

2090-Series Motor/Actuator Cables

A wide variety of motor/actuator cables with rugged DIN connectors are available for connecting your motion control system. Standard (non-flex) motor power and feedback cables are available for all Allen-Bradley servo motors and actuators. Continuous-flex rated cables, intended for moving applications, are also available. Continuous-flex extension and standard (non-flex) transition cables are also available for your applications that require them.

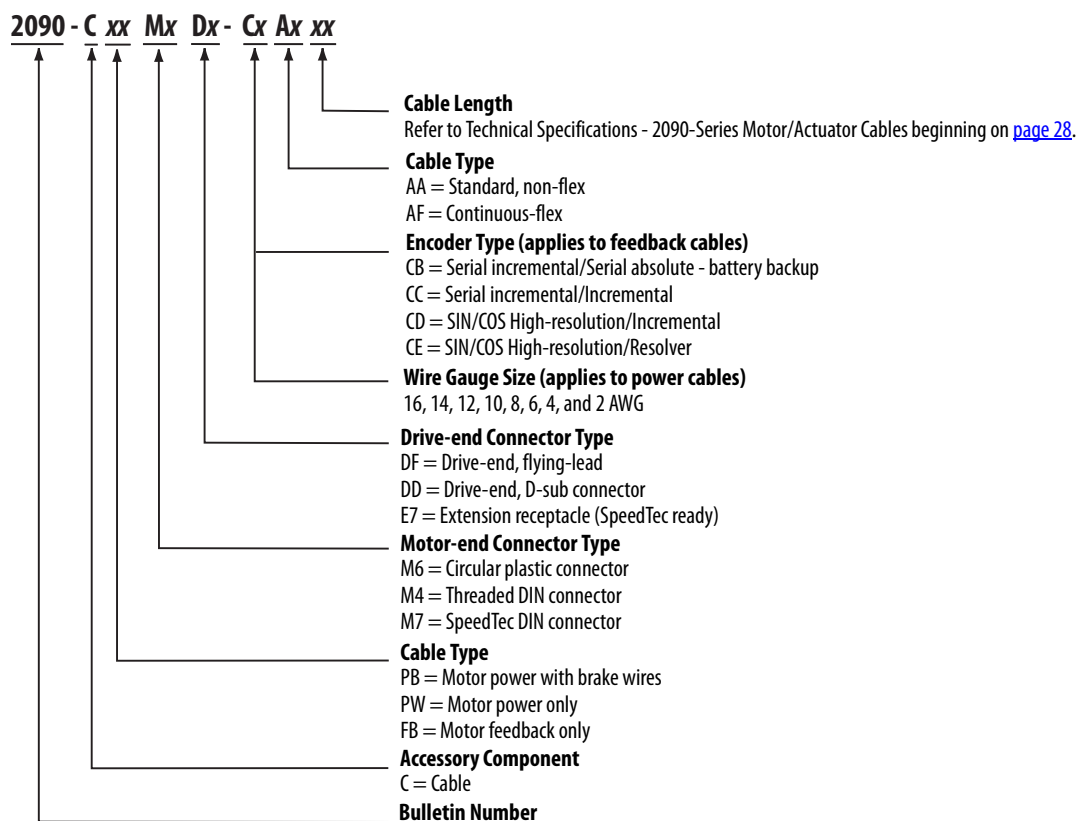
IMPORTANT All flying-lead feedback cables require breakout components or connector kits for drive-end terminations. Refer to Breakout Components and Connector Kits beginning on [page 63](#) for catalog numbers and descriptions.

IMPORTANT Standard (non-flex) cables have a regular maintenance and installation bend radius of 10 times the cable diameter. For flexing applications, continuous-flex cables have an operational bend radius of 12 times the cable diameter.

Catalog Numbers - 2090-Series Motor/Actuator Cable

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.

