

2090-Series Motor/Actuator Cables with SpeedTec DIN Connectors Overview



2090-Series motor/actuator cables with SpeedTec DIN connectors let OEMs and end-users standardize their machines on a common motor cable family. These cables, designed by Rockwell Automation for optimal performance with Allen-Bradley servo drives, servo motors, and linear actuators, offer best-in-class features and standards compliance. Innovative features, configuration options, and accessories provide machine builders with complete control of the cable requirements in their machines.

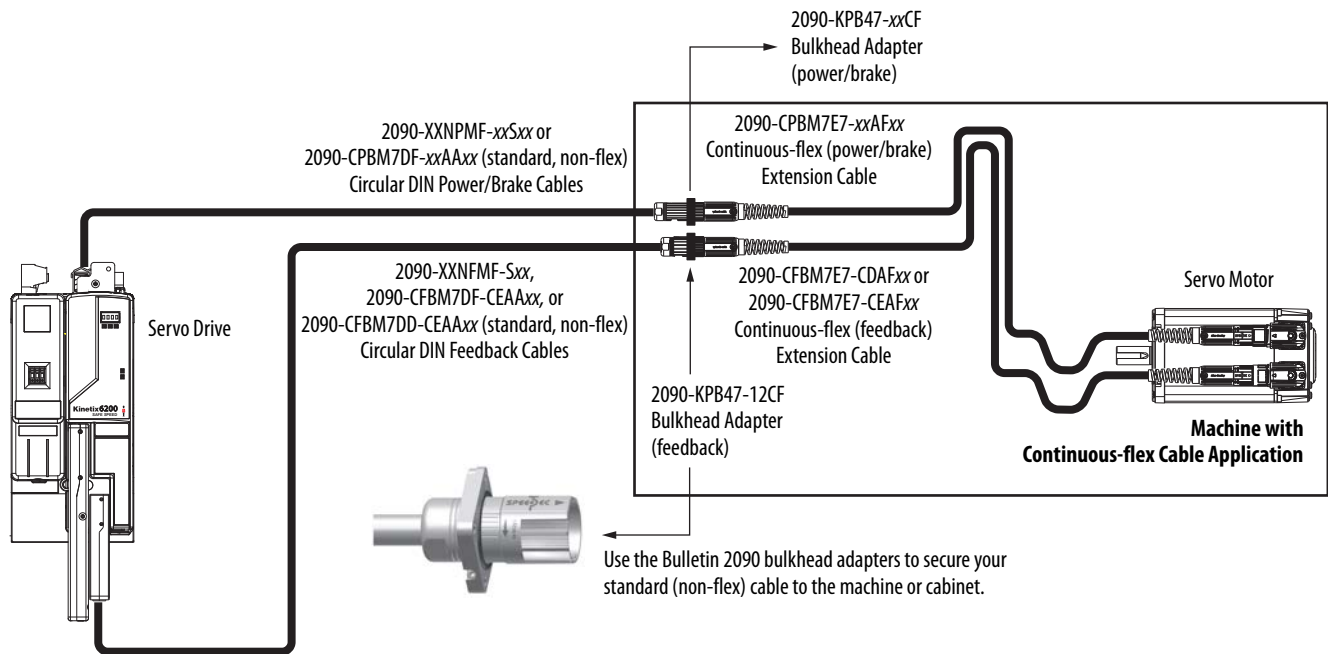
SpeedTec DIN Cable Features

- NFPA 79 Compliant
- UL Listed bulk cable with 600V insulation rating for use in cable trays and exposed run applications.
 - Type TC-ER: Power-only and power-with-brake cables
 - Type PLTC-ER: Feedback cable optimized for high-resolution feedback motors
- CSA AWM, I/II A/B, 600V, 90 °C construction
- SpeedTec connection system yields ¼-turn quick connections with positive metallic keying
- DESINA compliant jacket coloring (orange for power, green for feedback) for easy identification and separation of cables in a machine
- Cables are included in the Rockwell Automation servo system Declaration of Conformity (DoC)
- Continuous flex cables are suitable for 20 million flex-cycles
 - Continuous-flex cables are also available in extension cable configurations
- Comprehensive accessories optimize the use of cables in machines

