



Kinetix VP Hygienic Stainless-steel Servo Motors with 063...165 mm Frame Size

Catalog Numbers VPH-A0633F, VPH-A0753F, VPH-A1003F, VPH-A1152E, VPH-A1153C, VPH-A1304D, VPH-B0632T, VPH-B0633M, VPH-B0753F, VPH-B1001F, VPH-B1003F, VPH-B1152F, VPH-B1153E, VPH-B1304E, VPH-B1653D

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About the Kinetix VP Hygienic Stainless Steel Motors

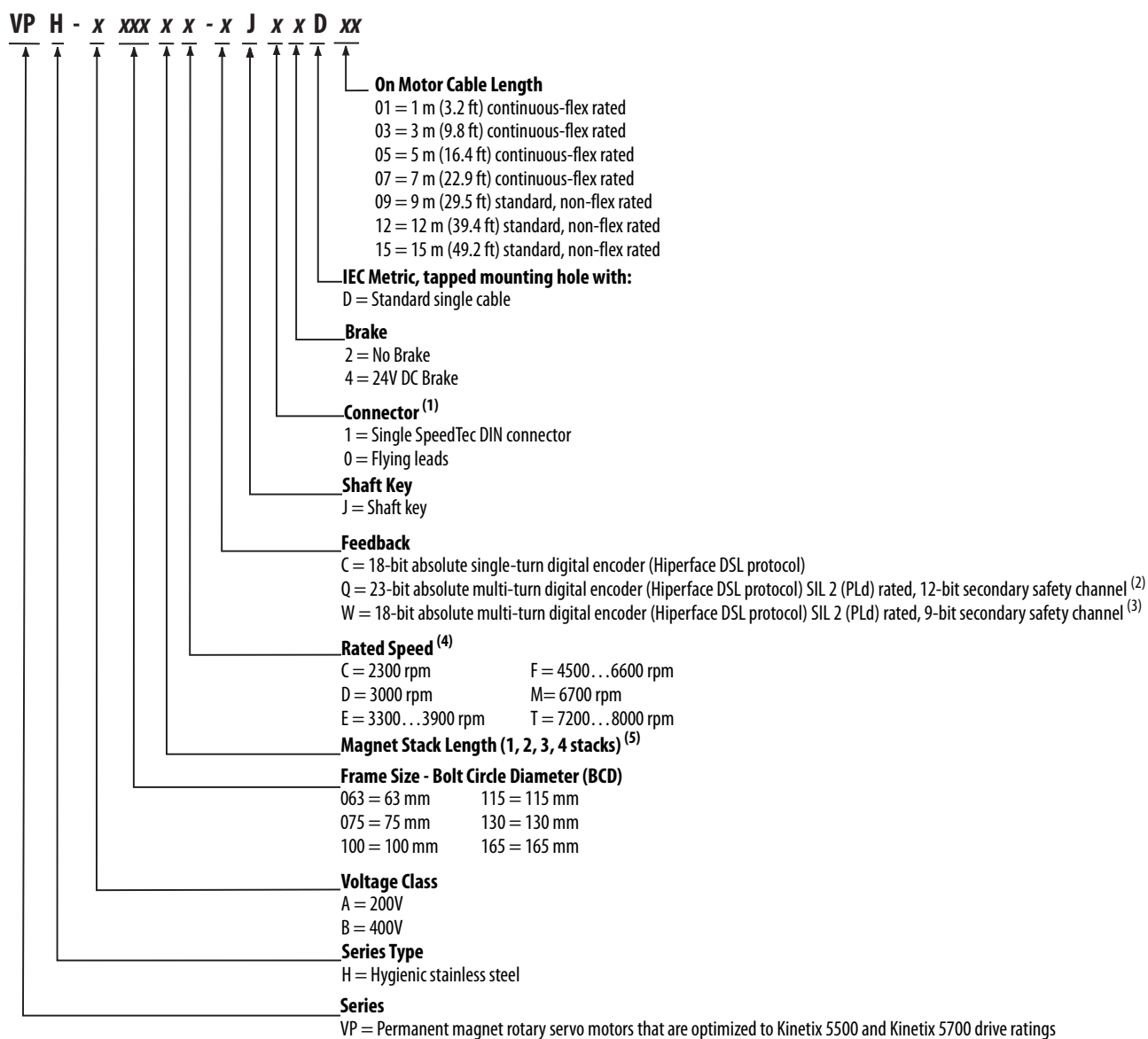
Kinetix® VP hygienic stainless-steel motors (Bulletin VPH) feature single-turn and multi-turn high-resolution encoder options and are available with or without 24V DC holding brakes. These compact, brushless servo motors meet the unique needs of hygienic manufacturing environments, such as food, beverage, meat, dairy, and pharmaceutical products.

You are responsible for inspecting the equipment before you accept the shipment from the freight company. Check the items you receive against your purchase order. Notify the carrier of shipping damage or missing items immediately. Store or operate your motor in a clean and dry location within the [Environmental Specifications](#) on [page 17](#).



ATTENTION: To avoid personal injury and damage to the motor, do not lift or handle the motor by the motor shaft or on-motor cable. The cap on the shaft can come loose and cause you to drop the motor. Stress on the on-motor cable can disrupt the power and signal connectivity. When motor weight exceeds 15.9 kg (35 lb), a hoist and sling with a lockable clasp capable of supporting the maximum motor weight is recommended.

Catalog Number Explanation



(1) Option 1 includes nickel-plated mating connector to 2090-CSxM1Dx single cable. Option 0 (flying leads) connect directly to DSL feedback connector kit and motor/brake connectors on the drive.

(2) This encoder option is available with only VPH-A/B100xx, VPH-A/B115xx, VPH-A/B130xx, and VPH-B165xx motor frame sizes.

(3) This encoder option is available with only VPH-A/B063xx and VPH-A/B075xx motor frame sizes.

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

(5) Refer to [Motor Dimensions](#) on [page 9](#) for dimensional changes that result from the number of magnet stacks.

Before You Install the Motor

Perform these inspection steps and review the guidelines for shaft seals, air-pressure kits, couplings and pulleys, and electrical noise prevention.

1. Remove the motor carefully from its shipping container.
See [Lifting Instructions](#) on [page 3](#) for more information.
2. Visually inspect the motor for any damage.
3. Examine the motor frame, front output shaft, and mounting pilot for any defects.
4. Notify the carrier of shipping damage immediately.



ATTENTION: Do not attempt to open and modify the motor. Only a qualified Rockwell Automation employee can service this motor.

Remove the Shaft Cap

Remove the protective cap installed on the motor shaft by hand pressure only. Do not use a hammer or other tools as they can damage the motor shaft and shaft seal.

Lifting Instructions

When the motor weight exceeds 15.9 kg (35 lb), a hoist and sling with a lockable clasp capable of supporting the maximum motor weight is recommended. See [Weight Specifications](#) on [page 17](#) for weight specifications.

Read the Lifting Precautions

Read these precautions before attempting to lift the Bulletin VPH servo motor out of the box.



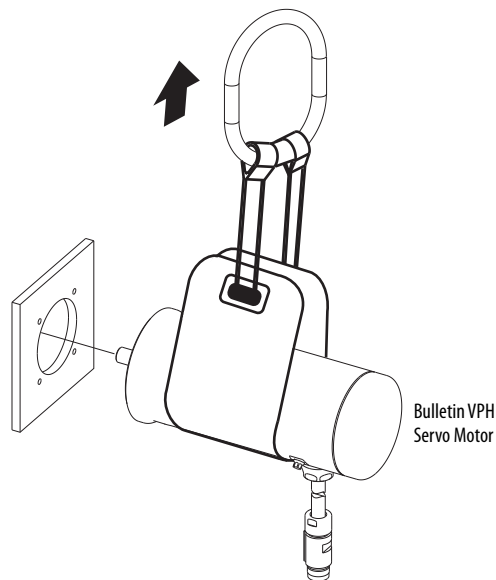
ATTENTION: All equipment and hardware that is used to lift the motor must be properly sized and rated to lift and hold the weight of the motor safely. To guard against possible personal injury or equipment damage:

- Inspect all hardware for proper attachment before a motor is lifted.
 - Do not let any part of the motor or lift equipment contact electrically charged conductors or components.
 - Do not allow personnel or their limbs directly beneath the motor during a lift.
-

Lift the Motor

Follow these steps to lift the Bulletin VPH servo motor out of the box.