Motor Power/Brake, Feedback, and Extension Cables

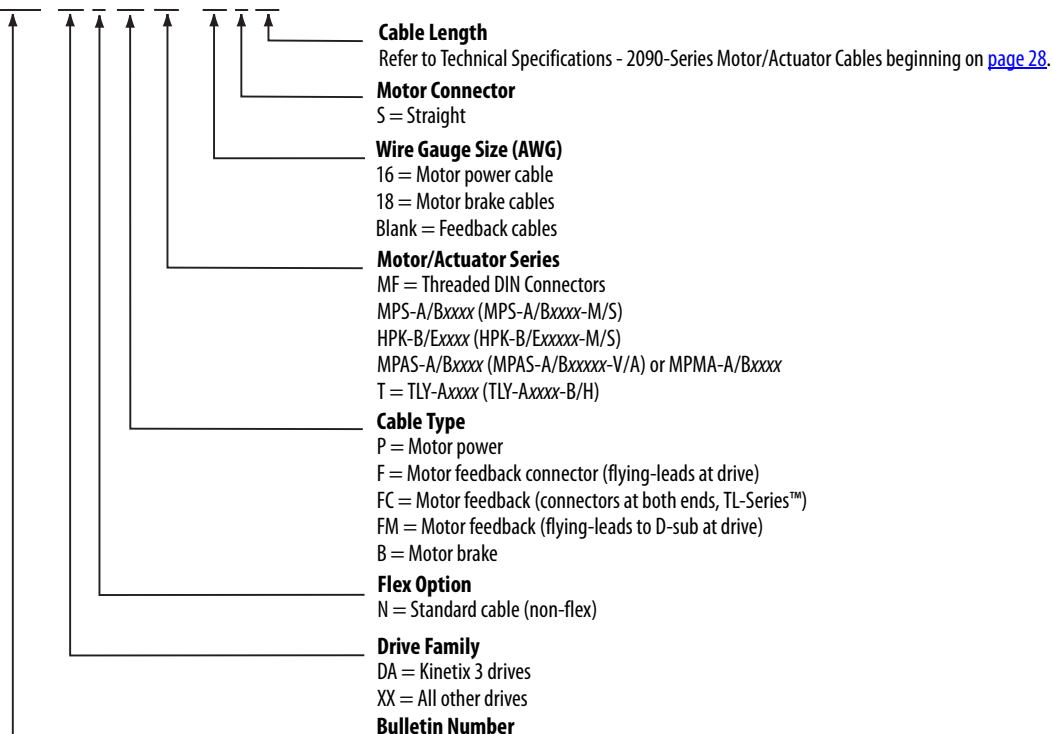


Transition Cables

Cat. No.	Cable Gauge AWG	Cable Type	Description
2090-CPBM4E2-14TR	14 and 16	Power/brake	Threaded DIN connector (M4) on motor-end to bayonet receptade (E2) for mating with existing bayonet cable, 500 mm (19.7 in.).
2090-CPBM4E2-10TR	10		
2090-CPBM4E2-08TR	8		
2090-CPBM4E2-04TR	4 and 6		
2090-CPWM4E2-14TR	14 and 16	Power (only)	
2090-CPWM4E2-10TR	10		
2090-CPWM4E2-08TR	8		
2090-CPWM4E2-04TR	4 and 6		
2090-CFBM4E2-CATR	N/A	Feedback	

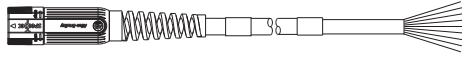
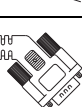
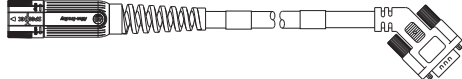
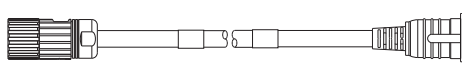
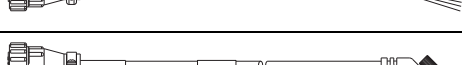
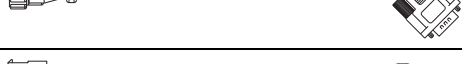
Motor Power, Feedback, and Brake Cables

2090 - xx x xx xx - xx S xx



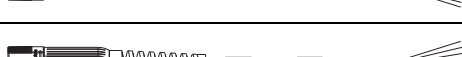
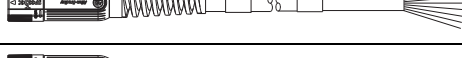
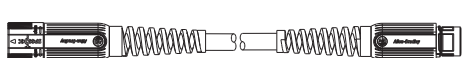
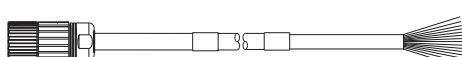
2090-Series Motor/Actuator Cables Overview

