Kinetix VP Stainless Steel Motors

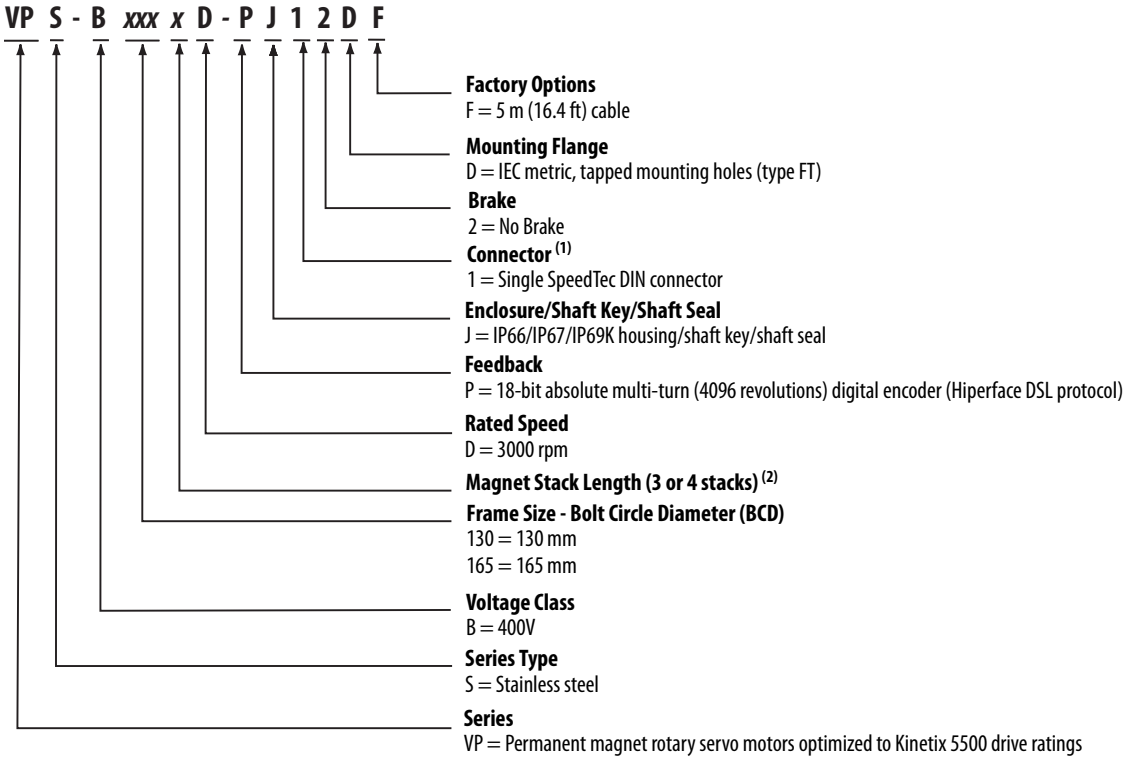
Kinetix VP (Bulletin VPS) stainless-steel servo motors are specifically designed to meet the unique needs of sanitary processing environments. They also feature a digital feedback device that delivers real-time motor performance information back to the control system through a single-cable design between 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	• Specifically designed for sanitary environments for use with high-pressure, highly-caustic washdown applications • Single cable technology • Low rotor inertia
Features	• Smooth, passivated 300 series stainless-steel cylindrical exterior • Complies with NSF/ANSI Standard 169 • 400V-class windings • Shaft-end threaded hole • Cable extended 5 m (16.4 ft) from motor to protect connector • Standard IEC 72-1 mounting dimensions
Motor type	Brushless AC synchronous servo motors
Environmental rating	• IP66/IP67 with shaft seal (standard) and use of environmentally sealed cable connector • IP69K for 1200 psi motor washdown
Certifications	Bulletin VPS rotary motors are UL Recognized components to applicable UL and CSA standards. CE marked for all applicable directives. Refer to http://www.ab.com for more information.
Continuous stall torque	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)
Speed	3000 rpm
Motor rated output	1.4 and 3.3 kW (1.9 and 4.4 Hp)
Compatible servo drives	Kinetix 5500
Typical applications	• Meat and poultry • Food slicing and filling • Raw food handling • Processing • Life science • Consumer products

