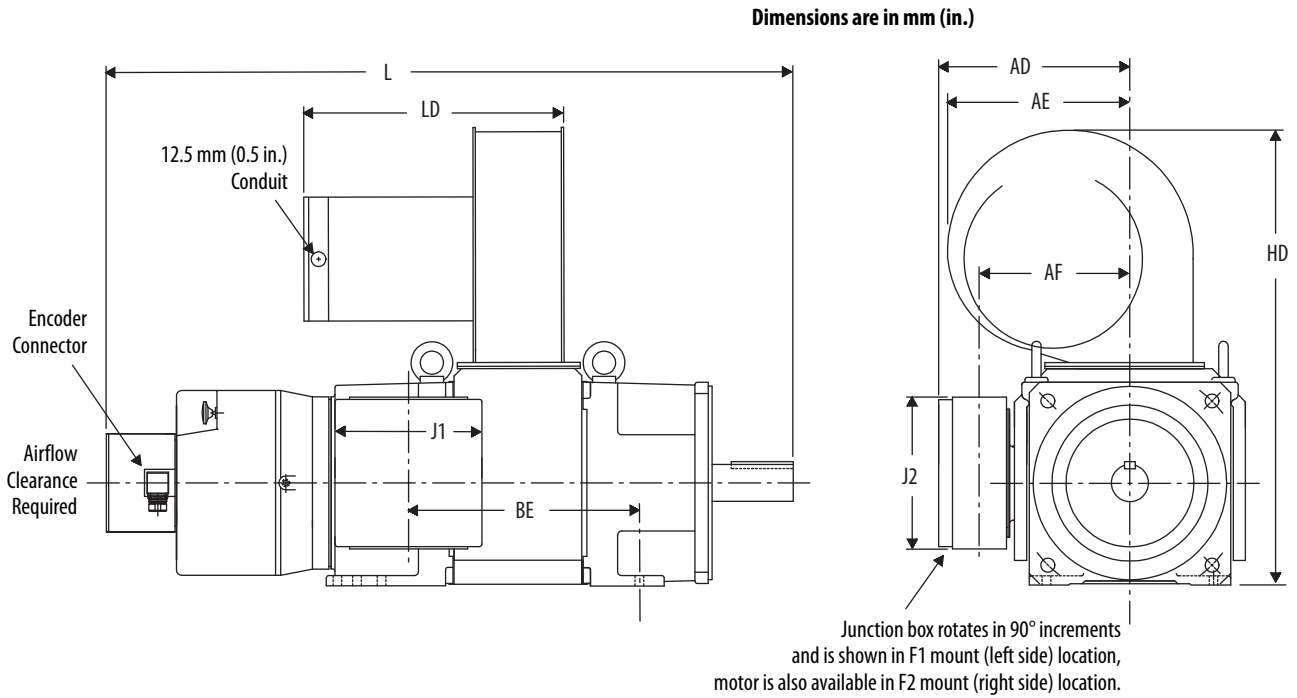
(1) Tolerance for this dimension is +0.52, -0.0 mm (+0.02, -0.0 in.).

(2) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 142](#).

Motor Cat. No.	K mm (in.)	A mm (in.)	AA mm (in.)	AB mm (in.)	AC mm (in.)	B mm (in.)	B1 mm (in.)	B2 mm (in.)	BA mm (in.)	BB mm (in.)	BC mm (in.)	C mm (in.)	C1 mm (in.)	E mm (in.)	BD mm (in.)	BE mm (in.)
HPK-B/E1307						333 (13.1)	365 (14.3)	390 (15.3)		187 (7.36)						300 (11.8)
HPK-B/E1308	12.0 (0.47)	216 (8.50)	108 (4.25)	260 (10.2)	279 (10.9)	371 (14.6)	403 (15.8)	428 (16.8)	154 (6.06)	226 (8.90)	95.0 (3.74)	89.0 (3.50)	57.0 (2.24)	110 (4.33)	91.0 (3.58)	338 (13.3)
HPK-B/E1310						403 (15.8)	435 (17.1)	462 (18.1)		257 (10.1)						369 (14.5)
HPK-B/E1609						N/A	414 (16.3)	452 (17.8)		225 (8.86)						321 (12.6)
HPK-B/E1611	14.0 (0.55)	254 (10.0)	127 (5.0)	313 (12.3)	332 (13.0)	N/A	464 (18.2)	502 (19.7)	170 (6.69)	276 (10.8)	95.0 (3.74)	108 (4.25)	82.0 (3.23)	110 (4.33)	130 (5.12)	372 (14.6)
HPK-B/E1613						N/A	515 (20.2)	548 (21.5)		327 (12.8)					125 (4.92)	423 (16.6)

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

**HPK-B/E13xx and HPK-B/E16xx Motor (brake) Dimensions**

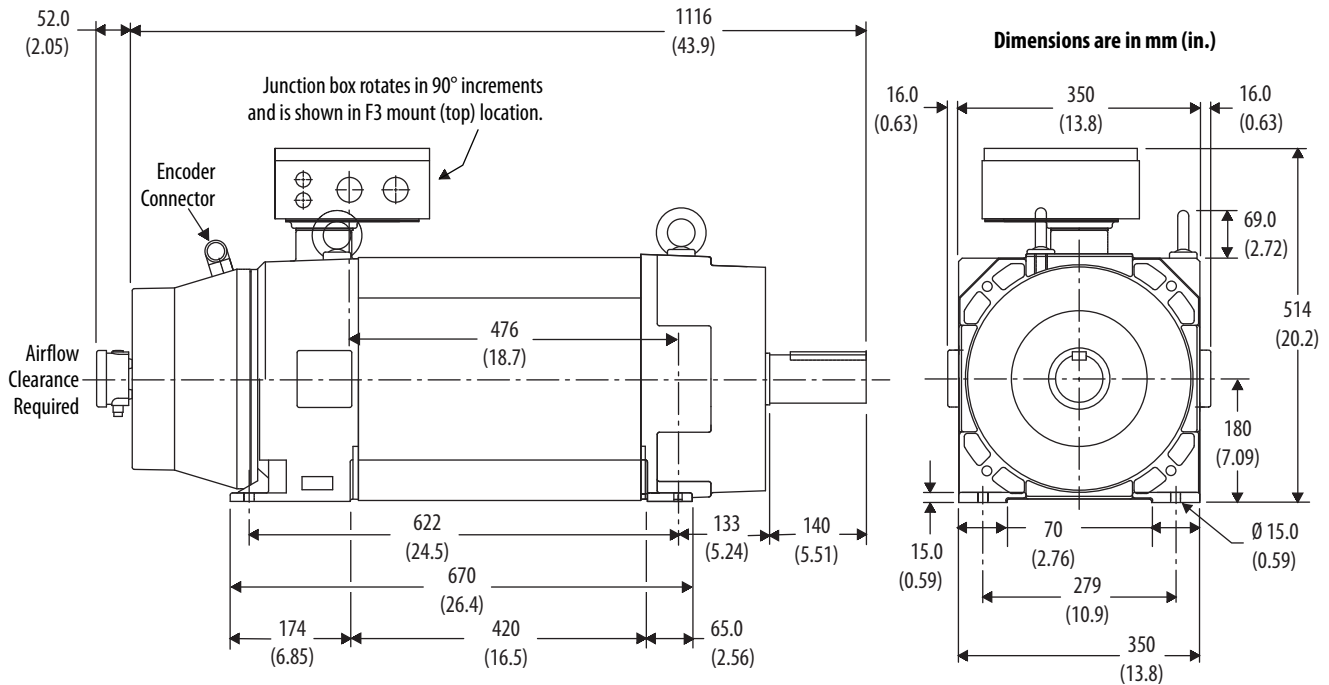


**HPK-B/E13xx and HPK-B/E16xx Motor (brake) Dimensions**

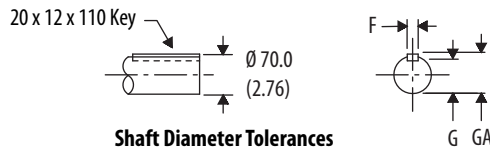
Motor Cat. No.	L mm (in.)	LD mm (in.)	BE mm (in.)	AD mm (in.)	AE mm (in.)	AF mm (in.)	HD mm (in.)	J1 mm (in.)	J2 mm (in.)
HPK-B/E1307	888 (34.9)	336 (13.2)	298 (11.7)	247 (9.72)	236 (9.29)	195 (7.68)	588 (23.1)	190 (7.48)	196 (7.72)
HPK-B/E1308	926 (36.4)		336 (13.2)						
HPK-B/E1310	957 (37.7)		368 (14.5)						
HPK-B/E1609	967 (38.0)	332 (13.0)	328 (12.9)	285 (11.2)	236 (9.29)	225 (8.86)	670 (26.3)	224 (8.82)	228 (8.98)
HPK-B/E1611	1018 (40.1)		379 (14.9)						
HPK-B/E1613	1069 (42.1)		430 (16.9)						

