

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.

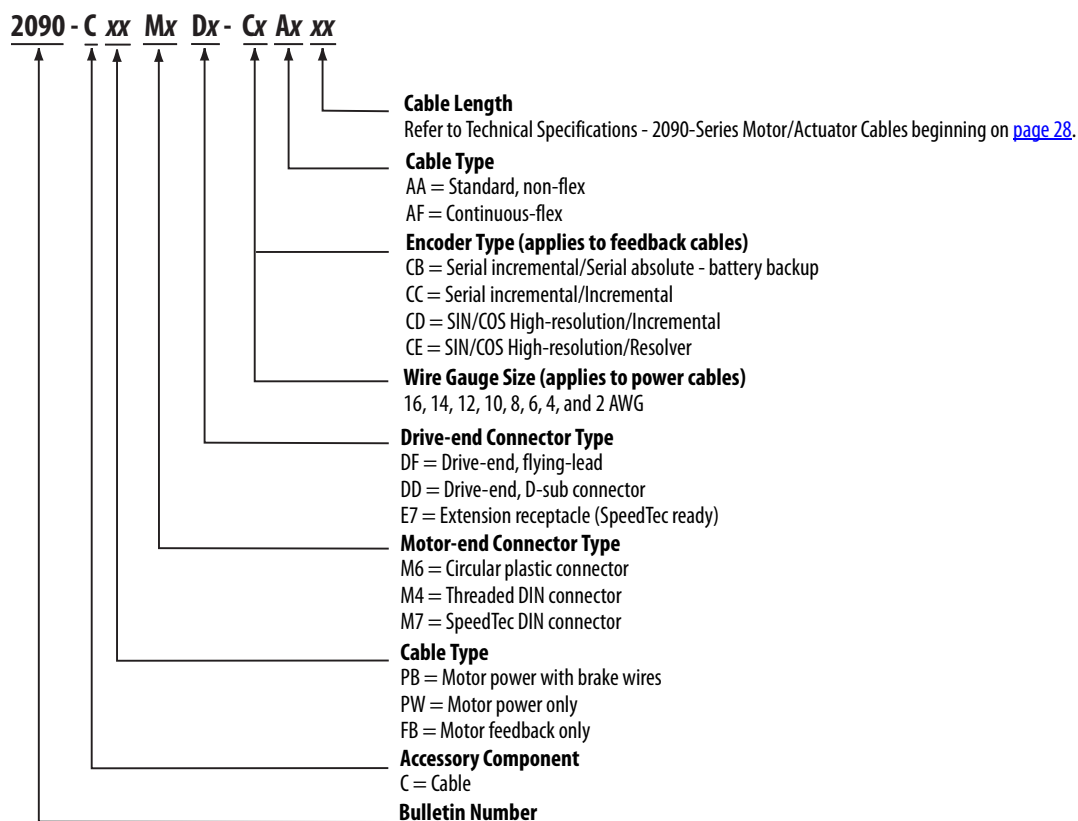
IMPORTANT All flying-lead feedback cables require breakout components or connector kits for drive-end terminations. Refer to Breakout Components and Connector Kits beginning on [page 63](#) for catalog numbers and descriptions.