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	

Power Cable Connector Kits (SpeedTec DIN)

Connector Kit Cat. No.	Description	Crimp Tool Cat. No.	Bulkhead Adapter Cat. No.	Motor Series
2090-KPBM7-12AA	Motor-end cable connector SpeedTec plug, M23 connector 16, 14, and 12 AWG motor power 18 AWG motor brake	2090-TCR47-M23	2090-KPB47-12CF	MPL-A/B15xxx-V/Ex7AA, MPL-A/B2xxx-V/Ex7AA MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-B520, MPL-B540, MPL-B560
				MPM-A/B115xx, MPM-A/B130xx, MPM-B1651C, MPM-B1651F, MPM-B1652C, MPM-B1653C
				MPF-A/B3xxx-S/Mx7xAA, MPF-A/B4xxx-S/Mx7xAA, MPF-A/B45xxx-S/Mx7xAA
				MPS-A/B3xx, MPS-A/B45xx, MPS-B5xx (SpeedTec motor connectors)
2090-KPBM7-06AA	Motor-end cable connector SpeedTec plug, M40 connector 10, 8, and 6 AWG motor power 18 AWG motor brake	2090-TCR47-M23 (power pins) 2090-TCR47-M23 (brake pins)	2090-KPB47-06CF	RDB-B130xx, RDB-B165xx, RDB-B21519, RDB-B2151C, RDB-B21529, RDB-B2152C, RDB-B21539, RDB-B2901x, RDB-B29024, RDB-B29026, RDB-B29034
				MPL-A5xx, MPL-B580, MPL-B6xx, MPL-B860, MPL-B880C, MPL-B960B, MPL-B980B
				MPM-A1651F, MPM-B1651M, MPM-B1652E, MPM-A/B1652F, MPM-B1653E, MPM-A/B1653F, MPM-A/B215xx
				MPF-A/B5xxx-S/Mx7xAA
2090-KPBE7-12AA	Extension cable connector SpeedTec plug, M23 connector 16, 14, and 12 AWG motor power 18 AWG motor brake	2090-TCR47-M23	2090-KPB47-12CF	RDB-B2151F, RDB-B2152F, RDB-B2153C, RDB-B2153E, RDB-B29029, RDB-B29036, RDB-B410xx
				MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-B520, MPL-B540, MPL-B560
				MPM-A/B115xx, MPM-A/B130xx, MPM-B1651C, MPM-B1651F, MPM-B1652C, MPM-B1653C
				MPF-A/B3xxx-S/Mx7xAA, MPF-A/B4xxx-S/Mx7xAA, MPF-A/B45xxx-S/Mx7xAA
2090-KPBE7-06AA	Extension cable connector SpeedTec plug, M40 connector 10, 8, and 6 AWG motor power 18 AWG motor brake	2090-TCR47-M40 (power pins) 2090-TCR47-M23 (brake pins)	2090-KPB47-06CF	RDB-B130xx, RDB-B165xx, RDB-B21519, RDB-B2151C, RDB-B21529, RDB-B2152C, RDB-B21539, RDB-B2901x, RDB-B29024, RDB-B29026, RDB-B29034
				MPL-A5xx, MPL-B580, MPL-B6xx, MPL-B860, MPL-B880C, MPL-B960B, MPL-B980B
				MPM-A1651F, MPM-B1651M, MPM-B1652E, MPM-A/B1652F, MPM-B1653E, MPM-A/B215xx
				MPF-A/B5xxx-S/Mx7xAA

Power Cable Connector Kits (threaded DIN)