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

**HPK-B/E1815 Motor (non-brake) Dimensions**



**Shaft Detail with Key**

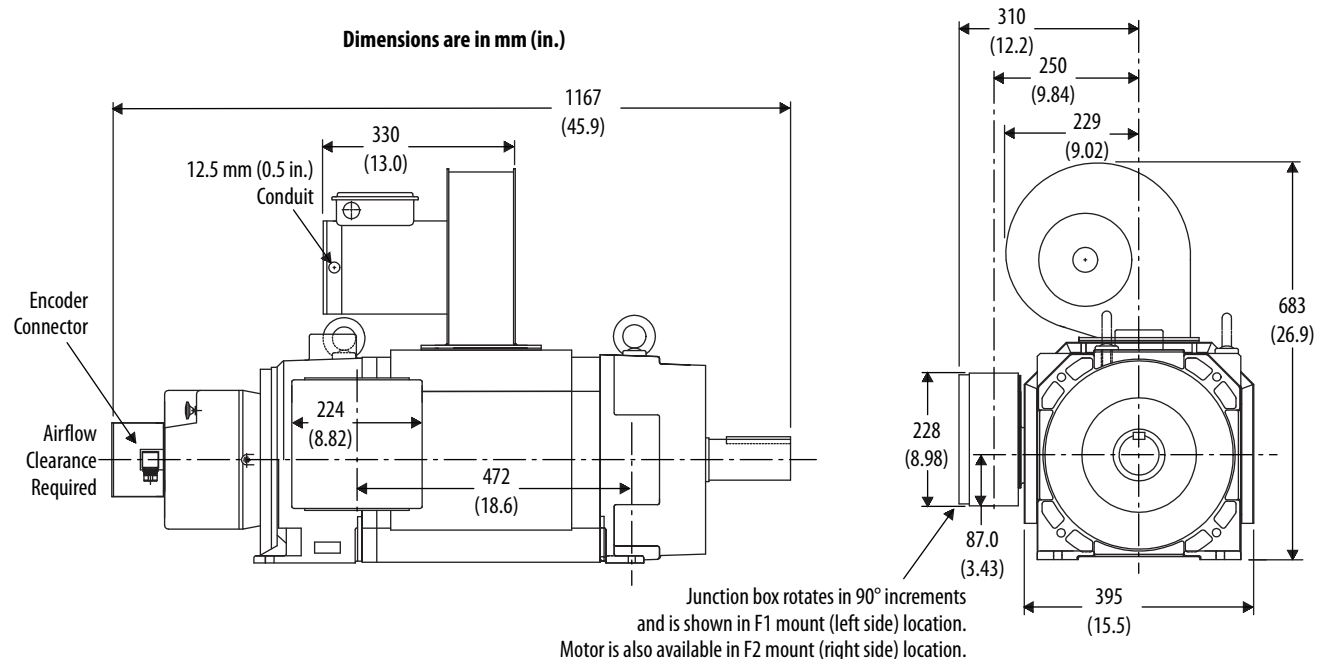


**Shaft Diameter Tolerances**

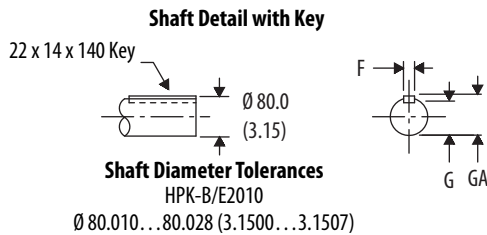
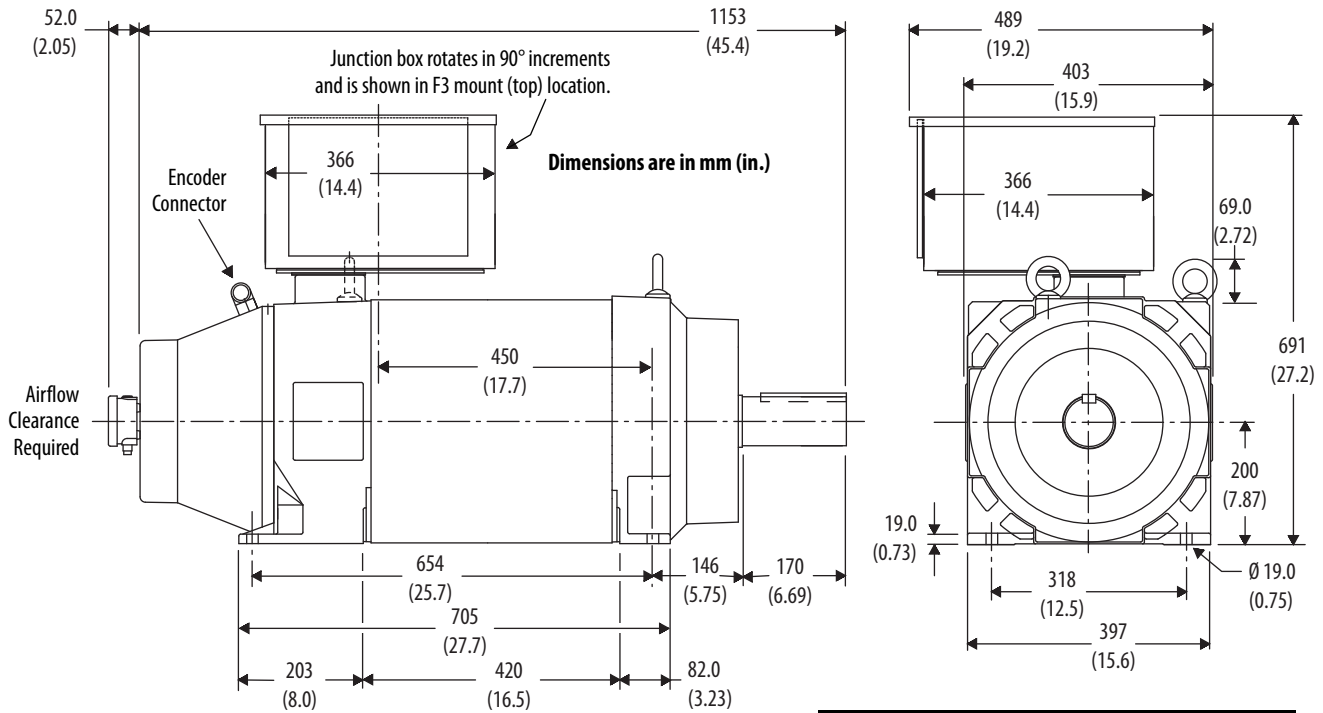
HPK-B/E1815  
 Ø 70.007...70.033 (2.7562...2.7572)

Shaft, Pilot, and Keyway Tolerances	HPK-B/E1815
Shaft Runout (T.I.R.)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)
Keyway Depth (GA)	73.90...74.50 (2.91...2.93)
Keyway Depth (G)	62.00...62.50 (2.44...2.46)
Keyway Width (F)	19.94...19.99 (0.785...0.787)