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

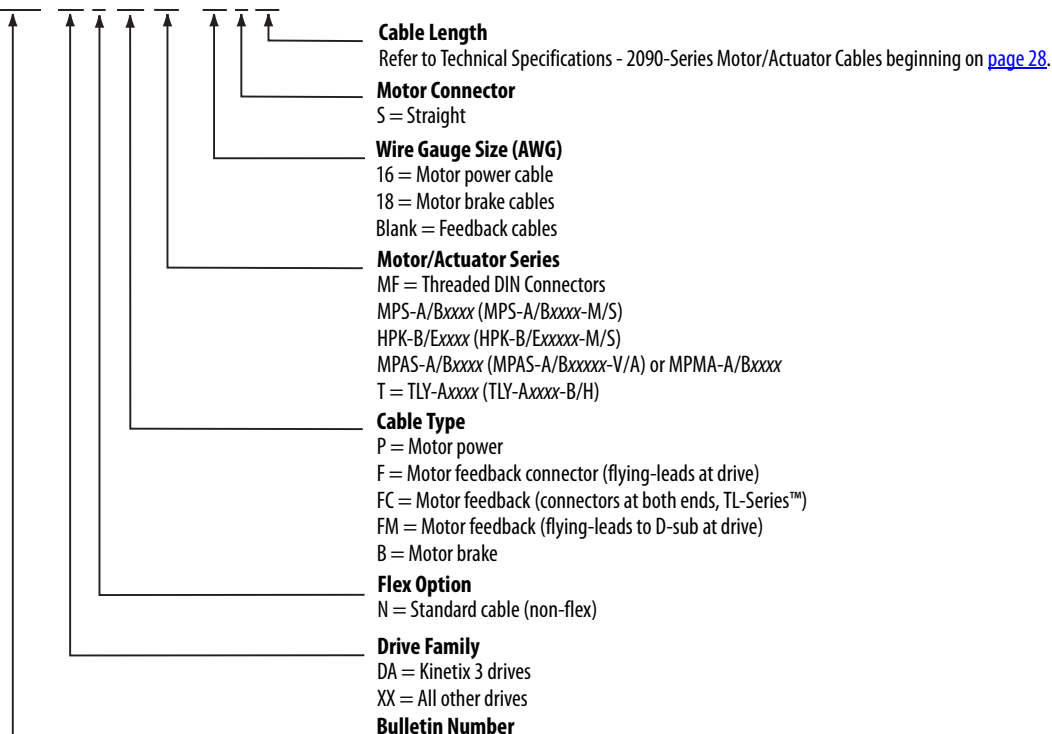


Transition Cables

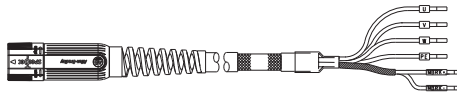
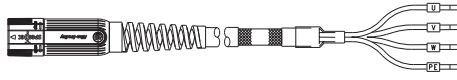
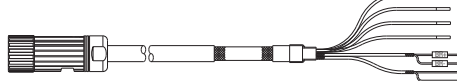
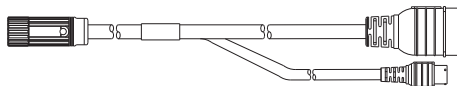
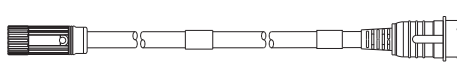
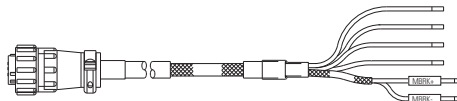
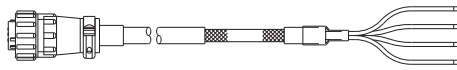
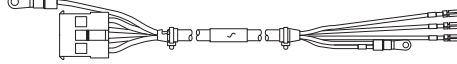
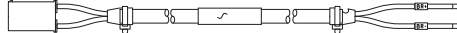
Cat. No.	Cable Gauge AWG	Cable Type	Description
2090-CPBM4E2-14TR	14 and 16	Power/brake	Threaded DIN connector (M4) on motor-end to bayonet receptade (E2) for mating with existing bayonet cable, 500 mm (19.7 in.).
2090-CPBM4E2-10TR	10		
2090-CPBM4E2-08TR	8		
2090-CPBM4E2-04TR	4 and 6		
2090-CPWM4E2-14TR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

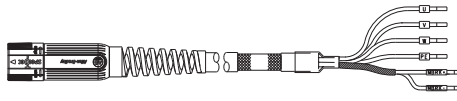
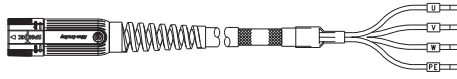
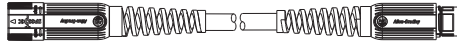
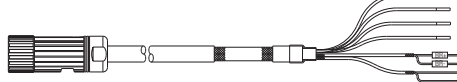
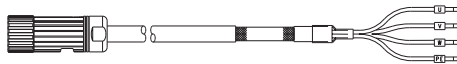


