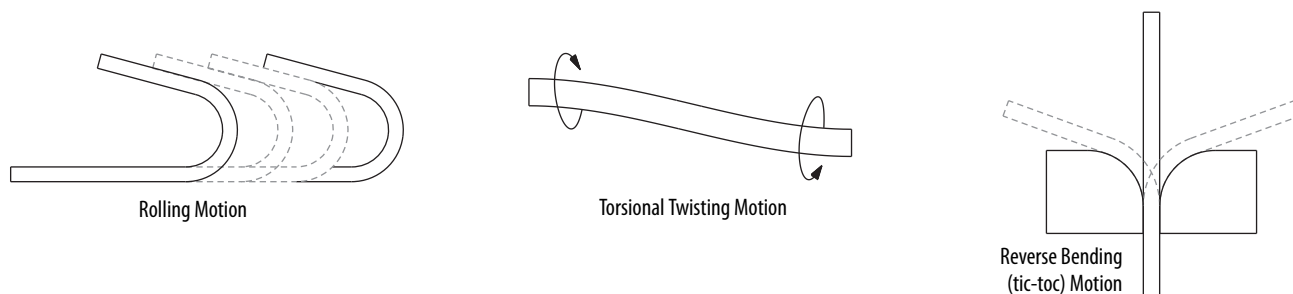


Types of Cable Flexing



Catalog Numbers - 2090-Series Single Motor Cables

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

2090 - C Sx M1 DF - xx Ax xx	
↑	Cable Length Refer to Technical Specifications - 2090-Series Single Motor Cables beginning on page 6 .
↑	Cable Type AA = Standard, non-flex AF = Continuous-flex
↑	Wire Gauge Size (applies to power conductors) 18, 14, 10 AWG
↑	Drive-end Connector Type DF = Drive-end, flying-lead
↑	Motor-end Connector Type M1 = Single SpeedTec DIN connector
↑	Cable Type SB = Single motor power with brake wires SW = Single motor power only
↑	Accessory Component C = Cable
↑	Bulletin Number

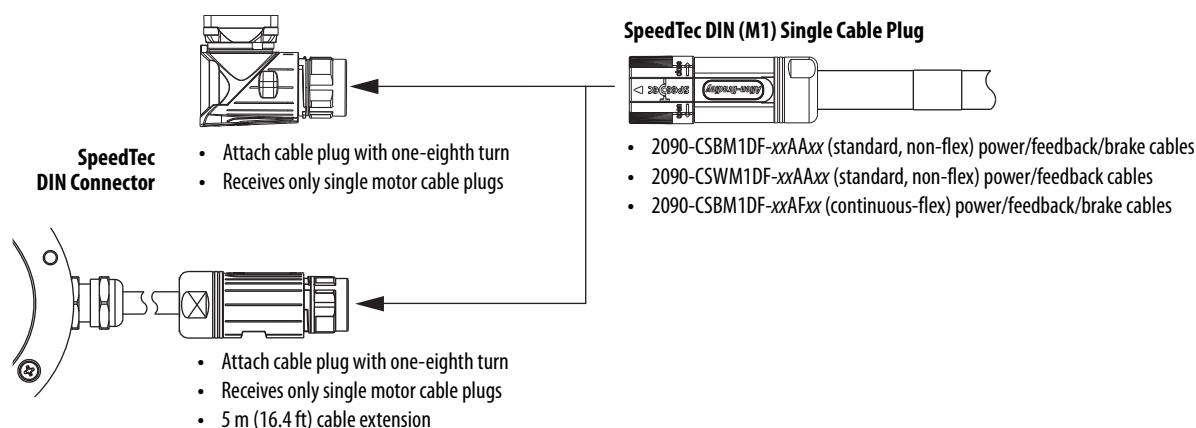
2090-Series Single Motor Cables Overview

Single motor cables provide power, feedback, and brake conductors in a single shielded cable. Cables are available in 1.0 m (3.3 ft) increments up to 50 m (164 ft).

