



# Kinetix Rotary and Linear Motion Cable Specifications

Kinetix 2090

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This document provides catalog numbers, product specifications, and dimensions for motor cables.

Use this publication along with the Kinetix® Motion Control Selection Guide, publication [KNX-SG001](#), and the drive-system design guides to help make decisions on the motion control products that are best suited for your system requirements. See [Additional Resources](#) on [page 77](#) for publication numbers.

## Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

| <b>Topic</b>   | <b>Page</b> |
|--|-------------|
| Added Kinetix MMA main motors to the Motor Connector/Cable Plug Compatibility table.   | 27          |
| Added Kinetix MMA main motors to the Kinetix Motor Power and Feedback Cable Selection section.   | 35          |
| Added a section for Kinetix TL and TLY Motor Power and Feedback Cables   | 57          |
| This is the first revision as publication KNX-TD004 with information for Kinetix 5700, 5500, 5300, and 5100 Servo Drives.<br>Publication <a href="#">KNX-TD005</a> has information for Kinetix 3, 300, 350, 2000, 6000, 6200, 6500, 7000 Servo Drives. | —           |

# Kinetix Motor Single Cables

Kinetix 2090 single motor cables combine motor power, feedback, and brake conductors all in a single shielded cable. Standard (non-flex) motor cables with rugged SpeedTec DIN connectors are designed for use with Kinetix 5500 and Kinetix 5700 drive systems, and intended for static applications. Continuous-flex rated cables, intended for rolling and reverse bending applications, are also available.

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**IMPORTANT** Because of the unique characteristics of single-cable technology, which is designed for and tested with the Kinetix 5500 and Kinetix 5700 drive families with Kinetix VP motors and actuators, building your own cables, using field modified Rockwell Automation® factory-delivered cable, or using third-party cable is not an option.

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**IMPORTANT** Flying-lead motor power, feedback, and (optional) brake conductors terminate at the drive by using the 2198-KITCON-DSL feedback connector kit. Refer to the Kinetix 5700, 5500, 5300, 5100 Servo Drives Specifications Technical Data, publication [KNX-TD003](#), for more information on the 2198-KITCON-DSL connector kit that is used with the Kinetix 5500 and Kinetix 5700 servo drives.

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**IMPORTANT** Continuous-flex single motor cables have a minimum bend radius of 10 times the cable diameter for 2090-CSxM1xx-xxAFxx (TPE) cables and 7 times the cable diameter for 2090-CSBM1xx-xxLFxx (Halogen-free PUR) cables.

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These Kinetix 2090 motor cables with SpeedTec DIN connectors, designed by Rockwell Automation for optimal performance with Kinetix 5500 and Kinetix 5700 drive families with Kinetix VP motors and actuators, offer best-in-class features and standards compliance. The single-cable design includes power, feedback, and brake conductors. The continuous-flex cable option, cable lengths in 1 m (3.3 ft) increments, and SpeedTec connectors provide machine builders with complete control of the cable requirements in their machines.

## Single Motor Cable Features

Single motor cables are available in three cable materials:

- TPE for standard (non-flex) and continuous-flex cable
- PVC for standard (non-flex) and Halogen-free PUR for continuous-flex cable

## Common Single Motor-cable Features

- NFPA-79 compliant
- Low capacitance design to maximize system power density
- SpeedTec connection system
- Encoder communication data pair with state of the art noise rejection
- DESINA compliant jacket (orange) coloring for easy identification and separation of cables in a machine
- Cables are included in the Rockwell Automation® servo system Declaration of Conformity (DoC)

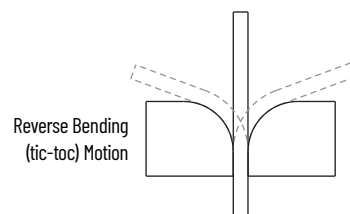
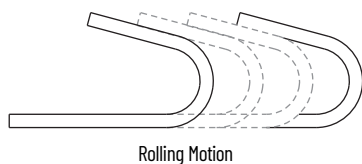
## 2090-CSxM1xx-xxAA/AFxx (TPE) Cable Features

- UL Listings: 10, 8, and 6 AWG bulk cable - Flexible VFD servo cable, 18 and 14 AWG bulk cable - PLTC-ER
  - UL AWM, 1000V, 105 °C construction
  - cUR AWM I/II A/B, 600V, 105 °C construction for 6 and 8 AWG cables
- CSA AWM I/II A/B, 1000V, 105 °C construction for 10, 14, and 18 AWG cables
- Rated flex-cycles in linear flexing applications
  - 10, 14, and 18 AWG continuous-flex cables and continuous-flex extension cables are suitable for 20 million flex-cycles at 10 times cable diameter. 10 million flex-cycles in bending (tic-toc) applications (see illustration below).
  - 6 and 8 AWG continuous-flex cables and continuous-flex extension cables are suitable for 6.5 million flex-cycles at 10 times cable diameter
- TPE jacket with superior mechanical and chemical properties
- Cable features overall tinned copper braid with aluminum/polyester tape, delivering 100% coverage for excellent EMC/EMI performance and permits power and signal conductors in a single cable
- FT4 rated flame test

## 2090-CSxM1xx-xxVAxx (PVC) and 2090-CSBM1xx-xxLFxx (Halogen-free PUR) Cable Features

- UL Recognized: 18, 14, 10, 8, and 6 AWG bulk cable
  - UL AWM, 1000V, 90 °C construction
  - cUR/CSA AWM I/II A/B, 1000V, 90 °C construction
- Rated flex-cycles in linear flexing applications
  - 6, 8, 10, 14, and 18 AWG continuous-flex cables and continuous-flex extension cables are suitable for 10 million flex-cycles at 7 times cable diameter or 15 million flex-cycles at 10 times cable diameter
  - 5 million flex-cycles in bending (tic-toc) applications (see illustration below)
- PVC and PUR jacket with durable mechanical and chemical properties
- Cable features overall tinned copper braid, delivering 85% coverage and tested for excellent EMC/EMI performance and permits power and signal conductors in a single cable
- FT1 rated flame test
- PUR (LF) is Halogen Free materials to IEC 60754, UL 2885

### Types of Cable Flexing

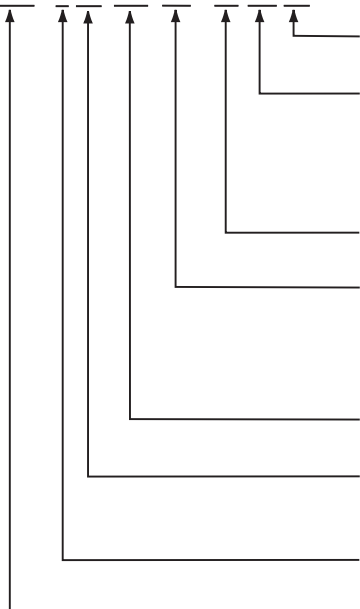




## Catalog Numbers - Kinetix Single Motor Cables

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.

**2090 - C Sx M1 Dx - xx xx xx**



**Cable Length**

Refer to Technical Specifications - Kinetix 2090 Single Motor Cables beginning on [page 12](#).

**Cable Material Type**

- AA = TPE, Standard, non-flex
- AF = TPE, Continuous-flex
- LF = PUR, Continuous-flex, Halogen free
- VA = PVC, Standard, non-flex

**Wire Gauge Size (applies to power conductors)**

18, 14, 10, 8, 6 AWG

**Drive-end Connector Type**

- DF = Drive-end, flying-leads (lead length optimized for Kinetix 5500 drives)
- DE = Drive-end, flying-lead power/brake wires and pre-wired feedback connector kit (optimized for Kinetix 5700 drives)
- DG = Drive-end, flying-leads (longer leads optimized for Kinetix 5500 or Kinetix 5700 drives)
- E1 = Extension receptacle (SpeedTec ready)

**Motor-end Connector Type**

M1 = Single SpeedTec DIN connector

**Cable Type**

- SB = Single motor power with brake wires
- SW = Single motor power only

**Accessory Component**

C = Cable

**Bulletin Number**

## Kinetix Single Motor Cables Overview

2090-CSxM1DF and 2090-CSxM1DG single motor cables with flying leads provide power, feedback, and brake conductors in a single shielded cable. Refer to Technical Specifications - Kinetix 2090 Single Motor Cables on [page 12](#) for cable descriptions, weights, and standard cable lengths.

### Single Motor Cable Descriptions (flying leads)

| Cable Cat. No.   | Description  | Cable Configuration |           | Motor Connector |
|--|--|---------------------|-----------|-----------------|
|  |  | Motor End           | Drive End |                 |
| 2090-CSBM1DF-xxAAxx<br>2090-CSBM1DF-xxAFxx<br>2090-CSBM1DG-xxxAxx<br>2090-CSBM1DG-xxxFxx | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF) (DG = longer lead lengths)</li> <li>• Power/feedback/brake wires (SB)</li> <li>• Standard, non-flex (AA, VA)</li> <li>• Continuous-flex (AF, LF)</li> </ul> |                     |           | SpeedTec DIN    |
| 2090-CSWM1DF-xxAAxx<br>2090-CSWM1DG-xxxAxx   | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF) (DG = longer lead lengths)</li> <li>• Power/feedback wires only (SW)</li> <li>• Standard, non-flex (AA, VA)</li> </ul>                                      |                     |           |                 |

2090-CSxM1DE single motor cables also provide power, feedback, and brake conductors in a single shielded cable. However, 2090-CSxM1DE cables include the 2198-KITCON-DSL feedback connector kit that is pre-assembled with the feedback conductors. See Technical Specifications - Kinetix 2090 Single Motor Cables on [page 12](#) for cable descriptions, weights, and standard cable lengths.

Single Motor Cable Descriptions (feedback connector kit)

| Cable Cat. No.                             | Description   | Cable Configuration |           | Motor Connector |
|--|---|---------------------|-----------|-----------------|
|  |   | Motor End           | Drive End |                 |
| 2090-CSBM1DE-xxxAxx<br>2090-CSBM1DE-xxxFxx | <ul style="list-style-type: none"> <li>• Drive-end feedback connector kit (DE)</li> <li>• Power/feedback/brake wires (SB)</li> <li>• Standard, non-flex (AA, VA)</li> <li>• Continuous-flex (AF, LF)</li> </ul> |                     |           | SpeedTec DIN    |
| 2090-CSWM1DE-xxxAxx                        | <ul style="list-style-type: none"> <li>• Drive-end feedback connector kit (DE)</li> <li>• Power/feedback wires only (SW)</li> <li>• Standard, non-flex (AA, VA)</li> </ul>                                      |                     |           |                 |

Optimize the placement of your continuous-flex application with extension cables. Use standard (non-flex) extension cables to cover distances that are outside of the continuous-flex application. For example, attach a standard (non-flex) extension cable to the motor and use a continuous-flex flying lead cable for applications that require flexing closer to the drive. The stationary portion of cable can stay routed permanently throughout the application while the continuous-flex cable can be placed in the location that may need maintenance, changeovers, replacement, or general services.

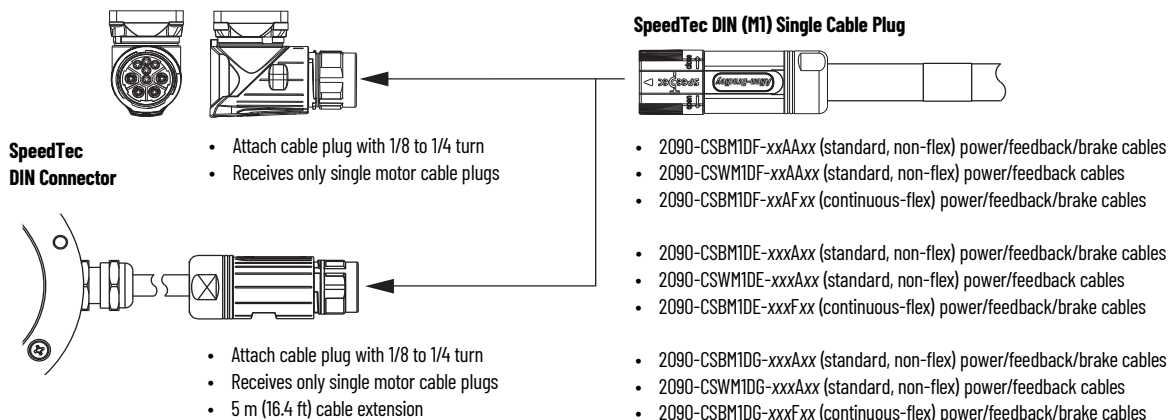
The IP rating for extension cables is consistent with the motor/actuator and cable combination they are extending. Extension cables are available with 18, 14, 10, 8, and 6 AWG power conductors and lengths up to 30 m (98.4 ft).

Single Extension Cable Description

| Cable Cat. No.                             | Description  | Cable Configuration |           | Motor Connector |
|--|--|---------------------|-----------|-----------------|
|  |  | Motor End           | Drive End |                 |
| 2090-CSBM1E1-xxxFxx<br>2090-CSBM1E1-xxVAxx | <ul style="list-style-type: none"> <li>• Drive-end (male) connector, extension (E1) <sup>(1)</sup></li> <li>• Motor-end SpeedTec DIN cable plug (M1)</li> <li>• Standard, non-flex (VA)</li> <li>• Continuous-flex (AF, LF)</li> </ul> |                     |           | SpeedTec DIN    |

(1) SpeedTec DIN connector (motor end) and male connector for extending SpeedTec DIN cable. Refer to Single Continuous-flex Extension Cable with Bulkhead Adapter Example on [page 7](#).

Typical Single Motor Cable Applications



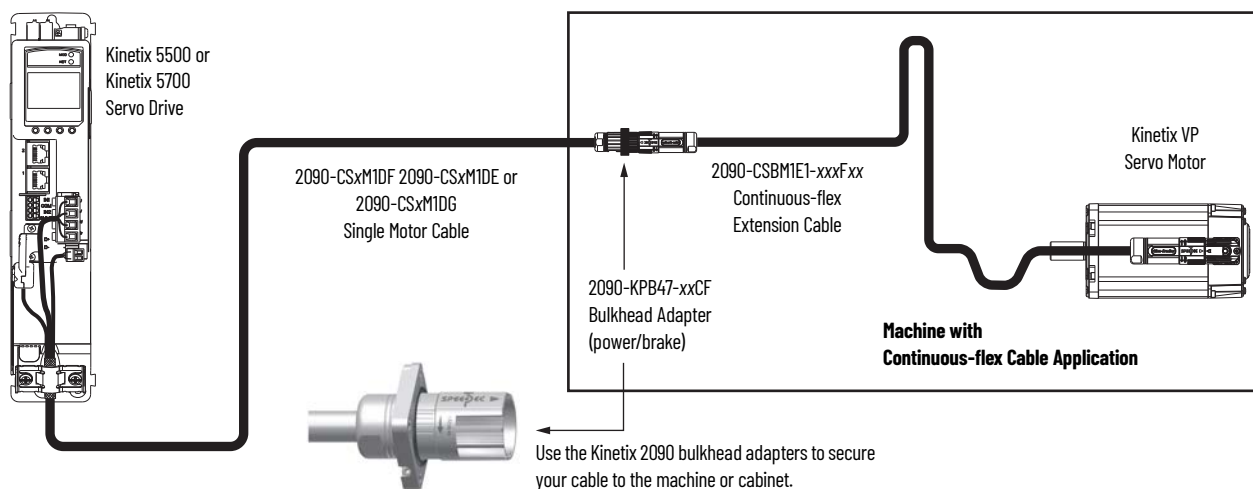
The cable technology used in single cables is the same regardless of the catalog number. What is different about each cable is the lead preparation and feedback conductor terminations.

- 2090-CSxM1DF cable conductors have flying-leads and lead preparation that is designed specifically for Kinetix 5500 servo drives. No on-site lead preparation is required.
- 2090-CSxM1DE cables include the 2198-KITCON-DSL connector kit. The kit is pre-assembled with the feedback conductors and lead preparation for the flying-lead power conductors is designed specifically for Kinetix 5700 servo drives. No on-site lead preparation is required.
- 2090-CSxM1DG cable conductors have flying-leads and lead preparation that is designed for either Kinetix 5500 or Kinetix 5700 servo drives. No on-site lead preparation is required, however, 2090-CSxM1DG cable leads are longer than 2090-CSxM1DF cable leads to accommodate either drive family.

**IMPORTANT** To avoid problems securing the cable in the shield clamp and routing the flying leads to the motor power, feedback, and brake connector plugs, make sure that you are using the cable that is best suited for your application.

- Use 2090-CSxM1DF cables with Kinetix 5500 servo drives (2198-KITCON-DSL connector kit is included with the drive)
- Use 2090-CSxM1DE cables with Kinetix 5700 servo drives (2198-KITCON-DSL connector kit is pre-wired to the feedback conductors)
- Use 2090-CSxM1DG cables with Kinetix 5500 or Kinetix 5700 servo drives (when used with Kinetix 5700 drives, the 2198-KITCON-DSL connector kit is ordered separately)

## Single Continuous-flex Extension Cable with Bulkhead Adapter Example



In this example, the continuous-flex application is near the motor, however, if the continuous-flex application is closer to the drive, a standard (non-flex) extension cable can be attached to the motor.

## Kinetix Single Motor Cable Selection

These tables provide single motor cable catalog numbers for use with Kinetix VP motors and actuators. Single motor cables include conductors for motor power, feedback, and motor brakes (if applicable). The IP rating is dependent on the use of Kinetix 2090 cables as listed in the table.

**IMPORTANT** Maximum motor cable length depends on the feedback type and overall system design. The drive-system power supply, AC input-power type, and AC input voltage are among the configuration variables. For more information on maximum cable lengths see your servo drive user manual or the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

### Kinetix VPL 200V-class Low Inertia Motors

| Motor Cat. No.                     | Compatible <sup>(1)</sup> Drive Cat. No.                            | Feedback Type  | Cable Cat. No. <sup>(2)</sup>   | IP Rating  |
|------------------------------------|---|--|---|--|
| VPL-A0631x, VPL-A0632F, VPL-A0633x | 2198-Hxxx-ERS<br>2198-Hxxx-ERS2<br>2198-Dxxx-ERS3<br>2198-Dxxx-ERS4 | Single-turn or Absolute, Multi-turn Digital Encoder<br>• SIL 2/PLd Rated<br>• HiPerface DSL Protocol | 2090-CSBM1Dx-18xAxx or<br>2090-CSWM1Dx-18xAxx (standard, non-flex)<br>2090-CSBM1Dx-18xFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP50, min without shaft seal (standard)</li> <li>• IP66 with shaft seal <sup>(3)</sup></li> </ul> |
| VPL-A0751E, VPL-A0752x, VPL-A0753x |   |  |   |  |
| VPL-A1001C, VPL-A1003x             |   |  |   |  |
| VPL-A1001M, VPL-A1002x             |   |  |   |  |
| VPL-A1152x, VPL-A1153x             |   |  |   |  |
| VPL-A1303x, VPL-A1304x, VPL-A1306x |   |  |   |  |

(1) For information on maximum cable lengths see the Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#).

Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.

(2) Use 2090-CSxM1DF or 2090-CSxM1DG cables with Kinetix 5500 (2198-Hxxx-ERSx) servo drives.

(3) IP66 with optional shaft seal and the use of Rockwell Automation<sup>®</sup> factory-delivered Kinetix 2090 single cable.