Power/Brake Cable Descriptions (standard, non-flex)

Standard Cable Cat. No.	Description	Cable Configuration		Motor/Actuator Connector
		Motor/Actuator End	Drive End	
2090-CPBM7DF-xxAAxx	- Drive-end flying-leads (DF) - Power/brake wires (PB)			SpeedTec DIN (M7)
2090-CPWM7DF-xxAAxx	- Drive-end flying-leads (DF) - Power wires only (PW)			
2090-XXNPMF-xxSxx	- Drive-end flying-leads - Power/brake wires			Threaded DIN (M4)
2090-CPBM4E2-xxTR	- Drive-end bayonet (E2), transition (TR) cable ⁽¹⁾ - Motor-end threaded DIN (M4) - Power/brake wires (PB)			
2090-CPWM4E2-xxTR	- Drive-end bayonet (E2), transition (TR) cable ⁽¹⁾ - Motor-end threaded DIN (M4) - Power wires only (PW)			
2090-CPBM6DF-16AAxx	- Drive-end flying-leads (DF) - Power/brake wires (PB)			Circular Plastic (M6)
2090-CPWM6DF-16AAxx	- Drive-end flying-leads (DF) - Power wires only (PW)			
2090-DANPT-16Sxx	- Drive-end flying-leads - Power wires only			Rectangular Plastic
2090-DANBT-18Sxx	Drive-end flying-lead brake wires			

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

Power/Brake Cable Descriptions (continuous-flex)

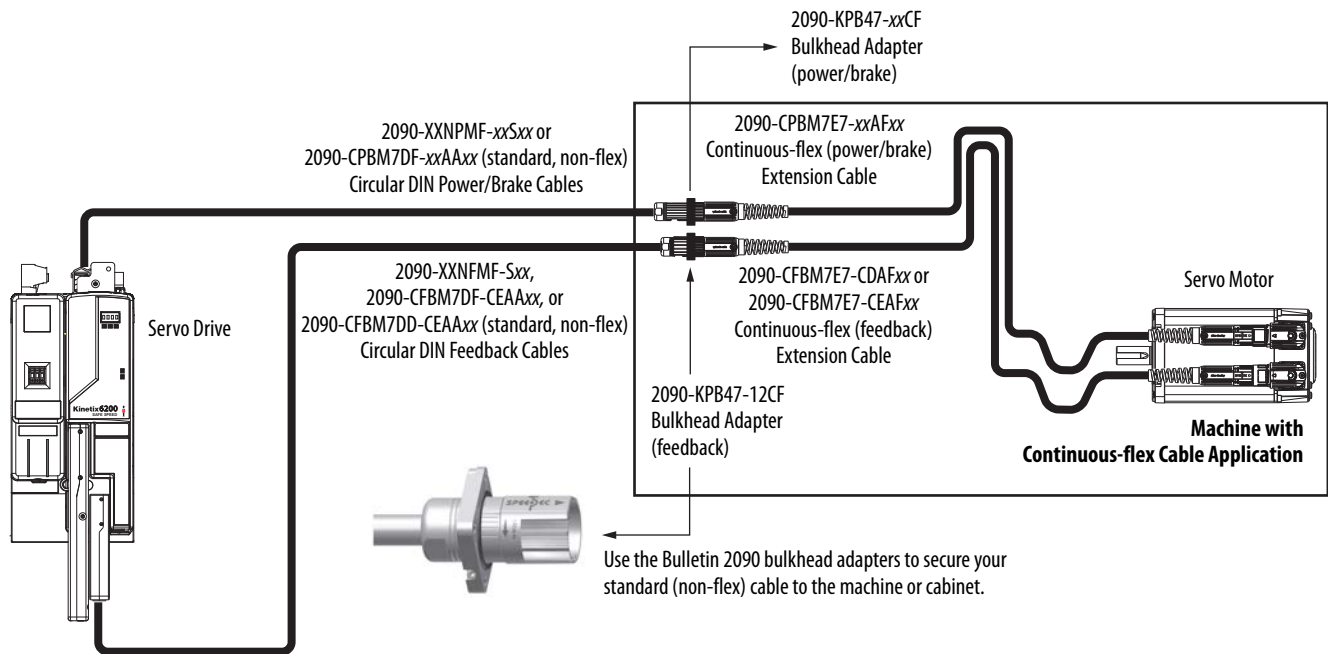
Continuous-flex Cable Cat. No.	Description	Cable Configuration		Motor/Actuator Connector
		Motor/Actuator End	Drive End	
2090-CPBM7DF-xxAFxx	- Drive-end flying-leads (DF) - Power/brake wires (PB)			SpeedTec DIN (M7)
2090-CPWM7DF-xxAFxx	- Drive-end flying-leads (DF) - Power wires only (PW)			
2090-CPBM7E7-xxAFxx	- Drive-end (male) connector, extension (E7) ⁽¹⁾ - Motor-end SpeedTec DIN cable plug (M7)			
2090-CPBM4DF-xxAFxx	- Drive-end flying-leads (DF) - Power/brake wires (PB)			Threaded DIN (M4)
2090-CPWM4DF-xxAFxx	- Drive-end flying-leads (DF) - Power wires only (PW)			