Single Motor Cable Descriptions

Cable Cat. No.	Description	Cable Configuration		Motor Connector
		Motor End	Drive End	
2090-CSBM1DF-xxAAxx 2090-CSBM1DF-xxAFxx	- Drive-end flying-leads (DF) - Power/feedback/brake wires (SB) - Standard, non-flex (AA) - Continuous-flex (AF)			SpeedTec DIN
2090-CSWM1DF-xxAAxx	- Drive-end flying-leads (DF) - Power/feedback wires only (SW)			

Typical Single Motor Cable Applications



2090-Series Single Motor Cable Selection

These tables provide flying-lead single motor cable catalog numbers for Kinetix VP motors. Single motor cables include conductors for motor power, feedback, and motor brakes (if applicable). The IP rating is dependent on the use of Bulletin 2090 cables as listed in the table.

Kinetix VP (Bulletin VPL) 200V-class Low Inertia Motors

Motor Cat. No.	Compatible Drive Cat. No.	Feedback Type	Cable Cat. No.	IP Rating
VPL-A063xx	2198-Hxxx-ERSx	Multi-turn or Single-turn Digital Encoder Feedback	2090-CSBM1DF-18AAxx or 2090-CSWM1DF-18AAxx (standard, non-flex) 2090-CSBM1DF-18AFxx (continuous-flex)	Shaft seal is optional: • IP5x without shaft seal • IP66 with shaft seal
VPL-A0751E, VPL-A0752C, VPL-A0753C			2090-CSBM1DF-14AAxx or 2090-CSWM1DF-14AAxx (standard, non-flex) 2090-CSBM1DF-14AFxx (continuous-flex)	
VPL-A0752E, VPL-A0753E			2090-CSBM1DF-18AAxx or 2090-CSWM1DF-18AAxx (standard, non-flex) 2090-CSBM1DF-18AFxx (continuous-flex)	
VPL-A1001C			2090-CSBM1DF-14AAxx or 2090-CSWM1DF-14AAxx (standard, non-flex) 2090-CSBM1DF-14AFxx (continuous-flex)	
VPL-A1001M, VPL-A1002x, VPL-A1003x				
VPL-A1152x, VPL-A1153x				
VPL-A1303x, VPL-A1304x, VPL-A1306x				

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Single Motor Cables Overview beginning on [page 3](#).

Cable length xx is in meters, 01 (3.3) ... 50 (164) in 1.0 m (3.3 ft) increments. Refer to Technical Specifications - 2090-Series Single Motor Cables on [page 6](#).

Kinetix VP (Bulletin VPL) 400V-class Low Inertia Motors

Motor Cat. No.	Drive Cat. No.	Feedback Type	Cable Cat. No.	IP Rating	
VPL-B063xx	2198-Hxxx-ERSx	Multi-turn or Single-turn Digital Encoder Feedback	2090-CSBM1DF-18AAxx or 2090-CSWM1DF-18AAxx (standard, non-flex) 2090-CSBM1DF-18AFxx (continuous-flex)	Shaft seal is optional: • IP5x without shaft seal • IP66 with shaft seal	
VPL-B0751M, VPL-B0752E, VPL-B0752F, VPL-B0753E, VPL-B0753F					
VPL-B1001M, VPL-B1002E, VPL-B1003C					
VPL-B0752M, VPL-B0753M			2090-CSBM1DF-14AAxx or 2090-CSWM1DF-14AAxx (standard, non-flex) 2090-CSBM1DF-14AFxx (continuous-flex)		
VPL-B1002M, VPL-B1003F, VPL-B1003T			2090-CSBM1DF-18AAxx or 2090-CSWM1DF-18AAxx (standard, non-flex) 2090-CSBM1DF-18AFxx (continuous-flex)		
VPL-B1152C			2090-CSBM1DF-14AAxx or 2090-CSWM1DF-14AAxx (standard, non-flex) 2090-CSBM1DF-14AFxx (continuous-flex)		
VPL-B1152F, VPL-B1152T, VPL-B1153E, VPL-B1153F					
VPL-B1303x, VPL-B1304x, VPL-B1306x,					
VPL-B1651C, VPL-B1651F, VPL-B1652C, VPL-B1652F, VPL-B1653C, VPL-B1653D, VPL-B1654B			2090-CSBM1DF-10AFxx (continuous-flex)		
VPL-B1654D					

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Single Motor Cables Overview beginning on [page 3](#).

Cable length xx is in meters, 01 (3.3) . . . 50 (164) in 1.0 m (3.3 ft) increments. Refer to Technical Specifications - 2090-Series Single Motor Cables on [page 6](#).