Kinetix VP Stainless Steel Motor Catalog Numbers

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) 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 47 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 Single Cable Technology

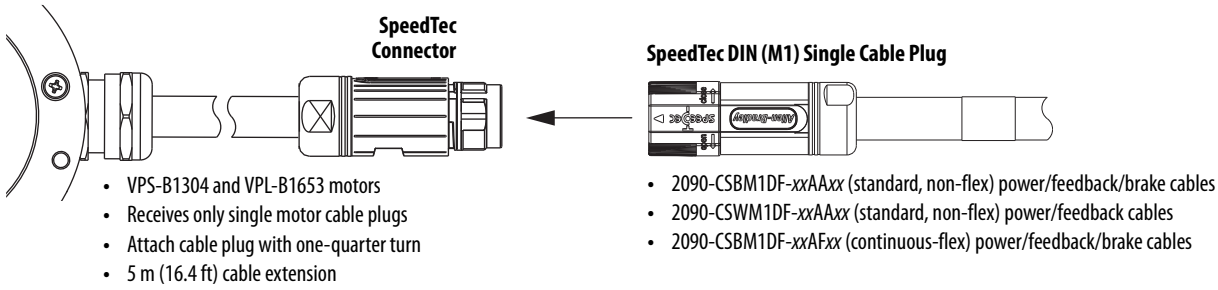
Kinetix VP stainless-steel motors are available with high-performance encoders with multi-turn (-P) high resolution feedback:

- 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 Bulletin 2090 cables are available in 1.0 m (3.2 ft) increments up to 45 m (148 ft)
- Up to 260 thousand counts per revolution (multi-turn) for smooth performance
  - Multi-turn encoder provides high-resolution absolute position feedback within 4096 turns (electromechanical design does not require a battery)

IMPORTANT	Due to the unique characteristics of single cable technology, designed for and tested with Kinetix 5500 drives and Kinetix VP 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.



IMPORTANT	Maximum standard (non-flex) single cable length back to the drive is 45 m (148 ft). Maximum continuous-flex single cable length back to the drive is 25 m (82 ft).

For 2090-Series single motor cable specifications, refer to Kinetix Motion Accessories Technical Data, publication GMC-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.

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.
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

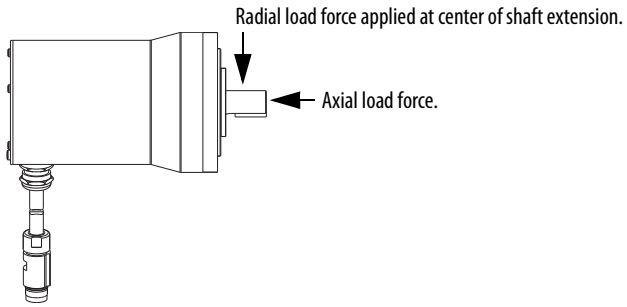
Kinetix VP Stainless Steel Motor (400V-class) Performance Specifications

Motor Cat. No.	Rated Speed, max rpm	Continuous Stall Torque N•m (lb•in)	Peak Stall Torque N•m (lb•in)	Motor Rated Output kW (Hp)	Speed at Motor Rated Output rpm	Rotor Inertia kg-m^2 (lb•in•s^2)	Motor Weight, approx kg (lb)
VPS-B1304D	3000	8.1 (72.0)	27.1 (240)	1.4 (1.9)	3000	5.2E-04 (0.0046)	13.4 (29.4)
VPS-B1653D	3000	21.0 (186)	67.8 (600)	3.3 (4.4)	3000	2.3E-03 (0.0020)	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_{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.