1. Cut the plastic wrap that is holding the motor in place.
2. Lift the front end of the motor enough to slide the sling under the motor and center it.



3. Hook the sling to a lifting strap and gently raise the motor out of the box.

Prolong Motor Life

Proper design and maintenance can increase the life of a servo motor. Follow these guidelines to maximize the life of a servo motor operated within the [Environmental Specifications](#) on [page 17](#).



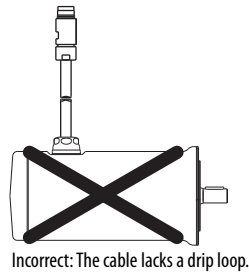
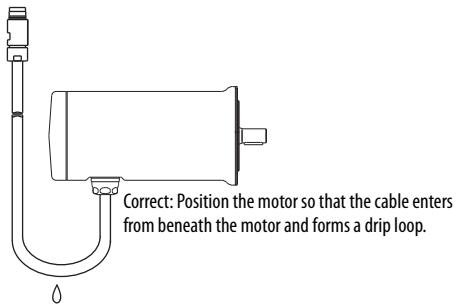
ATTENTION: Do not spray liquids under high pressure directly on the connector.

Fluids under high pressure can be forced into the connector, resulting in an electrical short circuit. Fluids also can be forced around worn seals and contaminate the motor bearings. Bearing contamination significantly shortens the life of a servo motor.

The motor connector is not designed to withstand high-pressure washdown, or washdown with aggressive cleaning compounds. Position the connector away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.

Failure to observe these precautions can result in damage to the motor and its components.

- Always provide a drip loop to carry liquids away from the connection to the motor.



- We recommend that the motor is not installed with the shaft pointing upward, as this increases the risk of contaminant ingress and does not meet hygienic design guidelines.
- If design requirements permit, provide shields or junction boxes that protect the motor housing, shaft seals, connector, and their junctions from product contamination, caustic agents, and high pressure fluids.
- 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. Refer to [Shaft Seal Kits](#) on [page 16](#) for more information on shaft seals.
- Pressurizing the motor interior helps reduce the risk of pulling in liquids or dust at the seals due to changes in the motor temperature during normal operation. Refer to [Positive Air-pressure Kit](#) on [page 16](#) for more information on positive air-pressure kits.
- We strongly recommend using the O-ring kit to seal the gap between the motor front end-bell and the mounting plate. The O-ring helps to prevent the ingress of liquids onto the shaft and shaft seal. Refer to [O-ring Kits](#) on [page 16](#) for more information on O-ring kits.
- The brake option on this servo motor is a spring-set holding brake that releases when voltage is applied to the brake coil. A separate power source is required to disengage the brake. This power source can be applied by a servo motor controller or manual operator control. If system main power fails, holding brakes can withstand occasional use as stopping brakes. However, this creates rotational mechanical backlash that can cause damage to the system, increase brake wear, and reduce brake life.

Holding brakes are not designed to stop rotation of the motor shaft, and they are not intended to be used as a safety device. They are designed to hold a motor shaft at 0 rpm for up to the rated brake holding torque. Follow these steps to prevent motor shaft rotation.

IMPORTANT

1. Command the servo drive to 0 rpm.
2. Verify the motor is at 0 rpm.
3. Engage the brake.
4. Disable the drive.

Disabling the drive removes the potential for brake wear caused by a badly-tuned servo system oscillating the shaft.

Couplings and Pulleys

Mechanical connections to the motor shaft, such as couplings and pulleys, require a torsionally rigid coupling or a reinforced timing belt. The high dynamic performance of servo motors can cause couplings, pulleys, or belts to loosen or slip over time. A loose or slipping connection causes system instability and can damage the motor shaft. All connections between the machine and the motor shaft must be rigid to achieve acceptable system response. Periodically inspect connections to verify their rigidity.

When mounting couplings or pulleys to the motor shaft, verify that the connections are properly aligned and that axial and radial loads are within the specifications of the motor. If you attach a sealed gearbox to the motor shaft, verify that the seal lip is not affected.

Refer to [Load Force Ratings](#) on [page 11](#) for guidelines on how to achieve 20,000 hours of motor bearing life.



ATTENTION: Damage can occur to the motor bearings and the feedback device if sharp impact is applied to the shaft during installation of couplings and pulleys. Damage to the feedback device can result from applying leverage to the motor mounting face when removing devices mounted on the motor shaft.

Do not strike the shaft, couplings, or pulleys with tools during installation or removal. Use a wheel puller to apply pressure from the user end of the shaft when attempting to remove any device from the motor shaft.

A shaft key provides a rigid mechanical connection with the potential for self-alignment, but the key must be properly installed in the keyway. Refer to these sections for additional information:

- [Motor Dimensions](#) on [page 9](#) for information about the key and shaft keyway dimensions
- [Remove and Replace a Shaft Key](#) on [page 15](#) for recommendations on how to remove and install a shaft key

Prevent Electrical Noise

Electromagnetic interference (EMI), commonly called electrical noise, can affect motor performance. Follow these guidelines to reduce the effects of EMI:

- Isolate the power transformers or install line filters on all AC input power lines.
- Use shielded cables for power and signal extensions.
- Do not route motor cables over the vent openings on servo drives.
- Ground all equipment by using a single-point parallel ground system that employs ground bus-bars or large straps.
- If necessary, use additional electrical-noise reduction techniques to reduce EMI in noisy environments.

See System Design for Control of Electrical Noise Reference Manual, publication [GMC-RM001](#), for additional information on reducing EMI.

Cable Shield Connections

Bulletin 2090 single cables contain power and digital encoder signals. Knowledgeable cable routing and careful cable construction improves system electromagnetic compatibility (EMC).



ATTENTION: The overall shield on the single motor cable must be grounded to obtain an effective encoder signal. The encoder data signal is transmitted through an impedance-matched twisted-wire pair that requires effective shielding for optimum performance. Be sure there is an effective connection between the cable shield and the drive system ground.

To install the single motor cable, observe these guidelines:

- Keep the cable length as short as possible.
- The motor side of the shield is terminated to the motor housing, but is not accessible.



SHOCK HAZARD: High voltage can be present on the shields of the single motor cable if the shields are not grounded. Verify that there is a connection to ground for all shields in the single motor cable.

On-motor Cable Bend Radius Specifications

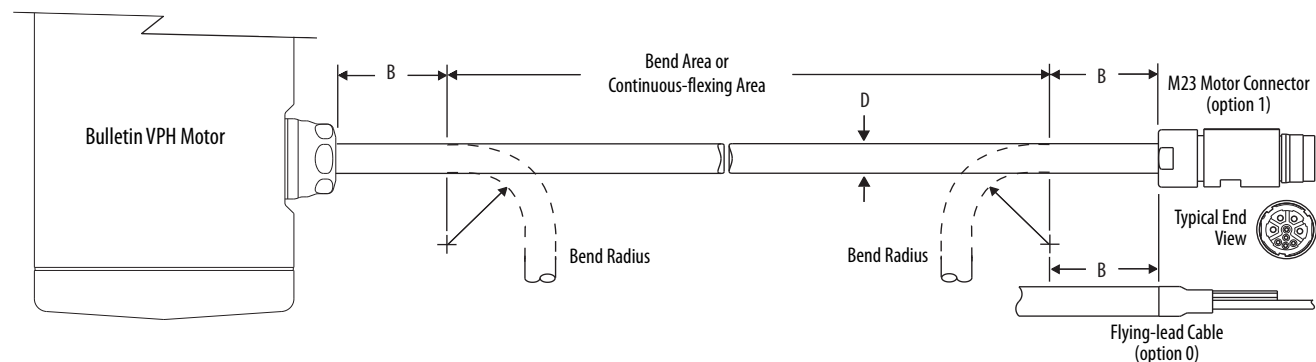
When routing the on-motor cable, be careful not to stress the cable by making bends too sharp. Route the on-motor cable, that is available in 1 m (3.2 ft)...15 m (49.2 ft) lengths, following the static and continuous bend-radius specifications.