Kinetix VP (Bulletin VPF) 200V-class Food Grade Motors

Motor Cat. No. (200V-class)	Drive Cat. No.	Feedback Type	Cable Cat. No.	IP Rating
VPF-A0632F, VPF-A0633C, VPF-A0633F	2198-Hxxx-ERSx	Multi-turn or Single-turn Digital Encoder Feedback	2090-CSBM1DF-18AAxx or 2090-CSWM1DF-18AAxx (standard, non-flex) 2090-CSBM1DF-18AFxx (continuous-flex)	Shaft seal is standard. IP66/IP67 with use of environmentally sealed cable connectors.
VPF-A0752C, VPF-A0753C				
VPF-A1001C				
VPF-A0752E, VPF-A0753E				
VPF-A1001M, VPF-A1002C, VPF-A1002F				
VPF-A1003C, VPF-A1003E, VPF-A1003F				
VPF-A1153C				
VPF-A1303B, VPF-A1303F				
VPF-A1304A, VPF-A1304D				
			2090-CSBM1DF-14AAxx or 2090-CSWM1DF-14AAxx (standard, non-flex) 2090-CSBM1DF-14AFxx (continuous-flex)	

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Single Motor Cables Overview beginning on [page 3](#).

Cable length xx is in meters, 01 (3.3) . . . 50 (164) in 1.0 m (3.3 ft) increments. Refer to Technical Specifications - 2090-Series Single Motor Cables on [page 6](#).

Kinetix VP (Bulletin VPF) 400V-class Food Grade Motors

Motor Cat. No. (400V-class)	Drive Cat. No.	Feedback Type	Cable Cat. No.	IP Rating
VPF-B0632F, VPF-B0632T VPF-B0633M, VPF-B0633T	2198-Hxxx-ERSx	Multi-turn or Single-turn Digital Encoder Feedback	2090-CSBM1DF-18AAxx or 2090-CSWM1DF-18AAxx (standard, non-flex) 2090-CSBM1DF-18AFxx (continuous-flex)	Shaft seal is standard. IP66/IP67 with use of environmentally sealed cable connectors.
VPF-B0752E, VPF-B0752F, VPF-B0753E, VPF-B0753F				
VPF-B1001M, VPF-B1002E, VPF-B1003C				
VPF-B0752M, VPF-B0753M				
VPF-B1002M, VPF-B1003F, VPF-B1003T				
VPF-B1153E, VPF-B1153F				
VPF-B1303C, VPF-B1303F, VPF-B1304C, VPF-B1304E				
VPF-B1652C			2090-CSBM1DF-14AAxx or 2090-CSWM1DF-14AAxx (standard, non-flex) 2090-CSBM1DF-14AFxx (continuous-flex)	

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Single Motor Cables Overview beginning on [page 3](#).

Cable length xx is in meters, 01 (3.3) . . . 50 (164) in 1.0 m (3.3 ft) increments. Refer to Technical Specifications - 2090-Series Single Motor Cables on [page 6](#).

Kinetix VP (Bulletin VPS) 400V-class Stainless Steel Motors

Motor Cat. No.	Drive Cat. No.	Feedback Type	Cable Cat. No.	IP Rating
VPS-B1304D	2198-Hxxx-ERSx	Multi-turn or Single-turn Digital Encoder Feedback	2090-CSWM1DF-14AAxx (standard, non-flex) 2090-CSBM1DF-14AFxx (continuous-flex)	Shaft seal is standard. IP66/67/IP69K with shaft seal and slinger.
VPS-B1653D				

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Single Motor Cables Overview beginning on [page 3](#).

Cable length xx is in meters, 01 (3.3) . . . 50 (164) in 1.0 m (3.3 ft) increments. Refer to Technical Specifications - 2090-Series Single Motor Cables on [page 6](#).

Technical Specifications - 2090-Series Single Motor Cables**Single Motor Cable Specifications**

