

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.

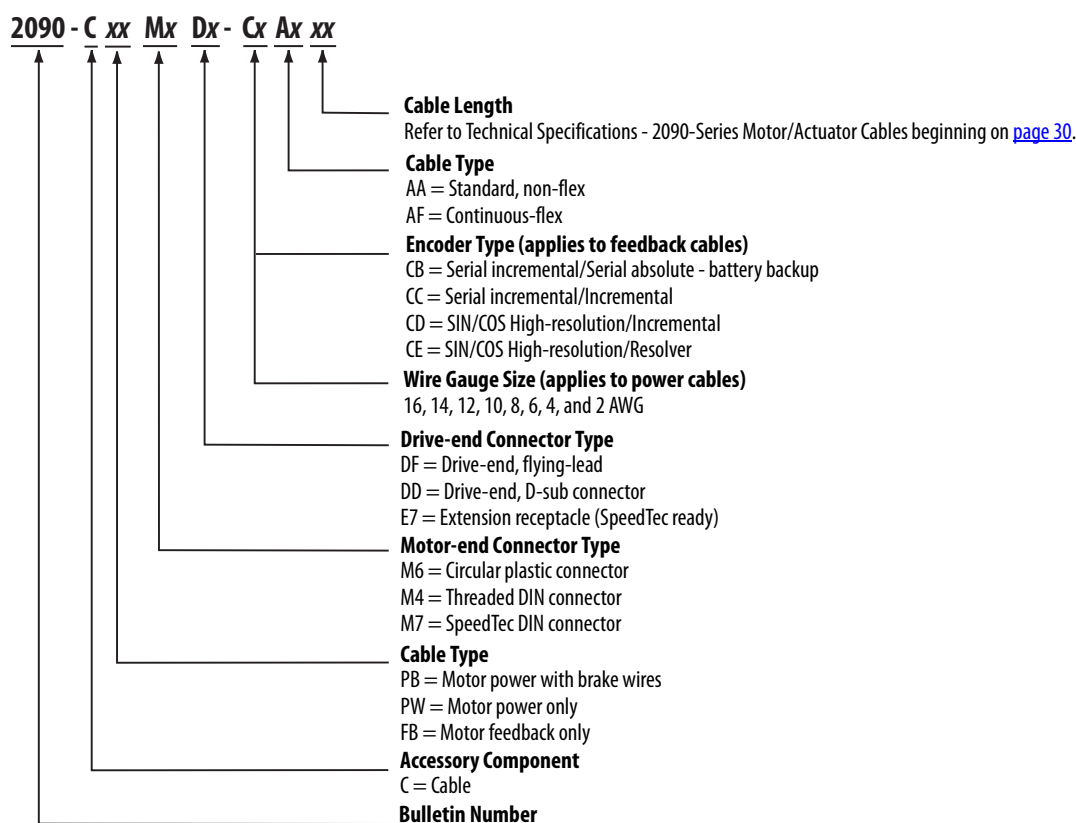
IMPORTANT All flying-lead feedback cables require breakout components or connector kits for drive-end terminations. Refer to Breakout Components and Connector Kits beginning on [page 65](#) for catalog numbers and descriptions.

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



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 17](#).

Power/Brake Cable Descriptions (continuous-flex)