Feedback Cable Descriptions (standard, non-flex)

Standard Cable Cat. No.	Description	Cable Configuration		Motor/Actuator Connector
		Motor/Actuator End	Drive End	
2090-CFBM7DF-CEAAxx	- Drive-end flying-leads (DF) - High-resolution or resolver applications (CE)			SpeedTec DIN (M7)
2090-CFBM7DD-CEAAxx	- Drive-end 15-pin connector (DD) - High-resolution or resolver applications (CE)			
2090-XXNFMF-Sxx	- Drive-end flying-leads - High-resolution or incremental applications			Threaded DIN (M4)
2090-CFBM4E2-CATR	- Drive-end bayonet (E2), transition (TR) cable ⁽¹⁾ - Motor-end threaded DIN (M4) - All feedback types (CA)			
2090-CFBM6DF-CBAAxx	- Drive-end flying-leads (DF) - High-resolution, battery backup or Incremental applications (CB)			Circular Plastic (M6)
2090-CFBM6DD-CCAAxx	- Drive-end 15-pin connector (DD) - Incremental applications only (CC)			
2090-DANFCT-Sxx	- Drive-end 20-pin connector - High-resolution applications			Rectangular Plastic

(1) Threaded DIN connector (motor end) and bayonet connector for 2090-XXNFMF-Sxx cable. Refer to 2090-Series Motor Power and Feedback Transition Cables on [page 15](#).

Feedback Cable Descriptions (continuous-flex)

Continuous-flex Cable Cat. No.	Description	Cable Configuration		Motor/Actuator Connector
		Motor/Actuator End	Drive End	
2090-CFBM7DF-CDAFxx	- Drive-end flying-leads (DF) - High-resolution or incremental applications (CD)			SpeedTec DIN (M7)
2090-CFBM7DF-CEAFxx	- Drive-end flying-leads (DF) - High-resolution or resolver applications (CE)			
2090-CFBM7DD-CEAFxx	- Drive-end 15-pin connector (DD) - High-resolution or resolver applications (CE)			
2090-CFBM7E7-CDAFxx	- Drive-end (male) connector, extension (E7) ⁽¹⁾ - Motor-end SpeedTec DIN cable plug (M7)			Threaded DIN (M4)
2090-CFBM7E7-CEAFxx				
2090-CFBM4DF-CDAFxx	- Drive-end flying-leads - High-resolution or incremental applications			Threaded DIN (M4)

(1) SpeedTec DIN connector (motor end) and male connector for extending SpeedTec or threaded DIN cable. Refer to SpeedTec DIN Continuous-flex Extension Cables on [page 14](#).

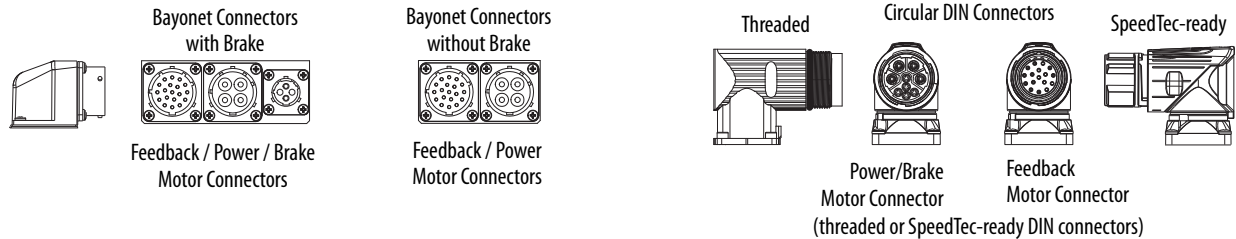
IMPORTANT Feedback cables with the CE designation, for example 2090-CFBM7DF-CEAAxx, are intended for high-resolution encoder or resolver applications and have fewer conductors than feedback cables with the CD designation, for example 2090-CFBM7DF-CDAFxx that are intended for high-resolution or incremental encoder applications.