(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](#).

SpeedTec DIN Continuous-flex Extension Cables

Motor power and feedback extension cables provide continuous-flex cable technology between your standard (non-flex) cable and the continuous-flex application. The IP rating for continuous-flex extension cables is consistent with the motor/actuator and cable combination they are extending. Extension cables are available in lengths up to 30 m (98.4 ft). Extension power cables are available in 16, 14, 10, and 8 AWG.

Typical Extension Cable Application with Bulkhead Adapter



Continuous-flex Extension Feedback Cables

Continuous-flex Cable Cat. No.	Description	Applications
2090-CFBM7E7-CDAFxx	Feedback extension cable, SpeedTec DIN (male/female) connectors	Intended for high-resolution or incremental encoder applications.
2090-CFBM7E7-CEAFxx		Intended for high-resolution encoder or resolver applications.

Continuous-flex Extension Power Cables

Continuous-flex Cable Cat. No.	Description
2090-CPBM7E7-16AFxx	Power/brake extension cable, SpeedTec DIN (male/female) connectors
2090-CPBM7E7-14AFxx	
2090-CPBM7E7-10AFxx	
2090-CPBM7E7-08AFxx	

Circular DIN Connector Compatibility Overview

Motors equipped with either threaded or SpeedTec circular DIN connectors are listed below. Circular DIN motor connectors rotate up to 180° and combine power and brake wires in the same connector.

Motor Connector/Cable Plug Compatibility

Motor/Actuator Cat. No.	Connector Type	Power-only or Power/Brake Cables	Feedback Cables
MPL-A/B15xxx and MPL-A/B2xxx MPL-A/B3xxx, MPL-A/B4xxx, MPL-A/B45xxx, MPL-A/B5xxx MPL-B6xxx, MPL-B8xxx, and MPL-B9xxx MPM-A/Bxxxx MPF-A/Bxxxx RDB-Bxxxx ⁽¹⁾ LDAT-Sxxxxx-xDx and LDAT-Sxxxxx-xBx ⁽¹⁾ MPAS-A/Bxxxx and MPMA-A/Bxxxx ⁽¹⁾ MPAR-A/Bxxxx MPAI-A/Bxxxx LDC-Cxxxxx and LDL-xxxxxx ⁽¹⁾	SpeedTec-ready DIN	2090-CPxM7DF-xxAAxx 2090-CPxM7DF-xxAFxx	2090-CFBM7DF-CEAAxx 2090-CFBM7DD-CEAAxx 2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx 2090-CFBM7DF-CDAFxx
MPS-A/Bxxxx	SpeedTec-ready DIN with 3 m (9.8 ft) cable extensions	- M7 cable plugs - O-ring on motor connector not required - Adapts to SpeedTec-ready connectors only	
HPK-B/Exxxxx	Threaded DIN	Customer supplied	2090-XXNFMF-Sxx or 2090-CFBM4DF-CDAFxx
		- M4 cable plugs - Adapts to threaded or SpeedTec-ready connectors - O-ring required to dampen the effects of vibration to create a more secure connection	