Bend Radius Definitions

Type of Bend Radius	Type of Cable	Description
Static bend radius	Standard (non-flex)	The static (installation) bend radius and dimension B are 7 times the cable diameter: - Do not begin a static bend inside dimension B. - Use this measurement when routing the cable in a non-flex application (the bend area). - The bend area is where standard (non-flex) or continuous-flex cables can be bent to their specified bend radius.
	Continuous-flex	
Continuous bend radius	Continuous-flex	The continuous bend radius for Bulletin 2090 single motor cables is 10 times the cable diameter: - Secure the continuous-flexing area, at least 7 cable diameters (dimension B) from each end of the cable, with a rigid mount that prevents the cable from flexing where it connects to the motor or the cable connector. - Use this measurement when routing the cable in a continuous-flex application (the continuous-flexing area). - The continuous-flexing area is where continuous-flex cables can be flexed repeatedly.

The on-motor cable bend-radius specifications are identical to 2090-CSxM1Dx cable specifications.

Bend Radius Specifications



Motor Cat. No.	Wire Size AWG	D mm (in.)	B ⁽¹⁾ mm (in.)	Continuous Bend Radius ^{(1) (2)} mm (in.)
VPH-A/B063 VPH-A/B075	18	15.0 (0.59)	105 (4.1)	150 (5.9)
VPH-A/B100 VPH-A/B115 VPH-A/B130 VPH-B165	14	17.0 (0.67)	119 (4.7)	170 (6.7)

(1) Dimension B and continuous bend radius are based on the cable diameter. See Bend Radius Definitions for more information.

(2) Does not apply to 9, 12, and 15 m (29.5, 39.4, and 49.2 ft) on-motor cables.

IMPORTANT

Motors with connector option 1 require a 2090-CSxM1Dx single cable. Motors with connector option 0 have flying leads that require a 2198-KITCON-DSL feedback connector kit. See [Connector Data](#) on [page 11](#) for wiring examples.

Functional Safety

Motors that are equipped with a Hiperface DSL functional safety-rated feedback sensor are designed in compliance with the requirements of the following SICK STEGMANN GmbH documentation to maintain the functional safety rating of the feedback sensor attached. See [Catalog Number Explanation](#) on [page 2](#) for details about each option.

Motor Cat. No.	Feedback Sensor Functional-safety Reference Documentation (SICK STEGMANN GmbH)	
VPH-xxxxx-Q	HIPERFACE DSL Safety Manual, publication 8017596/ZTW6/2018-01-15	EFM50-2 Safe Motor Feedback Systems Operating Instructions, publication 8019321/2016-03-30
VPH-xxxxx-W		EKM36-2 Safe Motor Feedback Systems Operating Instructions, publication 8020309/2016-08-23

IMPORTANT

In accordance with the feedback sensor manufacturer, you must mount a HIPERFACE DSL motor feedback system (used for a safety function) in an installation situation with a minimum protection class of IP54 according to standard IEC60529:1989 + A1:1999 + A2:2013.

Certification

The TÜV Rheinland group has approved Kinetix VP hygienic servo motors equipped with functional-safety certified Hiperface DSL digital encoders to be capable of letting a system achieve a functional safety rating up to Performance Level d (PLd) and safety category 3 (CAT. 3) per ISO 13849-1, and SIL 2 per IEC 61508, IEC 61800-5-2, and IEC 62061 when used in conjunction with variable frequency drives that satisfy functional safety requirements of the HIPERFACE DSL Safety Manual (SICK STEGMANN GmbH, publication 8017596/ZTW6/2018-01-15).

To view the TÜV Rheinland certificate and other product certifications currently available from Rockwell Automation, go to the product certifications website, rok.auto/certifications.

Important Safety Considerations

In addition to the instructions throughout this document, you are also responsible for the following:

- Complete a machine-level risk assessment.
- Certification of the machine to the desired ISO 13849-1 performance level or IEC 62061 SIL level.
- Project management and proof testing in accordance with IEC 61800-5-2.
- The safe-motor feedback system has a maximum Mission Time of 20 years. After this time, the feedback system must be taken out of service.
- The motor feedback system cannot support safety functions that are based on the absolute position without additional measures. In the case of safety functions that are based on the safe absolute position, the motor feedback system supplies only one channel without safety-related diagnostics upon powerup. You must implement a second channel by using other measures.
- The motor feedback system is not able to create a safe state for the drive system independently. The drive system creates the safe state as a response to an error displayed by the motor feedback system.
- To plan and use motors equipped with safety-rated feedback sensors requires technical skills that are not explained in this document.



ATTENTION: To avoid damage to the equipment, do not establish or remove electrical connections to the motor feedback system with the voltage switched on.

Performance Level (PL) and Safety Integrity Level (SIL)

For safety-related control systems, Performance Level (PL), according to ISO 13849-1, and SIL levels, according to IEC 61508 and IEC 62061, include a rating of the system's ability to perform its safety functions. All of the safety related components of the control system must be included in a risk assessment and the determination of the achieved levels.

Refer to the ISO 13849-1, IEC 61508, and IEC 62061 standards for complete information on the requirements for PL and SIL determination.

Safety-related Parameters

A motor that is equipped with a Hiperface DSL functional safety-rated feedback sensor is designed to maintain the functional safety rating of the feedback sensor attached. The safety parameters of the feedback sensors are as follows.

Attribute	Motor Cat. No.	
	VPH-xxxxxx-WJxxDxx	VPH-xxxxxx-QJxxDxx
Safety Integrity Level (SIL)	SIL2 (IEC 61508), SIL CL2 (IEC 62061)	
Probability of a Dangerous Failure per Hour (PFH)	4.0 E-08 1/h ⁽¹⁾	3.80 E-08 1/h ⁽¹⁾
Safety Category	CAT. 3 (ISO 13849-1)	
Performance Level (PL)	PLd (ISO 13849-1)	

(1) The values displayed apply to a diagnostic coverage of 90% that must be achieved by the external drive system.

Motor Installation

Motor installation must comply with all local regulations and use of equipment and installation practices that promote safety and electromagnetic compatibility:

- All motors include a mounting pilot for aligning the motor on a machine.
- Preferred fasteners are stainless steel.



ATTENTION: Unmounted motors, disconnected mechanical couplings, loose shaft keys, and disconnected cables can be dangerous if power is applied. Identify (tag-out) disassembled equipment and restrict access to (lock-out) the electrical power.

Before you apply power to the motor, remove the shaft key and other mechanical couplings that could be thrown from the shaft.



ATTENTION: Verify that cables are installed and restrained to prevent uneven tension or flexing at the connector. Provide support at 3 m (10 ft) intervals throughout the cable run.

Excessive and uneven lateral force at the cable connector can result in the environmental seal opening and closing as the cable flexes.

Install the Motor

Follow these steps to install a Bulletin VPH motor.



ATTENTION: Damage can occur to the motor bearings and the feedback device if sharp impact is applied to the shaft during installation of couplings and pulleys. Damage to the feedback device can result from applying leverage to the motor mounting face when removing devices mounted on the motor shaft.

Do not strike the shaft, couplings, or pulleys with tools during installation or removal. Use a wheel puller, to apply pressure from the user end of the shaft, when attempting to remove any device from the motor shaft.

1. Provide sufficient clearance around the motor so that heat dissipates and the motor temperature stays within its specified operating temperature range.