2090-Series Motor Power and Feedback Transition Cables

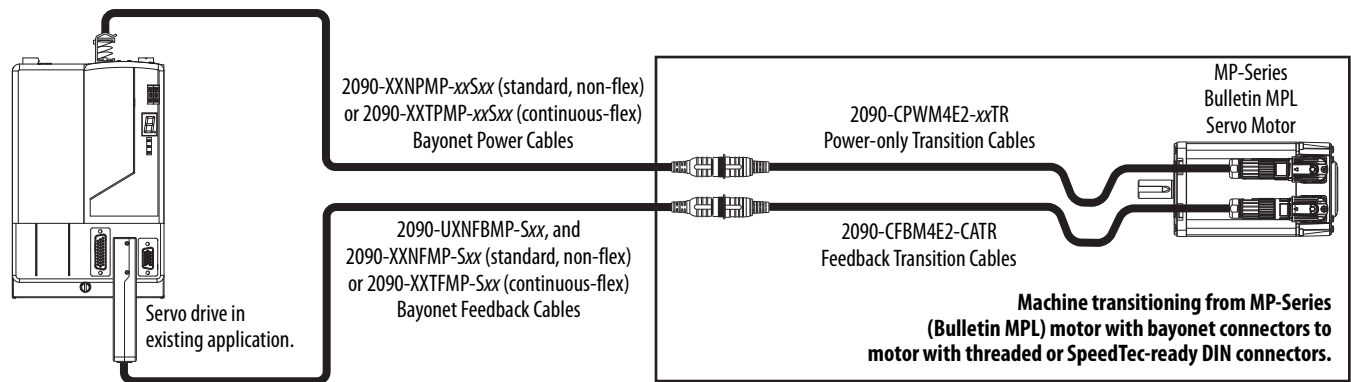
Motor power/brake and feedback transition cables support installations where MP-Series™ (Bulletin MPL) motors with bayonet connectors were recently replaced by the same motor with circular DIN connectors. These 0.5 m (19.7 in.) cables provide a seamless transition between your new motor and existing power, brake, and feedback cables.

TIP Brake contacts for motors with bayonet connectors are in a separate connector. Power/brake cables with circular DIN connectors (either threaded or SpeedTec) include brake contacts in the power/brake connector.

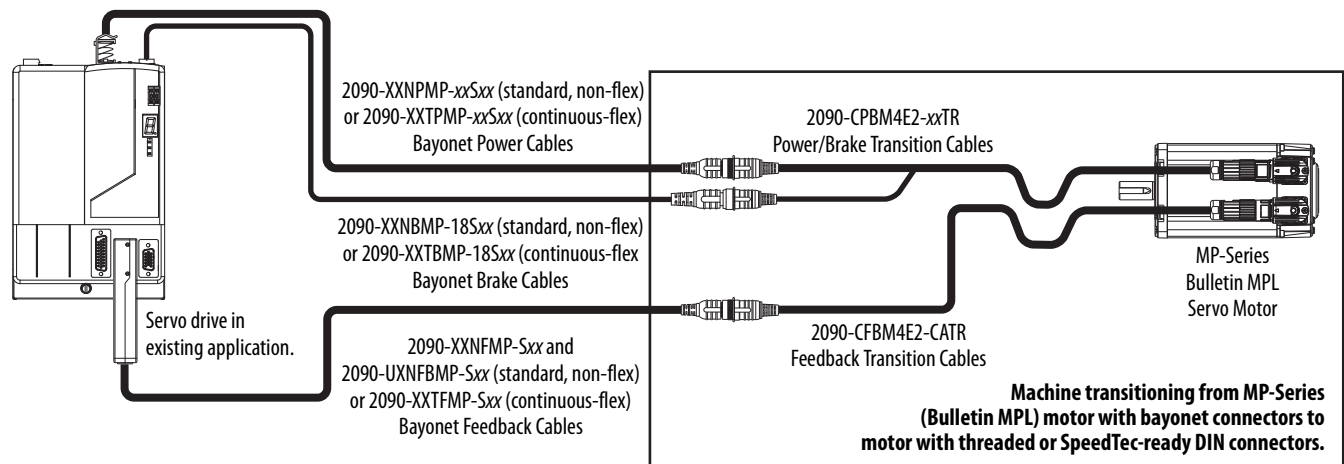
Bayonet and Circular DIN Motor Connectors



Transition Cable Application (power-only cable)



Transition Cable Application (power/brake cable)



Refer to the transition cable selection tables on [page 19](#) for cable catalog numbers for the specific Bulletin MPL or Bulletin MPM motor you are transitioning to.

