

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.

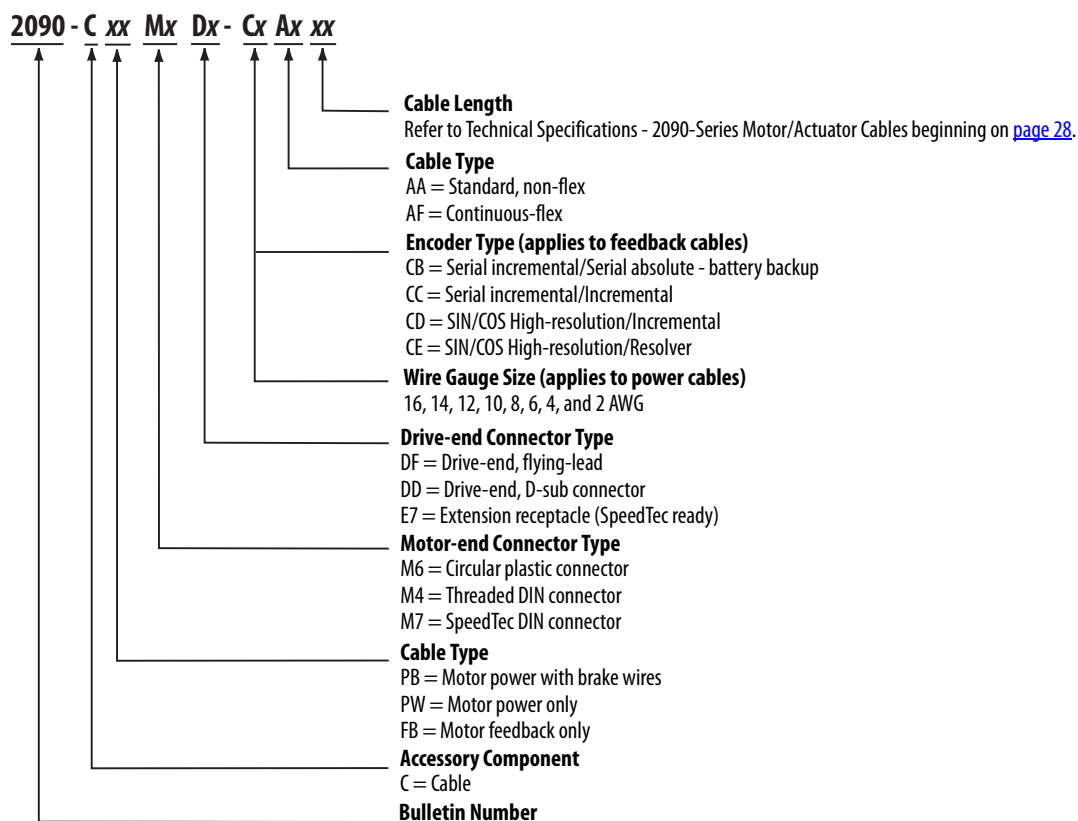
IMPORTANT All flying-lead feedback cables require breakout components or connector kits for drive-end terminations. Refer to Breakout Components and Connector Kits beginning on [page 63](#) for catalog numbers and descriptions.

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



RDD-Series Direct Drive Motors

Motor Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
RDB-Bxxxx-7/3	2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2099-BMxx-S	Multi-turn High Resolution Absolute or Single-turn High Resolution Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	Shaft seal is N/A. IP65 with specified cables.

RDD-Series (400V-class) Direct Drive Motors	Power Cable Cat. No.	IP Rating
RDB-B21519, RDB-B21529	2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	Shaft seal is N/A. IP65 with specified cables.
RDB-B29014, RDB-B29016, RDB-B29024		
RDB-B2151C, RDB-B21539	2090-CPWM7DF-14AAxx (standard, non-flex) 2090-CPWM7DF-14AFxx (continuous-flex)	
RDB-B29019, RDB-B29034		
RDB-B2152C	2090-CPWM7DF-12AAxx (standard, non-flex)	
RDB-B29026		
RDB-B2153C	2090-CPWM7DF-10AAxx (standard, non-flex) 2090-CPWM7DF-10AFxx (continuous-flex)	
RDB-B29036, RDB-B41014		
RDB-B29029, RDB-B41016, RDB-B41024	2090-CPWM7DF-08AAxx (standard, non-flex) 2090-CPWM7DF-08AFxx (continuous-flex)	
RDB-B29039, RDB-B41018, RDB-B41026, RDB-B41035	2090-CPBM7DF-06AAxx (standard, non-flex)	

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 11](#).

Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 28](#).

HPK-Series Asynchronous Servo Motors

Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
HPK-Bxxxx-M/S HPK-Exxxx-M/S	2099-BMxx-S	Multi-turn High Resolution Absolute or Single-turn High Resolution Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM4DF-CDAFxx (continuous-flex)	Shaft seal is N/A. IP65 with specified cables.

HPK-Series Asynchronous Servo Motors			Power Cable Cat. No.
All HPK-Bxxxx or HPK-Exxxx motors			Customer Supplied

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 11](#).

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MP-Series Integrated Linear Stages

Actuator Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
MPAS-Axxxx-VxxSxA (ball screw) MPMA-A (ball screw)	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2097-V34PRx-LM 2098-DSD-xxx	Multi-turn High Resolution Absolute Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex) 2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	IP30
MPAS-Axxxx-ALMx2C (direct drive) MPMA-A (direct drive)	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2098-DSD-xxx 2071-Axx	Incremental Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	
MPAS-Bxxxx-VxxSxA (ball screw) MPMA-B (ball screw)	2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V3xPRx 2097-V34PRx-LM 2098-DSD-xxx	Multi-turn High Resolution Absolute Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex) 2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	
MPAS-Bxxxx-ALMx2C (direct drive) MPMA-B (direct drive)	2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V3xPRx 2098-DSD-xxx	Incremental Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	
MP-Series (200V-class) Integrated Linear Stages			Power Cable Cat. No.	IP Rating
MPAS-Axxxx-VxxSxA (ball screw) or MPMA-A			2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	IP30
MPAS-Axxxx-ALMx2C (direct drive) or MPMA-A			2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	
MP-Series (400V-class) Integrated Linear Stages			Power Cable Cat. No.	IP Rating
MPAS-Bxxxx-VxxSxA (ball screw) or MPMA-B			2090-CPxM7DF-16AAxx (standard, non-flex) 2090-CPxM7DF-16AFxx (continuous-flex)	IP30
MPAS-Bxxxx-ALMx2C (direct drive) or MPMA-B			2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	

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LDAT-Series Integrated Linear Thrusters

Actuator Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
LDAT-Sxxxxxx-xDx (230V operation)	2097-V3xPRx	Absolute Linear Encoder Feedback	2090-CFBM7DF-CEAAxx or 2090-CFBM7DD-CEAAxx (standard, non-flex)	IP30
LDAT-Sxxxxxx-xDx (460V operation)	2097-V34PRx		2090-CFBM7DF-CEAFxx 2090-CFBM7DD-CEAFxx (continuous-flex)	
LDAT-Sxxxxxx-xBx (230V operation)	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2098-DSD-xxx 2071-Axx	Incremental Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	
LDAT-Sxxxxxx-xBx (460V operation)	2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx 2098-DSD-HVxxx			

LDAT-Series (230V or 460V operation) Linear Thrusters	Power Cable Cat. No.	IP Rating
LDAT-S031xxx, LDAT-S032xxx, LDAT-S033xxx	2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	IP30
LDAT-S051xxx, LDAT-S052xxx, LDAT-S053xxx, LDAT-S054xxx		
LDAT-S072xxx, LDAT-S073xxx, LDAT-S074xxx, LDAT-S076xxx-Exx		
LDAT-S102xxx, LDAT-S103xxx, LDAT-S104xxx, LDAT-S106xxx-Exx		
LDAT-S152xxx, LDAT-S153xxx, LDAT-S154xxx, LDAT-S156xxx-Exx		
LDAT-S076xxx-Dxx	2090-CPWM7DF-14AAxx (standard, non-flex) 2090-CPWM7DF-14AFxx (continuous-flex)	
LDAT-S106xxx-Dxx		
LDAT-S156xxx-Dxx		

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 11](#).

Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 28](#).

TL-Series Electric Cylinders

Actuator Cat. No.	Drive Compatibility	Feedback Type	Motor Feedback Cable	IP Rating
TLAR-Axxxxx	2093-AC05-MPx or 2093-AMxx 2097-V3xPRx or 2097-V3xPRx-LM 2071-Axx	Multi-turn High Resolution Absolute Encoder Feedback	2090-CFBM6DF-CBAAxx (flying-lead) standard, non-flex	IP40 ⁽¹⁾

TL-Series (200V-class) Electric Cylinders	Motor Power Cable	IP Rating
TLAR-Axxxxx	2090-CPBM6DF-16AAxx (power and brake) standard, non-flex 2090-CPWM6DF-16AAxx (power without brake) standard, non-flex	IP40 ⁽¹⁾

(1) Applies to complete unit, including rod-end seal and breather port.

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 11](#).

Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 28](#).

LDC-Series Linear Motors

Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
LDC-Cxxxxxx-xxTx1 (230V operation)	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2098-DSD-xxx 2071-Axx	Sin/Cos or TTL Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	IP65
LDC-Cxxxxxx-xxTx1 (460V operation)	2094-BCxx-Mxx-S or 2094-BMxx-S 2094-BCxx-Mxx-M or 2094-BMxx-M 2097-V34PRx 2098-DSD-HVxxx			

LDC-Series (230V or 460V operation) Linear Motors			Power Cable Cat. No.	IP Rating
LDC-Cxxxxxx-xxTx1			2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	IP65

For cable configuration illustrations and feature descriptions, by catalog number, refer to 2090-Series Motor/Actuator Cables Overview beginning on [page 11](#).

Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 28](#).

LDL-Series Linear Motors

Cat. No.	Drive Compatibility	Feedback Type	Feedback Cable Cat. No.	IP Rating
LDL-xxxxxxx-xxTx1	2093-AC05-MPx or 2093-AMxx 2094-ACxx-Mxx-S or 2094-AMxx-S 2097-V3xPRx 2098-DSD-xxx 2071-Axx	Sin/Cos or TTL Encoder Feedback	2090-XXNFMF-Sxx (standard, non-flex) 2090-CFBM7DF-CDAFxx (continuous-flex)	IP65

LDL-Series Linear Motors			Power Cable Cat. No.	IP Rating
LDL-xxxxxxx-xxTx1			2090-CPWM7DF-16AAxx (standard, non-flex) 2090-CPWM7DF-16AFxx (continuous-flex)	IP65

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Cable length xx is in meters. Refer to Technical Specifications - 2090-Series Motor/Actuator Cables beginning on [page 28](#).