See [Environmental Specifications](#) on [page 17](#) for the operating temperature range. Do not enclose the motor unless forced air is blown across the motor for cooling. A fan that blows air across the motor improves its performance. Keep other heat-producing devices away from the motor.



BURN HAZARD: Outer surfaces of the motor can reach a high temperature, 125 °C (257 °F), during motor operation. Take precautions to prevent accidental contact with hot surfaces.

2. See [Load Force Ratings](#) on [page 11](#) to determine the radial and axial shaft-load limitations of your motor.
3. Mount and align the motor with the cable connector positioned beneath the motor housing to form a drip loop. This position can provide better environmental protection for the connector. See [Prolong Motor Life](#) on [page 4](#).
4. Route and secure the on-motor cable.
 - For connector option 1, go to [step 5](#).
 - For connector option 0, go to [step 6](#).

See [page 6](#) for bend radius specifications. See [Connector Data](#) on [page 11](#) for wiring examples.

5. Mate on-motor cables with SpeedTec connector (connector option 1) with a 2090-CSxM1Dx single cable.
 - a. Align the flat surface on the top of the on-motor cable connector with the flat surface on the Bulletin 2090 cable connector.



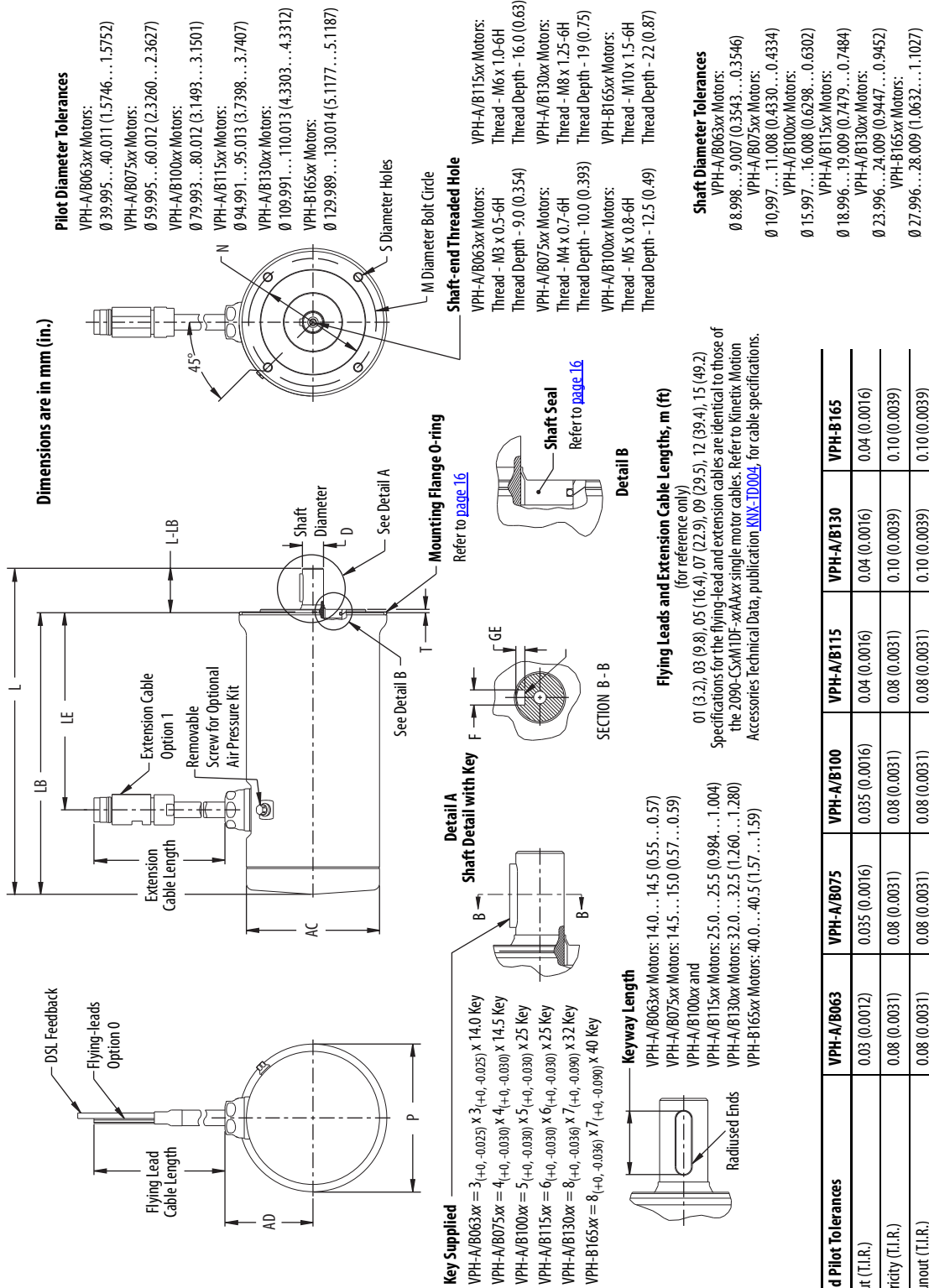
ATTENTION: Keyed connectors must be properly aligned and hand-tightened.

Do not use tools, or apply excessive force, when mating the on-motor cable connector to the Bulletin 2090 cable connector. If the connectors do not go together with light hand force, realign and try again.

- b. Hand-tighten the knurled collar one-quarter turn to fully seat the cable connector.
6. Wire on-motor cables with flying leads (connector option 0) directly to the drive motor power and brake connectors. Motor feedback conductors require a 2198-KITCON-DSL feedback connector kit that plugs into the drive.

Motor Dimensions

VPH-A/B063x, VPH-A/B075x, VPH-A/B100x, VPH-A/B115x, VPH-A/B130x, VPH-B165x Motor Dimensions



VPH-A/B063xx, VPH-A/B075xx, VPH-A/B100xx, VPH-A/B115xx, VPH-A/B130xx, VPH-B165xx Motor Dimensions

Motor Cat. No.	AD mm (in.)	AC mm (in.)	T mm (in.)	LE ⁽¹⁾ mm (in.)	L mm (in.)	LB mm (in.)	L-LB mm (in.)	D mm (in.)	M mm (in.)	S mm (in.)	N mm (in.)	P mm (in.)	GE mm (in.)	F mm (in.)
VPH-A/B0632	58.5 (2.30)	81.9 (3.20)	1.30...2.50 (0.051...0.098)	125.9 (4.96)	230.6 (9.10)	200.6 (7.90)	30.0 (1.20)	9.0 (0.354)	63.0 (2.480)	5.0 (0.20)	40.0 (1.57)	81.9 (3.20)	1.80...1.90 (0.071...0.075)	2.969...2.994 (0.1169...0.1179)
VPH-A/B0633				150.9 (5.94)	255.6 (10.08)	225.6 (8.88)								
VPH-A/B0753	65.6 (2.60)	94.9 (3.70)	1.70...2.50 (0.067...0.098)	153.7 (6.05)	251.9 (9.91)	288.9 (9.01)	23.0 (0.90)	11.0 (0.433)	75.0 (2.953)		60.0 (2.36)	94.9 (3.70)	2.50...2.60 (0.098...0.102)	3.958...3.988 (0.1558...0.1570)
VPH-A/B1001	74.5 (2.90)	109.9 (4.33)		110.8 (4.36)	223.0 (8.78)	183.0 (7.20)	40.0 (1.57)	16.0 (0.630)	100.0 (3.937)	6.0 (0.24)	80.0 (3.15)	119.8 (4.72)	3.00...3.10 (0.118...0.122)	4.958...4.988 (0.1952...0.1964)
VPH-A/B1003			2.20...3.00 (0.087...0.118)	161.6 (6.36)	273.8 (10.77)	233.8 (9.20)								
VPH-A/B1152	79.3 (3.10)	119.9 (4.70)		141.8 (5.58)	257.9 (10.15)	217.9 (8.58)	40.0 (1.57)	19.0 (0.748)	115.0 (4.528)	8.0 (0.31)	95.0 (3.74)	133.0 (5.20)	3.50...3.60 (0.138...0.142)	5.958...5.988 (0.2346...0.2357)
VPH-A/B1153				167.2 (6.58)	283.3 (11.15)	243.3 (9.58)								
VPH-A/B1304	87.6 (3.40)	136.9 (5.40)	2.42...3.50 (0.095...0.138)	194.8 (7.67)	321.5 (12.66)	271.5 (10.69)	50.0 (1.97)	24.0 (0.945)	130.0 (5.118)		110.0 (4.33)	155.1 (6.10)	4.00...4.20 (0.157...0.165)	7.949...7.985 (0.3130...0.3144)
VPH-B1653	100.1 (3.90)	159.9 (6.30)		261.0 (10.28)	398.5 (15.73)	338.5 (13.33)	60.0 (2.40)	28.0 (1.103)	165.0 (6.50)	10.0 (0.39)	130.0 (5.12)	186.0 (7.30)		