**HPK-B/E1815 Motor (brake) Dimensions**

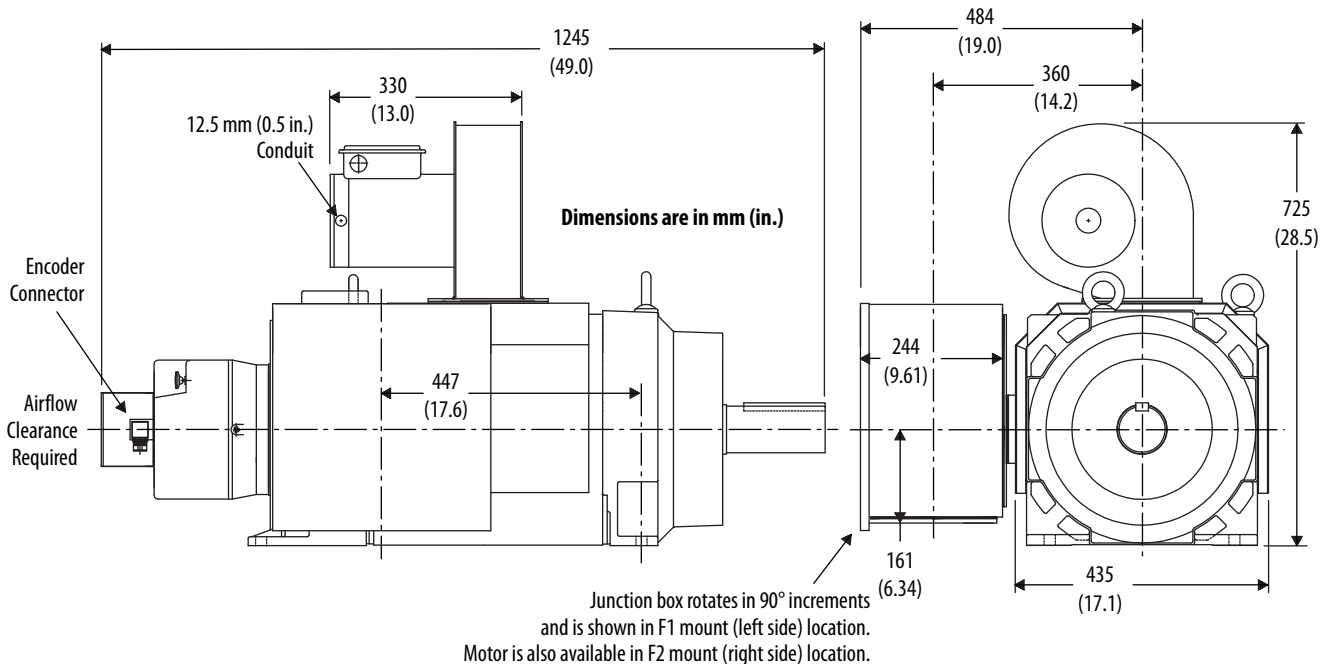


**HPK-B/E2010 Motor (non-brake) Dimensions**

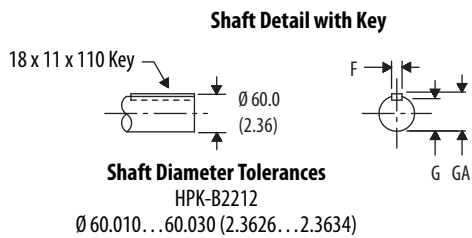
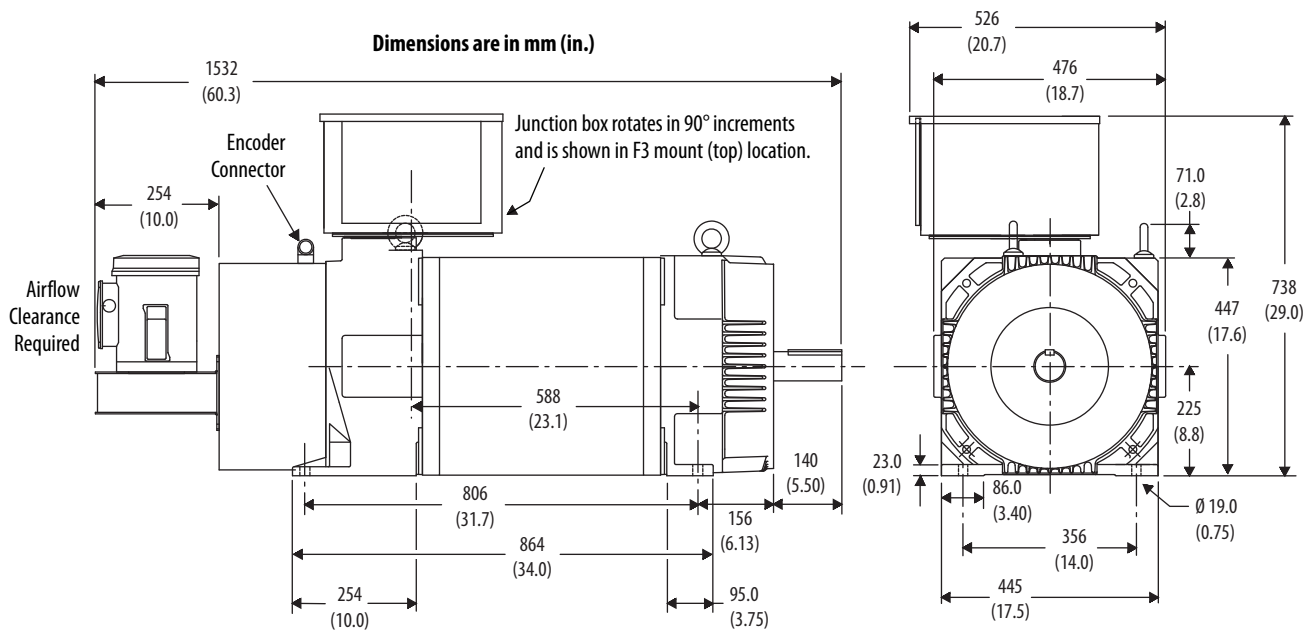


Shaft, Pilot, and Keyway Tolerances	HPK-B/E2010
Shaft Runout (T.I.R.)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)
Keyway Depth (GA)	84.50...85.10 (3.33...3.35)
Keyway Depth (G)	70.60...71.10 (2.78...2.80)
Keyway Width (F)	21.95...22.00 (0.864...0.866)

**HPK-B/E2010 Motor (brake) Dimensions**

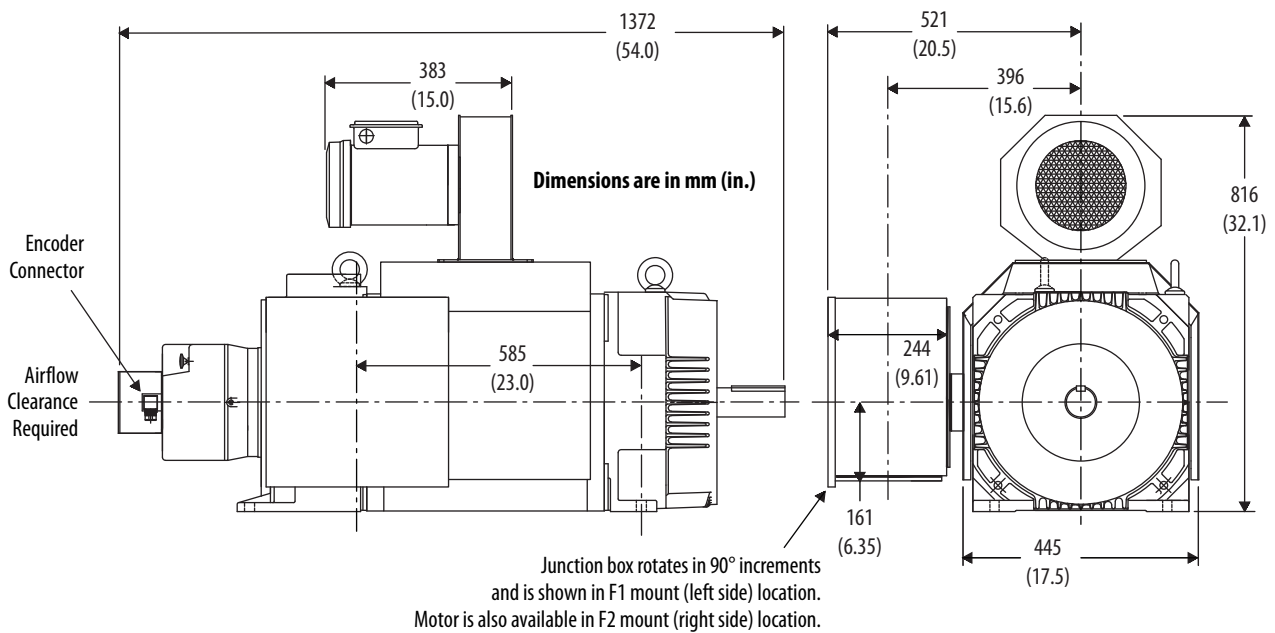


**HPK-B2212 Motor (non-brake) Dimensions**



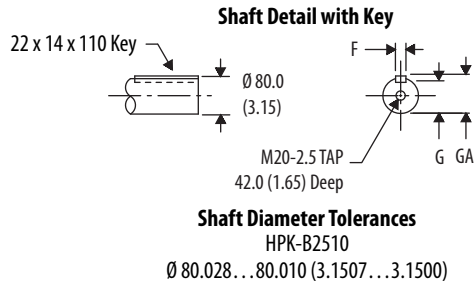
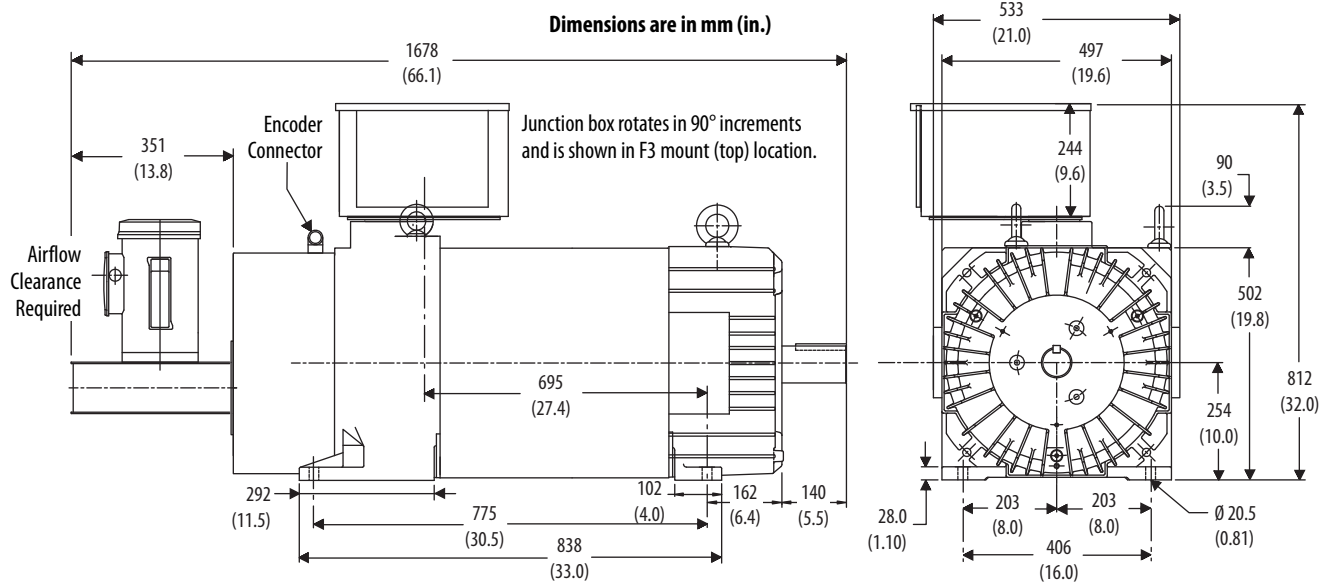
Shaft, Pilot, and Keyway Tolerances	HPK-B2212
Shaft Runout (T.I.R.)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)
Keyway Depth (GA)	63.08...64.08 (2.48...2.59)
Keyway Depth (G)	52.57...53.08 (2.07...2.09)
Keyway Width (F)	21.95...22.00 (0.864...0.866)

**HPK-B2212 Motor (brake) Dimensions**



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

**HPK-B2510 Motor (non-brake) Dimensions**



Shaft, Pilot, and Keyway Tolerances	HPK-B2510
Shaft Runout (T.I.R.)	0.06 (0.002)
Max Face Runout (T.I.R.)	0.13 (0.005)
Keyway Depth (GA)	85.1 ... 84.5 (3.35 ... 3.33)
Keyway Depth (G)	71.1 ... 70.6 (2.80 ... 2.78)
Keyway Width (F)	22.0 ... 21.95 (0.866 ... 0.864)

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



## TL-Series Motors

The TL-Series™ motors are low-inertia high-performance servo motors featuring metric and NEMA frame sizes. They combine a compact size with a high torque density afforded by their superior stator design. The result is a package that provides substantial power in a small footprint.

### TL-Series (Bulletin TLY) Motors



TL-Series (Bulletin TLY) motors are equipped with circular plastic connectors and when used with the Kinetix 2000, Kinetix 6000, or Ultra3000 drives, the TL-Series (Bulletin TLY) motors are able to offer the benefits of Kinetix Integrated Motion.

### TL-Series (Bulletin TL) Motors



TL-Series (Bulletin TL) motor performance specifications match the Bulletin TLY motor specifications identically, but are available in only metric frame sizes and with high-resolution absolute position encoders. Similar to the Bulletin TLY motors, Bulletin TL motors support frame sizes TL-A110, TL-A120, TL-A130, TL-A220, TL-A230, TL-A2530, TL-A2540, and TL-A410 (TL-A310 is not supported).