### Kinetix VPL 400V-class Low Inertia Motors

| Motor Cat. No.   | Compatible <sup>(1)</sup> Drive Cat. No.                            | Feedback Type  | Cable Cat. No. <sup>(2)</sup>   | IP Rating  |
|--|---|--|---|--|
| VPL-B0631x, VPL-B0632x, VPL-B0633x   | 2198-Hxxx-ERS<br>2198-Hxxx-ERS2<br>2198-Dxxx-ERS3<br>2198-Dxxx-ERS4 | Single-turn or Absolute, Multi-turn Digital Encoder<br>• SIL 2/PLd Rated<br>• HiPerface DSL Protocol | 2090-CSBM1Dx-18xAxx or<br>2090-CSWM1Dx-18xAxx (standard, non-flex)<br>2090-CSBM1Dx-18xFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP50, min without shaft seal (standard)</li> <li>• IP66 with shaft seal <sup>(3)</sup></li> </ul> |
| VPL-B0751M, VPL-B0752x, VPL-B0753x   |   |  |   |  |
| VPL-B1001M, VPL-B1002E,<br>VPL-B1003C, VPL-B1003F  |   |  |   |  |
| VPL-B1002M, VPL-B1003T   |   |  |   |  |
| VPL-B1152C, VPL-B1153E   |   |  |   |  |
| VPL-B1152F, VPL-B1152T,<br>VPL-B1153F  |   |  |   |  |
| VPL-B1303x, VPL-B1304x, VPL-B1306x   |   |  |   |  |
| VPL-B1651C, VPL-B1651F, VPL-B1652C,<br>VPL-B1652F, VPL-B1653C, VPL-B1653D,<br>VPL-B1654B |   |  |   |  |
| VPL-B1654D   |   |  |   |  |
|  |   |  |   |  |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#).

Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.

(2) Use 2090-CSxM1DF or 2090-CSxM1DG cables with Kinetix 5500 (2198-Hxxx-ERSx) servo drives. Use 2090-CSxM1DE or 2090-CSxM1DG cables with Kinetix 5700 (2198-xxxx-ERSx) servo drives.

(3) IP66 with optional shaft seal and the use of Rockwell Automation factory-delivered Kinetix 2090 single cable.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Single Motor Cables Overview beginning on [page 5](#).

Cable length xx is in meters, 01 (3.3)...50 (164) in 1.0 m (3.3 ft) increments for 2090-CSxM1DF and 2090-CSxM1DG cables.

Refer to Technical Specifications - Kinetix 2090 Single Motor Cables on [page 12](#).

## Kinetix VPC 400V-class Continuous Duty Motors

| Motor Cat. No.             | Drive Cat. No. <sup>(1)</sup> <sup>(2)</sup>                         | Feedback Type   | Cable Cat. No. <sup>(3)</sup>   | IP Rating                                      |
|----------------------------|--|---|---|--|
| VPC-B1652x-Q, VPC-B1653x-Q | 2198-Dxxx-ERS3<br>2198-Sxxx-ERS3<br>2198-Dxxx-ERS4<br>2198-Sxxx-ERS4 | Absolute, Multi-turn Digital Encoder<br>• SIL 2/PLd Rated<br>• Hiperface DSL Protocol | 2090-CSBM1Dx-14xAxx or<br>2090-CSWM1Dx-14xAxx (standard, non-flex)<br>2090-CSBM1Dx-14xFxx (continuous-flex) | IP65 with shaft seal (standard) <sup>(4)</sup> |
| VPC-B2153x-Q, VPC-B21549-Q |  |   |   |  |
| VPC-B1654D-Q               |  |   |   |  |
| VPC-B2154A-Q               |  |   |   |  |
| VPC-B30029-Q               |  |   |   |  |
| VPC-B2154B-Q, VPC-B2154D-Q |  |   |   |  |
| VPC-B2155B-Q, VPC-B2155D-Q |  |   |   |  |
| VPC-B3002A-Q, VPC-B30039-Q |  |   |   |  |
| VPC-B30049-Q               |  |   |   |  |
| VPC-B2156A-Q, VPC-B2156D-Q |  |   |   |  |
| VPC-B3003A-Q               |  |   |   |  |

(1) For information on maximum cable lengths see the Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#).

Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.

(2) 2198-S263-ERSx and 2198-S312-ERSx single-axis inverters do not support 2090-CSxM1Dx single cables.

(3) Use 2090-CSxM1DE or 2090-CSxM1DG cables with Kinetix 5700 (2198-xxxx-ERSx) servo drives.

(4) IP65 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 single cable.

## Kinetix VPF 200V-class Food Grade Motors

| Motor Cat. No. (200V-class)                       | Drive Cat. No. <sup>(1)</sup>                                       | Feedback Type  | Cable Cat. No. <sup>(2)</sup>   | IP Rating   |
|---|---|--|---|---|
| VPF-A0632F, VPF-A0633C, VPF-A0633F                | 2198-Hxxx-ERS<br>2198-Hxxx-ERS2<br>2198-Dxxx-ERS3<br>2198-Dxxx-ERS4 | Single-turn or Absolute, Multi-turn Digital Encoder<br>• SIL 2/PLd Rated<br>• Hiperface DSL Protocol | 2090-CSBM1Dx-18xAxx or<br>2090-CSWM1Dx-18xAxx (standard, non-flex)<br>2090-CSBM1Dx-18xFxx (continuous-flex) | IP66/IP67 with shaft seal (standard) <sup>(3)</sup> |
| VPF-A0752x, VPF-A0753x                            |   |  |   |   |
| VPF-A1001C, VPF-A1003C                            |   |  |   |   |
| VPF-A1001M, VPF-A1002C, VPF-A1002F                |   |  |   |   |
| VPF-A1003E, VPF-A1003F                            |   |  |   |   |
| VPF-A1153C  |   |  |   |   |
| VPF-A1303B, VPF-A1303F,<br>VPF-A1304A, VPF-A1304D |   |  |   |   |

(1) For information on maximum cable lengths see the Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#).

Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.

(2) Use 2090-CSxM1DF or 2090-CSxM1DG cables with Kinetix 5500 (2198-Hxxx-ERSx) servo drives.

(3) IP66/IP67 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 single cable.

## Kinetix VPF 400V-class Food Grade Motors

| Motor Cat. No. (400V-class)   | Drive Cat. No. <sup>(1)</sup>                                       | Feedback Type  | Cable Cat. No. <sup>(2)</sup>   | IP Rating   |
|---|---|--|---|---|
| VPF-B0632F, VPF-B0632T<br>VPF-B0633M, VPF-B0633T                          | 2198-Hxxx-ERS<br>2198-Hxxx-ERS2<br>2198-Dxxx-ERS3<br>2198-Dxxx-ERS4 | Single-turn or Absolute, Multi-turn Digital Encoder<br>• SIL 2/PLd Rated<br>• Hiperface DSL Protocol | 2090-CSBM1Dx-18xAxx or<br>2090-CSWM1Dx-18xAxx (standard, non-flex)<br>2090-CSBM1Dx-18xFxx (continuous-flex) | IP66/IP67 with shaft seal (standard) <sup>(3)</sup> |
| VPF-B0752E, VPF-B0752F, VPF-B0752M,<br>VPF-B0753E, VPF-B0753F, VPF-B0753M |   |  |   |   |
| VPF-B1001M, VPF-B1002E, VPF-B1003C,<br>VPF-B1003F                         |   |  |   |   |
| VPF-B1153E  |   |  |   |   |
| VPF-B1002M, VPF-B1003T  |   |  |   |   |
| VPF-B1153F  |   |  |   |   |
| VPF-B1303C, VPF-B1303F, VPF-B1304C,<br>VPF-B1304E                         |   |  |   |   |
| VPF-B1652C  |   |  |   |   |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#).

Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.

(2) Use 2090-CSxM1DF or 2090-CSxM1DG cables with Kinetix 5500 (2198-Hxxx-ERSx) servo drives. Use 2090-CSxM1DE or 2090-CSxM1DG cables with Kinetix 5700 (2198-xxxx-ERSx) servo drives.

(3) IP66/IP67 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 single cable.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Single Motor Cables Overview beginning on [page 5](#).

Cable length xx is in meters, 01 (3.3)...50 (164) in 1.0 m (3.3 ft) increments for 2090-CSxM1DF and 2090-CSxM1DG cables, 01 (3.3)...90 (294) in 1.0 m (3.3 ft) increments for 2090-CSxM1DE cables.

Refer to Technical Specifications - Kinetix 2090 Single Motor Cables on [page 12](#).

**Kinetix VPH 200V-class Hygienic Stainless Steel Motors**

| Motor Cat. No. (200V-class)            | Drive Cat. No. <sup>(1)</sup>                                       | Feedback Type   | Cable Cat. No. <sup>(2)</sup>   | IP Rating <sup>(3)</sup>   |
|--|---|---|---|--|
| VPH-A0633F<br>VPH-A0753F               | 2198-Hxxx-ERS<br>2198-Hxxx-ERS2<br>2198-Dxxx-ERS3<br>2198-Dxxx-ERS4 | Single-turn or Absolute,<br>Multi-turn Digital Encoder<br>• SIL 2/PLd Rated<br>• Hiperface DSL Protocol | 2090-CSBM1Dx-18xAxx or<br>2090-CSWM1Dx-18xAxx (standard, non-flex)<br>2090-CSBM1Dx-18xFxx (continuous-flex) | • IP66/IP67 with shaft seal (standard) <sup>(4)</sup><br>• IP69K with shaft seal (standard) <sup>(5)</sup> |
| VPH-A1003F<br>VPH-A1152E<br>VPH-A1153C |   |   | 2090-CSBM1Dx-14xAxx or<br>2090-CSWM1Dx-14xAxx (standard, non-flex)<br>2090-CSBM1Dx-14xFxx (continuous-flex) |  |
| VPH-A1304D                             |   |   |   |  |
|  |   |   |   |  |

- (1) For information on maximum cable lengths see the Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.
- (2) Use 2090-CSxM1DF or 2090-CSxM1DG cables with Kinetix 5500 (2198-Hxxx-ERSx) servo drives.
- (3) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.
- (4) IP66/IP67 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 single cable (includes on-motor cable connector).
- (5) IP69K for 1200 psi motor washdown with shaft seal (standard). Does not include on-motor cable connector.

**Kinetix VPH 400V-class Hygienic Stainless Steel Motors**

| Motor Cat. No. (400V-class) <sup>(1)</sup> | Drive Cat. No. <sup>(2)</sup>                                       | Feedback Type   | Cable Cat. No. <sup>(3)</sup>   | IP Rating <sup>(4)</sup>   |
|--|---|---|---|--|
| VPH-B0632T, VPH-B0633M<br>VPH-B0753F       | 2198-Hxxx-ERS<br>2198-Hxxx-ERS2<br>2198-Dxxx-ERS3<br>2198-Dxxx-ERS4 | Single-turn or Absolute,<br>Multi-turn Digital Encoder<br>• SIL 2/PLd Rated<br>• Hiperface DSL Protocol | 2090-CSBM1Dx-18xAxx or<br>2090-CSWM1Dx-18xAxx (standard, non-flex)<br>2090-CSBM1Dx-18xFxx (continuous-flex) | • IP66/IP67 with shaft seal (standard) <sup>(5)</sup><br>• IP69K with shaft seal (standard) <sup>(6)</sup> |
| VPH-B1001F, VPH-B1003F                     |   |   | 2090-CSBM1Dx-14xAxx or<br>2090-CSWM1Dx-14xAxx (standard, non-flex)<br>2090-CSBM1Dx-14xFxx (continuous-flex) |  |
| VPH-B1152F                                 |   |   |   |  |
| VPH-B1153E                                 |   |   |   |  |
| VPH-B1304E                                 |   |   |   |  |
| VPH-B1653D                                 |   |   |   |  |

- (1) VPH-B100xx and VPH-B1152F frame on-motor cables include 14 AWG conductors and are also compatible with 2090-CSxM1Dx-14xxxx cable.
- (2) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.
- (3) Use 2090-CSxM1DF or 2090-CSxM1DG cables with Kinetix 5500 (2198-Hxxx-ERSx) servo drives. Use 2090-CSxM1DE or 2090-CSxM1DG cables with Kinetix 5700 (2198-xxxx-ERSx) servo drives.
- (4) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.
- (5) IP66/IP67 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 single cable (includes on-motor cable connector).
- (6) IP69K for 1200 psi motor washdown with shaft seal (standard). Does not include on-motor cable connector.

**Kinetix VPS 400V-class Stainless Steel Motors**

| Motor Cat. No. | Drive Cat. No. <sup>(1)</sup>                                       | Feedback Type  | Cable Cat. No. <sup>(2)</sup>   | IP Rating <sup>(3)</sup>   |
|----------------|---|--|---|--|
| VPS-B1304D     | 2198-Hxxx-ERS<br>2198-Hxxx-ERS2<br>2198-Dxxx-ERS3<br>2198-Dxxx-ERS4 | Absolute, Multi-turn<br>Digital Encoder with<br>Hiperface DSL Protocol | 2090-CSWM1Dx-14xAxx (standard, non-flex)<br>2090-CSBM1Dx-14xFxx (continuous-flex) | • IP66/IP67 with shaft seal and slinger (standard) <sup>(4)</sup><br>• IP69K with shaft seal and slinger (standard) <sup>(5)</sup> |
| VPS-B1653D     |   |  |   |  |

- (1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.
- (2) Use 2090-CSxM1DF or 2090-CSxM1DG cables with Kinetix 5500 (2198-Hxxx-ERSx) servo drives. Use 2090-CSxM1DE or 2090-CSxM1DG cables with Kinetix 5700 (2198-xxxx-ERSx) servo drives.
- (3) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.
- (4) IP66/IP67 with shaft seal and slinger (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 single cable (includes on-motor cable connector).
- (5) IP69K for 1200 psi motor washdown with shaft seal and slinger (standard). Does not include on-motor cable connector.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Single Motor Cables Overview beginning on [page 5](#). Cable length xx is in meters, 01 (3.3)...50 (164) in 1.0 m (3.3 ft) increments for 2090-CSxM1DF and 2090-CSxM1DG cables, 01 (3.3)...90 (294) in 1.0 m (3.3 ft) increments for 2090-CSxM1DE cables. Refer to Technical Specifications - Kinetix 2090 Single Motor Cables on [page 12](#).

## Kinetix VPAR 200V-class Electric Cylinders

| Actuator Cat. No. <sup>(1)</sup> | Drive Cat. No. <sup>(2)</sup>   | Feedback Type  | Cable Cat. No. <sup>(3)</sup>   | IP Rating  |
|----------------------------------|---------------------------------|--|---|--|
| VPAR-A1xxxx-P<br>VPAR-A2xxxxC-P  | 2198-Hxxx-ERS<br>2198-Hxxx-ERS2 | Absolute, Multi-turn<br>Digital Encoder with<br>HiPerface DSL Protocol | 2090-CSBM1Dx-18xAxx or<br>2090-CSWM1Dx-18xAxx (standard, non-flex)<br>2090-CSBM1Dx-18xFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP40 <sup>(4)</sup></li> <li>• IP66 <sup>(5)</sup></li> </ul> |
| VPAR-A2xxxxF-P<br>VPAR-A3xxxx-P  |                                 |  | 2090-CSBM1Dx-14xAxx or<br>2090-CSWM1Dx-14xAxx (standard, non-flex)<br>2090-CSBM1Dx-14xFxx (continuous-flex) |  |

(1) Encoder option for VPAR-Axxxx electric cylinders is -P (absolute multi-turn digital encoder, HiPerface DSL protocol) only.

(2) For information on maximum cable lengths see Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#).

Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.

(3) Use 2090-CSxM1DF or 2090-CSxM1DG cables with Kinetix 5500 (2198-Hxxx-ERSx) servo drives. Use 2090-CSxM1DE or 2090-CSxM1DG cables with Kinetix 5700 (2198-xxxx-ERSx) servo drives.

(4) IP40 applies to complete Kinetix VPAR unit, including rod-end seal and breather port.

(5) IP66 (in static condition only) for electronic components with the use of Rockwell Automation factory-delivered Kinetix 2090 single cable.

## Kinetix VPAR 400V-class Electric Cylinders

| Actuator Cat. No. <sup>(1)</sup> | Drive Cat. No. <sup>(2)</sup>   | Feedback Type                           | Cable Cat. No. <sup>(3)</sup>   | IP Rating  |
|----------------------------------|---------------------------------|---|---|--|
| VPAR-B1xxxx-x<br>VPAR-B2xxxx-x   | 2198-Hxxx-ERS<br>2198-Hxxx-ERS2 | Absolute, Multi-turn<br>Digital Encoder | 2090-CSBM1Dx-18xAxx or<br>2090-CSWM1Dx-18xAxx (standard, non-flex)<br>2090-CSBM1Dx-18xFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP40 <sup>(4)</sup></li> <li>• IP66 <sup>(5)</sup></li> </ul> |
| VPAR-B3xxxx-x                    |                                 |   | 2198-Dxxx-ERS3<br>2198-Dxxx-ERS4  |  |

(1) Encoder options for VPAR-Bxxxx electric cylinders are -Q and -W (absolute multi-turn digital encoder, HiPerface DSL protocol) SIL 2 (PLd) rated, and -P (absolute multi-turn digital encoder, HiPerface DSL protocol).

(2) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#).

Not all drive/motor combinations are possible. See [Additional Resources](#) on [page 77](#) for the drive system design guide or Motion Analyzer software for drive/motor performance specifications.

(3) Use 2090-CSxM1DF or 2090-CSxM1DG cables with Kinetix 5500 (2198-Hxxx-ERSx) servo drives. Use 2090-CSxM1DE or 2090-CSxM1DG cables with Kinetix 5700 (2198-xxxx-ERSx) servo drives.

(4) IP40 applies to complete Kinetix VPAR unit, including rod-end seal and breather port.

(5) IP66 (in static condition only) for electronic components with the use of Rockwell Automation factory-delivered Kinetix 2090 single cable.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Single Motor Cables Overview beginning on [page 5](#).

Cable length xx is in meters, 01 (3.3)...50 (164) in 1.0 m (3.3 ft) increments for 2090-CSxM1DF and 2090-CSxM1DG cables, 01 (3.3)...90 (294) in 1.0 m (3.3 ft) increments for 2090-CSxM1DE cables.

Refer to Technical Specifications - Kinetix 2090 Single Motor Cables on [page 12](#).