Cable Cat. No.	Cable Type/ Jacket Color	Description	Wire Size AWG	Weight, approx kg/m (lb/ft)	Standard Cable Lengths m (ft)
2090-CSBM1DF-18AAxx	Standard (non-flex) cable, Industrial TPE, Orange (DESINA, RAL 2003)	1000V hybrid cable with four power, two feedback (digital communication), and two brake conductors.	18	0.212 (0.143)	01 (3.3) . . . 50 (164) in 1.0 m (3.3 ft) increments
2090-CSBM1DF-14AAxx			14	0.261 (0.175)	
2090-CSWM1DF-18AAxx		1000V hybrid cable with four power and two feedback (digital communication) conductors.	18	0.136 (0.091)	
2090-CSWM1DF-14AAxx			14	0.185 (0.124)	
2090-CSBM1DF-18AFxx	Continuous-flex cable, Industrial TPE, Orange (DESINA, RAL 2003)	1000V hybrid cable with four power, two feedback (digital communication), and two brake conductors.	18	0.212 (0.143)	01 (3.3) . . . 50 (164) ⁽¹⁾ in 1.0 m (3.3 ft) increments
2090-CSBM1DF-14AFxx			14	0.261 (0.175)	
2090-CSBM1DF-10AFxx			10	0.551 (0.370)	

(1) Applies to all Kinetix 5500 (frame 2 and 3) drives. For Kinetix 5500 (frame 1) drives in continuous-flex applications, 30 m (98 ft) is maximum cable length.

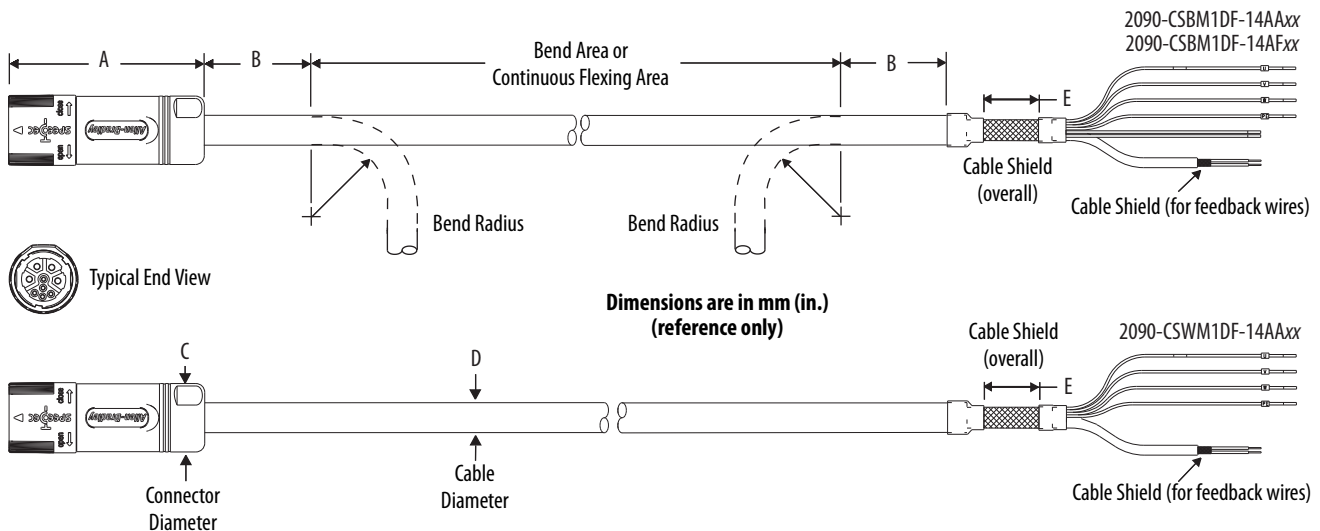
Dimensions - 2090-Series Single Motor Cables

When installing single cable runs between the motor and drive, be careful not to stress the cable by making bends too sharp. Refer to the table below for bend radius definitions and the dimension diagrams that follow when routing cables during system installation.

Single Cable 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 between motor and drive (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 shield clamp. - Use this measurement when routing the cable in a continuous-flex application between motor and drive (the continuous-flexing area). - The continuous flexing area is where continuous-flex cables can be flexed repeatedly.

Single Motor Cable Dimensions (14 AWG)



Single Motor Cable Dimensions (14 AWG)

Cable Cat. No.	A mm (in.)	B ⁽¹⁾ mm (in.)	Continuous Bend Radius ⁽¹⁾ mm (in.)	C mm (in.)	D mm (in.)	E mm (in.)
2090-CSBM1DF-14AAxx	81 (3.2)	105 (4.1)	N/A	30 (1.1)	15 (0.59)	41 (1.6)
2090-CSWM1DF-14AAxx		119 (4.7)	170 (6.7)		17 (0.67)	
2090-CSBM1DF-14AFxx						

(1) Dimension B (static bend radius) and Continuous Bend Radius are based on the cable diameter.