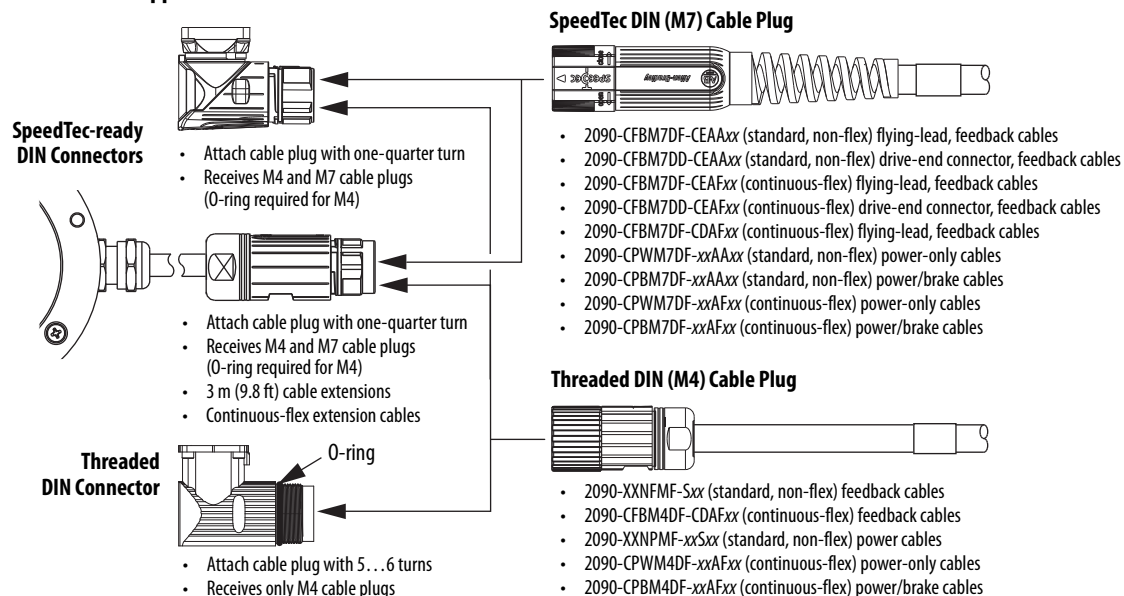
(1) The LDC-Series™ and LDL-Series™ linear motors, LDAT-Sxxxxx-xBx linear thrusters, Bulletin MPAS and MPMA linear stages (direct-drive only), and Bulletin RDB direct-drive motors have SpeedTec-ready DIN (M7) motor connectors, but require the additional conductors included with 2090-CFBM7DF-CDAFxx (continuous-flex) and 2090-XXNFMF-Sxx standard (non-flex) cables.

IMPORTANT

Motors equipped with SpeedTec-ready DIN (M7) connectors are fully compatible with threaded DIN (M4) cable plugs.

- SpeedTec-ready DIN motor connectors are also compatible with SpeedTec DIN (M7/E7) extension cable plugs.
- Motors equipped with threaded DIN (M4) connectors are compatible with only threaded DIN (M4) cable plugs.