## Technical Specifications - Kinetix 2090 Single Motor Cables

**IMPORTANT** Maximum motor cable length depends on the feedback type and overall system design. The drive-system power supply, AC input-power type, and AC input voltage are among the configuration variables. For more information on maximum cable lengths see your servo drive user manual or the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

### 2090-CSxM1DE Cable Specifications

| Cable Cat. No.      | Cable Type/<br>Jacket Color  | Description   | Wire Size<br>AWG | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)                    |
|---------------------|--|---|------------------|--------------------------------|---|
| 2090-CSBM1DE-18AAxx | Standard (non-flex) cable,<br>Industrial TPE, Orange<br>(DESINA, RAL 2003) | 1000V hybrid cable with four power,<br>two feedback (digital communication),<br>and two brake conductors. | 18               | 0.212 (0.143)                  | 01 (3.3)...90 (295)<br>in 1.0 m (3.3 ft) increments |
| 2090-CSBM1DE-14AAxx |  |   | 14               | 0.261 (0.175)                  |   |
| 2090-CSWM1DE-18AAxx |  | 1000V hybrid cable with four power and<br>two feedback (digital communication)<br>conductors.             | 18               | 0.136 (0.091)                  |   |
| 2090-CSWM1DE-14AAxx |  |   | 14               | 0.185 (0.124)                  |   |
| 2090-CSBM1DE-18AFxx | Continuous-flex cable,<br>Industrial TPE, Orange<br>(DESINA, RAL 2003)     | 1000V hybrid cable with four power,<br>two feedback (digital communication),<br>and two brake conductors. | 18               | 0.228 (0.153)                  |   |
| 2090-CSBM1DE-14AFxx |  |   | 14               | 0.289 (0.194)                  |   |
| 2090-CSBM1DE-10AFxx |  |   | 10               | 0.551 (0.370)                  |   |
| 2090-CSBM1DE-08AFxx |  |   | 8                | 1.0 (0.67)                     |   |
| 2090-CSBM1DE-06AFxx |  |   | 6                | 1.2 (0.80)                     |   |
| 2090-CSBM1DE-18VAxx | Standard (non-flex) cable,<br>PVC, Orange<br>(DESINA, RAL 2003)            | 1000V hybrid cable with four power,<br>two feedback (digital communication),<br>and two brake conductors. | 18               | 0.248 (0.167)                  | 51 (167)...90 (295)<br>in 1.0 m (3.3 ft) increments |
| 2090-CSBM1DE-14VAxx |  |   | 14               | 0.336 (0.226)                  |   |
| 2090-CSBM1DE-10VAxx |  |   | 10               | 0.514 (0.345)                  |   |
| 2090-CSBM1DE-08VAxx |  | 1000V hybrid cable with four power and<br>two feedback (digital communication)<br>conductors.             | 8                | 0.785 (0.527)                  | 01 (3.3)...90 (295)<br>in 1.0 m (3.3 ft) increments |
| 2090-CSBM1DE-06VAxx |  |   | 6                | 1.11 (0.75)                    |   |
| 2090-CSWM1DE-18VAxx |  |   | 18               | 0.222 (0.149)                  |   |
| 2090-CSWM1DE-14VAxx | 14   | 0.264 (0.177)   |                  |                                |   |
| 2090-CSBM1DE-18LFxx | Continuous-flex cable,<br>PUR, Orange<br>(DESINA, RAL 2003)                | 1000V hybrid cable with four power,<br>two feedback (digital communication),<br>and two brake conductors. | 18               | 0.239 (0.160)                  | 51 (167)...90 (295)<br>in 1.0 m (3.3 ft) increments |
| 2090-CSBM1DE-14LFxx |  |   | 14               | 0.317 (0.213)                  |   |
| 2090-CSBM1DE-10LFxx |  |   | 10               | 0.489 (0.329)                  |   |
| 2090-CSBM1DE-08LFxx |  |   | 8                | 0.76 (0.511)                   | 01 (3.3)...90 (295)<br>in 1.0 m (3.3 ft) increments |
| 2090-CSBM1DE-06LFxx |  |   |                  | 6                              |   |



## 2090-CSxM1DF/DG Cable Specifications

| Cable Cat. No.  | Cable Type/<br>Jacket Color  | Description   | Wire Size<br>AWG | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)                                   |
|---|--|---|------------------|--------------------------------|--|
| 2090-CSBM1DF-18AAxx<br>2090-CSBM1DG-18AAxx                        | Standard (non-flex) cable,<br>Industrial TPE, Orange<br>(DESINA, RAL 2003) | 1000V hybrid cable with four power,<br>two feedback (digital communication),<br>and two brake conductors. | 18               | 0.212 (0.143)                  | 01 (3.3)...50 (164)<br>in 1.0 m (3.3 ft) increments                |
| 2090-CSBM1DF-14AAxx<br>2090-CSBM1DG-14AAxx                        |  |   | 14               | 0.261 (0.175)                  |  |
| 2090-CSWM1DF-18AAxx<br>2090-CSWM1DG-18AAxx                        |  | 1000V hybrid cable with four power and<br>two feedback (digital communication)<br>conductors.             | 18               | 0.136 (0.091)                  |  |
| 2090-CSWM1DF-14AAxx<br>2090-CSWM1DG-14AAxx                        |  |   | 14               | 0.185 (0.124)                  |  |
| 2090-CSBM1DF-18AFxx<br>2090-CSBM1DG-18AFxx                        | Continuous-flex cable,<br>Industrial TPE, Orange<br>(DESINA, RAL 2003)     | 1000V hybrid cable with four power,<br>two feedback (digital communication),<br>and two brake conductors. | 18               | 0.228 (0.153)                  | 01 (3.3)...50 (164) <sup>(1)</sup><br>in 1.0 m (3.3 ft) increments |
| 2090-CSBM1DF-14AFxx<br>2090-CSBM1DG-14AFxx                        |  |   | 14               | 0.289 (0.194)                  |  |
| 2090-CSBM1DF-10AFxx<br>2090-CSBM1DG-10AFxx                        |  |   | 10               | 0.551 (0.370)                  |  |
| 2090-CSBM1DG-18VAxx<br>2090-CSBM1DG-14VAxx<br>2090-CSBM1DG-10VAxx | Standard (non-flex) cable,<br>PVC, Orange<br>(DESINA, RAL 2003)            | 1000V hybrid cable with four power,<br>two feedback (digital communication),<br>and two brake conductors. | 18               | 0.248 (0.167)                  | 01 (3.3)...50 (164)<br>in 1.0 m (3.3 ft) increments                |
| 2090-CSBM1DG-18VAxx   |  |   | 14               | 0.336 (0.226)                  |  |
| 2090-CSWM1DG-18VAxx<br>2090-CSWM1DG-14VAxx                        |  | 1000V hybrid cable with four power and<br>two feedback (digital communication)<br>conductors.             | 18               | 0.222 (0.149)                  |  |
| 2090-CSWM1DG-14VAxx   |  |   | 14               | 0.264 (0.177)                  |  |
| 2090-CSBM1DG-18LFxx<br>2090-CSBM1DG-14LFxx<br>2090-CSBM1DG-10LFxx | Continuous-flex cable,<br>PUR, Orange<br>(DESINA, RAL 2003)                | 1000V hybrid cable with four power,<br>two feedback (digital communication),<br>and two brake conductors. | 18               | 0.239 (0.160)                  | 01 (3.3)...50 (164) <sup>(1)</sup><br>in 1.0 m (3.3 ft) increments |
|   |  |   | 14               | 0.317 (0.213)                  |  |
|   |  |   | 10               | 0.489 (0.329)                  |  |

(1) Applies to all Kinetix 5500 (frame 2 and 3) drives. For Kinetix 5500 (frame 1) drives in continuous-flex applications, 30 m (98 ft) is maximum cable length.

## Single Extension Cable Specifications

| Extension Cable <sup>(1)</sup><br>Cat. No.  | Cable Type/<br>Jacket Color  | Description  | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)                     |
|---|--|--|--------------------------------|--|
| 2090-CSBM1E1-18AFxx<br>2090-CSBM1E1-14AFxx<br>2090-CSBM1E1-10AFxx<br>2090-CSBM1E1-08AFxx<br>2090-CSBM1E1-06AFxx | Continuous-flex cable,<br>Industrial TPE, Orange<br>(DESINA, RAL 2003) | SpeedTec DIN connector plug on motor end to SpeedTec<br>DIN receptacle for mating with Kinetix 2090 standard,<br>power/brake/feedback cable, 600V. | 0.228 (0.153)                  | 01 (3.3)...30 (98.4)<br>in 1.0 m (3.3 ft) increments |
|   |  |  | 0.289 (0.194)                  |  |
|   |  |  | 0.551 (0.370)                  |  |
|   |  |  | 1.0 (0.67)                     |  |
|   |  |  | 1.2 (0.80)                     |  |
| 2090-CSBM1E1-18VAxx<br>2090-CSBM1E1-14VAxx<br>2090-CSBM1E1-10VAxx<br>2090-CSBM1E1-08VAxx<br>2090-CSBM1E1-06VAxx | Standard (non-flex)<br>cable, PVC, Orange<br>(DESINA, RAL 2003)        | SpeedTec DIN connector plug on motor end to SpeedTec<br>DIN receptacle for mating with Kinetix 2090 power/brake/<br>feedback cable.                | 0.248 (0.167)                  | 01 (3.3)...30 (98.4)<br>in 1.0 m (3.3 ft) increments |
|   |  |  | 0.336 (0.226)                  |  |
|   |  |  | 0.514 (0.345)                  |  |
|   |  |  | 0.785 (0.527)                  |  |
|   |  |  | 1.11 (0.75)                    |  |
| 2090-CSBM1E1-18LFxx<br>2090-CSBM1E1-14LFxx<br>2090-CSBM1E1-10LFxx<br>2090-CSBM1E1-08LFxx<br>2090-CSBM1E1-06LFxx | Continuous-flex cable,<br>PUR, Orange<br>(DESINA, RAL 2003)            |  | 0.239 (0.160)                  |  |
|   |  |  | 0.317 (0.213)                  |  |
|   |  |  | 0.489 (0.329)                  |  |
|   |  |  | 0.76 (0.511)                   |  |
|   |  |  | 1.08 (0.73)                    |  |

(1) 2090-CSBM1E1-xxAFxx extension cables are UL Listed, bulk cable, type PLTC-ER.

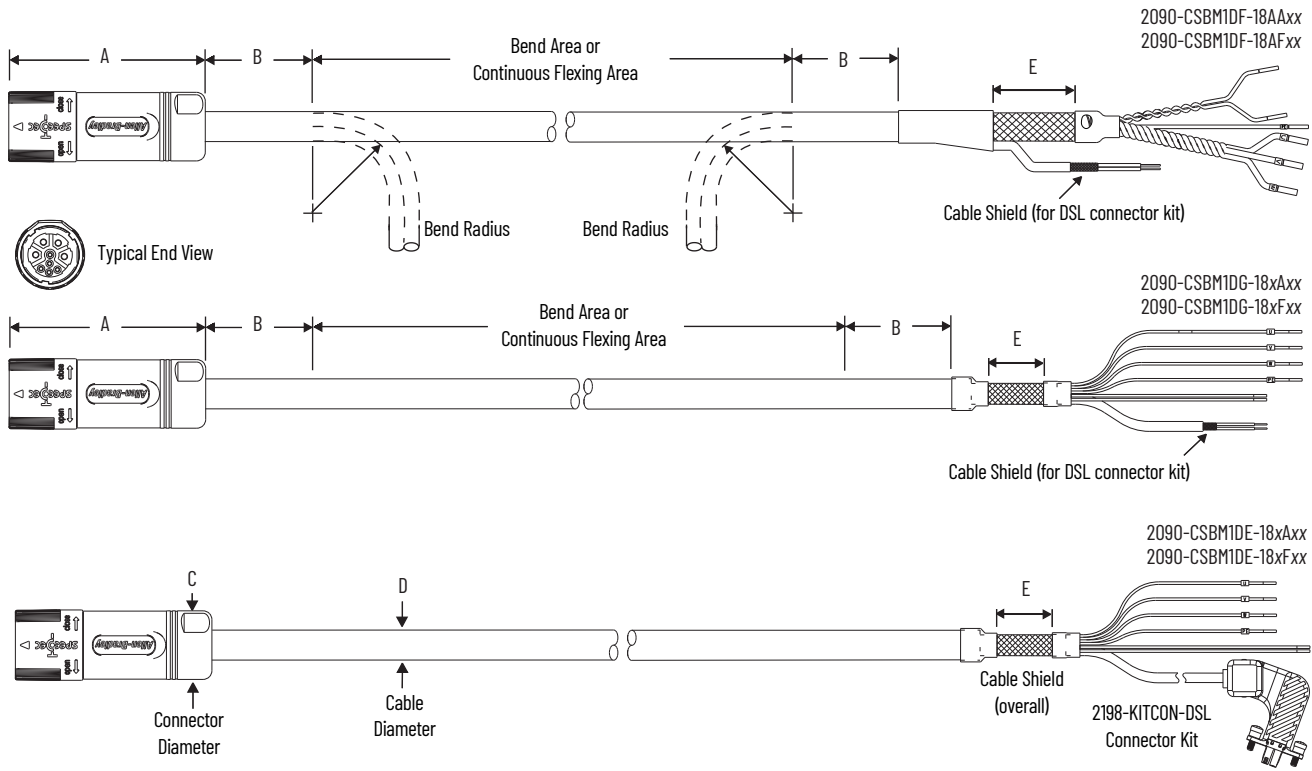
# Dimensions - Kinetix 2090 Single Motor Cables

When installing single 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.

## Single Cable Bend Radius Definitions

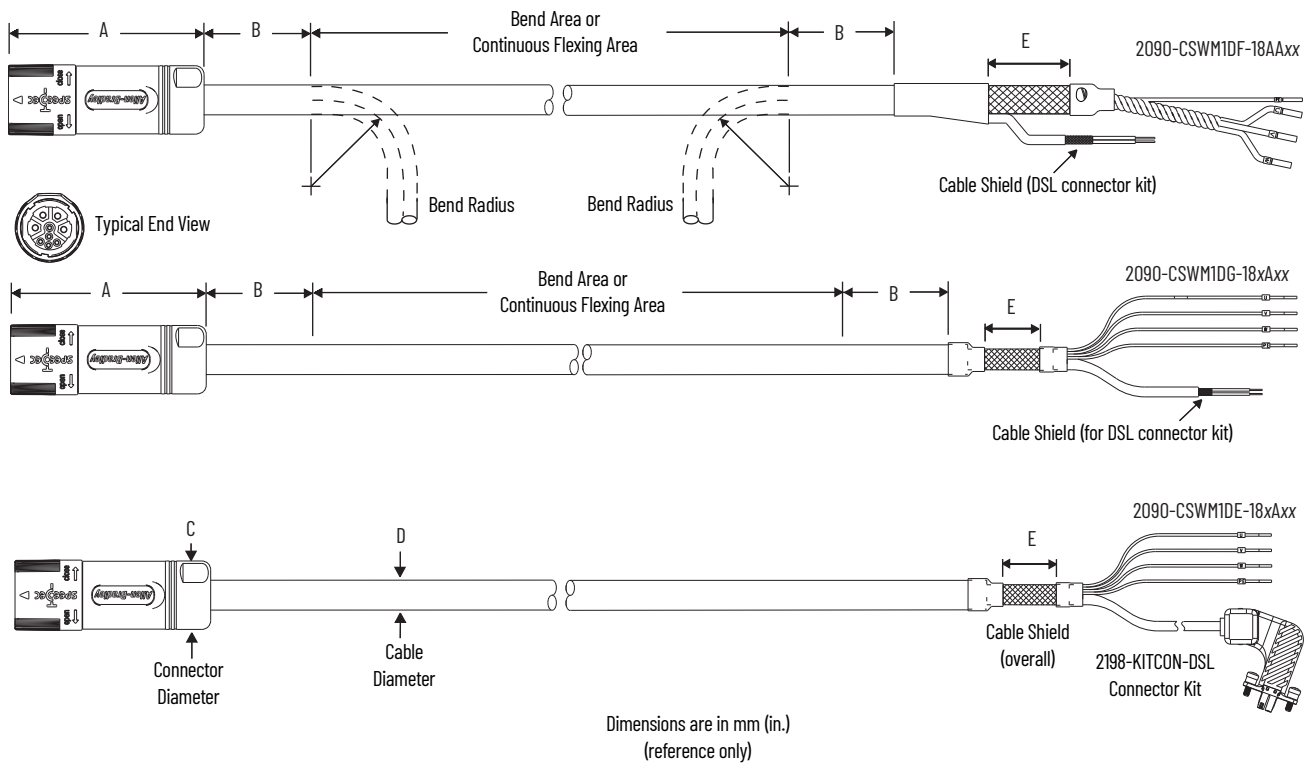
| Type of Bend Radius    | Type of Cable       | Description   |
|------------------------|---------------------|---|
| Static bend radius     | Standard (non-flex) | The static (installation) bend radius and dimension B is: <ul style="list-style-type: none"> <li>• 7 times the cable diameter for 2090-CSBM1xx-xxAA/AFxx cables</li> <li>• 5 times the cable diameter for 2090-CSBM1xx-xxVA/LFxx cables</li> <li>• Do not begin a static bend inside dimension B.</li> <li>• Use this measurement when routing the cable in a non-flex application between motor and drive (the bend area).</li> <li>• The bend area is where standard (non-flex) or continuous-flex cables can be bent to their specified bend radius.</li> </ul>  |
|                        | Continuous flex     |   |
| Continuous bend radius | Continuous flex     | The continuous bend radius for Kinetix 2090 single motor cables is: <ul style="list-style-type: none"> <li>• 10 times the cable diameter for 2090-CSBM1xx-xxAFxx cables</li> <li>• 7 times the cable diameter for 2090-CSBM1xx-xxLFxx cables</li> <li>• Secure the continuous-flexing area, the recommended 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. Refer to the cable carrier manufacturer's recommendations for procedure and dimensions related to flexing applications.</li> <li>• Use this measurement when routing the cable in a continuous-flex application between motor and drive (the continuous-flexing area).</li> <li>• The continuous flexing area is where continuous-flex cables can be flexed repeatedly.</li> <li>• Install the cable along the neutral axis to make sure that the cable is not in contact with the inner radius of the cable carrier while flexing.</li> </ul> |

## Single Motor Cable Dimensions (18 AWG) Brake



Dimensions are in mm (in.)  
(reference only)

Single Motor Cable Dimensions (18 AWG) Without Brake

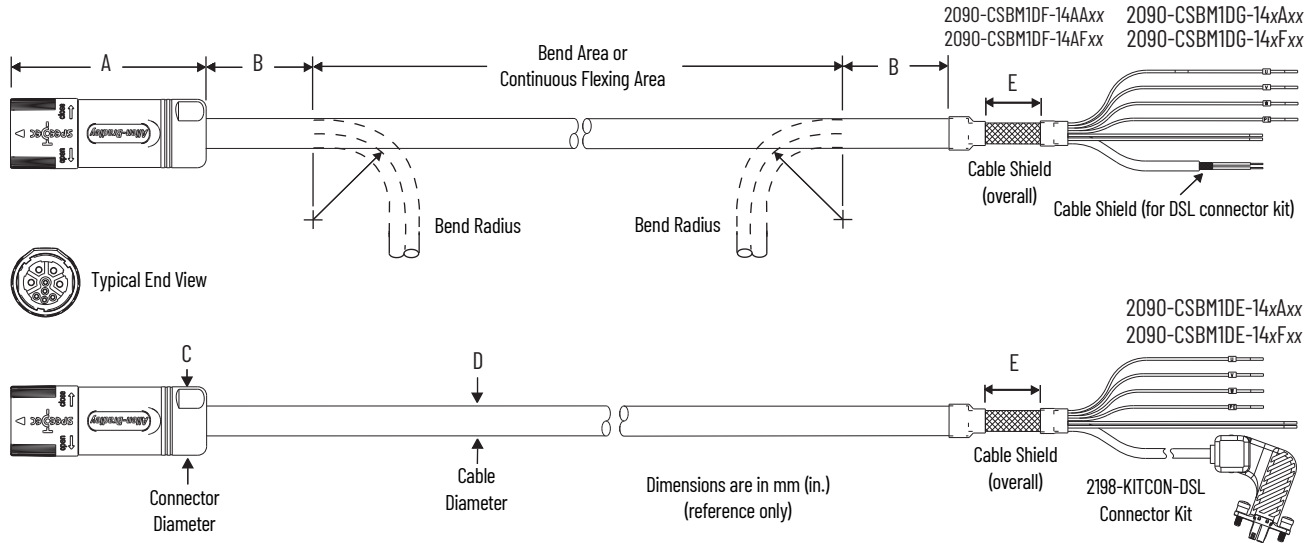


Single Motor Cable Dimensions (18 AWG)