(1) If ordering a VPH-A/B063xx-xx4Dxx motor with brake, add 30.6 mm (1.21 in.) to dimensions LE, L, and LB.
 If ordering a VPH-A/B075xx-xx4Dxx motor with brake, add 27.1 mm (1.07 in.) to dimensions LE, L, and LB.
 If ordering a VPH-A/B100xx-xx4Dxx motor with brake, add 32.1 mm (1.27 in.) to dimensions LE, L, and LB.
 If ordering a VPH-A/B115xx-xx4Dxx motor with brake, add 35.8 mm (1.41 in.) to dimensions LE, L, and LB.
 If ordering a VPH-A/B130xx-xx4Dxx motor with brake, add 37.9 mm (1.49 in.) to dimensions LE, L, and LB.
 If ordering a VPH-B165xx-xx4Dxx motor with brake, add 43.2 mm (1.70 in.) to dimensions LE, L, and LB.

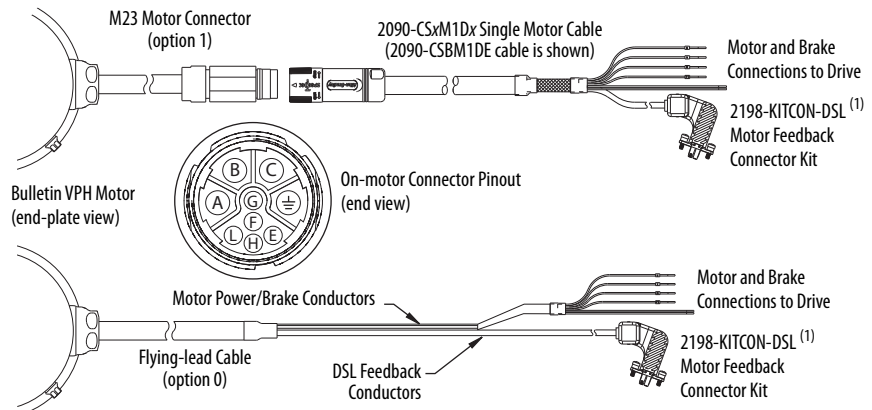
Motors are designed to metric dimensions. Inch dimensions are approximate conversions from millimeters. Dimensions without tolerances are for reference.

Connector Data

This section provides motor power, brake, and encoder pinouts and examples of how motor connections are made to the drive.

M23 Motor Connector Pinouts (option 1)

Pin	Signal Name
A	U
B	V
C	W
⊕	GND
E	DSL+
F	MBRK+
G	MBRK–
H	DSL–
L	Reserved



(1) The 2198-KITCON-DSL feedback connector kit is included with 2090-CSxM1DE cables, Kinetix 5500 drives, and can be purchased separately. They are not included with Bulletin VPH servo motors.

Flying-lead Wiring Designations (option 0)

Motor Cat. No.	Wire Color	Wire Size (AWG)	Signal Name
VPH-A/B063 VPH-A/B075	Brown	18	U
	Black		V
	Blue		W
	Green/Yellow		GND
	Blue	22	DSL+
	White/Blue		DSL–
	Black		MBRK+
	White		MBRK–

Motor Cat. No.	Wire Color	Wire Size (AWG)	Signal Name
VPH-A/B100 VPH-A/B115 VPH-A/B130 VPH-B165	Brown	14	U
	Black		V
	Blue		W
	Green/Yellow		GND
	Blue	22	DSL+
	White/Blue		DSL–
	Black	18	MBRK+
	White		MBRK–

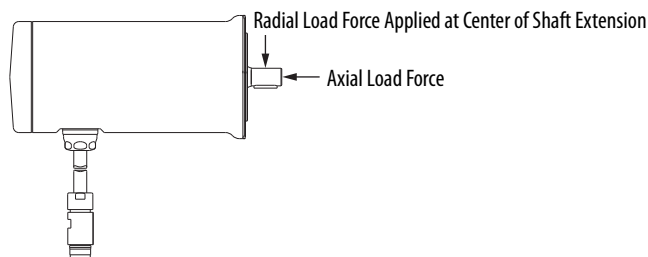
For wiring the 2198-KITCON-DSL feedback connector kit and wiring the motor power and brake conductors, see your servo-drive user manual.

- Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#)
- Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#)

Load Force Ratings

Motors can operate with a sustained shaft load. The figure shows radial and axial load force locations, and the tables provide maximum values for each force.

Load Forces on Motor Shaft



The following tables represent 20,000-hour L10 bearing fatigue life at various loads and speeds. The 20,000-hour life does not account for possible application-specific life reduction that can occur due to bearing grease contamination from external sources.

Radial Load Force Ratings for Non-brake Motors

Motor Cat. No. ⁽¹⁾	Speed, max rpm	Load (kgf) at Speed (rpm)															
		500 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	7500 kgf	8000 kgf
VPH-A0633F	4500	37.2	29.5	25.8	23.4	21.7	20.5	19.4	18.6	17.9	—	—	—	—	—	—	—
VPH-A0753F	4600	38.2	30.3	26.5	24.0	22.3	21.0	20.0	19.1	18.4	17.7*	—	—	—	—	—	—
VPH-A1003F	5500	93.6	74.3	64.9	59.0	54.7	51.5	48.9	46.8	45.0	43.4	42.1	—	—	—	—	—
VPH-A1152E	3300	102.2	81.1	70.8	64.4	59.8	56.2	53.4*	—	—	—	—	—	—	—	—	—
VPH-A1153C	2300	108.6	86.2	75.3	68.4	63.5*	—	—	—	—	—	—	—	—	—	—	—
VPH-A1304D	3000	142.7	113.2	98.9	89.9	83.4	78.5	—	—	—	—	—	—	—	—	—	—
VPH-B0632T	8000	35.4	28.1	24.5	22.3	20.7	19.5	18.5	17.7	17	16.4	15.9	15.5	15.0	14.7	14.3	14.0
VPH-B0633M	6700	37.2	29.5	25.8	23.4	21.7	20.5	19.4	18.6	17.9	17.3	16.7	16.2	15.8	15.4*	—	—
VPH-B0753F	6600	38.2	30.3	26.5	24.0	22.3	21.0	20.0	19.1	18.4	17.7	17.2	16.7	16.2	15.8*	—	—
VPH-B1001F	5000	79.9	63.4	55.4	50.3	46.7	44.0	41.8	40.0	38.4	37.1	—	—	—	—	—	—
VPH-B1003F	4750	93.6	74.3	64.9	59.0	54.7	51.5	48.9	46.8	45.0	43.4*	—	—	—	—	—	—
VPH-B1152F	4500	102.2	81.1	70.8	64.4	59.8	56.2	53.4	51.1	49.1	—	—	—	—	—	—	—
VPH-B1153E	5000	108.6	86.2	75.3	68.4	63.5	59.7	56.7	54.3	52.2	50.4	—	—	—	—	—	—
VPH-B1304E	3500	142.7	113.2	98.9	89.9	83.4	78.5	74.6	—	—	—	—	—	—	—	—	—
VPH-B1653D	3000	193.4	153.5	134.1	121.8	113.1	106.4	—	—	—	—	—	—	—	—	—	—

(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.