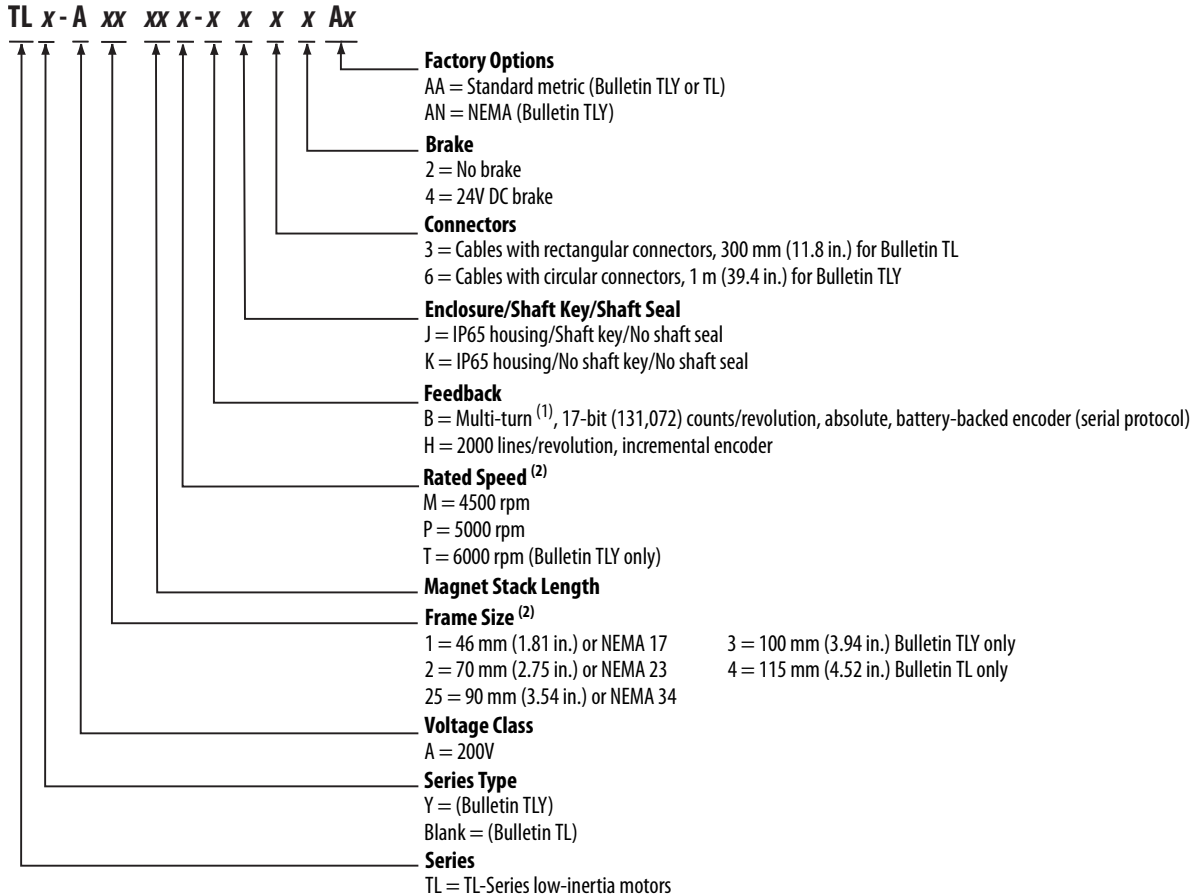
The Bulletin TL motors are equipped with rectangular plastic connectors and are intended for use with Kinetix 3 servo drives.

## TL-Series Motor Features

Attribute	Value
Main characteristics	<ul style="list-style-type: none"> <li>• Compact size, high torque density</li> <li>• Metric and NEMA frame sizes</li> <li>• Smart Motor Technology</li> <li>• Low rotor inertia</li> </ul>
Features	<ul style="list-style-type: none"> <li>• 200V-class windings</li> <li>• High-energy Neodymium-Iron-Boron (NeFeB) magnets</li> <li>• Cable extensions, 1 m (3.2 ft)</li> <li>• 17-bit serial communication</li> </ul>
Motor type	Brushless AC Synchronous Servo Motors
Environmental rating	IP65 with optional shaft seal
Certifications	TL-Series rotary motors are CE marked for all applicable directives. Refer to <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a> for more information.
Continuous stall torque	0.086...5.42 N•m (0.76...48 lb•in)
Peak stall torque	0.22...13 N•m (1.94...115 lb•in)
Rated speed	4500, 5000, and 6000 rpm
Motor rated output	0.037...2.0 kW
Compatible servo drives	<ul style="list-style-type: none"> <li>• Kinetix 6000 (Bulletin TLY)</li> <li>• Kinetix 300/350 (Bulletin TLY)</li> <li>• Kinetix 3 (Bulletin TL and TLY)</li> <li>• Kinetix 2000 (Bulletin TLY)</li> <li>• Ultra3000 (Bulletin TLY)</li> </ul>
Typical applications	<ul style="list-style-type: none"> <li>• Robotics</li> <li>• Material handling</li> <li>• X-Y tables</li> <li>• Specialty machinery</li> <li>• Semiconductor manufacturing</li> <li>• Medical/laboratory equipment</li> <li>• Light packaging machines</li> <li>• Office machinery</li> </ul>

## Catalog Numbers - TL-Series 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.



(1) Single-turn if used without battery backup.

(2) Not all combinations are available. Only the configurations for rated speed, as listed in [Technical Specifications - TL-Series Motors](#) on [page 154](#), are available. Use Motion Analyzer software to size and select motors for your application.

For TL-Series connector kit catalog numbers, refer to Kinetix Motion Accessories Specifications Technical Data, publication [KNX-TD004](#).

## TL-Series Motor Encoders

TL-Series motors are available with high-resolution or industry standard incremental encoder feedback:

- High-resolution, high performance encoders providing multi-turn absolute position feedback (131,072 counts/revolution) for smooth performance.

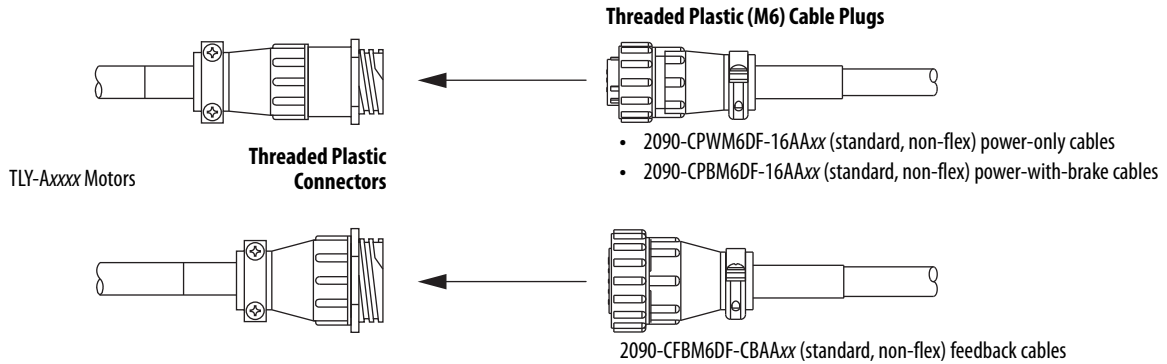
Servo drives compatible with multi-turn absolute position feedback require the appropriate connector kit, with battery, for absolute position backup in the event of a power loss.

- Industry standard incremental encoder feedback (2000 counts/revolution) applies to Bulletin TLY motors.

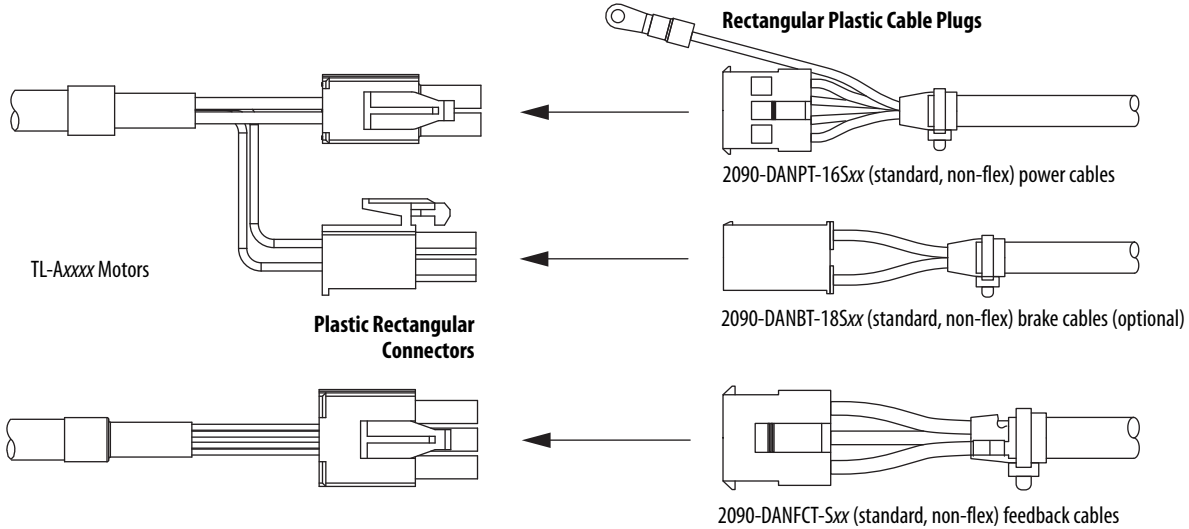
## Motor Connector/Cable Compatibility

TL-Series motors are equipped with either threaded or rectangular plastic connectors.

### Bulletin TLY Motor Connectors



### Bulletin TL Motor Connectors



## TL-Series Motor Options

TL-Series motors are available with these options:

- 24V DC brake.
- Shaft seal kits are available, as are replacement kits for field installation. Lubricant is provided with each kit to reduce wear.

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### 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.

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### Shaft Seal Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
TLY-A1xx TL-A1xx	TL-SSN-1
TLY-A2xx TL-A2xx	TL-SSN-2
TLY-A25xx TL-A25xx	TL-SSN-3
TLY-A3xx	
TL-A4xx	TL-SSN-4

## Transition Plates for N-Series Retrofit

Transition plates provide a means of retrofitting an existing N-Series motor with a TL-Series (Bulletin TLY) NEMA motor. In most applications, the TL-Series (Bulletin TLY) NEMA motors are physically smaller, but deliver the same torque rating as the N-Series motor it is replacing. Transition plates are not available for the N-56xx motors. Select your transition plate catalog number from the table below.