Connector Kit Cat. No.	Description	Crimp Tool Cat. No.	Bulkhead Adapter Cat. No.	Motor Series
2090-KPBM4-12AA	Motor-end cable connector	2090-TCR47-M23	2090-KPB47-12CF	MPL-A/B15xxx-V/Ex4AA, MPL-A/B2xxx-V/Ex4AA
	Threaded plug, M23 connector			MPF-A/B3xxx-S/Mx4AA, MPF-A/B4xxx-S/Mx4AA, MPF-A/B45xxx-S/Mx4AA, MPF-A/B5xxx-S/Mx4AA
	16, 14, and 12 AWG motor power			MPS-A/B3xx, MPS-A/B45xx, MPS-B5xx (threaded motor connectors)
2090-KPBM4-06AA	Motor-end cable connector	2090-TCR47-M40 (power pins)	2090-KPB47-06CF	MPF-A/B5xxx-S/Mx4AA
	Threaded plug, M40 connector	2090-TCR47-M23 (brake pins)		
	10, 8, and 6 AWG motor power			
	18 AWG motor brake			

Feedback Cable Connector Kits (circular DIN)

Connector Kit Cat. No.	Description	Crimp Tool Cat. No.	Bulkhead Adapter Cat. No.	Motor Series
2090-KFBM7-CAAA	Motor-end cable connector	N/A (soldered contacts)	2090-KFB47-CF	MPL-A/B15xxx-V/Ex7AA or MPL-A/B2xxx-V/Ex7AA
	SpeedTec plug, M23 connector			MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx MPL-B6xx, MPL-B8xx, MPL-B9xx
2090-KFBM7-CAAA	Extension cable connector	N/A (soldered contacts)	2090-KFB47-CF	MPM-A/B115xx, MPM-A/B130xx, MPM-A/B165xx, MPM-A/B215xx
	SpeedTec plug, M23 connector			MPF-A/B3xxx-S/Mx7AA, MPF-A/B4xxx-S/Mx7AA, MPF-A/B45xxx-S/Mx7AA, MPF-A/B5xxx-S/Mx7AA MPS-A/B3xx, MPS-A/B45xx, MPS-A/B5xx (SpeedTec motor connectors)
2090-KFBM4-CAAA	Motor-end cable connector	N/A (soldered contacts)	2090-KFB47-CF	RDB-B130xx, RDB-B165xx, RDB-B215xx, RDB-B290xx, RDB-B410xx
	Threaded plug, M23 connector			MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx, MPL-B6xx, MPL-B8xx, MPL-B9xx
	Extension cable connector	N/A (soldered contacts)	2090-KFB47-CF	MPM-A/B115xx, MPM-A/B130xx, MPM-A/B165xx, MPM-A/B215xx
	SpeedTec plug, M23 connector			MPF-A/B3xxx-S/Mx7AA, MPF-A/B4xxx-S/Mx7AA, MPF-A/B45xxx-S/Mx7AA, MPF-A/B5xxx-S/Mx7AA
2090-KFBM4-CAAA	Motor-end cable connector	N/A (soldered contacts)	2090-KFB47-CF	RDB-B130xx, RDB-B165xx, RDB-B215xx, RDB-B290xx, RDB-B410xx
	Threaded plug, M23 connector			MPL-A/B15xxx-V/Ex4AA or MPL-A/B2xxx-V/Ex4AA
	Extension cable connector	N/A (soldered contacts)	2090-KFB47-CF	MPF-A/B3xxx-S/Mx4AA, MPF-A/B4xxx-S/Mx4AA, MPF-A/B45xxx-S/Mx4AA, MPF-A/B5xxx-S/Mx4AA
	SpeedTec plug, M23 connector			MPS-A/B3xx, MPS-A/B45xx, MPS-A/B5xx (threaded motor connectors)

Power and Feedback Cable Connector Kits (circular plastic)

Connector Kit Cat. No.	Description	Crimp Tool Cat. No.	Bulkhead Adapter Cat. No.	Motor Series
2090-KPBM6-16AA	Straight Power Connector Kit	58495-1 (Tyco AMP)	N/A	All TLY-Axxx motors
2090-KFBM6-AA	Straight Feedback Connector Kit	58448-1 (Tyco AMP)	N/A	All TLR-Axxx electric cylinders