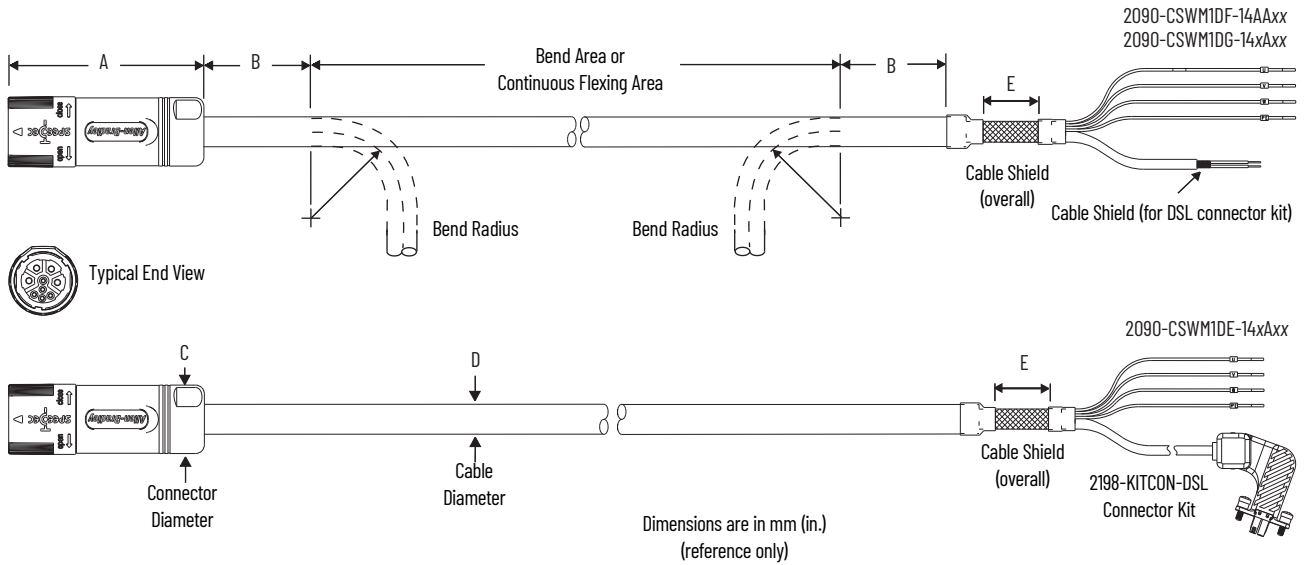
| Cable Cat. No.      | A mm (in.) | B (1) mm (in.) | Continuous Bend Radius (1) mm (in.) | C mm (in.) | D mm (in.)  | E mm (in.) |
|---------------------|------------|----------------|-------------------------------------|------------|-------------|------------|
| 2090-CSBM1DF-18AAxx | 81.0 (3.2) | 105 (4.1)      | -                                   | 28.0 (1.1) | 15.0 (0.59) | 41.0 (1.6) |
| 2090-CSBM1DE-18AAxx |            |                |                                     |            |             | 71.0 (2.8) |
| 2090-CSBM1DG-18AAxx |            |                |                                     |            |             | 41.0 (1.6) |
| 2090-CSWM1DF-18AAxx |            |                |                                     |            |             | 71.0 (2.8) |
| 2090-CSWM1DE-18AAxx |            |                |                                     |            |             | 41.0 (1.6) |
| 2090-CSWM1DG-18AAxx |            |                |                                     |            |             | 71.0 (2.8) |
| 2090-CSBM1DF-18AFxx |            |                |                                     |            |             | 41.0 (1.6) |
| 2090-CSBM1DE-18AFxx |            |                |                                     |            |             | 71.0 (2.8) |
| 2090-CSBM1DG-18AFxx | 81.0 (3.2) | 92.4 (3.6)     | -                                   | 28.0 (1.1) | 13.2 (0.52) | 71. (2.8)  |
| 2090-CSBM1DE-18VAxx |            |                |                                     |            |             |            |
| 2090-CSBM1DG-18VAxx |            |                |                                     |            |             |            |
| 2090-CSWM1DE-18VAxx |            |                |                                     |            |             |            |
| 2090-CSWM1DG-18VAxx |            |                |                                     |            |             |            |
| 2090-CSBM1DE-18LFxx | 92.4 (3.6) | 92.4 (3.6)     | 92.4 (3.6)                          | 28.0 (1.1) | 13.2 (0.52) | 71. (2.8)  |
| 2090-CSBM1DG-18LFxx |            |                |                                     |            |             |            |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to Single Cable Bend Radius Definitions on page 14 for more information.

**Single Motor Cable Dimensions (14 AWG) Brake**



**Single Motor Cable Dimensions (14 AWG) Without Brake**



**Single Motor Cable Dimensions (14 AWG)**

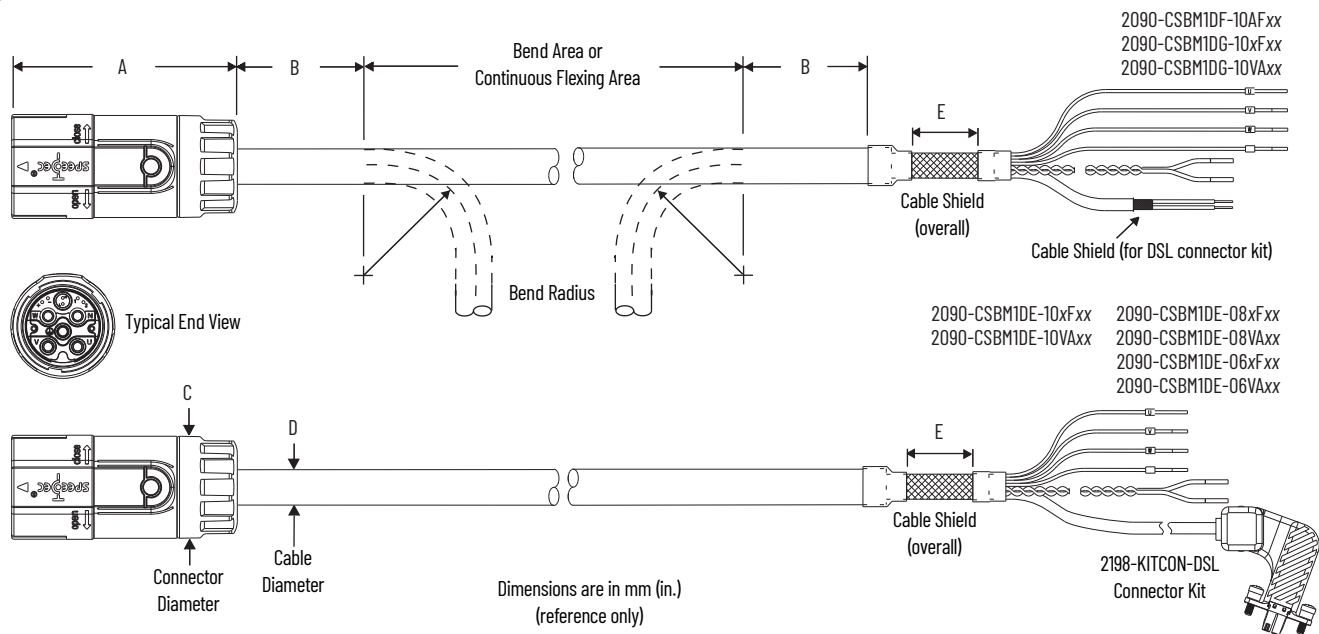
| Cable Cat. No.                       | A<br>mm (in.) | B (1)<br>mm (in.) | Continuous Bend Radius (1)<br>mm (in.) | C<br>mm (in.) | D<br>mm (in.) | E<br>mm (in.) |            |
|--------------------------------------|---------------|-------------------|--|---------------|---------------|---------------|------------|
| 2090-CSBM1DF-14AAxx                  | 81.0 (3.2)    | 105 (4.1)         | -                                      | 28.0 (1.1)    | 15.0 (0.59)   | 41.0 (1.6)    |            |
| 2090-CSBM1DE-14AAxx (series A)       |               | 105 (4.1)         |  |               | 15.0 (0.59)   | 71.0 (2.8)    |            |
| 2090-CSBM1DE-14AAxx (series B)       |               | 114 (4.5)         |  |               | 16.3 (0.64)   |               |            |
| 2090-CSBM1DG-14AAxx                  |               | 105 (4.1)         |  |               | -             |               | 41.0 (1.6) |
| 2090-CSWM1DF-14AAxx                  |               |                   |  |               |               | 71.0 (2.8)    |            |
| 2090-CSWM1DE-14AAxx                  |               |                   |  |               |               | 71.0 (2.8)    |            |
| 2090-CSWM1DG-14AAxx                  |               | 119 (4.7)         | 170 (6.7)                              |               | -             | 41.0 (1.6)    |            |
| 2090-CSBM1DF-14AFxx                  |               |                   |  |               |               | 17.0 (0.67)   | 71.0 (2.8) |
| 2090-CSBM1DE-14AFxx (series A and B) |               |                   |  |               |               |               | 71.0 (2.8) |
| 2090-CSBM1DG-14AFxx                  |               |                   |  |               |               |               |            |

Single Motor Cable Dimensions (14 AWG) (Continued)

| 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-CSBM1DE-14VAxx | 81 (3.2)   | 106.4 (4.2)    | N/A                                 | 28 (1.1)   | 15.2 (0.60) | 71 (2.8)   |
| 2090-CSBM1DG-14VAxx |            | 91 (3.6)       |                                     |            | 13 (0.51)   |            |
| 2090-CSWM1DE-14VAxx |            | 106.4 (4.2)    | 106.4 (4.2)                         |            | 15.2 (0.60) |            |
| 2090-CSWM1DG-14VAxx |            |                |                                     |            |             |            |
| 2090-CSBM1DE-14LFxx |            |                |                                     |            |             |            |
| 2090-CSBM1DG-14LFxx |            |                |                                     |            |             |            |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to Single Cable Bend Radius Definitions on page 14 for more information.

Single Motor Cable Dimensions (10, 8, and 6 AWG)



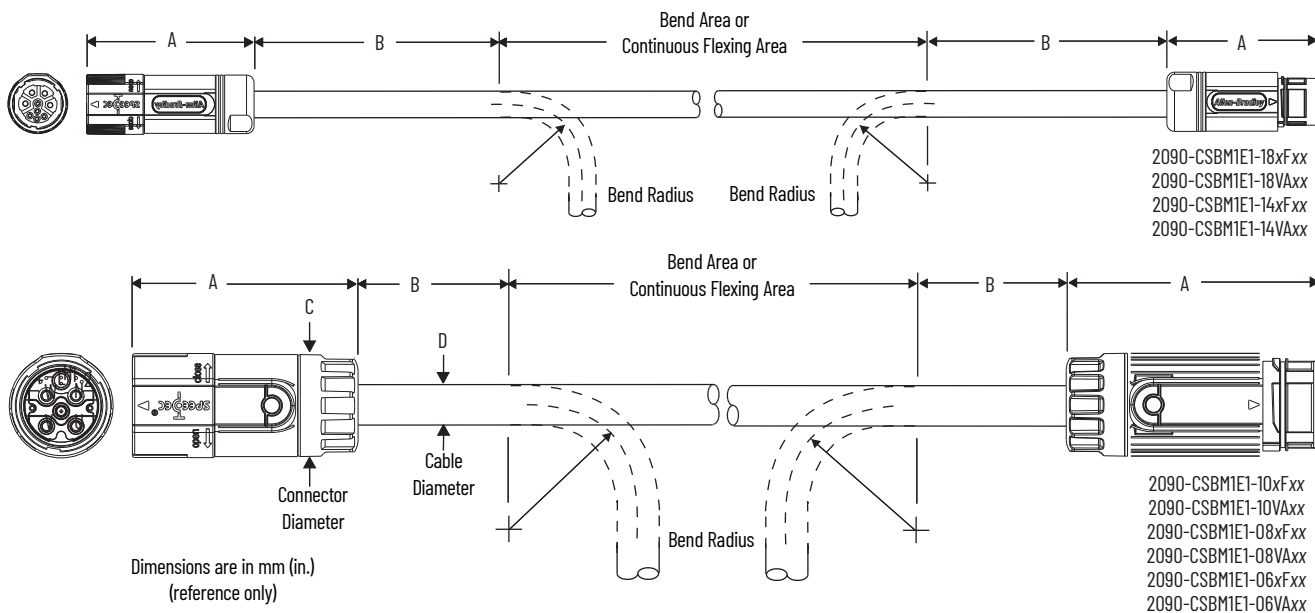
Single Motor Cable Dimensions (10, 8, and 6 AWG)

| 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-CSBM1DF-10AFxx            | 100 (4.0)  | 133 (5.2)      | 190 (7.5)                           | 46 (1.8)   | 19.0 (0.75) | 50.8 (2.0) |
| 2090-CSBM1DG-10AFxx            |            | 142 (5.6)      | 203 (8.0)                           |            | 20.3 (0.80) | 71.0 (2.8) |
| 2090-CSBM1DE-10AFxx (series A) |            |                |                                     |            | 25.0 (0.98) |            |
| 2090-CSBM1DE-10AFxx (series B) |            | 200 (8.0)      | 250 (10.0)                          |            |             |            |
| 2090-CSBM1DE-08AFxx            |            |                |                                     |            |             |            |
| 2090-CSBM1DE-06AFxx            |            |                |                                     |            |             |            |
| 2090-CSBM1DG-10VAxx            | 100 (4.0)  | 126 (5.0)      | —                                   | 46 (1.8)   | 18.0 (0.71) | 76.3 (3.0) |
| 2090-CSBM1DG-10LFxx            |            |                | 126 (5.0)                           |            |             | 71.0 (2.8) |
| 2090-CSBM1DE-10VAxx            |            |                | —                                   |            |             |            |
| 2090-CSBM1DE-10LFxx            |            |                | 126 (5.0)                           |            |             |            |
| 2090-CSBM1DE-08VAxx            |            | 151.2 (5.9)    | —                                   |            | 21.6 (0.85) | 89.0 (3.5) |
| 2090-CSBM1DE-08LFxx            |            |                | 151.2 (5.9)                         |            |             |            |
| 2090-CSBM1DE-06VAxx            |            | 168 (6.6)      | —                                   |            | 24.0 (0.94) | 89.0 (3.5) |
| 2090-CSBM1DE-06LFxx            |            |                | 168 (6.6)                           |            |             |            |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to Single Cable Bend Radius Definitions on page 14 for more information.

# Dimensions - Single Extension Cables

## Extension Cable Dimensions



## Extension Cable Dimensions

| Extension Cable Cat. No.             | A mm (in.) | B (1) mm (in.) | Continuous Bend Radius (1) mm (in.) | C mm (in.) | D mm (in.)  |
|--------------------------------------|------------|----------------|-------------------------------------|------------|-------------|
| 2090-CSBM1E1-18AFxx                  | 81.0 (3.2) | 105 (4.1)      | 150 (5.9)                           | 28 (1.1)   | 15.0 (0.59) |
| 2090-CSBM1E1-18LFxx                  |            | 92.4 (3.6)     | 92.4 (3.6)                          |            | 13.2 (0.52) |
| 2090-CSBM1E1-18VAxx                  |            | -              | -                                   |            | -           |
| 2090-CSBM1E1-14AFxx (series A and B) |            | 119 (4.7)      | 170 (6.7)                           |            | 17.0 (0.67) |
| 2090-CSBM1E1-14LFxx                  |            | 106.4 (4.2)    | 106.4 (4.2)                         |            | 15.2 (0.60) |
| 2090-CSBM1E1-14VAxx                  |            | -              | -                                   |            | -           |
| 2090-CSBM1E1-10AFxx (series A)       | 100 (4.0)  | 133 (5.2)      | 190 (7.5)                           | 46 (1.8)   | 19.0 (0.75) |
| 2090-CSBM1E1-10AFxx (series B)       |            | 142 (5.6)      | 203 (8.0)                           |            | 20.3 (0.80) |
| 2090-CSBM1E1-10LFxx                  |            | 126 (5.0)      | 126 (5.0)                           |            | 18.0 (0.70) |
| 2090-CSBM1E1-10VAxx                  |            | -              | -                                   |            | -           |
| 2090-CSBM1E1-08AFxx                  |            | 200 (8.0)      | 250 (10.0)                          |            | 25.0 (0.98) |
| 2090-CSBM1E1-08LFxx                  |            | 151.2 (5.9)    | 151.2 (5.9)                         |            | 21.6 (0.85) |
| 2090-CSBM1E1-08VAxx                  |            | -              | -                                   |            | -           |
| 2090-CSBM1E1-06AFxx                  |            | 200 (8.0)      | 250 (10.0)                          |            | 25.0 (0.98) |
| 2090-CSBM1E1-06LFxx                  |            | 168 (6.6)      | 168 (6.6)                           |            | 24.0 (0.94) |
| 2090-CSBM1E1-06VAxx                  |            | -              | -                                   |            | -           |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to Single Cable Bend Radius Definitions on [page 14](#) for more information.

## Kinetix 2090 Single Cable Bulkhead Adapter Kits

These bulkhead adapter kits let you secure your single cables as they pass through the cabinet. For bulkhead adapter dimensions, see Bulkhead Adapter Kit Dimensions on [page 56](#).

### Kinetix 2090 Single Motor Cable Compatibility

| Bulkhead Adapter Cat. No. | Standard (non-flex) <sup>(1)</sup><br>Power Cable Cat. No. | Continuous-flex <sup>(1)</sup><br>Power Cable Cat. No. | Description              |              | Connector Diameter<br>mm (in.) |
|---------------------------|--|--|--------------------------|--------------|--------------------------------|
| 2090-KPB47-12CF           | 2090-CSWM1DE/DG-18xAxx<br>2090-CSWM1DF-18AAxx              | 2090-CSWM1DE/DG-18xFxx<br>2090-CSWM1DF-18AFxx          | Power/feedback           | SpeedTec DIN | 28.0 (1.1)                     |
|                           | 2090-CSWM1DE/DG-14xAxx<br>2090-CSWM1DF-14AAxx              | 2090-CSWM1DE/DG-14xFxx<br>2090-CSWM1DF-14AFxx          |                          |              |                                |
|                           | 2090-CSBM1DE/DG-18xAxx<br>2090-CSBM1DF-18AAxx              | 2090-CSBM1DE/DG-18xFxx<br>2090-CSBM1DF-18AFxx          | Power/brake/<br>feedback |              |                                |
|                           | 2090-CSBM1DE/DG-14xAxx<br>2090-CSBM1DF-14AAxx              | 2090-CSBM1DE/DG-14xFxx<br>2090-CSBM1DF-14AFxx          |                          |              |                                |
|                           | 2090-CSBM1E1-18VAxx  | 2090-CSBM1E1-18xFxx                                    |                          |              |                                |
|                           | 2090-CSBM1E1-14VAxx  | 2090-CSBM1E1-14xFxx                                    |                          |              |                                |
| 2090-KPB47-06CF           | 2090-CSBM1DE/DG-10xAxx<br>2090-CSBM1DF-10AAxx              | 2090-CSBM1DE/DG-10xFxx<br>2090-CSBM1DF-10AFxx          | Power/brake/<br>feedback | SpeedTec DIN | 46.0 (1.8)                     |
|                           | 2090-CSBM1DE-08VAxx  | 2090-CSBM1DE-08xFxx                                    |                          |              |                                |
|                           | 2090-CSBM1DE-06VAxx  | 2090-CSBM1DE-06xFxx                                    |                          |              |                                |
|                           | 2090-CSBM1E1-10VAxx  | 2090-CSBM1E1-10xFxx                                    |                          |              |                                |
|                           | 2090-CSBM1E1-08VAxx  | 2090-CSBM1E1-08xFxx                                    |                          |              |                                |
|                           | 2090-CSBM1E1-06VAxx  | 2090-CSBM1E1-06xFxx                                    |                          |              |                                |

(1) Cable catalog numbers extended with DF/DE/DG reflects 2090-CSxM1DF, 2090-CSxM1DE, and 2090-CSxM1DG cables.

# Kinetix Motor Power and Feedback Cables

A wide variety of power and feedback 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 in Kinetix 3, 300, 350, 2000, 6000, 6200, 6500, 7000 Servo Drives Specifications, publication [KNX-TD005](#) for catalog numbers and descriptions.