VPS-B*xxxx*D-PJ12DF Load Forces



Radial Load Force Ratings (maximum)

Motor Cat. No.	Rated 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.	Rated 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)

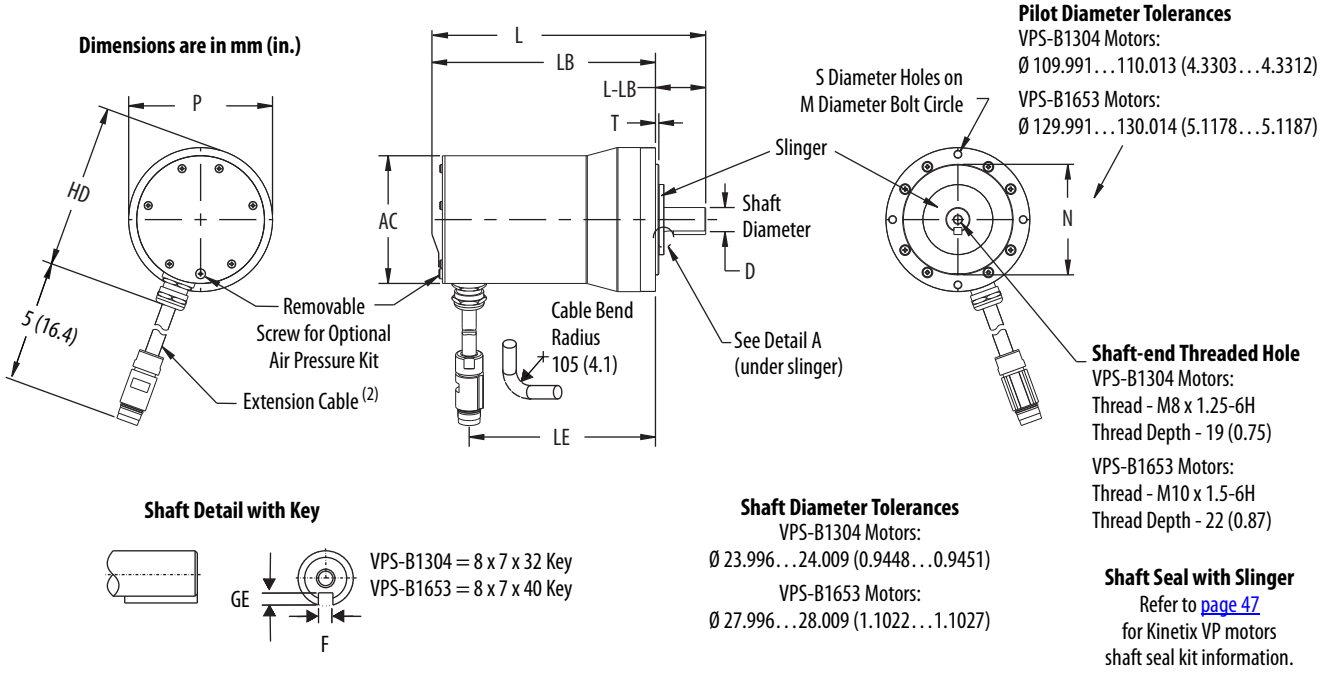
Axial Load Force Ratings (zero radial load)

Motor Cat. No.	Rated 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



Shaft, Pilot, and Keyway Tolerances	VPS-B1304	VPS-B1653
Shaft Runout (T.I.R.)	0.04 (0.0016)	0.04 (0.0016)
Pilot Eccentricity (T.I.R.)	0.10 (0.0039)	0.10 (0.0039)
Max Face Runout (T.I.R.)	0.10 (0.0039)	0.10 (0.0039)
Keyway Depth (GE)	4.00…4.20 (0.158…0.165)	4.00…4.20 (0.158…0.165)
Keyway Width (F)	7.96…8.00 (0.314…0.315)	7.96…8.00 (0.314…0.315)

Motor Cat. No.	HD mm (in.)	AC mm (in.)	T mm (in.)	LE mm (in.)	L mm (in.)	LB mm (in.)	L-LB (1) 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 ±0.7 mm (±0.03 in.).

(2) Specifications for the 5 m (16.4 ft) cable extensions are identical to those of the 2090-CS*x*M1DF-*xx*AA*xx* single motor cables. Refer to Kinetix Motion Accessories Technical Data, publication GMC-TD004, for cable specifications.

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