### N-Series to TL-Series Transition Plates

Transition Plate Cat. No.	Description	Converts from This N-Series Motor	To This TL-Series NEMA Motor
TL-TRPLAT-17-23	TL-Series Transition Plate, NEMA 17 to 23	N-23xx	TLY-A1xxx-HxxxAN
TL-TRPLAT-23-34	TL-Series Transition Plate, NEMA 23 to 34	N-34xx	TLY-A2xxx-HxxxAN
TL-TRPLAT-34-42	TL-Series Transition Plate, NEMA 34 to 42	N-42xx	TLY-A25xxx-HxxxAN

## Technical Specifications - TL-Series Motors

### TL-Series (non-brake) Motor Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	
TLY-A110 <sup>(2)</sup>	5000	6000 <sup>(3)</sup>	0.096 (0.85)	0.20 (1.75)	0.041	0.000001 (0.0000089)	
TL-A110 <sup>(2)</sup>				0.22 (1.94)			
TLY-A120 TL-A120	5000		0.181 (1.60)	0.36 (3.20)	0.086		0.000002 (0.000018)
TLY-A130 TL-A130	5000		0.325 (2.88)	0.76 (6.70)	0.14		0.000003 (0.000027)
TLY-A220 TL-A220	5000		0.836 (7.40)	1.48 (13.1)	0.35		0.000018 (0.00016)
TLY-A230 TL-A230	5000		1.30 (11.50)	3.05 (27.0)	0.44		0.000034 (0.00030)
TLY-A2530 TL-A2530	4400	5000	2.60 (23.0)	5.20 (46.0)	0.69	0.000098 (0.00087)	
TLY-A2540 TL-A2540	4575		2.94 (26.0)	7.10 (63.0)	0.86	0.00011 (0.00096)	
TLY-A310	4000	4500	3.61 (32.0)	9.0 (80.0)	0.95	0.00015 (0.0013)	
TL-A410 <sup>(2)</sup>	4500		5.42 (48.0)	13.00 (115)	2.0	0.00036 (0.0032)	

(1) Refer to TL-Series Motor Weight Specifications on [page 155](#) for brake motor weight.

(2) The TLY/TL-A110 and TL-A410 motors are available in only metric frame sizes. All other motors are available in metric and NEMA frame sizes.

(3) Applies to TLY-AxxxT-H motors with incremental feedback. The TLY/TL-AxxxP-B motors with absolute high-resolution encoders are rated at 5000 rpm.

### TL-Series (brake) Motor Performance Specifications

Motor Cat. No.	Rated Speed rpm	Speed, max rpm	Continuous Stall Torque N·m (lb·in)	Peak Stall Torque N·m (lb·in)	Motor Rated Output kW	Rotor Inertia <sup>(1)</sup> kg·m <sup>2</sup> (lb·in·s <sup>2</sup> )	
TLY-A110 <sup>(2)</sup>	5000	6000 <sup>(3)</sup>	0.086 (0.76)	0.20 (1.75)	0.037	0.000004 (0.000035)	
TL-A110 <sup>(2)</sup>				0.22 (1.94)			
TLY-A120 TL-A120	5000		0.163 (1.44)	0.36 (3.20)	0.077		0.000005 (0.000044)
TLY-A130 TL-A130	5000		0.293 (2.59)	0.76 (6.70)	0.13		0.000006 (0.000053)
TLY-A220 TL-A220	5000		0.757 (6.70)	1.48 (13.1)	0.24		0.000028 (0.00025)
TLY-A230 TL-A230	4250		1.16 (10.3)	3.05 (27.0)	0.32		0.000044 (0.00039)
TLY-A2530 TL-A2530	3650	5000	2.60 (23.0)	5.20 (46.0)	0.55	0.00012 (0.0011)	
TLY-A2540 TL-A2540	3750		2.94 (26.0)	7.10 (63.0)	0.66	0.00013 (0.0012)	
TLY-A310	3900	4500	3.61 (32.0)	9.0 (80.0)	0.90	0.00017 (0.0017)	
TL-A410 <sup>(2)</sup>	4500		4.86 (43.0)	13.0 (115)	1.80	0.00041 (0.0036)	

(1) Refer to TL-Series Motor Weight Specifications on [page 155](#) for brake motor weight.

(2) The TLY/TL-A110 and TL-A410 motors are available in only metric frame sizes. All other motors are available in metric and NEMA frame sizes.

(3) Applies to TLY-AxxxT-H motors with incremental feedback. The TLY/TL-AxxxP-B motors with absolute high-resolution encoders are rated at 5000 rpm.

## TL-Series Motor Weight Specifications

Motor Cat. No.	High Resolution Feedback Option Bulletin TLY/TL-Axxxx-B Motors		Incremental Feedback Option Bulletin TLY-Axxxx-H Motors	
	Motor Weight, approx kg (lb)	Brake Motor Weight, approx kg (lb)	Motor Weight, approx kg (lb)	Brake Motor Weight, approx kg (lb)
TLY-A110 TL-A110	0.29 (0.64)	0.55 (1.2)	0.29 (0.64)	0.55 (1.2)
TLY-A120 TL-A120	0.34 (0.75)	0.59 (1.3)	0.35 (0.78)	0.59 (1.3)
TLY-A130 TL-A130	0.46 (1.0)	0.68 (1.5)	0.50 (1.1)	0.68 (1.5)
TLY-A220 TL-A220	0.95 (2.1)	1.4 (3.0)	1.1 (2.4)	1.5 (3.4)
TLY-A230 TL-A230	1.4 (3.0)	1.8 (4.0)	1.5 (3.3)	2.0 (4.4)
TLY-A2530 TL-A2530	2.3 (5.0)	3.2 (7.0)	2.3 (5.1)	3.2 (7.0)
TLY-A2540 TL-A2540	2.6 (5.7)	3.5 (7.7)	2.6 (5.8)	3.5 (7.7)
TLY-A310	3.9 (8.6)	4.5 (10.0)	3.9 (8.6)	4.5 (10.0)
TL-A410	5.5 (12.0)	6.80 (15.0)	5.5 (12.0)	6.80 (15.0)

## TL-Series 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		
				Release ms	Engage (by using external arc suppression device)	
					MOV ms	Diode ms
TLY-A110 TL-A110	60	0.32 (2.8)	0.18...0.22	21	7	40
TLY-A120 TL-A120						
TLY-A130 TL-A130						
TLY-A220 TL-A220		1.24 (11.0)	0.333...0.407	22	13	73
TLY-A230 TL-A230						
TLY-A2530 TL-A2530		2.5 (22.0)	0.351...0.429	42	14	86
TLY-A2540 TL-A2540						
TLY-A310						
TL-A410	9.3 (82.0)	0.648...0.792	69	20	84	

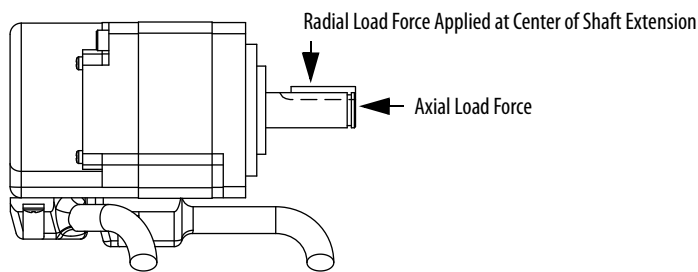
### TL-Series Motor Load Force Ratings

TL-Series 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 below represent an L<sub>10</sub> 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.	1000 rpm kg (lb)	2000 rpm kg (lb)	3000 rpm kg (lb)	4000 rpm kg (lb)	4500 rpm kg (lb)	5000 rpm kg (lb)	6000 rpm kg (lb)
TLY-A110 TL-A110	11 (24)	9 (19)	7 (16)	7 (16)	–	6 (13)	6 (13)
TLY-A120 TL-A120	12 (26)	10 (21)	8 (18)	7 (16)	–	7 (15)	6 (13)
TLY-A130 TL-A130	13 (29)	10 (23)	9 (20)	8 (18)	–	8 (17)	7 (15)
TLY-A220 TL-A220	27 (60)	22 (48)	19 (42)	17 (37)	–	16 (35)	15 (33)
TLY-A230 TL-A230	31 (68)	24 (54)	21 (47)	19 (42)	–	18 (40)	17 (37)
TLY-A2530 TL-A2530	48 (106)	38 (84)	34 (74)	–	–	28 (62)	–
TLY-A2540 TL-A2540	50 (110)	39 (87)	34 (76)	–	–	29 (64)	–
TLY-A310	80 (177)	63 (139)	56 (123)	–	48 (106)	–	–
TL-A410	76 (168)	60 (133)	53 (117)	–	44 (98)	–	–