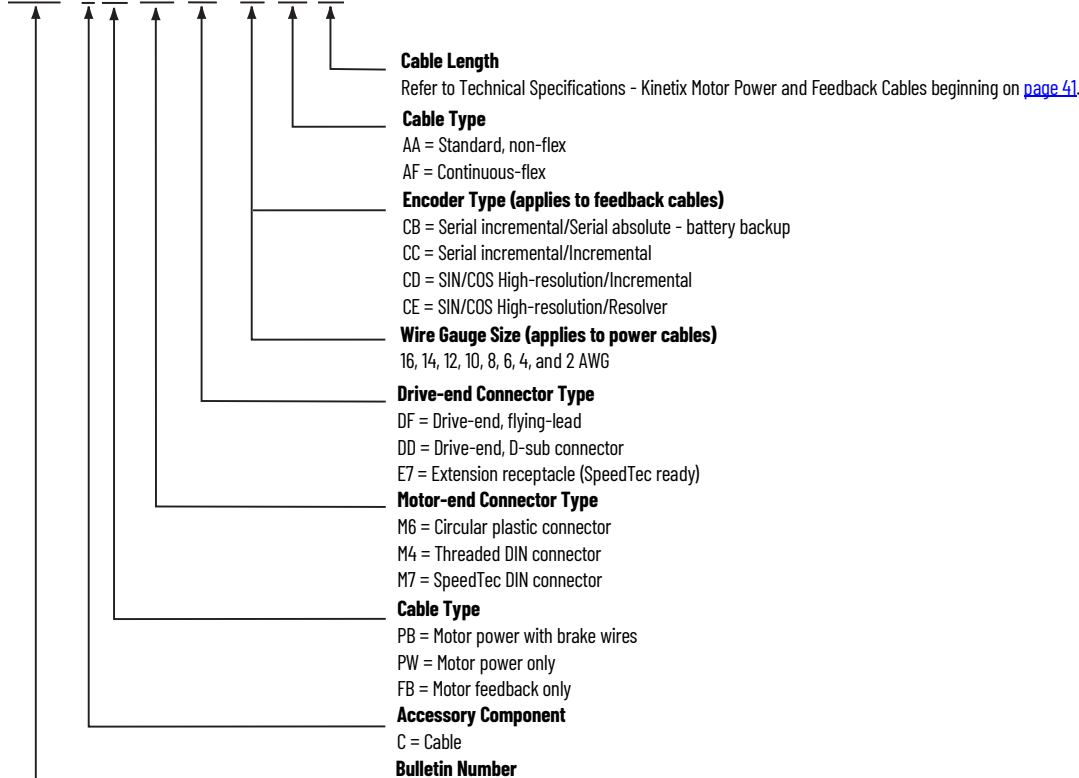
**IMPORTANT** Standard (non-flex) cables have a regular maintenance and installation bend radius of 7 times the cable diameter. For flexing applications, continuous-flex cables have an operational bend radius of 12 times the cable diameter.

## Catalog Numbers - Kinetix Power and Feedback Cables

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

2090 - C xx Mx Dx - Cx Ax xx



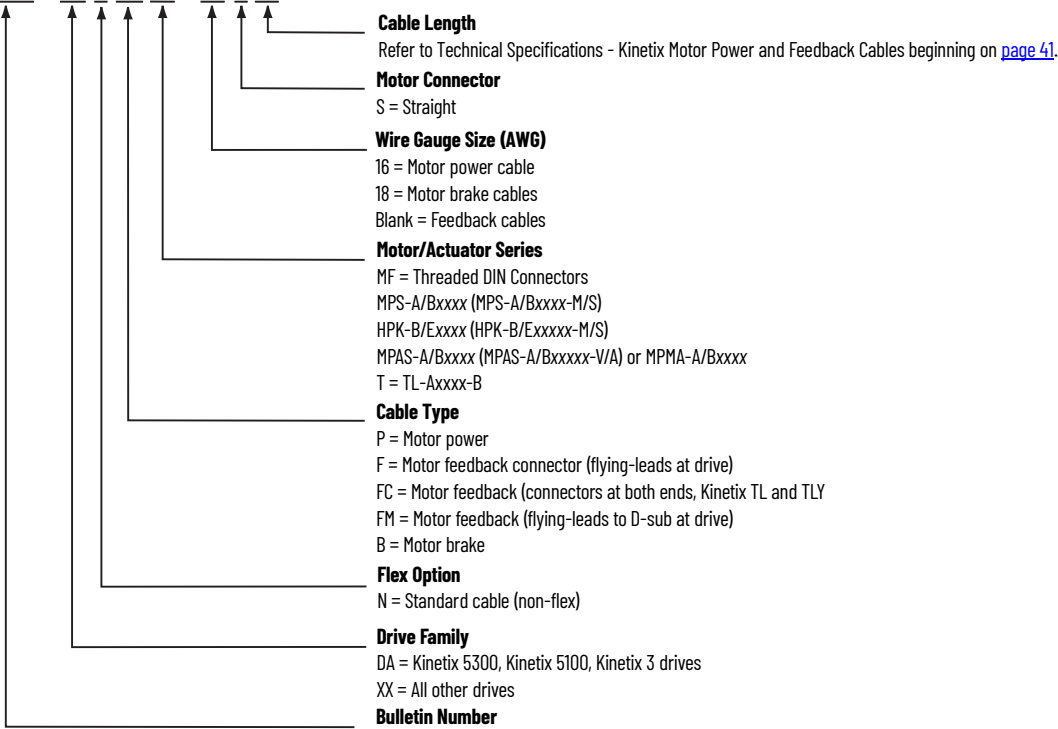


## Transition Cables

| Cat. No.          | Cable Gauge<br>AWG | Cable Type   | Description  |
|-------------------|--------------------|--------------|--|
| 2090-CPBM4E2-14TR | 14 and 16          | Power/brake  | Threaded DIN connector (M4) on motor-end to bayonet receptacle (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



# Kinetix Power and Feedback Cables Overview

## Feedback Cable Descriptions (standard, non-flex)

| Standard Cable Cat. No. | Description  | Cable Configuration |           | Connector Type    |
|-------------------------|--|---------------------|-----------|-------------------|
|                         |  | Motor End           | Drive End |                   |
| 2090-CFBM7DF-CEAAxx     | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF)</li> <li>• High-resolution or resolver applications (CE)</li> </ul>   |                     |           | SpeedTec DIN (M7) |
| 2090-CFBM7DD-CEAAxx     | <ul style="list-style-type: none"> <li>• Drive-end 15-pin connector (DD)</li> <li>• High-resolution or resolver applications (CE)</li> </ul>   |                     |           |                   |
| 2090-XXNFMF-Sxx         | <ul style="list-style-type: none"> <li>• Drive-end flying-leads</li> <li>• High-resolution or incremental applications</li> </ul>  |                     |           | Threaded DIN (M4) |
| 2090-CFBM4E2-CATR       | <ul style="list-style-type: none"> <li>• Drive-end bayonet (E2), transition (TR) cable <sup>(1)</sup></li> <li>• Motor-end threaded DIN (M4)</li> <li>• All feedback types (CA)</li> </ul> |                     |           |                   |

(1) Threaded DIN connector (motor end) and bayonet connector for 2090-XXNFMF-Sxx cable. Refer to Kinetix Motor Power and Feedback Transition Cables on [page 26](#).

## Feedback Cable Descriptions (continuous-flex)

| Continuous-flex Cable Cat. No. | Description   | Cable Configuration |           | Connector Type    |
|--------------------------------|---|---------------------|-----------|-------------------|
|                                |   | Motor End           | Drive End |                   |
| 2090-CFBM7DF-CDAFxx            | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF)</li> <li>• High-resolution or incremental applications (CD)</li> </ul>                     |                     |           | SpeedTec DIN (M7) |
| 2090-CFBM7DF-CEAFxx            | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF)</li> <li>• High-resolution or resolver applications (CE)</li> </ul>                        |                     |           |                   |
| 2090-CFBM7DD-CEAFxx            | <ul style="list-style-type: none"> <li>• Drive-end 15-pin connector (DD)</li> <li>• High-resolution or resolver applications (CE)</li> </ul>                    |                     |           |                   |
| 2090-CFBM7E7-CDAFxx            | <ul style="list-style-type: none"> <li>• Drive-end (male) connector, extension (E7) <sup>(1)</sup></li> <li>• Motor-end SpeedTec DIN cable plug (M7)</li> </ul> |                     |           | Threaded DIN (M4) |
| 2090-CFBM7E7-CEAFxx            |   |                     |           |                   |
| 2090-CFBM4DF-CDAFxx            | <ul style="list-style-type: none"> <li>• Drive-end flying-leads</li> <li>• High-resolution or incremental applications</li> </ul>                               |                     |           |                   |

(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 25](#).

**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.

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

| Standard Cable Cat. No. | Description   | Cable Configuration |           | Connector Type    |
|-------------------------|---|---------------------|-----------|-------------------|
|                         |   | Motor End           | Drive End |                   |
| 2090-CPBM7DF-xxAAxx     | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF)</li> <li>• Power/brake wires (PB)</li> </ul>   |                     |           | SpeedTec DIN (M7) |
| 2090-CPWM7DF-xxAAxx     | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF)</li> <li>• Power wires only (PW)</li> </ul>  |                     |           | SpeedTec DIN (M7) |
| 2090-XXNPMF-xxSxx       | <ul style="list-style-type: none"> <li>• Drive-end flying-leads</li> <li>• Power/brake wires</li> </ul>   |                     |           | Threaded DIN (M4) |
| 2090-CPBM4E2-xxTR       | <ul style="list-style-type: none"> <li>• Drive-end bayonet (E2), transition (TR) cable <sup>(1)</sup></li> <li>• Motor-end threaded DIN (M4)</li> <li>• Power/brake wires (PB)</li> </ul> |                     |           | Threaded DIN (M4) |
| 2090-CPWM4E2-xxTR       | <ul style="list-style-type: none"> <li>• Drive-end bayonet (E2), transition (TR) cable <sup>(1)</sup></li> <li>• Motor-end threaded DIN (M4)</li> <li>• Power wires only (PW)</li> </ul>  |                     |           | Threaded DIN (M4) |

(1) Threaded DIN connector (motor end) and bayonet connector for 2090-XXNFMP-Sxx cable. Refer to Kinetix Motor Power and Feedback Transition Cables on [page 26](#).

**Power/Brake Cable Descriptions (continuous-flex)**

| Continuous-flex Cable Cat. No. | Description   | Cable Configuration |           | Connector Type    |
|--------------------------------|---|---------------------|-----------|-------------------|
|                                |   | Motor End           | Drive End |                   |
| 2090-CPBM7DF-xxAFxx            | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF)</li> <li>• Power/brake wires (PB)</li> </ul>   |                     |           | SpeedTec DIN (M7) |
| 2090-CPWM7DF-xxAFxx            | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF)</li> <li>• Power wires only (PW)</li> </ul>  |                     |           | SpeedTec DIN (M7) |
| 2090-CPBM7E7-xxAFxx            | <ul style="list-style-type: none"> <li>• Drive-end (male) connector, extension (E7) <sup>(1)</sup></li> <li>• Motor-end SpeedTec DIN cable plug (M7)</li> </ul> |                     |           | SpeedTec DIN (M7) |
| 2090-CPBM4DF-xxAFxx            | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF)</li> <li>• Power/brake wires (PB)</li> </ul>   |                     |           | Threaded DIN (M4) |
| 2090-CPWM4DF-xxAFxx            | <ul style="list-style-type: none"> <li>• Drive-end flying-leads (DF)</li> <li>• Power wires only (PW)</li> </ul>  |                     |           | 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 25](#).

## Kinetix Motor Power and Feedback Cables with SpeedTec DIN Connectors Overview



Kinetix power and feedback 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.

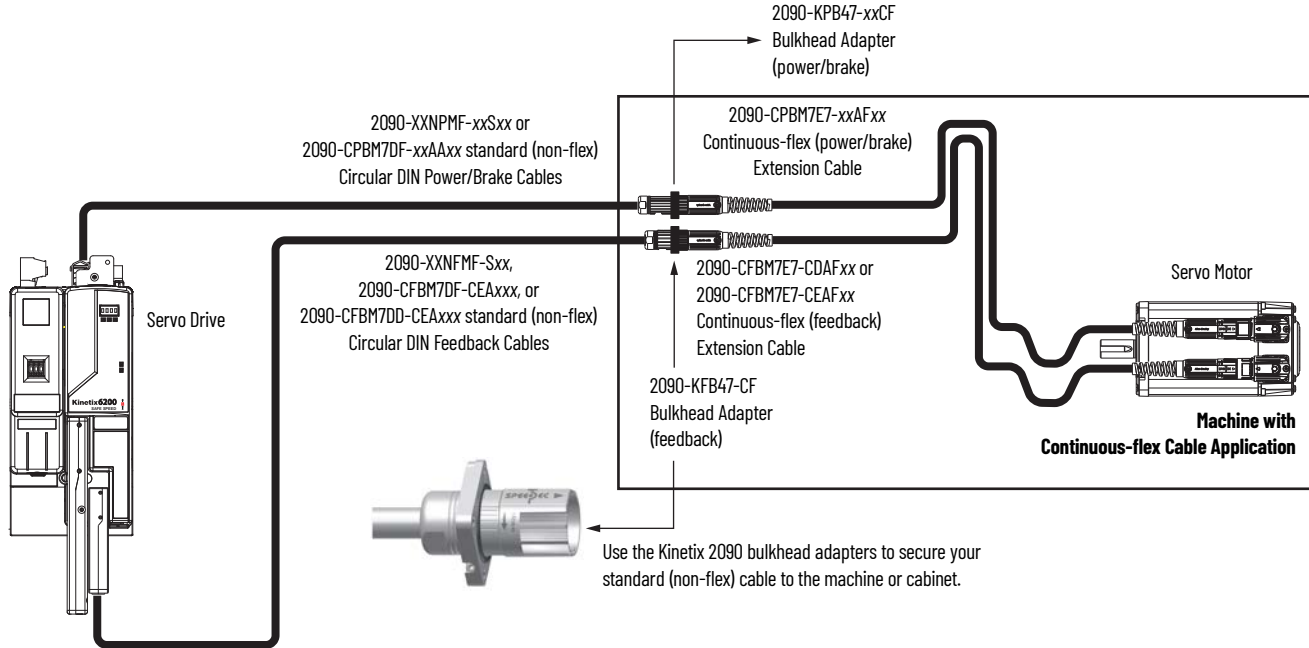
### SpeedTec DIN Cable Features

- 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 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            |  |

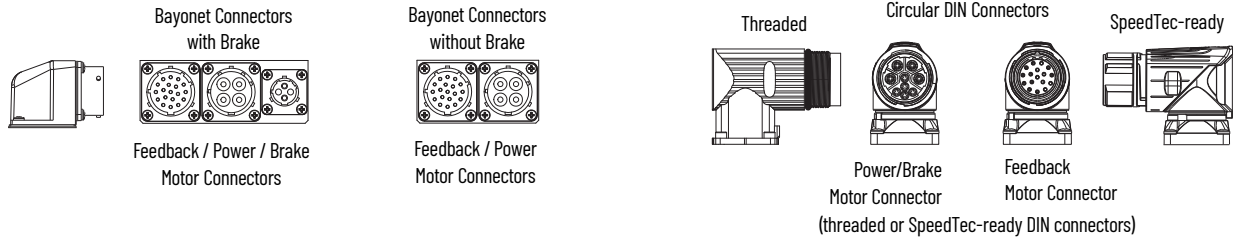
# Kinetix Motor Power and Feedback Transition Cables

Motor power/brake and feedback transition cables support installations where Kinetix 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.

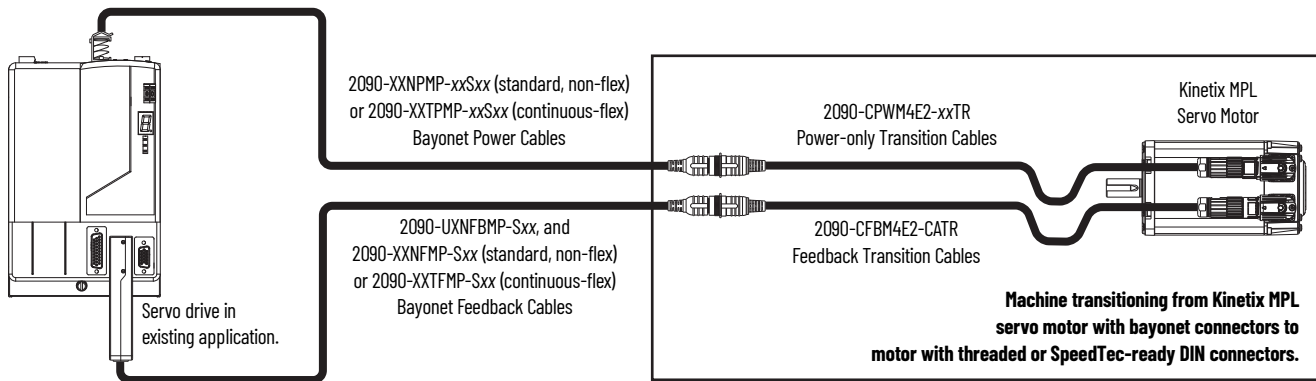


Brake contacts for motors with bayonet connectors are in a separate connector. Power/brake cables with circular DIN connectors (either threaded or SpeedTec) include brake contacts in the power/brake connector.

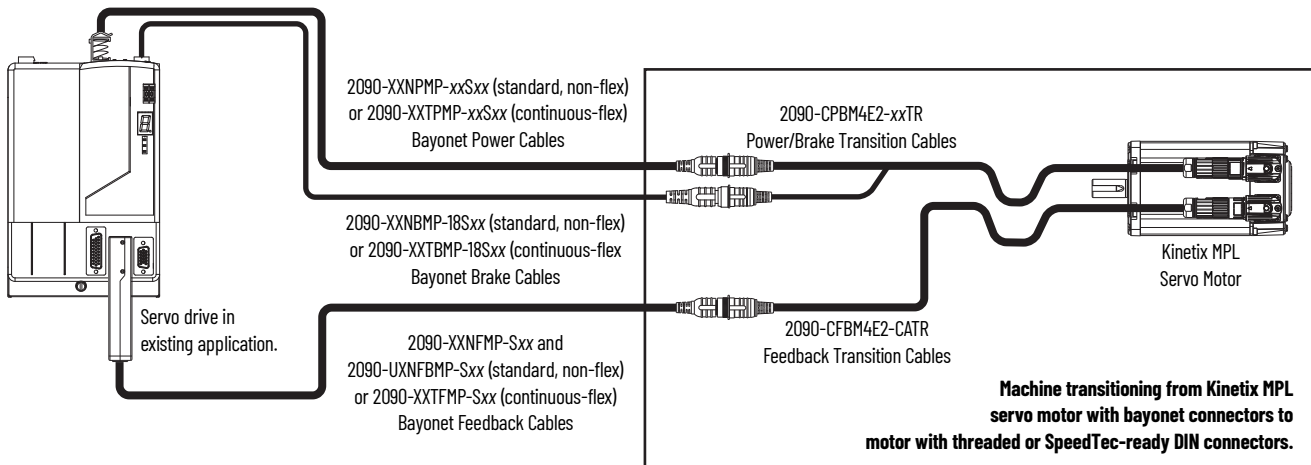
## Bayonet and Circular DIN Motor Connectors



## Transition Cable Application (power-only cable)



## Transition Cable Application (power/brake cable)



Refer to the transition cable selection tables on [page 31](#) for cable catalog numbers for the specific Kinetix MPL or Kinetix MPM motor you are transitioning to.