Axial Load Force Ratings with Maximum Radial Load for Non-brake Motors

Motor Cat. No. ⁽¹⁾	Speed, max rpm	Load (kgf) at Speed (RPM)															
		500 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	7500 kgf	8000 kgf
VPH-A0633F	4500	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	—	—	—	—	—	—	—
VPH-A0753F	4600	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7*	—	—	—	—	—	—
VPH-A1003F	5500	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1	11.6	—	—	—	—	—
VPH-A1152E	3300	38.2	28.2	23.7	20.9	19.0	17.5	16.4*	—	—	—	—	—	—	—	—	—
VPH-A1153C	2300	38.2	28.2	23.7	20.9	19.0*	—	—	—	—	—	—	—	—	—	—	—
VPH-A1304D	3000	48.9	36.2	30.4	26.8	24.3	22.5	—	—	—	—	—	—	—	—	—	—
VPH-B0632T	8000	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0	3.9	3.8
VPH-B0633M	6700	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0*	—	—
VPH-B0753F	6600	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0*	—	—
VPH-B1001F	5000	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1	—	—	—	—	—	—
VPH-B1003F	4750	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1*	—	—	—	—	—	—
VPH-B1152F	4500	38.2	28.2	23.7	20.9	19.0	17.5	16.4	15.5	14.7	—	—	—	—	—	—	—
VPH-B1153E	5000	38.2	28.2	23.7	20.9	19.0	17.5	16.4	15.5	14.7	14.0	—	—	—	—	—	—
VPH-B1304E	3500	48.9	36.2	30.4	26.8	24.3	22.5	21.0	—	—	—	—	—	—	—	—	—
VPH-B1653D	3000	63.0	46.6	39.1	34.5	34.5	28.9	—	—	—	—	—	—	—	—	—	—

(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 with Zero Radial Load for Non-brake Motors

Motor Cat. No. ⁽¹⁾	Speed, max rpm	Load (kgf) at Speed (RPM)															
		500 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	7500 kgf	8000 kgf
VPH-A0633F	4500	17.1	27.5	23.0	20.3	18.5	17.1	16.0	15.1	15.1	—	—	—	—	—	—	—
VPH-A0753F	4600	37.1	27.5	23.0	20.3	18.5	17.1	16.0	15.1	15.1	13.7*	—	—	—	—	—	—
VPH-A1003F	5500	96.5	71.4	71.4	52.8	52.8	44.3	41.4	39.1	37.2	35.5	34.1	—	—	—	—	—
VPH-A1152E	3300	39.4	82.6	82.6	61.2	55.5	51.3	48.0*	—	—	—	—	—	—	—	—	—
VPH-A1153C	2300	111.7	82.6	82.6	61.2	55.5*	—	—	—	—	—	—	—	—	—	—	—
VPH-A1304D	3000	71.2	106.0	88.9	78.5	71.2	65.8	—	—	—	—	—	—	—	—	—	—
VPH-B0632T	8000	17.1	27.5	23.0	20.3	18.5	17.1	17.1	15.1	14.3	13.7	13.7	12.6	12.2	11.8	11.8	11.1
VPH-B0633M	6700	11.1	27.5	27.5	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	12.6	12.6	11.8*	—	—
VPH-B0753F	6600	11.8	27.5	23.0	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	12.6	12.6	11.8*	—	—
VPH-B1001F	5000	96.5	71.4	59.9	52.8	48.0	44.3	41.4	39.1	37.2	35.5	—	—	—	—	—	—
VPH-B1003F	4750	96.5	71.4	71.4	52.8	52.8	44.3	41.4	39.1	37.2	35.5*	—	—	—	—	—	—
VPH-B1152F	4500	41.1	82.6	69.3	61.2	55.5	51.3	48.0	45.3	43.0	—	—	—	—	—	—	—
VPH-B1153E	5000	43.0	82.6	69.3	61.2	55.5	51.3	48.0	45.3	45.3	41.1	—	—	—	—	—	—
VPH-B1304E	3500	65.8	106.0	88.9	78.5	71.2	65.8	61.5	—	—	—	—	—	—	—	—	—
VPH-B1653D	3000	184.4	136.5	114.5	101.0	91.7	84.7	—	—	—	—	—	—	—	—	—	—

(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.

Radial Load Force Ratings for Brake Motors

Motor Cat. No. ⁽¹⁾	Speed, max rpm	Load (kgf) at Speed (RPM)															
		500 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	7500 kgf	8000 kgf
VPH-A0633F	4500	38.7	30.7	26.8	24.4	22.6	21.3	20.2	19.3	18.6	—	—	—	—	—	—	—
VPH-A0753F	4600	39.4	31.3	27.3	24.8	23.0	21.7	20.6	19.7	18.9	18.3*	—	—	—	—	—	—
VPH-A1003F	5500	98.4	78.1	68.2	62	57.6	54.2	51.5	49.2	47.3	45.7	44.3	—	—	—	—	—
VPH-A1152E	3300	110.6	87.8	76.7	69.7	64.7	60.9	57.8*	—	—	—	—	—	—	—	—	—
VPH-A1153C	2300	114.7	91.1	79.6	72.3	67.1*	—	—	—	—	—	—	—	—	—	—	—
VPH-A1304D	3000	149.5	118.7	103.7	94.2	87.5	82.3	—	—	—	—	—	—	—	—	—	—
VPH-B0632T	8000	37.5	29.8	26.0	23.6	21.9	20.6	19.6	18.8	18.0	17.4	16.9	16.4	16.0	15.6	15.2	14.9
VPH-B0633M	6700	38.7	30.7	26.8	24.4	22.6	21.3	20.2	19.3	18.6	18.0	17.4	16.9	16.5	16.1*	—	—
VPH-B0753F	6600	39.4	31.3	27.3	24.8	23.0	21.7	20.6	19.7	18.9	18.3	17.7	17.2	16.7	16.3*	—	—
VPH-B1001F	5000	89.7	71.2	62.2	56.5	52.5	49.4	46.9	44.9	43.1	41.6	—	—	—	—	—	—
VPH-B1003F	4750	98.4	78.1	68.2	62	57.6	54.2	51.5	49.2	47.3	45.7*	—	—	—	—	—	—
VPH-B1152F	4500	110.6	87.8	76.7	69.7	64.7	60.9	57.8	55.3	53.2	—	—	—	—	—	—	—
VPH-B1153E	5000	114.7	91.1	79.6	72.3	67.1	63.1	60.0	57.4	55.2	53.3	—	—	—	—	—	—
VPH-B1304E	3500	149.5	118.7	103.7	94.2	87.5	82.3	78.2	—	—	—	—	—	—	—	—	—
VPH-B1653D	3000	199.8	158.6	138.5	125.8	116.8	109.9	—	—	—	—	—	—	—	—	—	—

(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 with Maximum Radial Load for Brake Motors