#### Load Forces on Shaft





**Axial Load Force Ratings (maximum radial load)**

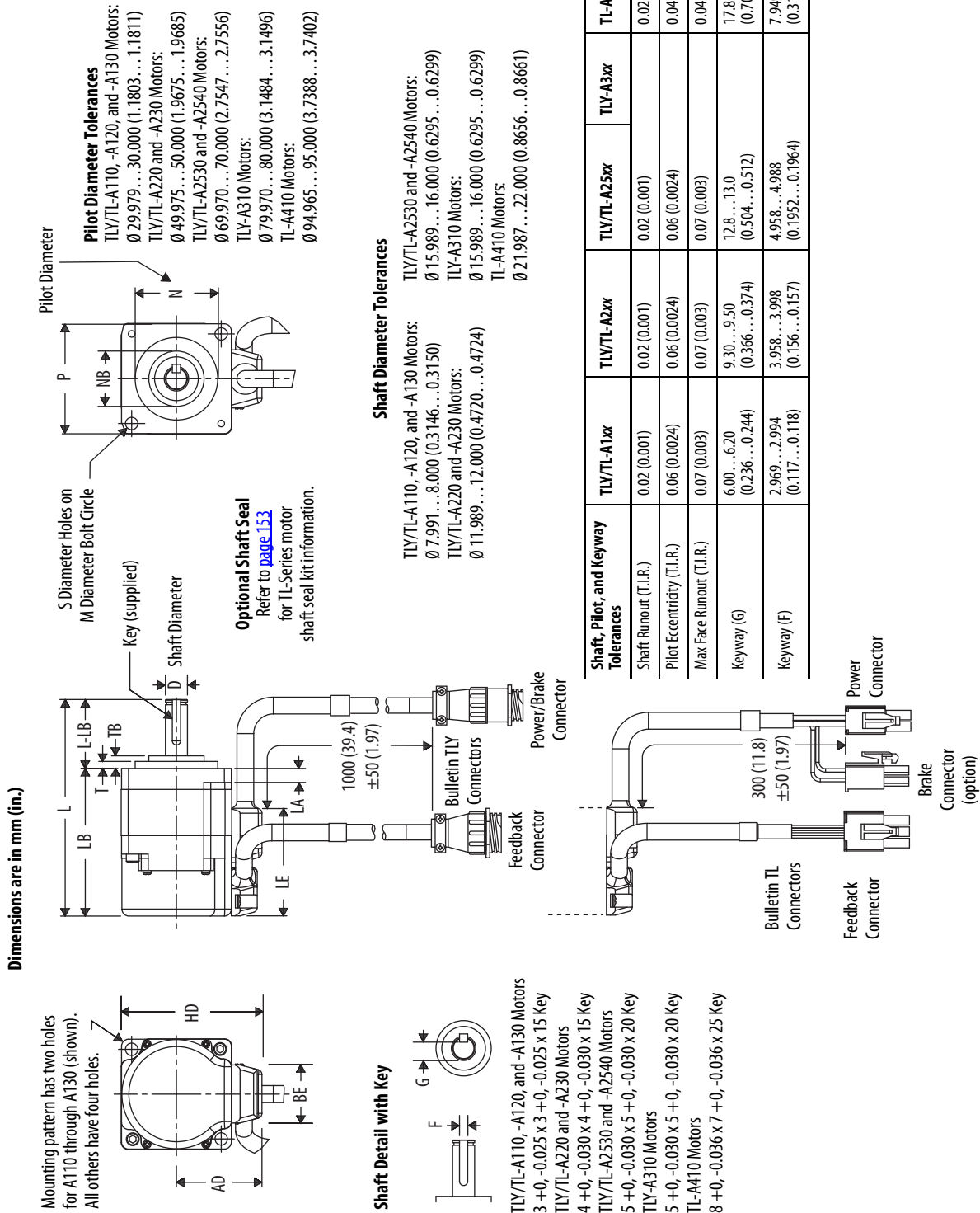
<b>Motor Cat. No.</b>	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>4500 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)	<b>6000 rpm</b> kg (lb)
TLY-A110 TL-A110	8 (18)	6 (13)	5 (11)	4 (9)	–	4 (9)	3 (7)
TLY-A120 TL-A120	9 (20)	7 (16)	5 (11)	4 (9)	–	4 (9)	3 (7)
TLY-A130 TL-A130	10 (22)	8 (17)	6 (13)	5 (12)	–	5 (11)	4 (9)
TLY-A220 TL-A220	15 (33)	11 (24)	9 (20)	8 (17)	–	7 (16)	5 (11)
TLY-A230 TL-A230	15 (33)	12 (26)	10 (21)	9 (20)	–	8 (17)	6 (13)
TLY-A2530 TL-A2530	18 (39)	13 (29)	11 (24)	–	–	9 (19)	–
TLY-A2540 TL-A2540	18 (39)	13 (29)	11 (25)	–	–	9 (20)	–
TLY-A310	19 (42)	14 (31)	11 (25)	–	10 (21)	–	–
TL-A410	29 (64)	21 (47)	18 (40)	–	14 (31)	–	–

**Axial Load Force Ratings (zero radial load)**

<b>Motor Cat. No.</b>	<b>1000 rpm</b> kg (lb)	<b>2000 rpm</b> kg (lb)	<b>3000 rpm</b> kg (lb)	<b>4000 rpm</b> kg (lb)	<b>4500 rpm</b> kg (lb)	<b>5000 rpm</b> kg (lb)	<b>6000 rpm</b> kg (lb)
TLY-A110 TL-A110	12 (26)	9 (20)	7 (16)	6 (13)	–	6 (13)	5 (11)
TLY-A120 TL-A120	12 (26)	9 (20)	7 (16)	6 (13)	–	6 (13)	5 (11)
TLY-A130 TL-A130	12 (26)	9 (20)	7 (16)	6 (13)	–	6 (13)	5 (11)
TLY-A220 TL-A220	19 (41)	14 (30)	11 (25)	10 (21)	–	9 (20)	8 (17)
TLY-A230 TL-A230	19 (41)	14 (30)	11 (25)	10 (21)	–	9 (20)	8 (17)
TLY-A2530 TL-A2530	23 (50)	17 (37)	14 (31)	–	–	11 (25)	–
TLY-A2540 TL-A2540	23 (50)	17 (37)	14 (31)	–	–	11 (25)	–
TLY-A310	26 (57)	19 (42)	16 (35)	–	14 (31)	–	–
TL-A410	34 (75)	25 (55)	21 (47)	–	17 (37)	–	–

## Dimensions - TL-Series Motors

### Bulletin TLY-Axxxxx-xx6xAA or TL-Axxxxx-Bx3xAA Motor Dimensions



**Bulletin TLY-Axxxxx-xx6xAA or TL-Axxxxx-Bx3xAA Motor Dimensions**

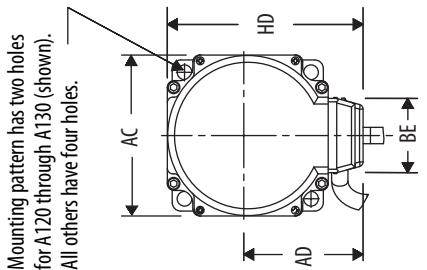
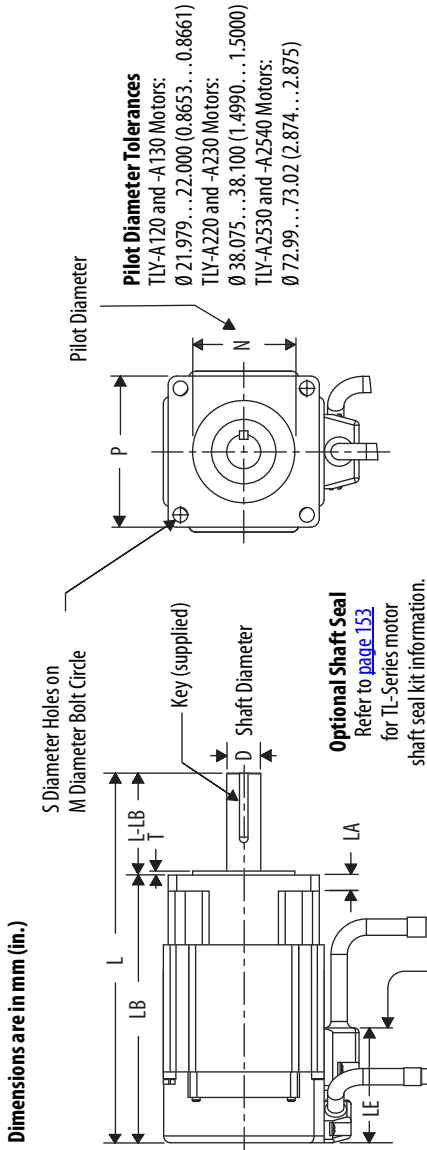
Motor Cat. No.	AD mm (in.)	BE mm (in.)	D <sup>(1)</sup> mm (in.)	HD mm (in.)	L <sup>(2)</sup> mm (in.)	L-LB <sup>(3)</sup> mm (in.)	LA mm (in.)	LB <sup>(2)</sup> mm (in.)	LE <sup>(2)</sup> mm (in.)	M mm (in.)	N <sup>(1)</sup> mm (in.)	NB mm (in.)	P mm (in.)	S mm (in.)	T mm (in.)	TB mm (in.)	G <sup>(1)</sup> mm (in.)	F <sup>(1)</sup> mm (in.)
TLY/TL-A110					78.5 (3.09)			53.5 (2.11)										
TLY/TL-A120	31.1 (1.22)	21.0 (0.83)	8.0 (0.31)	51.1 (2.01)	84.5 (3.33)	25.0 (0.98)	5.0 (0.20)	59.5 (2.34)	39.1 (1.54)	46.0 (1.81)	30.0 (1.18)	20.0 (0.79)	40.0 (1.57)	4.5 (0.18)	2.5 (0.10)	4.5 (0.18)	6.2 (0.24)	3.0 (0.12)
TLY/TL-A130					98.5 (3.88)			73.5 (2.89)										
TLY/TL-A220	43.0 (1.69)	27.6 (1.09)	12.0 (0.47)	73.0 (2.87)	106.1 (4.18)	30.0 (1.18)	6.0 (0.24)	76.1 (3.00)	42.8 (1.69)	70.0 (2.76)	50.0 (1.97)	27.0 (1.06)	60.0 (2.36)	5.5 (0.22)	3.0 (0.12)	7.0 (0.28)	9.5 (0.37)	4.0 (0.16)
TLY/TL-A230					128.0 (5.04)			98.1 (3.86)										
TLY/TL-A2530	53.0 (2.09)	27.6 (1.09)	16.0 (0.63)	93.0 (3.66)	134.7 (5.30)			99.7 (3.93)	43.8 (1.72)	90.0 (3.54)	70.0 (2.76)	34.0 (1.34)	80.0 (3.15)	6.6 (0.26)	3.0 (0.12)	7.0 (0.28)	13.0 (0.51)	5.0 (0.20)
TLY/TL-A2540					143.7 (5.66)	35.0 (1.38)	8.0 (0.32)	108.7 (4.28)										
TLY-A310	56.0 (2.20)			99.0 (3.90)	179.2 (7.06)			144.2 (5.68)	57.1 (2.24)	100.0 (3.94)	80.0 (3.15)		86.0 (3.39)					
TL-A410	67.0 (2.64)	38.4 (1.51)	22.0 (0.87)	117.0 (4.61)	216.0 (8.50)	40.0 (1.57)	17.0 (0.67)	176.0 (6.93)	102.0 (4.02)	115.0 (4.53)	95.0 (3.74)	N/A	100.0 (3.94)	9.0 (0.35)	7.0 (0.28)	N/A	18.0 (0.71)	8.0 (0.32)