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			

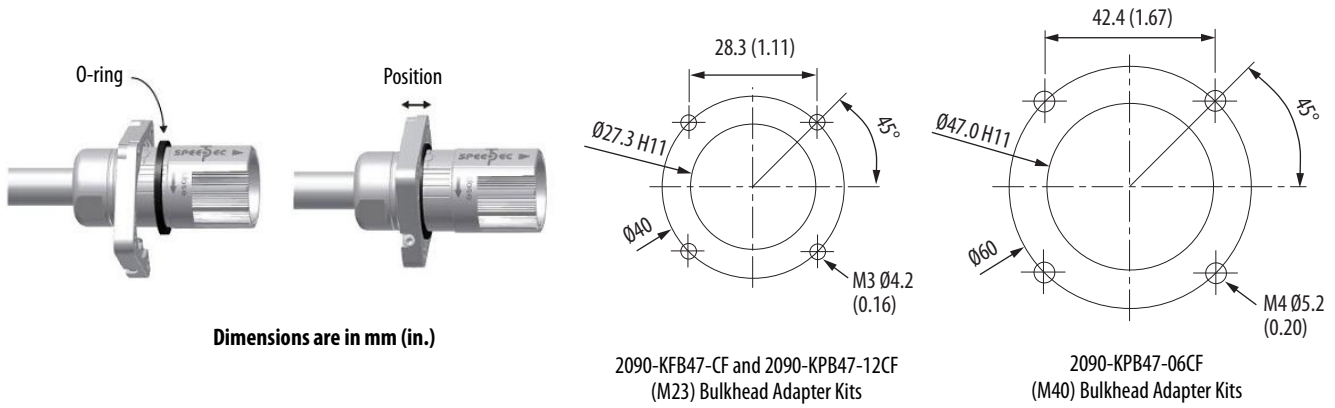
2090-Series Motor/Actuator Feedback Cable Compatibility

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			

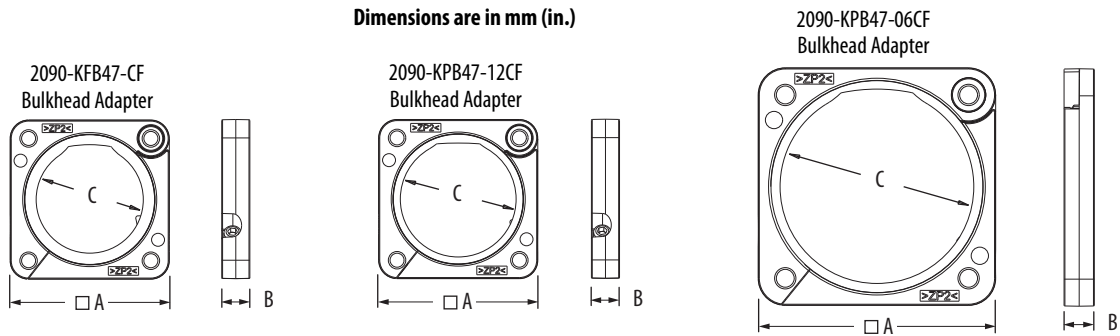
2090-Series Integrated Motor-Drive Hybrid Cable Compatibility