Motor Cat. No. ⁽¹⁾	Speed, max rpm	Load (kgf) at Speed (RPM)															
		500 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	7500 kgf	8000 kgf
VPH-A0633F	4500	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	—	—	—	—	—	—	—
VPH-A0753F	4600	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7*	—	—	—	—	—	—
VPH-A1003F	5500	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1	11.6	—	—	—	—	—
VPH-A1152E	3300	38.2	28.2	23.7	20.9	19.0	17.5	16.4*	—	—	—	—	—	—	—	—	—
VPH-A1153C	2300	38.2	28.2	23.7	20.9	19.0*	—	—	—	—	—	—	—	—	—	—	—
VPH-A1304D	3000	48.9	36.2	30.4	26.8	24.3	22.5	—	—	—	—	—	—	—	—	—	—
VPH-B0632T	8000	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0	3.9	3.8
VPH-B0633M	6700	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0*	—	—
VPH-B0753F	6600	12.7	9.4	7.9	6.9	6.3	5.8	5.4	5.1	4.9	4.7	4.5	4.3	4.2	4.0*	—	—
VPH-B1001F	5000	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1	—	—	—	—	—	—
VPH-B1003F	4750	33.0	24.4	20.5	18.0	16.4	15.1	14.2	13.4	12.7	12.1*	—	—	—	—	—	—
VPH-B1152F	4500	38.2	28.2	23.7	20.9	19.0	17.5	16.4	15.5	14.7	—	—	—	—	—	—	—
VPH-B1153E	5000	38.2	28.2	23.7	20.9	19.0	17.5	16.4	15.5	14.7	14.0	—	—	—	—	—	—
VPH-B1304E	3500	48.9	36.2	30.4	26.8	24.3	22.5	21.0	—	—	—	—	—	—	—	—	—
VPH-B1653D	3000	28.9	46.6	39.1	34.5	31.3	28.9	—	—	—	—	—	—	—	—	—	—

(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 with Zero Radial Load for Brake Motors

Motor Cat. No. ⁽¹⁾	Speed, max rpm	Load (kgf) at Speed (RPM)															
		500 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	7500 kgf	8000 kgf
VPH-A0633F	4500	37.1	27.5	23.0	20.3	18.5	17.1	17.1	15.1	15.1	—	—	—	—	—	—	—
VPH-A0753F	4600	37.1	27.5	23.0	20.3	18.5	18.5	16.0	16.0	14.3	13.7*	—	—	—	—	—	—
VPH-A1003F	5500	96.5	71.4	59.9	52.8	48.0	44.3	41.4	39.1	39.1	35.5	35.5	—	—	—	—	—
VPH-A1152E	3300	111.7	111.7	69.3	61.2	55.5	51.3	48.0*	—	—	—	—	—	—	—	—	—
VPH-A1153C	2300	111.7	82.6	69.3	61.2	55.5*	—	—	—	—	—	—	—	—	—	—	—
VPH-A1304D	3000	65.8	106.0	88.9	78.5	71.2	65.8	—	—	—	—	—	—	—	—	—	—
VPH-B0632T	8000	11.1	27.5	23.0	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	12.6	12.6	11.8	11.8	11.1
VPH-B0633M	6700	37.1	37.1	23.0	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	12.6	12.2	11.8*	—	—
VPH-B0753F	6600	37.1	27.5	23.0	20.3	18.5	17.1	16.0	15.1	14.3	13.7	13.1	13.1	12.2	11.8*	—	—
VPH-B1001F	5000	35.5	71.4	71.4	52.8	48.0	44.3	41.4	39.1	39.1	35.5	—	—	—	—	—	—
VPH-B1003F	4750	96.5	96.5	59.9	52.8	48.0	44.3	41.4	39.1	37.2	35.5*	—	—	—	—	—	—
VPH-B1152F	4500	111.7	82.6	69.3	61.2	55.5	51.3	48.0	45.3	43.0	—	—	—	—	—	—	—
VPH-B1153E	5000	111.7	82.6	82.6	61.2	55.5	51.3	48.0	45.3	43.0	41.1	—	—	—	—	—	—
VPH-B1304E	3500	143.2	106.0	106	78.5	78.5	65.8	61.5	—	—	—	—	—	—	—	—	—
VPH-B1653D	3000	184.4	136.5	114.5	101.0	91.7	84.7	—	—	—	—	—	—	—	—	—	—

(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.

Remove and Replace a Shaft Key

Shaft keys for the Bulletin VPH motors are constructed of stainless steel - grade 316 SST with a tolerance for interference fit (slightly larger than the opening) to provide a secure and rigid fit for the mating connection.

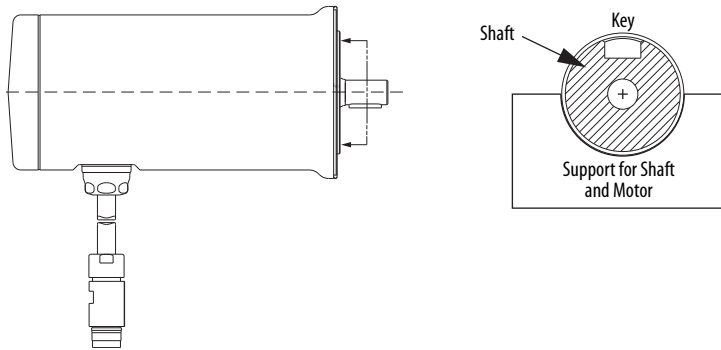


ATTENTION: Damage can occur to the motor bearings and the feedback device if sharp impact is applied to the shaft during installation of couplings and pulleys. Damage to the feedback device can result from applying leverage to the motor mounting face when removing devices mounted on the motor shaft. Do not strike the shaft, couplings, or pulleys with tools during installation or removal. Use a wheel puller to apply pressure from the user end of the shaft when attempting to remove any device from the motor shaft.

To remove a shaft key, grasp the key with a pliers or similar tool and lift the key out of the key slot.

Follow these steps to install a shaft key.

1. Verify that the replacement key matches the keyway in the shaft and the mating mechanical connection, for example, a coupling or pulley, before proceeding.
2. Align the front of the key with the front of the motor shaft.
This prevents the curved end-of-cut at the motor end of the keyway from interfering with the correct seating of the key.
3. Support the underside of the shaft diameter with a fixture, and use a controlled press device to apply a constant force across the top surface to press the key into the shaft.



Motor Accessories

The following accessories are available for Kinetix VP hygienic stainless-steel servo motors.

2090-Series Single Motor Cables

Factory-manufactured single motor cables are required with Bulletin VPH motors. Single motor cables are designed to effectively isolate the power, brake, and feedback signals within the cable. Single motor cables are available in configurable standard-cable lengths and provide environmental and shield termination. For maximum cable-length specifications, see Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#), or Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#).

Refer to the Kinetix Motion Accessories Technical Data, publication [KNX-TD004](#), for Bulletin 2090 single motor-cable specifications.

Shaft Seal Kits

Replacement shaft seal kits are available for field installation on Bulletin VPH motors. A shaft seal provides a barrier that prevents moisture and particles from entering the motor bearings. 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.
VPH-A063xx and VPH-B063xx	VPH-SST-F063
VPH-A075xx and VPH-B075xx	VPH-SST-F075
VPH-A100xx and VPH-B100xx	VPH-SST-F100

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPH-A115xx and VPH-B115xx	VPH-SST-F115
VPH-A130xx and VPH-B130xx	VPH-SST-F130
VPH-B165xx	VPH-SST-F165

See Shaft Seal Kit Installation Instructions, publication [2090-IN012](#), for instructions on how to install a shaft seal.

Positive Air-pressure Kit

Positive air-pressure kits (catalog number MPS-AIR-PURGE) are available for field installation on Bulletin VPH motors. The kit consists of a single fitting that is used to connect a positive-pressure air supply line to the motor interior. Positive air pressure supplied through this kit provides an additional level of protection for the motor against the ingress of foreign substances and moisture.

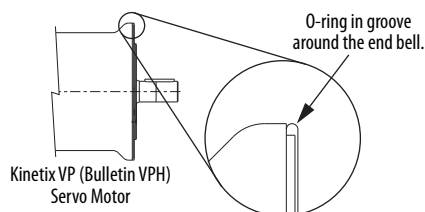
IMPORTANT

The positive air-pressure kit is not required if the motor is fully enclosed and there is no exposure to, for example, liquids or dust. Excessive air pressure, above 0.1 bar, max (1.45 psi), or improper filtering of air can result in damage to the motor. Air that is supplied to the motor must be clean and dry.

See Positive Air-pressure Kit Installation Instructions, publication [2090-IN030](#), for instructions on how to install a shaft seal.

O-ring Kits

The O-ring is intended to seal the gap between the motor front end-bell and the mounting plate. Sealing this area helps prevent the ingress of liquids onto the shaft and shaft seal.