- (1) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 158](#).
- (2) If ordering an TLY/TL-A110, TLY/TL-A120 or TLY/TL-A130 motor with brake, add 35.6 mm (1.40 in.) to dimensions L, LB, and LE.  
 If ordering an TLY/TL-A220 or TLY/TL-A230 motor with brake, add 34.6 mm (1.36 in.) to dimensions L, LB, and LE.  
 If ordering an TLY/TL-A2530 or TLY/TL-A2540 motor with brake, add 36.6 mm (1.44 in.) to dimensions L, LB, and LE.  
 If ordering an TLY-A310 motor with brake, add 23.0 mm (0.90 in.) to dimensions L, LB, and LE.  
 If ordering an TL-A410 motor with brake, add 32.0 mm (1.26 in.) to dimensions L, LB, and LE.
- (3) Tolerance for this dimension is ±1.0 mm (±0.039 in.).

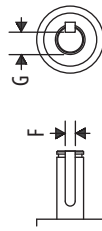
Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

# TL-Series (Bulletin TLY) NEMA Motor Dimensions

## Bulletin TLY-Axxxxx-Hx6xAN NEMA Motor Dimensions



### Shaft Detail with Key



TLY-A220 and -A230  
 $0.125 +0, -0.002 \times 0.125 +0, -0.002 \times 0.9375$  Key  
 TLY-A2530 and -A2540  
 $0.187 +0, -0.002 \times 0.187 +0, -0.002 \times 1.156$  Key

### Shaft Diameter Tolerances

TLY-A120 and -A130 Motors:  
 $\varnothing 6.341 \dots 6.350$  (0.2496...0.2500)  
 TLY-A220 and -A230 Motors:  
 $\varnothing 38.075 \dots 38.100$  (0.4990...0.5000)

TLY-A2530 and -A2540 Motors:  
 $\varnothing 15.864 \dots 15.875$  (0.6246...0.6250)

Shaft, Pilot, and Keyway Tolerances	TLY-A1xx	TLY-A2xx	TLY-A25xx
Shaft Runout (T.I.R.)	0.02 (0.001)	0.02 (0.001)	0.02 (0.001)
Pilot Eccentricity (T.I.R.)	0.06 (0.0024)	0.06 (0.0024)	0.06 (0.0024)
Max Face Runout (T.I.R.)	0.07 (0.003)	0.07 (0.003)	0.07 (0.003)
Keyway (G)	N/A	10.54...10.92 (0.415...0.430)	12.75...13.13 (0.502...0.517)
Keyway (F)	N/A	3.124...3.175 (0.123...0.125)	4.763...4.814 (0.1875...0.1895)

**Bulletin TLY-Axxxxx-Hx6xAN NEMA Motor Dimensions**

Motor Cat. No.	AC mm (in.)	AD mm (in.)	BE mm (in.)	D <sup>(1)</sup> mm (in.)	HD mm (in.)	L <sup>(2)</sup> mm (in.)	L-LB <sup>(3)</sup> mm (in.)	LA mm (in.)	LB <sup>(2)</sup> mm (in.)	LE <sup>(2)</sup> mm (in.)	M mm (in.)	N <sup>(1)</sup> mm (in.)	P mm (in.)	S mm (in.)	T mm (in.)	G <sup>(1)</sup> mm (in.)	F <sup>(1)</sup> mm (in.)
TLY-A120		31.10 (1.22)	21.0 (0.83)	6.35 (0.25)	52.0 (2.05)	91.5 (3.603) 105.5 (4.153)	27.0 (1.06)	5.0 (0.20)	64.5 (2.54) 78.5 (3.09)	39.1 (1.54)	43.8 (1.725)	22.0 (0.86)	42.0 (1.65)	8-32 Thread	2.0 (0.08)	N/A	N/A
TLY-A130	N/A																
TLY-A220	60 (2.36)	43.0 (1.69)		12.70 (0.50)	73.0 (2.87)	137.9 (5.43) 159.9 (6.30)	38.1 (1.50)	6.0 (0.24)	99.8 (3.93) 121.8 (4.80)	43.3 (1.70)	66.7 (2.625)	38.1 (1.50)	56.4 (2.22)	5.5 (0.217)	1.5 (0.06)	10.92 (0.43)	3.175 (0.125)
TLY-A230			27.6 (1.09)														
TLY-A2530		53.0 (2.09)		15.875 (0.625)	96.0 (3.78)	149.2 (5.872) 158.2 (6.205)	44.5 (1.752)	8.0 (0.32)	104.7 (4.12) 113.7 (4.48)	43.8 (1.72)	98.4 (3.875)	73.02 (2.87)	86.0 (3.39)	5.5 (0.217)	1.5 (0.06)	13.13 (0.517)	4.814 (0.189)
TLY-A2540	N/A																

(1) For keyway, shaft diameter, and pilot diameter tolerances, refer to [page 160](#).  
 (2) If ordering an TLY-A120 or TLY-A130 motor with brake, add 35.6 mm (1.40 in.) to dimensions L, LB, and LE.  
 If ordering an TLY-A220 or TLY-A230 motor with brake, add 34.6 mm (1.36 in.) to dimensions L, LB, and LE.  
 If ordering an TLY-A2530 or TLY-A2540 motor with brake, add 36.6 mm (1.44 in.) to dimensions L, LB, and LE.  
 (3) Tolerance for this dimension is ±1.0 mm (±0.039 in.).

NEMA motor flanges and shafts are designed to inch dimensions. Other frame areas are designed to metric dimensions. Conversions are approximate values.

## Common Rotary Motor Specifications

These specifications are common to all Kinetix rotary motor families.

### Environmental Specifications - Kinetix Rotary Motion

Attribute	Kinetix VP (Bulletin VPL and VPF)	Kinetix VP (Bulletin VPC)	Kinetix VP (Bulletin VPS)	MP-Series	Kinetix 6000M (Bulletin MDF)	RDD-Series	TL-Series	HPK-Series
Temperature, ambient	0...40 °C (32...104 °F)	-20...+40 °C (-4...+104 °F)	0...40 °C (32...104 °F)					
Temperature, storage	-30...+40 °C (-22...+104 °F)		-30...+70 °C (-22...+158 °F)					
Relative humidity (noncondensing)	5...90%		5...95%					
Shock <sup>(1)</sup>	20 g peak, 6 ms duration							10 g peak, 6 ms duration
Vibration <sup>(1)</sup>	2.5 g peak @ 30...2000 Hz							

(1) Any shock and vibration application exceeding these specifications can result in premature motor failure. Repetitive acceleration is considered vibration, not intermittent shock.

### Thermal Ratings - Kinetix Rotary Motion

To obtain the specified motor thermal rating do not mount the motor in an area with restricted airflow. Keep other heat producing devices away from the motor and mount the motor on a surface with heat dissipation equivalent to an aluminum heatsink attached as specified in the following table.

#### Aluminum Heatsink Attached to Front Mounting Flange

Motor Cat. No.	Heatsink Size mm (in.)							
	203 x 203 x 6.35 (8 x 8 x 0.25)	254 x 254 x 6.35 (10 x 10 x 0.25)	305 x 305 x 12.7 (12 x 12 x 0.50)	305 x 305 x 25.4 (12 x 12 x 1.0)	407 x 407 x 19.1 (16 x 16 x 0.75)	457 x 457 x 12.7 (18 x 18 x 0.50)	508 x 508 x 19.1 (20 x 20 x 0.75)	533 x 533 x 25.4 (21 x 21 x 1.0)
VPL-x063xx, VPF-x063xx	X	-	-	-	-	-	-	-
VPL-x075xx, VPF-x075xx	-	X	-	-	-	-	-	-
VPL-x100xx, VPL-x115xx, VPL-x130xx, VPL-B165xx VPS-B1304, VPS-B1653, VPF-x100xx, VPF-x115xx, VPF-x130xx, VPF-B165xx	-	-	X	-	-	-	-	-
VPC-B165xx	-	-	X	-	-	-	-	-
VPC-B215xx	-	-	-	X	-	-	-	-
VPC-B300xx	-	-	-	-	-	-	-	X
MPL-x15xx	X	-	-	-	-	-	-	-
MPL-x2xx	-	X	-	-	-	-	-	-
MPL-x3xx, MPL-x4xx, MPL-x45xx, MPL-x5xx MPM-xxxx, MPF-xxxx, MPS-xxxx, MDF-SBxxxx	-	-	X	-	-	-	-	-
MPL-B6xx	-	-	-	X	-	-	-	-
MPL-B8xx, MPL-B9xx	-	-	-	-	-	-	-	X
RDB-B215x	-	-	-	-	-	X	-	-
RDB-B290x	-	-	-	-	X	-	-	-
RDB-B410x	-	-	-	-	-	-	X	-

**Aluminum Heatsink Attached to Front Mounting Flange (continued)**

Motor Cat. No.	Heatsink Size mm (in.)	203 x 203 x 6.35 (8 x 8 x 0.25)	254 x 254 x 6.35 (10 x 10 x 0.25)	305 x 305 x 12.7 (12 x 12 x 0.50)	305 x 305 x 25.4 (12 x 12 x 1.0)	407 x 407 x 19.1 (16 x 16 x 0.75)	457 x 457 x 12.7 (18 x 18 x 0.50)	508 x 508 x 19.1 (20 x 20 x 0.75)	533 x 533 x 25.4 (21 x 21 x 1.0)
TL-A1xx, TLY-A1xx		X	–	–	–	–	–	–	–
TL-A2xx, TLY-A2xx		–	X	–	–	–	–	–	–
TL-A25xx, TLY-A25xx, TL-A3xx, TLY-A3xx		–	–	X	–	–	–	–	–

**Environmental Ratings - Kinetix Rotary Motion**

IP Rating	Dust Protection	Liquid Protection	Shaft Seal	Motor
IP50	Limited protection from dust (no harmful deposit).	No protection from liquids.	Motor without shaft seal.	Bulletin VPL, MPL and MPM
IP54		Protected against sprays from all directions.		TL-Series, HPK-Series
IP65	Total protection from dust.	Protected against low-pressure jets of water from all directions.	Motor with shaft seal (cable connectors rated IP54).	TL-Series
IP66		Protected against strong jets of water.	Motor with shaft seal and Bulletin 2090 environmentally sealed cable connectors. <sup>(1)</sup>	Bulletin VPC, RDD-Series <sup>(2)</sup>
IP67		Protected against the effects of temporary liquid immersion.		Bulletin VPL, VPF, VPS, MPL, MPM, MPF, MPS, and MDF
IP69K		Protected against the effects of water/stream jets up to 100 bar (1200 psi) with nozzle temperature at approximately 80 °C (176 °F).		Bulletin VPE, MPF, VPS, and MPS
				Bulletin VPS, MPS

(1) The connectors are rated IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.