# 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

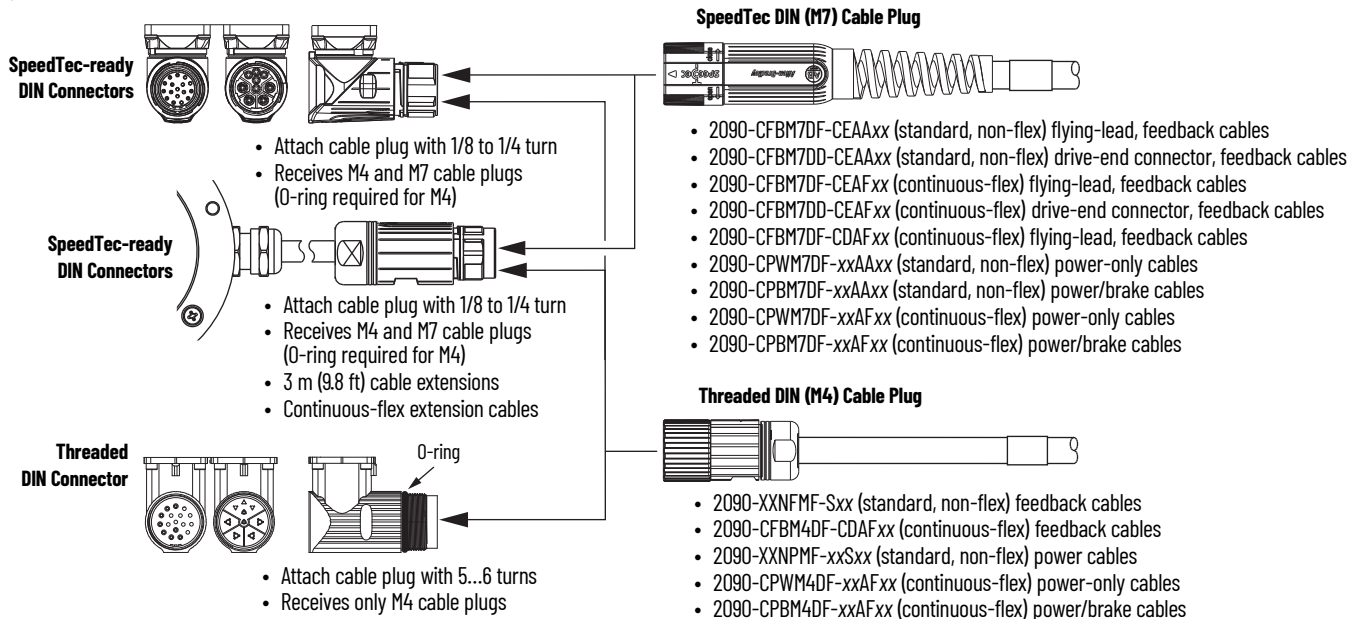
| Motor/Actuator Cat. No.   | Connector Type  | Power-only or Power/Brake Cables           | Feedback Cables   |
|---|---|--|---|
| VPC-Bxxxxx-Y  | SpeedTec-ready DIN                                    | 2090-CPxM7DF-xxAAxx<br>2090-CPxM7DF-xxAFxx | 2090-CFBM7DF-CEAAxx<br>2090-CFBM7DF-CEAFxx<br>2090-CFBM7DF-CDAFxx   |
| VPC-Bxxxxx-S<br>VPC-B3004x-M<br>MPL-A/B15xxx and MPL-A/B2xxx<br>MPL-A/B3xxx, MPL-A/B4xxx, MPL-A/B45xxx, MPL-A/B5xxx<br>MPL-B6xxx, MPL-B8xxx, and MPL-B9xxx<br>MPM-A/Bxxxx<br>MPF-A/Bxxxx<br>RDB-Bxxxx <sup>(1)</sup><br>LDAT-Sxxxxxx-xDx and LDAT-Sxxxxxx-xBx <sup>(1)</sup><br>MPAS-A/Bxxxx and MPMA-A/Bxxxx <sup>(1)</sup><br>MPAR-A/Bxxxx<br>MPAI-A/Bxxxx<br>LDC-Cxxxxxxx and LDL-xxxxxxx <sup>(1)</sup> |   |  | 2090-CFBM7DF-CEAAxx<br>2090-CFBM7DD-CEAAxx<br>2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx<br>2090-CFBM7DF-CDAFxx |
| MPS-A/Bxxxx   |   |  | • M7 cable plugs<br>• O-ring on motor connector not required<br>• Adapts to SpeedTec-ready connectors only      |
| HPK-B/Exxxxx  | SpeedTec-ready DIN with 3 m (9.8 ft) cable extensions | Customer supplied <sup>(2)</sup>           | 2090-CFBM7DF-CEAAxx<br>2090-CFBM7DD-CEAAxx<br>2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx                        |
| MMA-B080, MMA-B100, MMA-B132, MMA-B160, MMA-B180, MMA-B225  | SpeedTec-ready DIN                                    |  | 2090-CFBM7DF-CDAFxx   |

(1) The Kinetix LDC and Kinetix LDL linear motors, LDAT-Sxxxxxx-xBx linear thrusters, Kinetix MPAS and MPMA linear stages, and Kinetix RDB 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.  
 (2) For information to help size cables for these large motors, see Kinetix MMA Asynchronous Motor Frequently Asked Questions for Good Installation Processes, [Knowledgebase](#) article for additional information.

### 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



## Kinetix Motor Power and Feedback Cable Selection

These tables provide motor power and feedback cable catalog numbers for use with Allen-Bradley servo motors. Most motor brake wires are in the power cable, so a separate brake cable is not required (except where noted). The IP rating is dependent on the use of Allen-Bradley Kinetix 2090 cables as listed in these tables.

**IMPORTANT** Maximum motor cable length depends on the feedback type and overall system design. The drive-system power supply, AC input-power type, and AC input voltage are among the configuration variables. For more information on maximum cable lengths see your servo drive user manual or the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

Kinetix 5700 single-axis inverters (catalog numbers 2198-S086-ERSx, 2198-S130-ERSx, and 2198-S160-ERSx) are compatible with 2090-CPxM7DF cables that have 10, 8, 6, 4, and 2 AWG power conductors. 2198-S263-ERSx and 2198-S312-ERSx single-axis inverters are also compatible with 2090-CPxM7DF cables, but only 4 and 2 AWG power conductors.

### Kinetix VPC Servo Motors

| Motor Cat. No. | Drive Compatibility <sup>(1)</sup>  | Feedback Type  | Feedback Cable Cat. No.   | IP Rating                                      |
|----------------|-------------------------------------|--|---|--|
| VPC-Bxxxxx-S   | 2198-Dxxx-ERS3<br>2198-Dxxx-ERS4 or | Single-turn Digital Encoder with Hiperface Protocol              | 2090-CFBM7DF-CEAAxx (standard, non-flex)<br>2090-CFBM7DF-CEAFxx (continuous-flex) | IP65 with shaft seal (standard) <sup>(2)</sup> |
| VPC-Bxxxxx-Y   | 2198-Sxxx-ERS3<br>2198-Sxxx-ERS4    | Absolute, Multi-turn Digital Encoder with EnDat Digital Protocol |   |  |
| VPC-B3004x-M   | 2198-Sxxx-ERS3<br>2198-Sxxx-ERS4    | Absolute, Multi-turn Digital Encoder with Hiperface Protocol     |   |  |

(1) For information on maximum cable lengths see the Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#).

(2) IP65 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

| Kinetix VPC (400V-class) Servo Motors                          | Power Cable Cat. No.  | IP Rating                                      |
|--|---|--|
| VPC-B1652x-S/Y, VPC-B1653x-S/Y                                 | 2090-CPxM7DF-14AAxx (standard, non-flex)<br>2090-CPxM7DF-14AFxx (continuous-flex) | IP65 with shaft seal (standard) <sup>(1)</sup> |
| VPC-B2153x-S/Y, VPC-B21549-S/Y                                 |   |  |
| VPC-B1654D-S/Y   |   |  |
| VPC-B2154A-S/Y   | 2090-CPxM7DF-10AAxx (standard, non-flex)<br>2090-CPxM7DF-10AFxx (continuous-flex) |  |
| VPC-B30029-S/Y   |   |  |
| VPC-B2154B-S/Y, VPC-B2154D-S/Y, VPC-B2155B-S/Y, VPC-B2155D-S/Y | 2090-CPxM7DF-08AAxx (standard, non-flex)<br>2090-CPxM7DF-08AFxx (continuous-flex) |  |
| VPC-B3002A-S/Y, VPC-B30039-S/Y, VPC-B30049-S/Y/M               |   |  |
| VPC-B2156A-S/Y, VPC-B2156D-S/Y                                 |   |  |
| VPC-B3003A-S/Y   | 2090-CPBM7DF-06AAxx (standard, non-flex)  |  |
| VPC-B3004A-S/Y, VPC-B3004B-S/Y/M, VPC-B3004D-S/Y/M             | 2090-CPBM7DF-04AAxx (standard, non-flex)  |  |

(1) IP65 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).



**IMPORTANT** The Kinetix MPL servo motors on this page are equipped with DIN connectors (specified by 7 in the catalog number) and are not compatible with cables designed for motors equipped with bayonet connectors (specified by 2 in the catalog number). The motors with bayonet connectors (for example, MPL-A310P-xx2xAA) are being discontinued and require 2090-XXNFMF-Sxx (bayonet) cables. For help with migration or to select bayonet cables, contact your Rockwell Automation sales representative.

### Kinetix MPL Servo Motors

| Motor Cat. No.  | Drive Compatibility <sup>(1)</sup>  | Feedback Type   | Feedback Cable Cat. No.  | IP Rating  |
|---|---|---|--|--|
| MPL-A15xxx-V/Ex7xAA,<br>MPL-A2xxx-V/Ex7xAA  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM                    | Single-turn or Absolute,<br>Multi-turn Digital Encoder<br>with Hiperface Protocol | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex)<br><br>2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx (continuous-flex) | <ul style="list-style-type: none"> <li>IP50 min, without shaft seal (standard)</li> <li>IP66 with shaft seal <sup>(3)</sup></li> </ul> |
| MPL-B15xxx-V/Ex7xAA,<br>MPL-B2xxx-V/Ex7xAA  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx or 2097-V34PRx-LM                |   |  |  |
| MPL-A3xxx-M/Sx7xAA,<br>MPL-A4xxx-M/Sx7xAA,<br>MPL-A45xxx-M/Sx7xAA,<br>MPL-A5xxx-M/Sx7xAA  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-xxxx-ERS3 or 2198-xxxx-ERS4<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM                    |   |  |  |
| MPL-B3xxx-M/Sx7xAA,<br>MPL-B4xxx-M/Sx7xAA,<br>MPL-B45xxx-M/Sx7xAA,<br>MPL-B5xxx-M/Sx7xAA,<br>MPL-B6xxx-M/Sx7xAA,<br>MPL-B8xxx-M/Sx7xAA,<br>MPL-B9xxx-M/Sx7xAA | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-xxxx-ERS3 or 2198-xxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx or 2097-V34PRx-LM<br>2099-BMxx-S |   |  |  |
| MPL-A15xxx-Hx7xAA,<br>MPL-A2xxx-Hx7xAA  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM   |   |  |  |
| MPL-B15xxx-Hx7xAA,<br>MPL-B2xxx-Hx7xAA  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx or 2097-V34PRx-LM   | Incremental <sup>(2)</sup>  | 2090-XXNFMF-Sxx (standard, non-flex)<br>2090-CFBM7DF-CDAFxx (continuous-flex)  | <ul style="list-style-type: none"> <li>IP50 min, without shaft seal (standard)</li> <li>IP66 with shaft seal <sup>(3)</sup></li> </ul> |
| MPL-A3xxx-Hx7xAA,<br>MPL-A4xxx-Hx7xAA,<br>MPL-A45xxx-Hx7xAA   | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM   |   |  |  |
| MPL-B3xxx-Hx7xAA,<br>MPL-B4xxx-Hx7xAA,<br>MPL-B45xxx-Hx7xAA   | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx or 2097-V34PRx-LM   |   |  |  |
| MPL-Bxxxx-Rx7xAA  | 2094-BCxx-Mxx-S or 2094-BMxx-S  | Resolver <sup>(2)</sup>   | 2090-CFBM7DF-CEAAxx (standard, non-flex)<br>2090-CFBM7DF-CEAFxx (continuous-flex)  |  |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

(2) Not all Kinetix MPL motors are available with incremental and resolver feedback options.

(3) IP66 with optional shaft seal and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

**IMPORTANT** The Kinetix MPL servo motors on this page are equipped with DIN connectors (specified by 7 in the catalog number) and are not compatible with cables designed for motors equipped with bayonet connectors (specified by 2 in the catalog number). The motors with bayonet connectors (for example, MPL-A310P-xx2xAA) are being discontinued and require 2090-XXNPMP-xxSxx (bayonet) cables. For help with migration or to select bayonet cables, contact your Rockwell Automation sales representative.

| Kinetix MPL (200V-class) Servo Motors                        | Power Cable Cat. No.  | IP Rating  |
|--|---|--|
| MPL-A15xxx-xx7xAA,<br>MPL-A2xxx-xx7xAA                       | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP50 min, without shaft seal (standard)</li> <li>• IP66 with shaft seal <sup>(1)</sup></li> </ul> |
| MPL-A3xxx-xx7xAA   |   |  |
| MPL-A420P-xx7xAA,<br>MPL-A430H-xx7xAA                        |   |  |
| MPL-A4530F-xx7xAA,<br>MPL-A4540C-xx7xAA                      |   |  |
| MPL-A430P-xx7xAA,<br>MPL-A4530K-xx7xAA,<br>MPL-A4540F-xx7xAA | 2090-CPxM7DF-14AAxx (standard, non-flex)<br>2090-CPxM7DF-14AFxx (continuous-flex) |  |
| MPL-A4560F-xx7xAA  | 2090-CPxM7DF-12AAxx (standard, non-flex)  |  |
| MPL-A520K-xx7xAA   | 2090-CPxM7DF-10AAxx (standard, non-flex)<br>2090-CPxM7DF-10AFxx (continuous-flex) |  |
| MPL-A540K-xx7xAA,<br>MPL-A560F-xx7xAA                        | 2090-CPxM7DF-08AAxx (standard, non-flex)<br>2090-CPxM7DF-08AFxx (continuous-flex) |  |

(1) IP66 with optional shaft seal and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

| Kinetix MPL (400V-class) Servo Motors   | Power Cable Cat. No.  | IP Rating  |
|---|---|--|
| MPL-B15xxx-xx7xAA,<br>MPL-B2xxx-xx7xAA  | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP50 min, without shaft seal (standard)</li> <li>• IP66 with shaft seal <sup>(1)</sup></li> </ul> |
| MPL-B3xxx-xx7xAA  |   |  |
| MPL-B4xxx-xx7xAA  |   |  |
| MPL-B45xxx-xx7xAA   |   |  |
| MPL-B520K-xx7xAA  |   |  |
| MPL-B540D-xx7xAA,<br>MPL-B540K-xx7xAA,<br>MPL-B560F-xx7xAA  | 2090-CPxM7DF-14AAxx (standard, non-flex)<br>2090-CPxM7DF-14AFxx (continuous-flex) |  |
| MPL-B580F-xx7xAA,<br>MPL-B580J-xx7xAA   | 2090-CPxM7DF-10AAxx (standard, non-flex)<br>2090-CPxM7DF-10AFxx (continuous-flex) |  |
| MPL-B640F-xx7xAA <sup>(2)</sup>   | 2090-CPxM7DF-08AAxx (standard, non-flex)<br>2090-CPxM7DF-08AFxx (continuous-flex) |  |
| MPL-B660F-xx7xAA, MPL-B680D-xx7xAA, <sup>(2)</sup><br>MPL-B960B-xx7xAA, MPL-B980B-xx7xAA <sup>(2)</sup> |   |  |
| MPL-B680F-xx7xAA, MPL-B680H-xx7xAA,<br>MPL-B860D-xx7xAA, MPL-B880C-xx7xAA,<br>MPL-B880D-xx7xAA          | 2090-CPBM7DF-06AAxx (standard, non-flex)  |  |
| MPL-B960C-xx7xAA, MPL-B960D-xx7xAA,<br>MPL-B980C-xx7xAA, MPL-B980D-xx7xAA                               | 2090-CPBM7DF-04AAxx (standard, non-flex)  |  |
| MPL-B980E-xx7xAA  | 2090-CPBM7DF-02AAxx (standard, non-flex)  |  |

(1) IP66 with optional shaft seal and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

(2) For applications that use these five motors (catalog numbers MPL-Bxxxx-xx74AA with the brake option) where the power cable length exceeds 50 m (164 ft), 2090-CPBM7DF-06AAxx (6 AWG) cable is required. Motors without the brake option (catalog numbers MPL-Bxxxx-xx72AA) can use the cable size as specified in the table regardless of cable length.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

## Transition Cables for Kinetix MPL Servo Motors (200V-class)

| Motor Cat. No. <sup>(1)</sup>       | 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,<br>MPL-A4xxx, MPL-A45xxx | 2090-CPWM4E2-14TR         | 2090-CPBM4E2-14TR          | 2090-CFBM4E2-CATR       |
| MPL-A5xxx                           | 2090-CPWM4E2-10TR         | 2090-CPBM4E2-10TR          |                         |

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

## Transition Cables for Kinetix MPL Servo Motors (400V-class)

| Motor Cat. No. <sup>(1)</sup>   | 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<br>MPL-B4xxx, MPL-B45xxx<br>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<br>MPL-B860D, MPL-B880C,<br>MPL-B960B, MPL-B960C, MPL-B980B | 2090-CPWM4E2-08TR         | 2090-CPBM4E2-08TR          |                         |
| MPL-B960D, MPL-B980C, MPL-B980D                                       | 2090-CPWM4E2-04TR         | 2090-CPBM4E2-04TR          |                         |

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

## Transition Cables for Kinetix MPM Servo Motors (200V-class)

| Motor Cat. No. <sup>(1)</sup>                    | 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<br>MPM-A2154C, MPM-A2154E | 2090-CPWM4E2-04TR         | 2090-CPBM4E2-04TR          |                         |

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

## Transition Cables for Kinetix MPM Servo Motors (400V-class)

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

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

**Kinetix MPM Servo Motors**

| Motor Cat. No. | Drive Compatibility <sup>(1)</sup>  | Feedback Type   | Feedback Cable Cat. No.  | IP Rating  |
|----------------|---|---|--|--|
| MPM-Axxxxx-M/S | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-xxxx-ERS3 or 2198-xxxx-ERS4<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM                    | Single-turn or Absolute,<br>Multi-turn Digital Encoder<br>with Hiperface Protocol | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex) | <ul style="list-style-type: none"> <li>• IP50 min, without shaft seal (standard)</li> <li>• IP66 with shaft seal <sup>(2)</sup></li> </ul> |
| MPM-Bxxxxx-M/S | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-xxxx-ERS3 or 2198-xxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx or 2097-V34PRx-LM<br>2099-BMxx-S |   | 2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx (continuous-flex)       |  |
| MPM-Axxxxx-2   | 2094-ACxx-Mxx-S or 2094-AMxx-S  | Resolver <sup>(3)</sup>   | 2090-CFBM7DF-CEAAxx (standard, non-flex)                           |  |
| MPM-Bxxxxx-2   | 2094-BCxx-Mxx-S or 2094-BMxx-S  |   | 2090-CFBM7DF-CEAFxx (continuous-flex)                              |  |

- (1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).
- (2) IP66 with optional shaft seal and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.
- (3) Not all Kinetix MPM servo motors are available with the resolver feedback option.

| Kinetix MPM (200V-class) Servo Motors | Power Cable Cat. No.  | IP Rating  |
|---------------------------------------|---|--|
| MPM-A115xx                            | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP50 min, without shaft seal (standard)</li> <li>• IP66 with shaft seal <sup>(1)</sup></li> </ul> |
| MPM-A1302F                            | 2090-CPxM7DF-14AAxx (standard, non-flex)<br>2090-CPxM7DF-14AFxx (continuous-flex) |  |
| MPM-A1304F                            | 2090-CPxM7DF-12AAxx (standard, non-flex)  |  |
| MPM-A1651F                            | 2090-CPxM7DF-10AAxx (standard, non-flex)<br>2090-CPxM7DF-10AFxx (continuous-flex) |  |
| MPM-A1652F, MPM-A1653F                | 2090-CPxM7DF-08AAxx (standard, non-flex)<br>2090-CPxM7DF-08AFxx (continuous-flex) |  |
| MPM-A215xx                            | 2090-CPBM7DF-06AAxx (standard, non-flex)  |  |