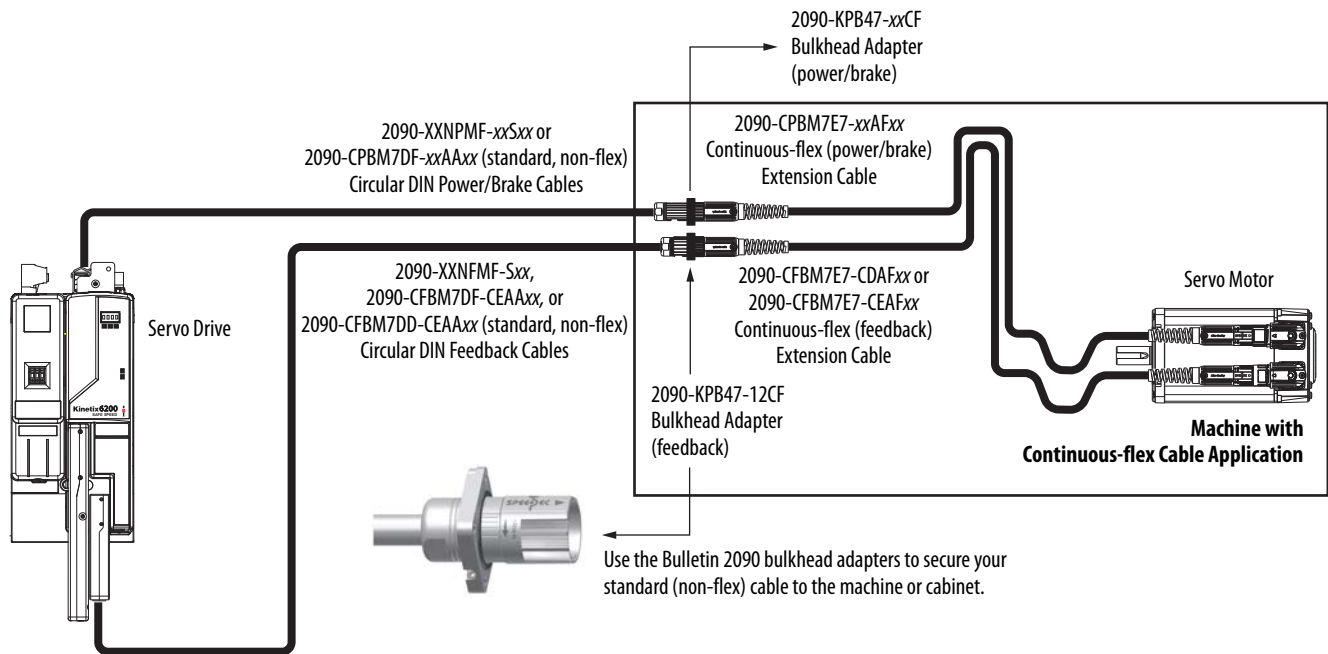
Continuous-flex Cable Cat. No.	Description	Cable Configuration		Motor/Actuator Connector
		Motor/Actuator End	Drive End	
2090-CPBM7DF-xxAFxx	- Drive-end flying-leads (DF) - Power/brake wires (PB)			SpeedTec DIN (M7)
2090-CPWM7DF-xxAFxx	- Drive-end flying-leads (DF) - Power wires only (PW)			
2090-CPBM7E7-xxAFxx	- 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 16](#).