IMPORTANT

The O-ring kit is not required if the motor is fully enclosed and there is no exposure to, for example, liquids or dust. Install the Bulletin VPH motor before you install the O-ring.

O-ring Kit Catalog Numbers

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPH-A063xx and VPH-B063xx	VPH-F063-ORING
VPH-A075xx and VPH-B075xx	VPH-F075-ORING
VPH-A100xx and VPH-B100xx	VPH-F100-ORING

Motor Cat. No.	Shaft Seal Kit Cat. No.
VPH-A115xx and VPH-B115xx	VPH-F115-ORING
VPH-A130xx and VPH-B130xx	VPH-F130-ORING
VPH-B165xx	VPH-F165-ORING

See O-ring Kit Installation Instructions, publication [2090-IN033](#), for instructions on how to install a shaft seal.

Specifications

The exterior surfaces of the Bulletin VPH hygienic stainless-steel servo motors are made from the materials in the table. Always store motors in a clean and dry location within the environmental conditions.

Exterior Surface Materials

Surface	Material
Shaft	Grade 316 SST
Shaft key	
Housing	
Connector	Nickel-plated zinc casting

Environmental Specifications

Attribute	Value
Temperature, operating	-20...+40 °C (-4...+104 °F)
Temperature, storage	-30...+70 °C (-22...+158 °F)
Relative humidity	5...95% noncondensing
Atmosphere	Noncorrosive
Altitude	2000 m (6562 ft) max

Environmental Ratings

IP Rating ⁽¹⁾	Dust Protection	Liquid Protection	Shaft Seal ⁽²⁾
IP66	Total protection from dust.	Protected against strong jets of water.	Motor with shaft seal and Bulletin 2090 environmentally sealed cable connectors.
IP67		Protected against the effects of temporary liquid immersion.	
IP69K		Protected against the effects of water/stream jets up to 100 bar (1200 psi) with nozzle temperature at approximately 80 °C (176 °F).	

(1) IP rating descriptions are for reference only. Refer to the international standards for more complete rating descriptions.

(2) The cable connectors are rated IP66 and 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.

Weight Specifications

Motor Cat. No.	Motor Weight, approx Non-brake kg (lb)	Motor Weight, approx Brake kg (lb)
VPH-B0632	5.5 (12.13)	6.5 (14.33)
VPH-A/B0633	6.2 (13.67)	7.1 (15.66)
VPH-A/B0753	8.2 (18.08)	9.2 (20.29)
VPH-B1001	9.2 (20.29)	11.2 (24.70)
VPH-A/B1003	12.7 (28.00)	14.6 (32.19)
VPH-A/B1152	13.3 (29.33)	15.6 (34.40)
VPH-A/B1153	15.3 (33.74)	17.5 (38.59)
VPH-A/B1304	22.9 (50.49)	26.1 (57.55)
VPH-B1653	37.7 (83.13)	41.0 (90.41)

On-motor Cable Weight Specifications

Motor Cat. No.	Cable Type	Cable Options		Cable Length m (ft)	Cable Weight, approx kg (lb)	
					Frame 063 and 075	Frame 100, 115, 130, 165
VPH-A/Bxxxxx-xJ0xD01	Continuous-flex	Flying leads	01	1 (3.2)	0.3 (0.7)	0.4 (0.9)
VPH-A/Bxxxxx-xJ1xD01		Connector			0.4 (0.9)	0.5 (1.1)
VPH-A/Bxxxxx-xJ0xD03		Flying leads	03	3 (9.8)	0.9 (2.0)	1.2 (2.6)
VPH-A/Bxxxxx-xJ1xD03		Connector			1.2 (2.6)	1.5 (3.3)
VPH-A/Bxxxxx-xJ0xD05		Flying leads	05	5 (16.4)	1.5 (3.3)	1.6 (3.4)
VPH-A/Bxxxxx-xJ1xD05		Connector			2.0 (4.3)	2.5 (5.5)
VPH-A/Bxxxxx-xJ0xD07		Flying leads	07	7 (22.9)	2.1 (4.6)	2.7 (6.0)
VPH-A/Bxxxxx-xJ1xD07		Connector			2.7 (6.0)	3.5 (7.7)
VPH-A/Bxxxxx-xJ0xD09	Standard (non-flex)	Flying leads	09	9 (29.5)	2.7 (5.9)	3.5 (7.7)
VPH-A/Bxxxxx-xJ1xD09		Connector			3.5 (7.7)	4.7 (10.3)
VPH-A/Bxxxxx-xJ0xD12		Flying leads	12	12 (39.4)	3.6 (7.8)	4.7 (10.2)
VPH-A/Bxxxxx-xJ1xD12		Connector			4.7 (10.2)	5.6 (12.3)
VPH-A/Bxxxxx-xJ0xD15		Flying leads	15	15 (49.2)	4.5 (9.8)	5.8 (12.8)
VPH-A/Bxxxxx-xJ1xD15		Connector			5.8 (12.8)	6.7 (14.8)

For VPH-A/B100xx, VPH-A/B115xx, and VPH-A/B130xx motors with connector option 1 (SpeedTec connector), when the recommended 2090-CSxM1Dx cable is 18 AWG, 14 AWG cable can be used because the on-motor cable is 14 AWG.

On-motor Cable Gauge Specifications

Motor Cat. No.	Cable Gauge
VPH-A/B063xx, VPH-A/B075xx	18
VPH-A/B100xx, VPH-A/B115xx	14
VPH-A/B130xx, VPH-A/B165xx	

Additional Resources

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

Resource	Description
Kinetix Rotary Motion Specifications Technical Data, publication KNX-TD001	Product specifications for Allen-Bradley® rotary motors, with performance, environmental, certifications, load force, and dimension drawings.
Kinetix Servo Drives Specifications, publication KNX-TD003	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 KNX-TD004	Provides product specifications and dimensions for Bulletin 2090 motor cables and other drive accessories.
Kinetix 5500 Servo Drives User Manual, publication 2198-UM001	Provides information to install, configure, start up, and troubleshoot a Kinetix servo drive system with a servo motor.
Kinetix 5700 Servo Drives User Manual, publication 2198-UM002	
Shaft-seal Kits Installation Instructions, publication 2090-IN012	Provides information on the installation of shaft seal kits on this and other servo motors.
Positive Air-pressure Kits Installation Instructions, publication 2090-IN030	Provides information on the installation of positive air-pressure kits on this and other servo motors.
Kinetix VP Hygienic Servo Motor O-ring Kits Installation Instructions, publication 2090-IN033	Provides information on the installation of the O-ring kit on Bulletin VPH servo motors.
Vertical Load and Holding Brake Management Application Technique, publication MOTION-AT003	Provides information on vertical loads and how the servo motor holding-brake option can be used to help keep a load from falling.
Motor Nameplate Datasheet Entry for Custom Motor Applications Application Technique, publication 2198-AT002	Provides information on the use of nameplate data entry for custom induction motors and permanent-magnet motors that are used in applications with Kinetix 5700 servo drives.
DSL Feedback Connector Kit Installation Instructions, publication 2198-IN002	Provides information on installing the DSL feedback connector kit.
System Design for Control of Electrical Noise Reference Manual, publication GMC-RM001	Provides information, examples, and techniques that are designed to minimize system failures and caused by electrical noise.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.
Allen-Bradley Industrial Automation Glossary, publication AG-7.1	A glossary of industrial automation terms and abbreviations.

You can view or download publications at <http://www.rockwellautomation.com/global/literature-library/overview.page>.

Rockwell Automation Support

Use the following resources to access support information.

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

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete the How Are We Doing? form at http://literature.rockwellautomation.com/idc/groups/literature/documents/du/ra-du002_-en-e.pdf.



At the end of its life, this equipment should be collected separately from any unsorted municipal waste.

Rockwell Automation maintains current product environmental information on its website at <http://www.rockwellautomation.com/rockwellautomation/about-us/sustainability-ethics/product-environmental-compliance.page>.

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