- (1) IP66 with optional shaft seal and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

| Kinetix MPM (400V-class) Servo Motors                          | Power Cable Cat. No.  | IP Rating  |
|--|---|--|
| MPM-B1151x, MPM-B1152x   | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP50 min, without shaft seal (standard)</li> <li>• IP66 with shaft seal <sup>(1)</sup></li> </ul> |
| MPM-B1153E, MPM-B1153F   |   |  |
| MPM-B1302F, MPM-B1302M, MPM-B1304C, MPM-B1304E                 |   |  |
| MPM-B1651C, MPM-B1652C   |   |  |
| MPM-B1153T   | 2090-CPxM7DF-14AAxx (standard, non-flex)<br>2090-CPxM7DF-14AFxx (continuous-flex) |  |
| MPM-B1302T, MPM-B1304M   |   |  |
| MPM-B1651F, MPM-B1653C   |   |  |
| MPM-B1651M, MPM-B1652E, MPM-B1652F, MPM-B1653E                 | 2090-CPxM7DF-10AAxx (standard, non-flex)<br>2090-CPxM7DF-10AFxx (continuous-flex) |  |
| MPM-B2152C, MPM-B2153B <sup>(2)</sup>                          |   |  |
| MPM-B1653F   | 2090-CPxM7DF-08AAxx (standard, non-flex)<br>2090-CPxM7DF-08AFxx (continuous-flex) |  |
| MPM-B2152F, MPM-B2152M, MPM-B2153E, MPM-B2153F, <sup>(2)</sup> |   |  |
| MPM-B2154B, MPM-B2154E, MPM-B2154F <sup>(2)</sup>              |   |  |

- (1) IP66 with optional shaft seal and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.
- (2) For applications that use these nine motors (catalog numbers MPM-B215x-xJ74AA with the brake option) where the power cable length exceeds 50 m (164 ft), 2090-CPBM7DF-06AAxx (6 AWG) cable is required. Motors without the brake option (catalog numbers MPM-B215x-xJ72AA can use the cable size as specified in the table regardless of cable length.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

## Kinetix MPF Servo Motors

| Motor Cat. No. | Drive Compatibility <sup>(1)</sup>   | Feedback Type   | Feedback Cable Cat. No.  | IP Rating  |
|----------------|--|---|--|--|
| MPF-Axxxx-M/S  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-xxxx-ERS3 or 2198-xxxx-ERS4<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM     | Single-turn or Absolute,<br>Multi-turn Digital Encoder<br>with Hiperface Protocol | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex) | IP66/IP67 with shaft seal<br>(standard) <sup>(2)</sup> |
| MPF-Bxxxx-M/S  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx or 2097-V34PRx-LM |   | 2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx (continuous-flex)       |  |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

(2) IP66/IP67 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#).

Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

| Kinetix MPF (200V-class) Servo Motors          | Power Cable Cat. No.  | IP Rating  |
|--|---|--|
| MPF-A310P, MPF-A320H, MPF-A320P, and MPF-A330P | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | IP66/IP67 with shaft seal<br>(standard) <sup>(1)</sup> |
| MPF-A430H                                      | 2090-CPxM7DF-14AAxx (standard, non-flex)<br>2090-CPxM7DF-14AFxx (continuous-flex) |  |
| MPF-A430P, MPF-A4530K and MPF-A4540F           | 2090-CPxM7DF-08AAxx (standard, non-flex)<br>2090-CPxM7DF-08AFxx (continuous-flex) | IP66/IP67 with shaft seal<br>(standard) <sup>(1)</sup> |
| MPF-A540K                                      | 2090-CPxM7DF-08AAxx (standard, non-flex)<br>2090-CPxM7DF-08AFxx (continuous-flex) |  |

(1) IP66/IP67 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

| Kinetix MPF (400V-class) Servo Motors | Power Cable Cat. No.  | IP Rating  |
|---------------------------------------|---|--|
| MPF-B310P, MPF-B320P, and MPF-B330P   | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | IP66/IP67 with shaft seal<br>(standard) <sup>(1)</sup> |
| MPF-B430P, MPF-B4530K, and MPF-B4540F | 2090-CPxM7DF-10AAxx (standard, non-flex)<br>2090-CPxM7DF-10AFxx (continuous-flex) |  |
| MPF-B540K                             | 2090-CPxM7DF-10AAxx (standard, non-flex)<br>2090-CPxM7DF-10AFxx (continuous-flex) |  |

(1) IP66/IP67 with shaft seal (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

## Kinetix MPS Servo Motors

| Motor Cat. No. | Drive Compatibility <sup>(1)</sup>   | Feedback Type   | Feedback Cable Cat. No.  | IP Rating <sup>(2)</sup>   |
|----------------|--|---|--|--|
| MPS-Axxxx-M/S  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM     | Single-turn or Absolute,<br>Multi-turn Digital Encoder<br>with Hiperface Protocol | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex) | <ul style="list-style-type: none"> <li>• IP66/IP67 with shaft seal and slinger (standard) <sup>(3)</sup></li> <li>• IP69K with shaft seal and slinger (standard) <sup>(4)</sup></li> </ul> |
| MPS-Bxxxx-M/S  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx or 2097-V34PRx-LM |   | 2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx (continuous-flex)       |  |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

(2) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.

(3) IP66/IP67 with shaft seal and slinger (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors (includes on-motor cable connectors).

(4) IP69K for 1200 psi motor washdown with shaft seal and slinger (standard). Does not include on-motor cable connectors.

**Kinetix MPS Servo Motors (continued)**

| Kinetix MPS (200V-class) Servo Motors | Power Cable Cat. No.  | IP Rating <sup>(1)</sup>   |
|---------------------------------------|---|--|
| MPS-A330P                             | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | <ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal and slinger (standard) <sup>(2)</sup></li> <li>IP69K with shaft seal and slinger (standard) <sup>(3)</sup></li> </ul> |
| MPS-A4540F                            |   |  |

(1) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.

(2) IP66/IP67 with shaft seal and slinger (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors (includes on-motor cable connectors).

(3) IP69K for 1200 psi motor washdown with shaft seal and slinger (standard). Does not include on-motor cable connectors.

| Kinetix MPS (400V-class) Servo Motors | Power Cable Cat. No.  | IP Rating <sup>(1)</sup>   |
|---------------------------------------|---|--|
| MPS-B330P                             | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | <ul style="list-style-type: none"> <li>IP66/IP67 with shaft seal and slinger (standard) <sup>(2)</sup></li> <li>IP69K with shaft seal and slinger (standard) <sup>(3)</sup></li> </ul> |
| MPS-B4540F                            |   |  |
| MPS-B560F                             | 2090-CPxM7DF-14AAxx (standard, non-flex)<br>2090-CPxM7DF-14AFxx (continuous-flex) |  |

(1) The cable connectors are rated IP66 and IP67 and are not designed to withstand high-pressure washdown or washdown with aggressive cleaning compounds. Position connectors away from direct exposure to cleaning processes, for example, within washdown-rated conduit or junction boxes.

(2) IP66/IP67 with shaft seal and slinger (standard) and the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors (includes on-motor cable connectors).

(3) IP69K for 1200 psi motor washdown with shaft seal and slinger (standard). Does not include on-motor cable connectors.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#).

Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

**Kinetix RDB Servo Motors**

| Motor Cat. No. | Drive Compatibility <sup>(1)</sup>  | Feedback Type  | Feedback Cable Cat. No.   | IP Rating           |
|----------------|---|--|---|---------------------|
| RDB-Bxxxx-7/3  | 2198-xxxx-ERS3 or 2198-xxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2099-BMxx-S | Single-turn or Absolute, Multi-turn<br>High Resolution Encoder with<br>EnDat Analog Protocol | 2090-XXNFMF-Sxx (standard, non-flex)<br>2090-CFBM7DF-CDAFxx (continuous-flex) | IP65 <sup>(2)</sup> |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

(2) IP65 with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

| Kinetix RDB (400V-class) Motors                | Power Cable Cat. No.  | IP Rating           |
|--|---|---------------------|
| RDB-B21519, RDB-B21529                         | 2090-CPWM7DF-16AAxx (standard, non-flex)<br>2090-CPWM7DF-16AFxx (continuous-flex) | IP65 <sup>(1)</sup> |
| RDB-B29014, RDB-B29016, RDB-B29024             |   |                     |
| RDB-B2151C, RDB-B21539                         | 2090-CPWM7DF-14AAxx (standard, non-flex)<br>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)<br>2090-CPWM7DF-10AFxx (continuous-flex) |                     |
| RDB-B29036, RDB-B41014                         |   |                     |
| RDB-B29029, RDB-B41016, RDB-B41024             | 2090-CPWM7DF-08AAxx (standard, non-flex)<br>2090-CPWM7DF-08AFxx (continuous-flex) |                     |
| RDB-B29039, RDB-B41018, RDB-B41026, RDB-B41035 |   |                     |
|  | 2090-CPBM7DF-06AAxx (standard, non-flex)  |                     |

(1) IP65 with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#).

Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

## Kinetix HPK Servo Motors

| Cat. No.                       | Drive Compatibility <sup>(1)</sup>              | Feedback Type  | Feedback Cable Cat. No.  | IP Rating           |
|--------------------------------|---|--|--|---------------------|
| HPK-Bxxxx-M/S<br>HPK-Exxxx-M/S | 2198-Sxxx-ERS3<br>2198-Sxxx-ERS4<br>2099-BMxx-S | Absolute Single-turn or Multi-turn encoders with Hiperface protocol. | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex)<br><br>2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx (continuous-flex) | IP65 <sup>(2)</sup> |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

(2) IP65 with the use of Rockwell Automation factory-delivered Kinetix 2090 feedback cable connector.

| Kinetix HPK 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 Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

## Kinetix MMA Main Motors

| Cat. No.   | Drive Compatibility <sup>(1)</sup>                                | Feedback Type   | Feedback Cable Cat. No.                              | IP Rating           |
|--|---|---|--|---------------------|
| MMA-B080, MMA-B100,<br>MMA-B132, MMA-B160,<br>MMA-B180, MMA-B225 | 2198-Dxxx-ERSx<br>2198-Sxxx-ERS3<br>2198-Sxxx-ERS4<br>2099-BMxx-S | Absolute Single-turn or Multi-turn encoders with Hiperface or EnDat protocols | 2090-CFBM7DF-CDAFxx (continuous-flex) <sup>(2)</sup> | IP54 <sup>(3)</sup> |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#).

(2) Kinetix 2090-CFBM7Dx-CExxxx style cables do not have the additional wire required for the PT1000 thermistor included in every Kinetix MMA motor

(3) Kinetix MMA motors come standard as IP54, but you can select IP55 as a configurable option. Both IP54/IP55 ratings require the use of Rockwell Automation factory-delivered Kinetix 2090 feedback cable connector.

| Kinetix MMA Main Motors | Power Cable Cat. No.             |
|-------------------------|----------------------------------|
| All MMA-Bxxxx           | Customer Supplied <sup>(1)</sup> |

(1) For information to help size cables for these large motors, see Kinetix MMA Asynchronous Motor Frequently Asked Questions for Good Installation Processes, [Knowledgebase](#) article for additional information.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

## Kinetix TL and TLY Servo Motors

| Cat. No.    | Drive Compatibility <sup>(1)</sup>  | Feedback Type  | Feedback Cable Cat. No.   | IP Rating  |
|-------------|---|--|---|--|
| TLY-Axxxx-H | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM<br>2071-Axx | Incremental  | 2090-CFBM6DF-CBAAxx (flying lead) or<br>2090-CFBM6DD-CCAAxx<br>(premolded connector)<br><br>2090-CFBM6DF-CBAAxx (flying lead) | <ul style="list-style-type: none"> <li>• IP54 without shaft seal (standard) <sup>(2)</sup></li> <li>• IP65 with shaft seal <sup>(3)</sup></li> <li>• IP30 for on-motor cable connectors</li> </ul> |
| TLY-Axxxx-B | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2093-AC05-MPx or 2093-AMxx<br>2097-V3xPRx or 2097-V3xPRx-LM<br>2071-Axx                                   | Absolute, Multi-turn Digital Encoder with Tamagawa 17-bit Protocol | 2090-CFBM6DF-CBAAxx (flying lead) or<br>2090-CFBM6DD-CCAAxx<br>(premolded connector)<br><br>2090-CFBM6DF-CBAAxx (flying lead) |  |
| TL-Axxxx-B  | 2198-Cxxxx-ERS or 2198-Exxxx-ERS<br>2071-Axx  |  | 2090-DANFCT-Sxx <sup>(4)</sup>  |  |

(1) For information on maximum cable lengths see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

(2) IP54 without shaft seal (standard) and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors (excludes on-motor cable connectors).

(3) IP65 with optional shaft seal and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors (excludes on-motor cable connectors).

(4) For 2198-Cxxxx-ERS and 2198-Exxxx-ERS drives with high-resolution encoder applications, remove the drive-side connector and wire flying leads to the 2198-K5xCK-D15M connector kit and customer-supplied 3.6V lithium battery. For 2071-Axx drives, use when high-resolution absolute encoder feedback is not required. For high-resolution encoder applications, remove the drive-side connector and wire flying leads to the 2071-TBMF connector kit with customer-supplied 3.6V lithium battery.

| Kinetix TL and TLY (200V-class) Servo Motors | Power Cable Cat. No.                         | IP Rating  |
|--|--|--|
| TLY-Axxxx-H                                  | 2090-CPBM6DF-16AAxx<br>(power and brake)     | <ul style="list-style-type: none"> <li>• IP54 without shaft seal (standard) <sup>(1)</sup></li> <li>• IP65 with shaft seal <sup>(2)</sup></li> <li>• IP30 for on-motor cable connectors</li> </ul> |
| TLY-Axxxx-B                                  | 2090-CPWM6DF-16AAxx<br>(power without brake) |  |
| TL-Axxxx-B                                   | 2090-DANPT-16Sxx                             |  |

(1) IP54 without shaft seal (standard) and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors (excludes on-motor cable connectors).



(2) IP65 with optional shaft seal and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors (excludes on-motor cable connectors).

| Kinetix (200V-class) Servo Motors | Brake Cable Cat. No. | IP Rating  |
|-----------------------------------|----------------------|--|
| TL-Axxxx-B motors                 | 2090-DANBT-18Sxx     | <ul style="list-style-type: none"> <li>• IP54 without shaft seal (standard) <sup>(1)</sup></li> <li>• IP65 with shaft seal <sup>(2)</sup></li> <li>• IP30 for on-motor cable connectors</li> </ul> |

(1) IP54 without shaft seal (standard) and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors (excludes on-motor cable connectors).

(2) IP65 with optional shaft seal and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors (excludes on-motor cable connectors).

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#).

Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

For N-Series retrofit cable information, refer to the Kinetix Rotary Motion Technical Data, publication [KNX-TD001](#).

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**IMPORTANT** TL-Axxxx-B motors have rectangular plastic on-motor connectors and are intended for use with Kinetix 5100, Kinetix 5300, and Kinetix 3 servo drives.  
 The TLY-Axxxx motors have circular plastic on-motor connectors and are intended for use with Kinetix 5100, Kinetix 5300, Kinetix 2000, Kinetix 6000, and Kinetix 300/350 (200V-class) servo drives.

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## Kinetix MPAS Integrated Linear Stages

| Actuator Cat. No.                                   | Drive Compatibility <sup>(1)</sup>   | Feedback Type  | Feedback Cable Cat. No.  | IP Rating   |
|---|--|--|--|---|
| MPAS-Axxxx-VxxSxA (ballscrew)<br>MPMA-A (ballscrew) | 2198-Cxxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V34PRx-LM   | Absolute, Multi-turn<br>Digital Encoder with<br>Hiperface Protocol | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex)<br><br>2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx (continuous-flex) | IP30 rating with<br>unique, long life<br>strip seal system. |
| MPAS-Axxxx-ALMx2C<br>MPMA-A                         | 2198-Cxxxx-ERS<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx<br>2071-Axx  | Incremental Magnetic<br>Linear Encoder                             | 2090-XXNFMF-Sxx (standard, non-flex)<br>2090-CFBM7DF-CDAFxx (continuous-flex)  |   |
| MPAS-Bxxxx-VxxSxA (ballscrew)<br>MPMA-B (ballscrew) | 2198-Cxxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V3xPRx or 2097-V34PRx-LM | Absolute, Multi-turn<br>Digital Encoder with<br>Hiperface Protocol | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex)<br><br>2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx (continuous-flex) |   |
| MPAS-Bxxxx-ALMx2C<br>MPMA-B                         | 2198-Cxxxx-ERS<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V3xPRx  | Incremental Magnetic<br>Linear Encoder                             | 2090-XXNFMF-Sxx (standard, non-flex)<br>2090-CFBM7DF-CDAFxx (continuous-flex)  |   |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

## Kinetix MPAS Integrated Linear Stages (continued)

| Kinetix MPAS (200V-class) Integrated Linear Stages | Power Cable Cat. No.  | IP Rating   |
|--|---|---|
| MPAS-Axxxx-VxxSxA (ballscrew) or<br>MPMA-A         | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | IP30 rating with<br>unique, long life<br>strip seal system. |
| MPAS-Axxxx-ALMx2C or<br>MPMA-A                     | 2090-CPWM7DF-16AAxx (standard, non-flex)<br>2090-CPWM7DF-16AFxx (continuous-flex) |   |
| Kinetix MPAS (400V-class) Integrated Linear Stages | Power Cable Cat. No.  | IP Rating   |
| MPAS-Bxxxx-VxxSxA (ballscrew) or<br>MPMA-B         | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | IP30 rating with<br>unique, long life<br>strip seal system. |
| MPAS-Bxxxx-ALMx2C or<br>MPMA-B                     | 2090-CPWM7DF-16AAxx (standard, non-flex)<br>2090-CPWM7DF-16AFxx (continuous-flex) |   |

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

**Kinetix LDAT Integrated Linear Thrusters**

| Actuator Cat. No.                   | Drive Compatibility <sup>(1)</sup>  | Feedback Type                                      | Feedback Cable Cat. No.   | IP Rating                        |
|-------------------------------------|---|--|---|----------------------------------|
| LDAT-Sxxxxx-xDx<br>(230V operation) | 2198-Cxxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2097-V3xPRx  | Absolute Linear Encoder<br>with Hiperface Protocol | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex)            | IP30 with strip<br>cover option. |
| LDAT-Sxxxxx-xDx<br>(460V operation) | 2198-Cxxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2097-V3xPRx                                  |  | 2090-CFBM7DF-CEAFxx<br>2090-CFBM7DD-CEAFxx (continuous-flex)                  |                                  |
| LDAT-Sxxxxx-xBx<br>(230V operation) | 2198-Cxxxx-ERS<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx<br>2071-Axx                             | Incremental Encoder                                | 2090-XXNFMF-Sxx (standard, non-flex)<br>2090-CFBM7DF-CDAFxx (continuous-flex) |                                  |
| LDAT-Sxxxxx-xBx<br>(460V operation) | 2198-Cxxxx-ERS<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V3xPRx |  |   |                                  |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

| Kinetix LDAT (230V or 460V operation) Linear Thrusters     | Power Cable Cat. No.  | IP Rating                       |
|--|---|---------------------------------|
| LDAT-S031xxx, LDAT-S032xxx, LDAT-S033xxx                   | 2090-CPWM7DF-16AAxx (standard, non-flex)<br>2090-CPWM7DF-16AFxx (continuous-flex) | IP30 with strip<br>cover option |
| 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)<br>2090-CPWM7DF-14AFxx (continuous-flex) |                                 |
| LDAT-S106xxx-Dxx   |   |                                 |
| LDAT-S156xxx-Dxx   |   |                                 |

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

## Kinetix MPAR Electric Cylinders

| Actuator Cat. No.                         | Drive Compatibility <sup>(1)</sup>   | Feedback Type  | Feedback Cable Cat. No.  | IP Rating  |
|---|--|--|--|--|
| MPAR-A1xxxx<br>MPAR-A2xxxx<br>MPAR-A3xxxx | 2198-Cxxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM   | Absolute, Multi-turn Encoder with Hiperface Protocol | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex) | <ul style="list-style-type: none"> <li>• IP40 <sup>(2)</sup></li> <li>• IP66 <sup>(3)</sup></li> </ul> |
| MPAR-B1xxxx<br>MPAR-B2xxxx<br>MPAR-B3xxxx | 2198-Cxxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx or 2097-V34PRx-LM |  | 2090-CFBM7DF-CEAFxx or<br>2090-CFBM7DD-CEAFxx (continuous-flex)    |  |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

(2) IP40 applies to complete Kinetix MPAR unit, including rod-end seal and breather port.