Transition Cables for MP-Series (Bulletin MPL) Motors (200V-class)

Motor Cat. No. ⁽¹⁾	Power-only Cable Cat. No.	Power/Brake Cable Cat. No.	Feedback Cable Cat. No.
MPL-A15xxx and MPL-A2xxx	N/A	N/A	N/A
MPL-A3xxx, MPL-A4xxx, MPL-A45xxx	2090-CPWM4E2-14TR	2090-CPBM4E2-14TR	2090-CFBM4E2-CATR
MPL-A5xxx	2090-CPWM4E2-10TR	2090-CPBM4E2-10TR	

(1) Bulletin MPL motor catalog number is transitioning from MPL-Axxxx-xx2xAA (with bayonet connectors) to MPL-Axxxx-xx7xAA (with SpeedTec DIN connectors).

Transition Cables for MP-Series (Bulletin MPL) Motors (400V-class)

Motor Cat. No. ⁽¹⁾	Power-only Cable Cat. No.	Power/Brake Cable Cat. No.	Feedback Cable Cat. No.
MPL-B15xxx and MPL-B2xxx	N/A	N/A	N/A
MPL-B3xxx MPL-B4xxx, MPL-B45xxx MPL-B520, MPL-B540, MPL-B560	2090-CPWM4E2-14TR	2090-CPBM4E2-14TR	2090-CFBM4E2-CATR
MPL-B580	2090-CPWM4E2-10TR	2090-CPBM4E2-10TR	
MPL-B6xxx MPL-B860D, MPL-B880C, MPL-B960B, MPL-B960C, MPL-B980B	2090-CPWM4E2-08TR	2090-CPBM4E2-08TR	
MPL-B880D, MPL-B960D, MPL-B980C, MPL-B980D	2090-CPWM4E2-04TR	2090-CPBM4E2-04TR	

(1) Bulletin MPL motor catalog number is transitioning from MPL-Bxxxx-xx2xAA (with bayonet connectors) to MPL-Bxxxx-xx7xAA (with SpeedTec DIN connectors).

Transition Cables for MP-Series (Bulletin MPM) Motors (200V-class)

Motor Cat. No. ⁽¹⁾	Power-only Cable Cat. No.	Power/Brake Cable Cat. No.	Feedback Cable Cat. No.
MPM-A115xxx, MPM-A1302F	2090-CPWM4E2-14TR	2090-CPBM4E2-14TR	2090-CFBM4E2-CATR
MPM-A1304F, MPM-A1651F	2090-CPWM4E2-10TR	2090-CPBM4E2-10TR	
MPM-A1652F, MPM-A1653F	2090-CPWM4E2-08TR	2090-CPBM4E2-08TR	
MPM-A2152F, MPM-A2153F MPM-A2154C, MPM-A2154E	2090-CPWM4E2-04TR	2090-CPBM4E2-04TR	

(1) Bulletin MPL motor catalog number is transitioning from MPL-Axxxx-xx2xAA (with bayonet connectors) to MPM-Axxxx-xx7xAA (with SpeedTec DIN connectors).