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	

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

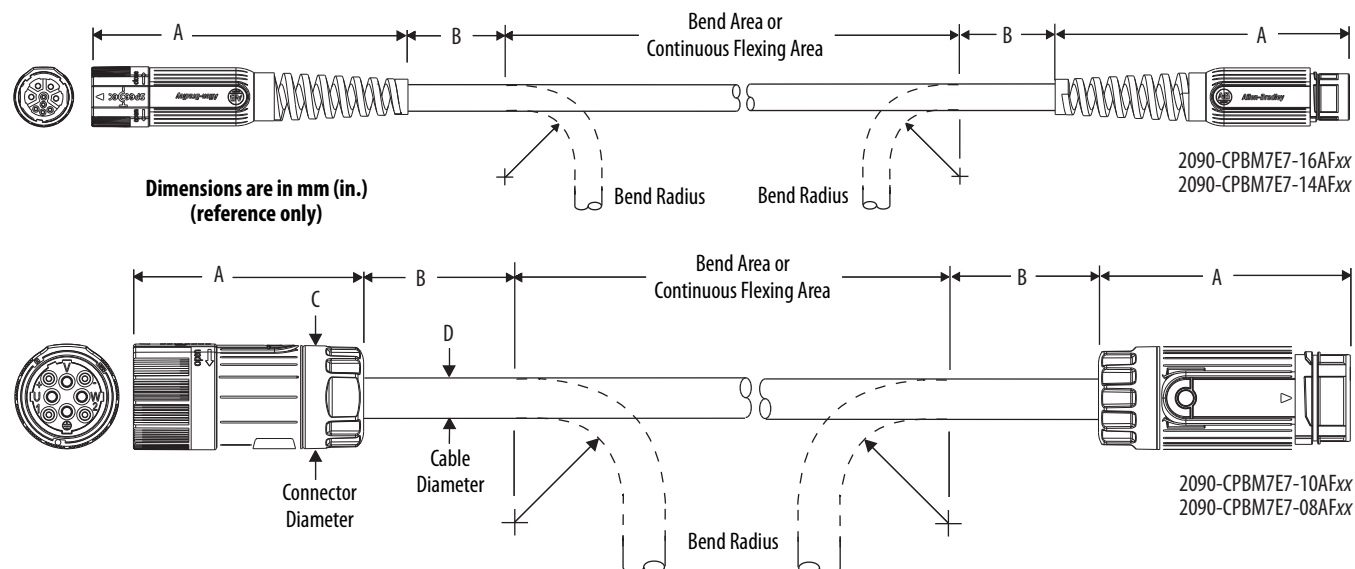
When installing cable runs between the motor and drive, be careful not to stress the cable by making bends too sharp. Refer to the table below for bend radius definitions, and the dimension diagrams that follow, when routing cables during system installation.

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 helps prevent 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 - Continuous-flex Extension Cables

Power Cable Dimensions (SpeedTec DIN)

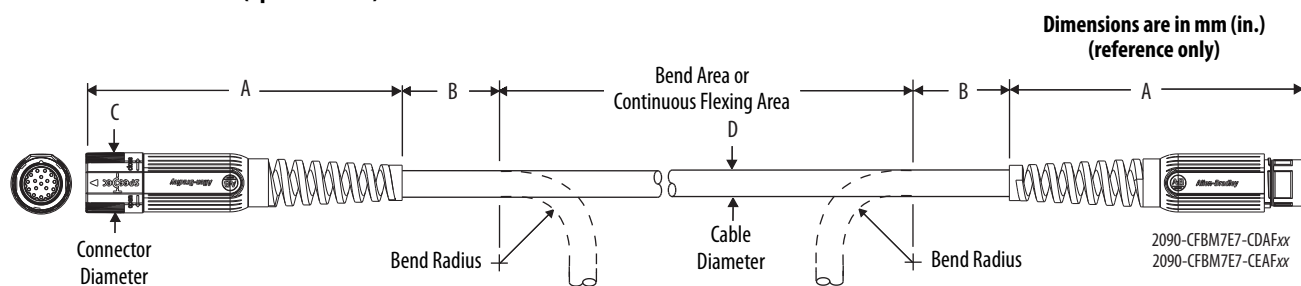


Power Cable Dimensions (continuous-flex rated)

Power Cable Cat. No.	A mm (in.)	B ⁽¹⁾ mm (in.)	Continuous Bend Radius ⁽¹⁾ mm (in.)	C mm (in.)	D mm (in.)
2090-CPBM7E7-16AFxx	147 (5.8)	87.5 (3.4)	150 (5.9)	28.0 (1.1)	12.5 (0.49)
2090-CPBM7E7-14AFxx		95.9 (3.8)	164 (6.4)		13.7 (0.54)
2090-CPBM7E7-10AFxx	97 (3.8)	125 (4.9)	214 (8.4)	45.0 (1.8)	17.8 (0.70)
2090-CPBM7E7-08AFxx		144 (5.7)	247 (9.7)		20.6 (0.81)

(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 32](#) for more information.