Technical Specifications - 2090-Series Motor/Actuator Cables

Power Cable Specifications

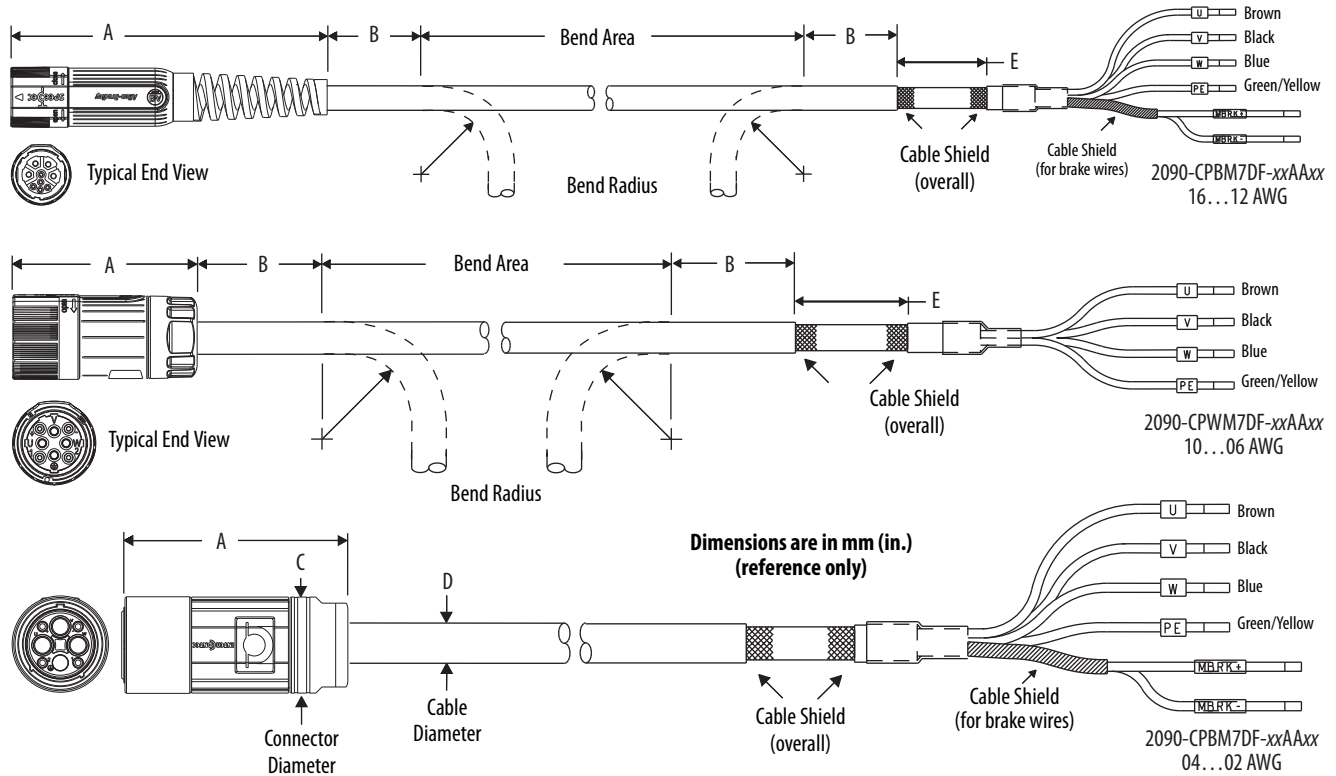
Power Cables ⁽¹⁾ Cat. No.	Cable Type/ Jacket Color	Description	Wire Size AWG	Weight, approx kg/m (lb/ft)	Standard Cable Lengths m (ft)					
2090-XXNPMF-16Sxx	Standard (non-flex) cable, Industrial TPE, Black	Four conductor, 600V, shielded cable for three- phase power with additional four conductors, 18 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	Continuous-flex cable	10	0.513 (0.345)				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-CPBM7DF-08AFxx		8	0.697 (0.468)							
2090-CPWM4DF-16AFxx	Industrial TPE, Orange (DESINA, RAL 2003)	Four conductor, 600V, shielded cable for three- phase power.	16							0.154 (0.104)
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.

Motor Power Cables

Power Cable Dimensions, Standard, Non-flex (SpeedTec 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-CPBM7DF-16AAxx	147 (5.8)	81.2 (3.2)	28 (1.1)	11.6 (0.46)	150 (5.9)
2090-CPWM7DF-16AAxx		64.4 (2.5)		9.2 (0.36)	
2090-CPBM7DF-14AAxx		88.9 (3.5)		12.7 (0.50)	
2090-CPWM7DF-14AAxx		72.1 (2.8)		10.3 (0.40)	
2090-CPBM7DF-12AAxx	80 (3.15)	100 (3.9)	45 (1.8)	14.3 (0.56)	90 (3.5)
2090-CPWM7DF-12AAxx		78.4 (3.1)		11.2 (0.44)	
2090-CPBM7DF-10AAxx	100 (3.9)	118 (4.6)		16.8 (0.66)	
2090-CPWM7DF-10AAxx		107 (4.2)		15.3 (0.60)	
2090-CPBM7DF-08AAxx		141 (5.5)		20.1 (0.79)	
2090-CPWM7DF-08AAxx		131 (5.2)		18.7 (0.74)	
2090-CPBM7DF-06AAxx	150 (5.9)	170 (6.7)	63 (2.5)	24.3 (0.96)	
2090-CPBM7DF-04AAxx		202 (7.9)		28.8 (1.13)	
2090-CPBM7DF-02AAxx		229 (9.0)		32.7 (1.29)	

(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.

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			