Transition Cables for MP-Series (Bulletin MPM) Motors (400V-class)

Motor Cat. No. ⁽¹⁾	Power-only Cable Cat. No.	Power/Brake Cable Cat. No.	Feedback Cable Cat. No.
MPM-B115xxx, MPM-B1302F, MPM-B130xx MPM-B1651C, MPM-B1651F, MPM-B1652C, MPM-B1653C	2090-CPWM4E2-14TR	2090-CPBM4E2-14TR	2090-CFBM4E2-CATR
MPM-B1651M, MPM-B1652E, MPM-B1652F, MPM-B1653E, MPM-B2152C, MPM-B2153B	2090-CPWM4E2-10TR	2090-CPBM4E2-10TR	
MPM-B1653F, MPM-B2152F, MPM-B2152M MPM-B2153E, MPM-B2153F, MPM-B2154B, MPM-B2154E, MPM-B2154F	2090-CPWM4E2-08TR	2090-CPBM4E2-08TR	

(1) Bulletin MPL motor catalog number is transitioning from MPL-Bxxxx-xx2xAA (with bayonet connectors) to MPM-Bxxxx-xx7xAA (with SpeedTec DIN connectors).

Continuous-flex Extension Cable Specifications

Extension Cable ^{(1) (2)} Cat. No.	Cable Type/ Jacket Color	Description	Weight, approx kg/m (lb/ft)	Standard Cable Lengths m (ft)		
2090-CPBM7E7-16AFxx	Power with brake Industrial TPE, Orange (DESINA, RAL 2003)	SpeedTec DIN connector plug on motor end to SpeedTec DIN receptacle for mating with 2090-Series standard, non-flex power/brake cable, 600V.	0.228 (0.153)	01 (3.2)	05 (16.4)	15 (49.2)
2090-CPBM7E7-14AFxx			0.289 (0.194)			
2090-CPBM7E7-10AFxx			0.513 (0.345)			
2090-CPBM7E7-08AFxx			0.697 (0.468)			
2090-CFBM7E7-CDAFxx	Feedback Industrial TPE, Green (DESINA, RAL 6018)	SpeedTec DIN connector plug on motor end to SpeedTec DIN receptacle for mating with 2090-Series standard, non-flex feedback cable, 600V.	0.153 (0.103)			
2090-CFBM7E7-CEAFxx			0.143 (0.096)	02 (6.5)	07 (22.9)	20 (65.6)
				03 (9.8)	09 (29.5)	25 (82.0)
				04 (13.1)	12 (39.4)	30 (98.4)

(1) 2090-CPBM7E7-xxAFxx extension power cables are UL Listed, bulk cable, type TC-ER.

(2) 2090-CFBM7E7-CDAFxx extension feedback cables are UL Listed, bulk cable, type CM.
2090-CFBM7E7-CEAFxx extension feedback cables are UL Listed, bulk cable, type PLTC-ER.

Power and Feedback Transition Cable Specifications

Transition Cable Cat. No.	Cable Gauge AWG	Cable Type/ Jacket Color	Description	Standard Cable Lengths mm (in.)
2090-CPBM4E2-14TR	14 and 16	Power with brake Industrial TPE, Black	Threaded DIN connector on motor end to bayonet receptacle for mating with existing bayonet cable, 600V.	500 (19.7)
2090-CPBM4E2-10TR	10			
2090-CPBM4E2-08TR	8			
2090-CPBM4E2-04TR	4 and 6			
2090-CPWM4E2-14TR	14 and 16	Power (only) Industrial TPE, Black		
2090-CPWM4E2-10TR	10			
2090-CPWM4E2-08TR	8			
2090-CPWM4E2-04TR	4 and 6			
2090-CFBM4E2-CATR	N/A	Feedback Industrial TPE, Black	Threaded DIN connector on motor end to bayonet receptacle for mating with existing bayonet cable, 300V.	