Typical Circular DIN Cable Applications



Technical Specifications - 2090-Series Motor/Actuator Cables

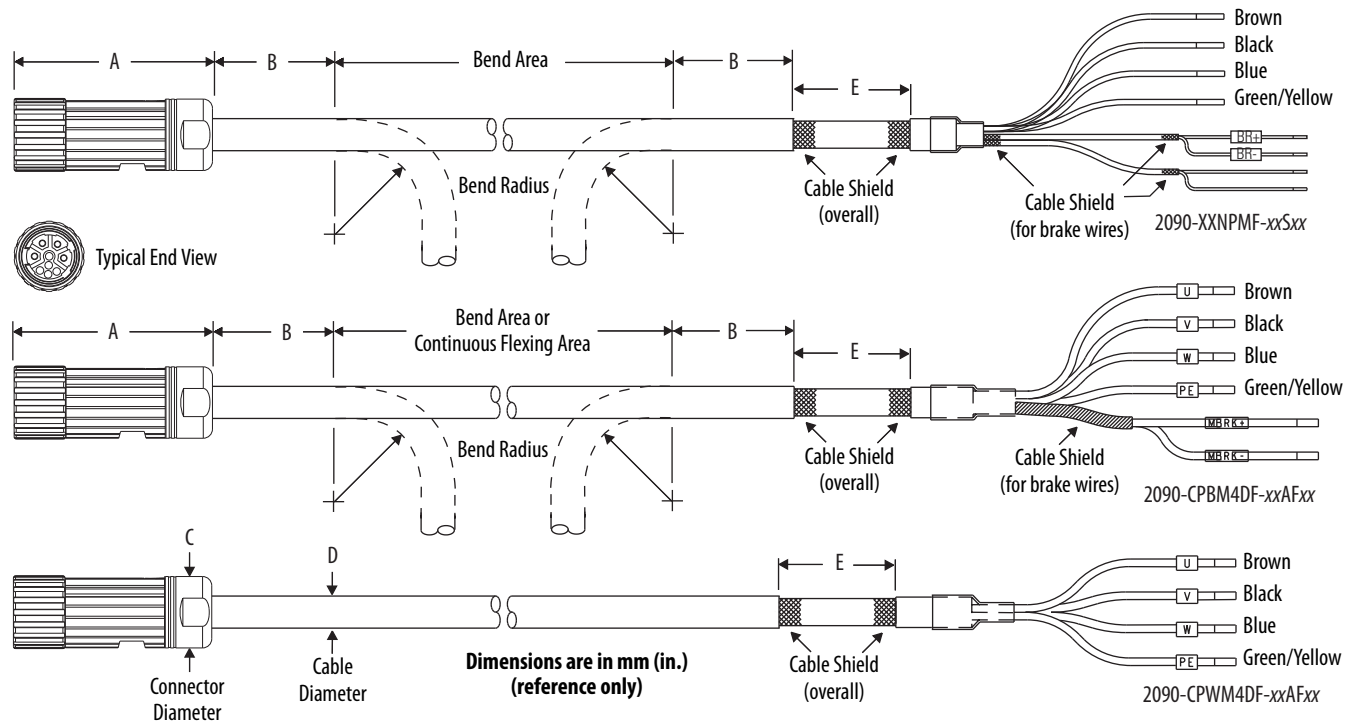
Power Cable Specifications

Power Cables ⁽¹⁾ Cat. No.	Cable Type/ Jacket Color	Description	Wire Size AWG	Weight, approx kg/m (lb/ft)	Standard Cable Lengths m (ft)						
2090-XXNPMF-16Sxx	Standard (non-flex) cable, Industrial TPE, Black	Four conductor, 600V, shielded cable for three- phase power with additional four conductors, 18 AWG, shielded, for motor brake and spares.	16	0.276 (0.186)	01 (3.2) 07 (22.9) 25 (82.0) 02 (6.5) 09 (29.5) 30 (98.4) 03 (9.8) 12 (39.4) 40 (131.2) 04 (13.1) 15 (49.2) 60 (196.8) 05 (16.4) 20 (65.6) 90 (295.3)						
2090-XXNPMF-14Sxx			14	0.315 (0.212)							
2090-CPBM7DF-16AAxx	Four conductor, 600V, shielded cable for three- phase power with additional two conductors 18 AWG for motor brake.	16	0.212 (0.143)								
2090-CPBM7DF-14AAxx		14	0.261 (0.175)								
2090-CPBM7DF-12AAxx		12	0.349 (0.235)								
2090-CPBM7DF-10AAxx		10	0.492 (0.331)								
2090-CPBM7DF-08AAxx		8	0.708 (0.476)								
2090-CPBM7DF-06AAxx		6	1.038 (0.698)								
2090-CPBM7DF-04AAxx ⁽²⁾	Standard (non-flex) cable, Industrial TPE, Orange (DESINA, RAL 2003)	Four conductor, 600V, shielded cable for three- phase power with additional two conductors 16 AWG for motor brake.	4	1.549 (1.041)				01 (3.2) 05 (16.4) 15 (49.2) 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)			
2090-CPBM7DF-02AAxx ⁽²⁾			2	2.166 (1.455)							
2090-CPWM7DF-16AAxx	Four conductor, 600V, shielded cable for three- phase power.	16	0.136 (0.091)								
2090-CPWM7DF-14AAxx		14	0.185 (0.124)								
2090-CPWM7DF-12AAxx		12	0.248 (0.167)								
2090-CPWM7DF-10AAxx		10	0.418 (0.281)								
2090-CPWM7DF-08AAxx		8	0.644 (0.433)								
2090-CPWM6DF-16AAxx		Standard (non-flex) cable, Industrial TPE, Black	16	0.138 (0.093)							
2090-DANPT-16Sxx	16										