Feedback Cable Dimensions (SpeedTec DIN)



Feedback Cable Dimensions (continuous-flex rated)

Feedback Cable Cat. No.	A mm (in.)	B ⁽¹⁾ mm (in.)	Continuous Bend Radius ⁽¹⁾ mm (in.)	C mm (in.)	D mm (in.)
2090-CFBM7E7-CEAFxx	147 (5.8)	72.1 (2.8)	124 (4.9)	28.0 (1.1)	10.3 (0.40)
2090-CFBM7E7-CDAFxx		81.9 (3.2)	140 (5.5)		11.7 (0.46)

(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 32](#) for more information.

2090-Series Bulkhead Adapter Kits

These bulkhead adapter kits let you secure your cables as they pass through the cabinet. Adapter kits apply to 2090-Series motor/actuator cables and 2090-Series integrated drive-motor hybrid cables.

2090-Series Motor/Actuator Power Cable Compatibility

Bulkhead Adapter Cat. No.	Standard (non-flex) Power Cable Cat. No.	Continuous-flex Power Cable Cat. No.	Description		Connector Diameter mm (in.)
2090-KPB47-12CF	2090-CPWM7DF-16AAxx	2090-CPWM7DF-16AFxx	Power only	SpeedTec DIN	28.0 (1.1)
	2090-CPWM7DF-14AAxx	2090-CPWM7DF-14AFxx			
	2090-CPWM7DF-12AAxx	N/A			
	2090-CPBM7DF-16AAxx	2090-CPBM7DF-16AFxx	Power/brake		
	2090-CPBM7DF-14AAxx	2090-CPBM7DF-14AFxx			
	2090-CPBM7DF-12AAxx	N/A			
	N/A	2090-CPBM7E7-16AAxx			
	N/A	2090-CPBM7E7-14AAxx			
	N/A	2090-CPWM4DF-16AFxx	Power only	Threaded DIN	
	N/A	2090-CPBM4DF-16AFxx	Power/brake		
	2090-XXNPMF-16Sxx	N/A			
2090-KPB47-06CF	2090-CPWM7DF-10AAxx	2090-CPWM7DF-10AFxx	Power only	SpeedTec DIN	45.0 (1.8)
	2090-CPWM7DF-08AAxx	2090-CPWM7DF-08AFxx			
	2090-CPBM7DF-10AAxx	2090-CPBM7DF-10AFxx	Power/brake		
	2090-CPBM7DF-08AAxx	2090-CPBM7DF-08AFxx			
	2090-CPBM7DF-06AAxx	N/A			

2090-Series Motor/Actuator Feedback Cable Compatibility

Bulkhead Adapter Cat. No.	Standard (non-flex) Feedback Cable Cat. No.	Continuous-flex Feedback Cable Cat. No.	Description		Connector Diameter mm (in.)
2090-KPB47-12CF	2090-CFBM7DF-CEAAxx	2090-CFBM7DF-CEAFxx	Feedback	SpeedTec DIN	28.0 (1.1)
	2090-CFBM7DD-CEAAxx	2090-CFBM7DD-CEAFxx			
	N/A	2090-CFBM7DF-CDAFxx			
	N/A	2090-CFBM7E7-CDAFxx			
	N/A	2090-CFBM7E7-CEAFxx			
2090-KFB47-CF	2090-CFBM4DF-CEAAxx	N/A		Threaded DIN	26.0 (1.0)
	N/A	2090-CFBM4DF-CDAFxx			
	2090-XXNFMF-Sxx	N/A			

2090-Series Integrated Motor-Drive Hybrid Cable Compatibility

Bulkhead Adapter Cat. No.	Hybrid Cable Cat. No.	Description		Connector Diameter mm (in.)
2090-KPB47-12CF	2090-CHBIFS8-12AAxx	Hybrid	SpeedTec	25.4 (1.0)
	2090-CHBP8S8-12AAxx			