Dimensions - Motor Power and Feedback Cables

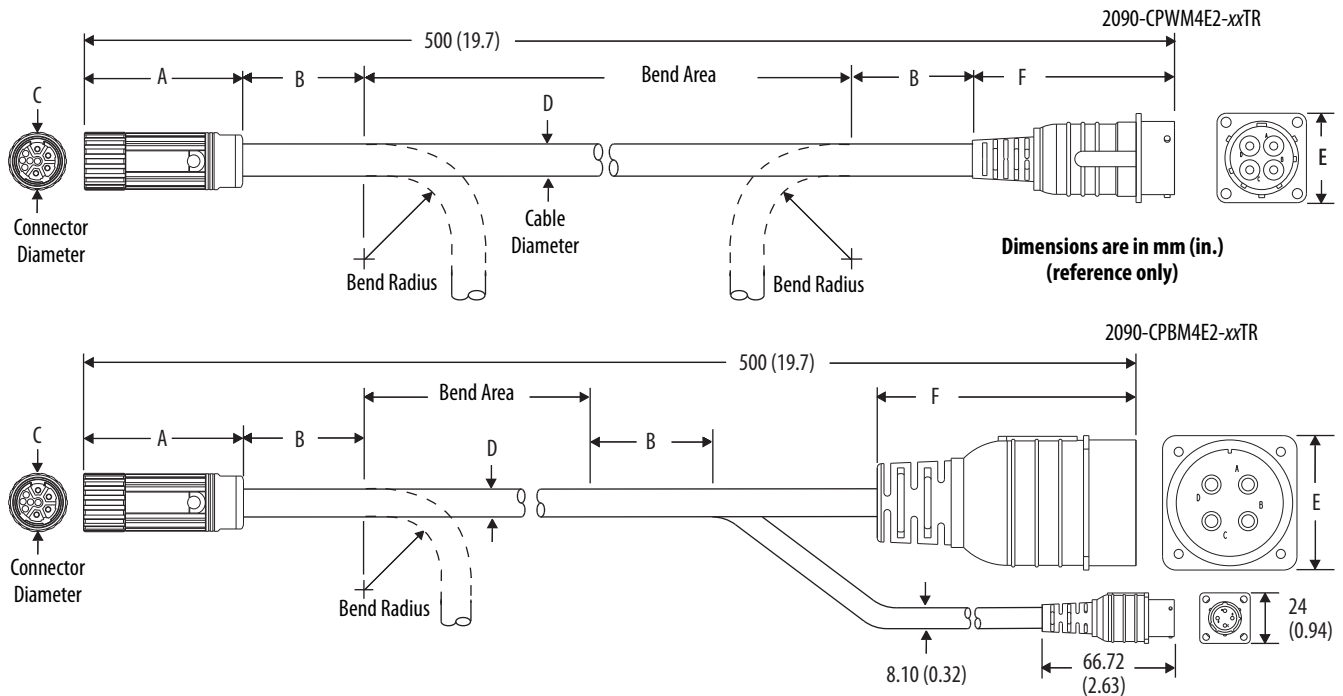
When installing cable runs between the motor and drive, be careful not to stress the cable by making bends too sharp. Refer to the table below for bend radius definitions, and the dimension diagrams that follow, when routing cables during system installation.

Motor Power and Feedback 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 motor power and feedback cables is 12 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.

Dimensions - Transition Cables

Power Cable Dimensions



Power Cable Dimensions (standard, non-flex)

Power Cable Cat. No.	A mm (in.)	B ⁽¹⁾ mm (in.)	C mm (in.)	D mm (in.)	E mm (in.)	F mm (in.)
2090-CPBM4E2-14TR	80.0 (3.15)	104 (4.09)	28.0 (1.10)	14.8 (0.58)	31.0 (1.22)	90 (3.54)
2090-CPWM4E2-14TR		72.8 (2.87)		10.4 (0.41)		
2090-CPBM4E2-10TR	80.0 (3.15)	129 (5.08)	45.0 (1.77)	18.4 (0.74)	46.0 (1.81)	146 (5.75)
2090-CPWM4E2-10TR	95.0 (3.74)	102 (4.02)		14.5 (0.57)	31.0 (1.22)	
2090-CPBM4E2-08TR	98.7 (3.89)	144 (5.67)	46.0 (1.81)	20.5 (0.81)	46.0 (1.81)	131 (5.17)
2090-CPWM4E2-08TR	95.0 (3.74)	132 (5.20)		18.9 (0.74)		
2090-CPBM4E2-04TR	147 (5.77)	201 (7.91)	63.4 (2.48)	28.7 (1.13)	64.0 (2.52)	131 (5.17)
2090-CPWM4E2-04TR					63.7 (2.51)	132 (5.20)

(1) Dimension B (static bend radius) is based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 30](#) for more information.

Feedback Cable Dimensions (catalog number 2090-CFBM4E2-CATR)