2090-CPBM6DF-16AAxx		16	0.180 (0.121)	01 (3.2) 09 (29.5) 40 (131.2) 02 (6.5) 12 (39.4) 50 (164.0) 03 (9.8) 15 (49.2) 60 (196.8) 04 (13.1) 20 (65.6) 75 (264.0) 05 (16.4) 25 (82.0) 90 (295.3) 07 (22.9) 30 (98.4)							
2090-CPBM4DF-16AFxx	Four conductor, 600V, shielded cable for three- phase power with additional two conductors 18 AWG for motor brake.	16	0.228 (0.153)								
2090-CPBM7DF-16AFxx		16									
2090-CPBM7DF-14AFxx		14	0.289 (0.194)								
2090-CPBM7DF-10AFxx		10	0.513 (0.345)								
2090-CPBM7DF-08AFxx		8	0.697 (0.468)								
2090-CPWM4DF-16AFxx	Continuous-flex cable	Four conductor, 600V, shielded cable for three- phase power with additional two conductors 18 AWG for motor brake.	16				0.154 (0.104)	01 (3.2) 09 (29.5) 40 (131.2) 02 (6.5) 12 (39.4) 50 (164.0) 03 (9.8) 15 (49.2) 60 (196.8) 04 (13.1) 20 (65.6) 75 (264.0) 05 (16.4) 25 (82.0) 90 (295.3) 07 (22.9) 30 (98.4)			
2090-CPWM7DF-16AFxx			16								
2090-CPWM7DF-14AFxx			14								0.196 (0.132)
2090-CPWM7DF-10AFxx			10								0.452 (0.304)
2090-CPWM7DF-08AFxx			8	0.666 (0.448)							

(1) 2090-CPxM4DF-xxAxxx and 2090-CPxM7DF-xxAxxx power cables are UL Listed, bulk cable, type TC-ER.

(2) For this cable, the 01 and 02 m (3.2 and 6.5 ft) standard lengths do not apply.

Power Cable Dimensions (threaded DIN connector)



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.)
2090-XXNPMF-16Sxx	75 (2.9)	98.0 (3.8)	28.0 (1.1)	14.0 (0.55)	150 (5.9)
2090-XXNPMF-14Sxx		105 (4.1)		15.0 (0.59)	
2090-XXNPMF-10Sxx	96 (3.8)	133 (5.2)	45.0 (1.8)	19.0 (0.75)	90.0 (3.5)

(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.

Power Cable Dimensions (continuous-flex rated)

Power 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-CPBM4DF-16AFxx	75 (2.9)	87.5 (3.4)	150 (5.9)	28.0 (1.1)	12.5 (0.49)	150 (5.9)
2090-CPWM4DF-16AFxx		67.9 (2.7)	116 (4.6)		9.7 (0.38)	

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