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			

Bulkhead Adapter Kit Mounting Dimensions



Bulkhead Adapter Kit Dimensions

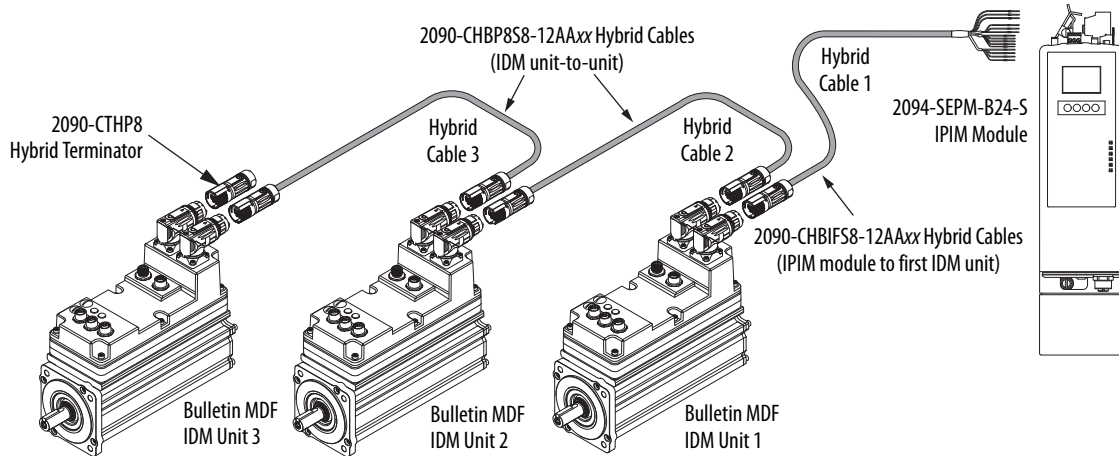


Bulkhead Adapter Cat. No.	Size	Dimension A mm (in.)	Dimension B mm (in.)	Dimension C (reference) mm (in.)
2090-KFB47-CF	M23	36.8 (1.44)	6.5 (0.26)	23.0 (0.90)
2090-KPB47-12CF				26.0 (1.02)
2090-KPB47-06CF	M40	54.8 (2.16)	7.0 (0.28)	43.0 (1.69)

Kinetix 6000M Hybrid Cables

Kinetix 6000M hybrid cables provide power, control, and communication between the IPIM power interface module (IPIM) and the integrated drive-motor (IDM) units. Kinetix 6000M hybrid cables are available in lengths up to 25 m (82 ft). The maximum combined cable length for all axes daisy-chained from the same IPIM module is 100 m (328 ft). Maximum length for daisy chain is reduced by IDM units with holding brakes and number of IDM inputs used. Refer to Motion Analyzer software, version 6.00 or later, to verify that maximum daisy-chain length is not exceeded. The last IDM unit requires a 2090-CTHP8 hybrid bus terminator (included with each IPIM module).

Typical Hybrid Cable Application



For example, in this Kinetix 6000M system, if each cable length was the maximum 25 m (82 ft), the combined cable length would be 75 m (246 ft).

Kinetix 6000M Hybrid Cable Descriptions

Cable Cat. No.	Description	Cable Configuration	
		Flying-lead/Pin	Socket
2090-CHBIF58-12AAxx ⁽¹⁾	From IPIM module (flying-leads) to the first IDM unit - IPIM-end flying-leads (IF) - SpeedTec connector, socket (S8)		
2090-CHBP8S8-12AAxx ⁽²⁾	IDM unit-to-unit - SpeedTec connector, pin (P8) - SpeedTec connector, socket (S8)		
2090-CBKS8-16AA03	Manual brake release - Brake release wires (BK) - SpeedTec connector, socket (S8)		
2090-CCPP8S8	Coupler cable that connects between two hybrid cables to bypass an IDM unit - SpeedTec connector, pin (P8) - SpeedTec connector, socket (S8)		
2090-KPB47-12CF ⁽³⁾	- The hybrid bulkhead adapter secures cables as they pass through the cabinet - Mating cable attaches on the other side		
2090-CTHP8	Hybrid (SpeedTec) terminator - Required on last IDM unit, pin (P8) - Included with each IPIM module		

(1) Cables are available in standard lengths of 1, 2, 3, 4, 5, 7, 9, 12, 15, 20, and 25 m (3.2, 6.6, 9.8, 13.1, 16.4, 22.9, 29.5, 39.3, 49.2, 65.5, and 82.0 ft).

(2) Cables are available in standard lengths of 0.5, 1, 2, 3, 4, 5, 7, 9, 12, 15, 20, and 25 m (1.6, 3.2, 6.6, 9.8, 13.1, 16.4, 22.9, 29.5, 39.3, 49.2, 65.5, and 82.0 ft).

(3) For 2090-KPB47-12CF bulkhead adapter dimensions and specifications, refer to 2090-Series Bulkhead Adapter Kits on page [page 46](#).