(2) Environmental rating applies from mounting face to rear of motor. Customer is responsible for providing environmental protection to mounting face of motor.

**Certifications - Kinetix Rotary Motion**

Rotary Motor Family	Bulletin Number	c-UL-us <sup>(1)</sup>	CE <sup>(2)</sup>
Kinetix VP servo motors	Bulletin VPL, VPC, VPF, VPS	X	X
MP-Series servo motors	Bulletin MPL, MPM, MPF, MPS	X	X
TL-Series servo motors	Bulletin TL, TLY	–	X
RDD-Series	Bulletin RDB	X	X
HPK-Series	N/A	X	X

(1) UL recognized components to applicable UL and CSA standards.

(2) When product is marked, see the Product Certifications link at <http://ab.rockwellautomation.com> for Declarations of Conformity, certificates, and other certification details.

## Motor Brake Application Guidelines

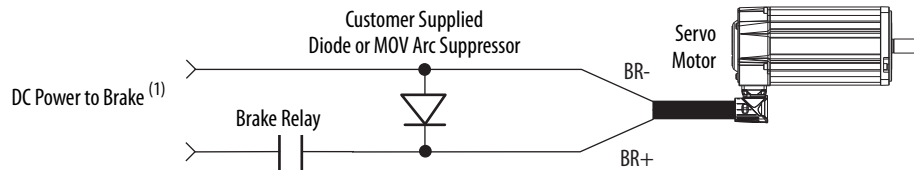
The brakes offered as options on these servo motors are holding brakes designed to hold the motor shaft at 0 rpm up to the rated brake holding torque. The brakes release when voltage is applied to the brake coil. Voltage and polarity supplied to the brake must be as specified to be sure of proper brake performance.

The brakes are not designed for stopping rotation of the motor shaft. Use servo drive inputs to stop motor shaft rotation. The recommended method of stopping motor shaft rotation is to command the servo drive to decelerate the motor to 0 rpm, and engage the brake after the servo drive has decelerated the motor to 0 rpm.

If system mains power fails, the brakes can withstand use as stopping brakes. However, use of the brakes as stopping brakes creates rotational mechanical backlash that is potentially damaging to the system, increases brake pad wear, and reduces brake life. The brakes are not designed nor are they intended to be used as a safety device.

A separate power source is required to disengage the brake. This power source can be controlled by the servo motor controls, in addition to manual operator controls. Electrical arcing can occur at the relay contacts until the brake power dissipates. A customer supplied diode or metal oxide varistor (MOV) is recommended to prevent arcing. Use of an MOV can also reduce the time to mechanically engage the brake. For brake response time specifications, refer to the motor brake specification tables.

### Suppression Device for Brake Relay Contacts



(1) Kinetix 2000, Kinetix 5500, Kinetix 5700, Kinetix 6000, Kinetix 6200, Kinetix 6500, and Kinetix 7000 servo drives provide motor brake relay outputs and supply an MOV arc suppressor. Customer supplied arc suppressor is not required unless the coil current of motor brake is greater than the maximum brake current rating of the drive relay output.



## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Kinetix Linear Motion Specifications, publication <a href="#">KNX-TD002</a>	Provides product specifications for Bulletin MPAS and MPMA linear stages, Bulletin MPAI, MPAI, and TLAR electric cylinders, and LDC-Series™ and LDL-Series™ linear motors.
Kinetix Servo Drives Specifications, publication <a href="#">KNX-TD003</a>	Provides product specifications for Kinetix Integrated Motion over EtherNet/IP, Integrated Motion over sercos interface, EtherNet/IP networking, and component servo drive families.
Kinetix Motion Accessories Specifications, publication <a href="#">KNX-TD004</a>	Provides product specifications for Bulletin 2090 motor and interface cables, low-profile connector kits, drive power components, and other servo drive accessory items.
Kinetix Motion Control Selection Guide, publication <a href="#">KNX-SG001</a>	Provides an overview of Kinetix servo drives, motors, actuators, and motion accessories designed to help make initial decisions for the motion control products best suited for your system requirements.
Kinetix 5500 Drive Systems, publication <a href="#">KNX-RM009</a>	Provides information to determine and select the required (drive specific) drive module, power accessory, connector kit, motor cable, and interface cable catalog numbers for your drive and motor/actuator motion control system. Includes system performance specifications and torque/speed curves (rotary motion) and force/velocity curves (linear motion) for your motion application.
Kinetix 5700 Drive Systems, publication <a href="#">KNX-RM010</a>	
Kinetix 6000 and Kinetix 6200/6500 Drive Systems Design Guide, publication <a href="#">KNX-RM003</a>	
Kinetix 300/350 Drive Systems Design Guide, publication <a href="#">KNX-RM004</a>	
Kinetix 3 Drive Systems Design Guide, publication <a href="#">GMC-RM005</a>	
Kinetix 2000 Drive Systems Design Guide, publication <a href="#">GMC-RM006</a>	
Kinetix 7000 Drive Systems Design Guide, publication <a href="#">GMC-RM007</a>	
Ultra3000 Drive Systems Design Guide, publication <a href="#">GMC-RM008</a>	
Kinetix 6200 and Kinetix 6500 Safe Speed Monitoring Servo Drives Safety Reference Manual, publication <a href="#">2094-RM001</a>	Provides information on wiring, configuring, and troubleshooting the safe-speed features of your Kinetix 6200 and Kinetix 6500 drives.
Kinetix 6200 and Kinetix 6500 Safe Torque-off Servo Drives Safety Reference Manual, publication <a href="#">2094-RM002</a>	Provides information on wiring, configuring, and troubleshooting the safe torque-off features of your Kinetix 6200 and Kinetix 6500 drives.
Kinetix Safe-off Feature Safety Reference Manual, publication <a href="#">GMC-RM002</a>	Provides information on wiring and troubleshooting your Kinetix 6000 and Kinetix 7000 servo drives with the safe-off feature.
System Design for Control of Electrical Noise Reference Manual, publication <a href="#">GMC-RM001</a>	Provides information, examples, and techniques designed to minimize system failures caused by electrical noise.
ControlLogix Selection Guide, publication <a href="#">1756-SG001</a>	Provides information to determine which ControlLogix® controller fits your application and the product specifications to help design a ControlLogix system and select the appropriate components.
CompactLogix Selection Guide, publication <a href="#">1769-SG001</a>	Provides information to determine which CompactLogix™ controller fits your application and the product specifications to help design a CompactLogix system and select the appropriate components.
Industrial Ethernet Media Brochure, publication <a href="#">1585-BR001</a>	Provides information to determine which Bulletin 1585 Ethernet cable fits your application and the product specifications to help select the appropriate components.
Access Motion Analyzer software from: <a href="http://ab.rockwellautomation.com/motion-control/motion-analyzer-software">http://ab.rockwellautomation.com/motion-control/motion-analyzer-software</a>	Comprehensive motion application sizing tool used for analysis, optimization, selection, and validation of your Kinetix Motion Control system.
Rockwell Automation® Configuration and Selection Tools, website <a href="http://ab.rockwellautomation.com">http://ab.rockwellautomation.com</a>	Provides online product selection and system configuration tools, including AutoCad (DXF) drawings.

You can view or download publications at <http://www.rockwellautomation.com/global/literature-library/overview.page>. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

# Rockwell Automation Support

Use the following resources to access support information.

<b>Technical Support Center</b>	Knowledgebase Articles, How-to Videos, FAQs, Chat, User Forums, and Product Notification Updates.	<a href="https://rockwellautomation.custhelp.com/">https://rockwellautomation.custhelp.com/</a>
<b>Local Technical Support Phone Numbers</b>	Locate the phone number for your country.	<a href="http://www.rockwellautomation.com/global/support/get-support-now.page">http://www.rockwellautomation.com/global/support/get-support-now.page</a>
<b>Direct Dial Codes</b>	Find the Direct Dial Code for your product. Use the code to route your call directly to a technical support engineer.	<a href="http://www.rockwellautomation.com/global/support/direct-dial.page">http://www.rockwellautomation.com/global/support/direct-dial.page</a>
<b>Literature Library</b>	Installation Instructions, Manuals, Brochures, and Technical Data.	<a href="http://www.rockwellautomation.com/global/literature-library/overview.page">http://www.rockwellautomation.com/global/literature-library/overview.page</a>
<b>Product Compatibility and Download Center (PCDC)</b>	Get help determining how products interact, check features and capabilities, and find associated firmware.	<a href="http://www.rockwellautomation.com/global/support/pcdc.page">http://www.rockwellautomation.com/global/support/pcdc.page</a>

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