(3) IP66 (in static condition only) for electronic components and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

| Kinetix MPAR (200V-class) Electric Cylinders | Power Cable Cat. No.  | IP Rating  |
|--|---|--|
| MPAR-A1xxxx<br>MPAR-A2xxxx<br>MPAR-A3xxxx    | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP40 <sup>(1)</sup></li> <li>• IP66 <sup>(2)</sup></li> </ul> |

| Kinetix MPAR (400V-class) Electric Cylinders | Power Cable Cat. No.  | IP Rating  |
|--|---|--|
| MPAR-B1xxxx<br>MPAR-B2xxxx<br>MPAR-B3xxxx    | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | <ul style="list-style-type: none"> <li>• IP40 <sup>(1)</sup></li> <li>• IP66 <sup>(2)</sup></li> </ul> |

(1) IP40 applies to complete Kinetix MPAR unit, including rod-end seal and breather port.

(2) IP66 (in static condition only) for electronic components and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

## Kinetix MPAI Heavy-duty Electric Cylinders

| Actuator Cat. No.  | Drive Compatibility <sup>(1)</sup>   | Feedback Type  | Feedback Cable Cat. No.  | IP Rating                |
|--|--|--|--|--------------------------|
| MPAI-A2xxxx<br>MPAI-A3xxxx<br>MPAI-A4xxxx<br>MPAI-A5xxxx | 2198-Cxxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx or 2097-V3xPRx-LM   | Absolute, Multi-turn Encoder with Hiperface Protocol | 2090-CFBM7DF-CEAAxx or<br>2090-CFBM7DD-CEAAxx (standard, non-flex) | IP66/IP67 <sup>(2)</sup> |
| MPAI-B2xxxx<br>MPAI-B3xxxx<br>MPAI-B4xxxx<br>MPAI-B5xxxx | 2198-Cxxxx-ERS<br>2198-Hxxx-ERS or 2198-Hxxx-ERS2<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx or 2097-V34PRx-LM |  | 2090-CFBM7DF-CEAFxx or<br>2090-CFBM7DD-CEAFxx (continuous-flex)    |                          |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#), or Kinetix 5500 Servo Drives User Manual, publication [2198-UM001](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

(2) IP66/IP67 (in static condition only) and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

| Kinetix MPAI (200V-class) Heavy-duty Electric Cylinders | Power Cable Cat. No.  | IP Rating                |
|---|---|--------------------------|
| MPAI-A2xxxx, MPAI-A3xxxx, MPAI-A4xxxx                   | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | IP66/IP67 <sup>(1)</sup> |
| MPAI-A5xxxx   | 2090-CPxM7DF-14AAxx (standard, non-flex)<br>2090-CPxM7DF-14AFxx (continuous-flex) |                          |

| Kinetix MPAI (400V-class) Heavy-duty Electric Cylinders | Power Cable Cat. No.  | IP Rating                |
|---|---|--------------------------|
| MPAI-B2xxxx, MPAI-B3xxxx, MPAI-B4xxxx, MPAI-B5xxxx      | 2090-CPxM7DF-16AAxx (standard, non-flex)<br>2090-CPxM7DF-16AFxx (continuous-flex) | IP66/IP67 <sup>(1)</sup> |

(1) IP66/IP67 (in static condition only) and with the use of Rockwell Automation factory-delivered Kinetix 2090 cable connectors.

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

**Kinetix LDC Linear Motors**

| Cat. No.                             | Drive Compatibility <sup>(1)</sup>  | Feedback Type          | Feedback Cable Cat. No.   | IP Rating |
|--------------------------------------|---|------------------------|---|-----------|
| LDC-Cxxxxx-xxTx1<br>(230V operation) | 2198-Cxxxx-ERS<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx<br>2071-Axx                             | Sin/Cos or TTL Encoder | 2090-XXNFMF-Sxx (standard, non-flex)<br>2090-CFBM7DF-CDAFxx (continuous-flex) | IP65      |
| LDC-Cxxxxx-xxTx1<br>(460V operation) | 2198-Cxxxx-ERS<br>2198-Dxxx-ERS3 or 2198-Dxxx-ERS4<br>2094-BCxx-Mxx-S or 2094-BMxx-S<br>2094-BCxx-Mxx-M or 2094-BMxx-M<br>2097-V34PRx |                        |   |           |

(1) For information on maximum cable lengths see Kinetix 5700 Servo Drives User Manual, publication [2198-UM002](#). For all other drive families, see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

| Kinetix LDC (230V or 460V operation) Linear Motors | Power Cable Cat. No.  | IP Rating |
|--|---|-----------|
| LDC-Cxxxxx-xxTx1                                   | 2090-CPWM7DF-16AAxx (standard, non-flex)<br>2090-CPWM7DF-16AFxx (continuous-flex) | IP65      |

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

**Kinetix LDL Linear Motors**

| Cat. No.         | Drive Compatibility <sup>(1)</sup>  | Feedback Type          | Feedback Cable Cat. No.   | IP Rating |
|------------------|---|------------------------|---|-----------|
| LDL-xxxxxx-xxTx1 | 2198-Cxxxx-ERS<br>2093-AC05-MPx or 2093-AMxx<br>2094-ACxx-Mxx-S or 2094-AMxx-S<br>2097-V3xPRx<br>2071-Axx | Sin/Cos or TTL Encoder | 2090-XXNFMF-Sxx (standard, non-flex)<br>2090-CFBM7DF-CDAFxx (continuous-flex) | IP65      |

(1) For information on maximum cable lengths see the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

| Kinetix LDL Linear Motors | Power Cable Cat. No.  | IP Rating |
|---------------------------|---|-----------|
| LDL-xxxxxx-xxTx1          | 2090-CPWM7DF-16AAxx (standard, non-flex)<br>2090-CPWM7DF-16AFxx (continuous-flex) | IP65      |

For cable configuration illustrations and feature descriptions, by catalog number, refer to Kinetix Motor Power and Feedback Cables beginning on [page 20](#). Cable length xx is in meters. Refer to Technical Specifications - Kinetix Motor Power and Feedback Cables beginning on [page 41](#).

## Technical Specifications - Kinetix Motor Power and Feedback Cables

**IMPORTANT** Maximum motor cable length depends on the feedback type and overall system design. The drive-system power supply, AC input-power type, and AC input voltage are among the configuration variables. For more information on maximum cable lengths see your servo drive user manual or the Kinetix 5700, 5500, 5300, 5100 Servo Drives Technical Data, publication [KNX-TD003](#).

### Power Cable Specifications

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

### Brake Cable Specifications

| Brake Cables<br>Cat. No. | Cable Type/<br>Jacket Color                            | Description   | Wire Size<br>AWG | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)  |
|--------------------------|--|---|------------------|--------------------------------|---|
| 2090-DANBT-18Sxx         | Standard (non-flex)<br>cable, Industrial TPE,<br>Black | Two conductor, 600V, 18 AWG, shielded<br>cable for motor brake. | 18               | 0.070 (0.047)                  | 01 (3.2) 05 (16.4) 15 (49.2)<br>02 (6.5) 07 (22.9) 20 (65.6)<br>03 (9.8) 09 (29.5) 25 (82.0)<br>04 (13.1) 12 (39.4) 30 (98.4) |

Feedback Cable Specifications

| Feedback Cables (1) (2)<br>Cat. No. | Cable Type/<br>Jacket Color   | Description  | Wire Size<br>AWG                            | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)  |
|-------------------------------------|---|--|---|--------------------------------|---|
| 2090-XXNFMF-Sxx                     | Standard (non-flex) cable, Industrial TPE, Black                    | Threaded DIN connector (motor end) to flying leads (drive end), 30V.               | 28 Feedback<br>16 Power, 5V<br>22 Power, 9V | 0.120 (1.35)                   | 01 (3.2) 07 (22.9) 25 (82.0)<br>02 (6.5) 09 (29.5) 30 (98.4)<br>03 (9.8) 12 (39.4) 40 (131.2)<br>04 (13.1) 15 (49.2) 60 (196.8)<br>05 (16.4) 20 (65.6) 90 (295.3) |
| 2090-CFBM7DD-CEAAxx                 | Standard (non-flex) cable, Industrial TPE, Green (DESINA, RAL 6018) | SpeedTec DIN connector (motor end) to premolded connector (drive end), 600V.       | 22 All conductors                           | 0.136 (0.092)                  |   |
| 2090-CFBM7DF-CEAAxx                 |   | SpeedTec DIN connector (motor end) to flying leads (drive end), 600V.              |   |                                |   |
| 2090-UXNFM-Sxx (3)                  | Standard (non-flex) cable, Industrial TPE, Black                    | Flying-leads (motor end) to premolded connector (drive end), 30V.                  | 28 Feedback<br>16 Power, 5V<br>22 Power, 9V | 0.120 (1.35)                   | 01 (3.2) 15 (49.2)<br>03 (9.8) 30 (98.4)<br>09 (29.5)   |
| 2090-CFBM6DF-CBAAxx                 |   | Circular plastic connector (motor end) to flying leads (drive end), 300V.          | 28 Feedback<br>16 Power, 5V<br>22 BAT+      |                                | 0.130 (0.088)   |
| 2090-CFBM6DD-CCAAxx                 |   | Circular plastic connector (motor end) to premolded connector (drive end), 300V.   | 28 Feedback<br>16 Power, 5V                 | 0.177 (0.119)                  |   |
| 2090-DANFCT-Sxx                     |   | Rectangular plastic connector (motor end) to premolded connector (drive end), 30V. | 28 Feedback<br>16 Power, 5V<br>22 BAT+      |                                |   |
| 2090-CFBM4DF-CDAFxx                 | Continuous-flex cable Industrial TPE, Green (DESINA, RAL 6018)      | Threaded DIN connector (motor end) to flying leads (drive end), 600V.              | 26 Feedback<br>16 Power, 5V<br>22 Power, 9V | 0.143 (0.096)                  |   |
| 2090-CFBM7DF-CDAFxx                 |   | SpeedTec DIN connector (motor end) to flying leads (drive end), 600V.              | 22 All conductors                           |                                |   |
| 2090-CFBM7DF-CEAFxx                 |   | SpeedTec DIN connector (motor end) to premolded connector (drive end), 600V.       |   |                                |   |
| 2090-CFBM7DD-CEAFxx                 |   |  |   |                                |   |

(1) 2090-CFBM7xx-CEAxxx feedback cables are UL Listed, bulk cable, type PLTC-ER.  
 (2) 2090-CFBM4DF-CDAXxx and 2090-CFBM7xx-CDAXxx feedback cables are UL Listed, bulk cable, type CM.  
 (3) Use with 2090-KFBM4-CAAA (threaded) or 2090-KFBM7-CAAA (SpeedTec) DIN connector kit.

Continuous-flex Extension Cable Specifications

| Extension Cable (1) (2)<br>Cat. No. | Cable Type/<br>Jacket Color                                | Description  | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>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 Kinetix 2090 standard, non-flex power/brake cable, 600V. | 0.228 (0.153)                  | 01 (3.2) 05 (16.4) 15 (49.2)<br>02 (6.5) 07 (22.9) 20 (65.6)<br>03 (9.8) 09 (29.5) 25 (82.0)<br>04 (13.1) 12 (39.4) 30 (98.4) |
| 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 Kinetix 2090 standard, non-flex feedback cable, 600V.    | 0.153 (0.103)                  |   |
| 2090-CFBM7E7-CEAFxx                 |  |  | 0.143 (0.096)                  |   |

(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<br>Cat. No. | Cable Gauge<br>AWG | Cable Type/<br>Jacket Color            | Description   | Standard Cable Lengths<br>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 - Kinetix Motor Power and Feedback Cables

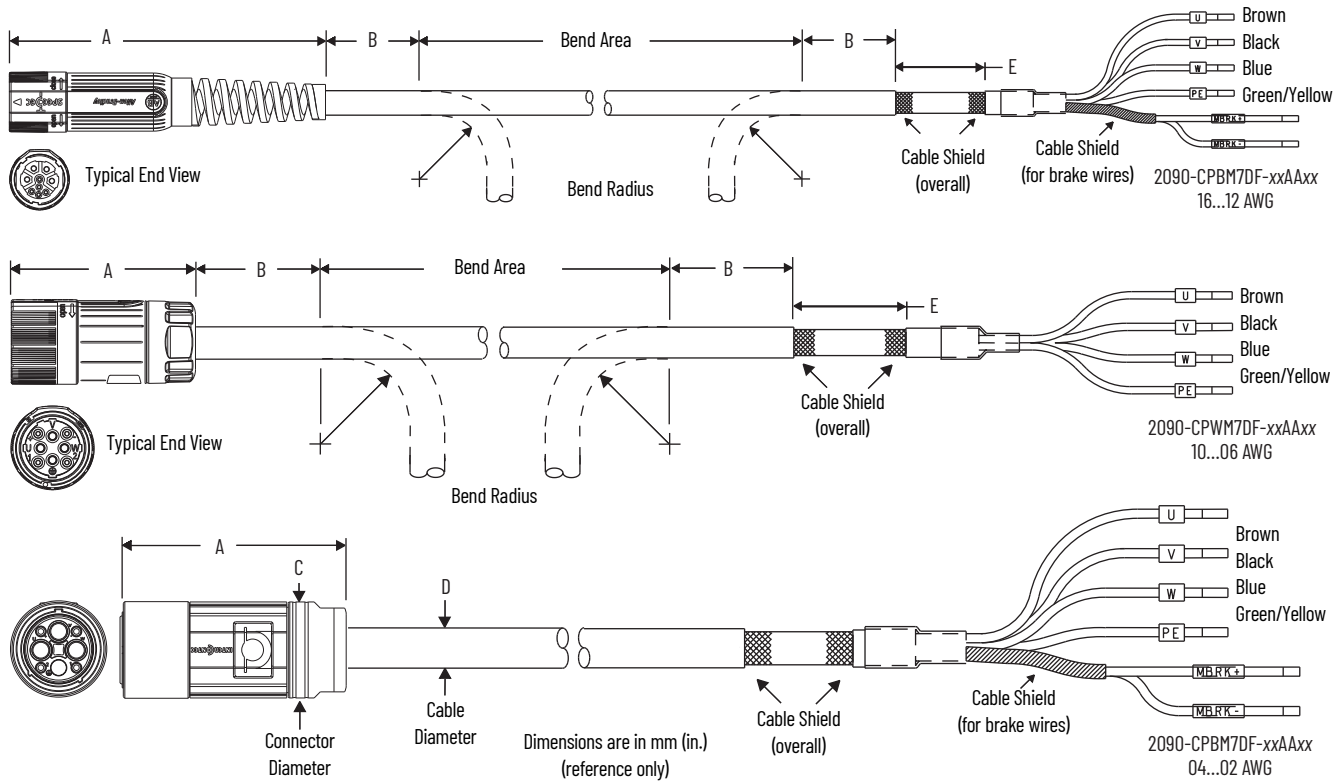
When installing cable runs between the motor and drive, be careful not to stress the cable by making bends too sharp. Refer to the table below for bend radius definitions, and the dimension diagrams that follow, when routing cables during system installation.

### 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: <ul style="list-style-type: none"> <li>Do not begin a static bend inside dimension B.</li> </ul>   |
|                        | Continuous flex     | <ul style="list-style-type: none"> <li>Use this measurement when routing the cable in a non-flex application between motor and drive (the bend area).               <ul style="list-style-type: none"> <li>The bend area is where standard (non-flex) or continuous-flex cables can be bent to their specified bend radius.</li> </ul> </li> </ul>   |
| Continuous bend radius | Continuous flex     | The continuous bend radius for Kinetix motor power and feedback cables is 12 times the cable diameter: <ul style="list-style-type: none"> <li>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.</li> <li>Use this measurement when routing the cable in a continuous-flex application between motor and drive (the continuous-flexing area).               <ul style="list-style-type: none"> <li>The continuous flexing area is where continuous-flex cables can be flexed repeatedly.</li> </ul> </li> </ul> |

## Motor Power Cables

### Power Cable Dimensions, Standard, Non-flex (SpeedTec DIN connector)



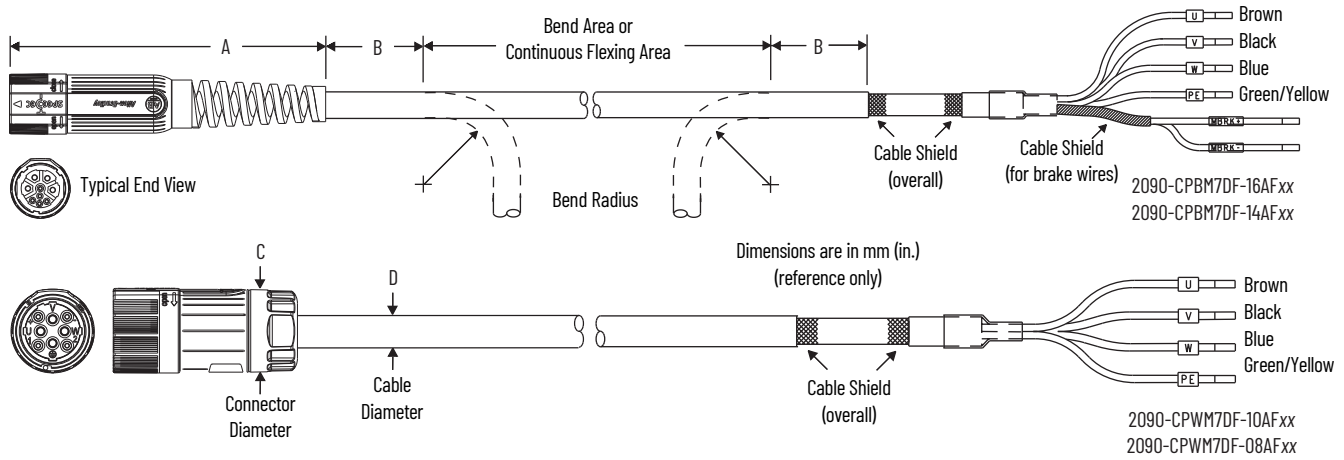
### Power Cable Dimensions (standard, non-flex)

| Power Cable Cat. No. | A mm (in.) | B <sup>(1)</sup> 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)                 | 46 (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)                 | 64 (2.5)   | 16.8 (0.66) | 90 (3.5)   |
| 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)                 | 64 (2.5)   | 24.3 (0.96) | 90 (3.5)   |
| 2090-CPBM7DF-04AAxx  |            | 202 (7.9)                 |            | 28.8 (1.13) |            |
| 2090-CPBM7DF-02AAxx  |            | 229 (9.0)                 |            | 32.7 (1.29) |            |

(1) Dimension B is based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.



**Power Cable Dimensions, Continuous-flex (SpeedTec DIN connector)**

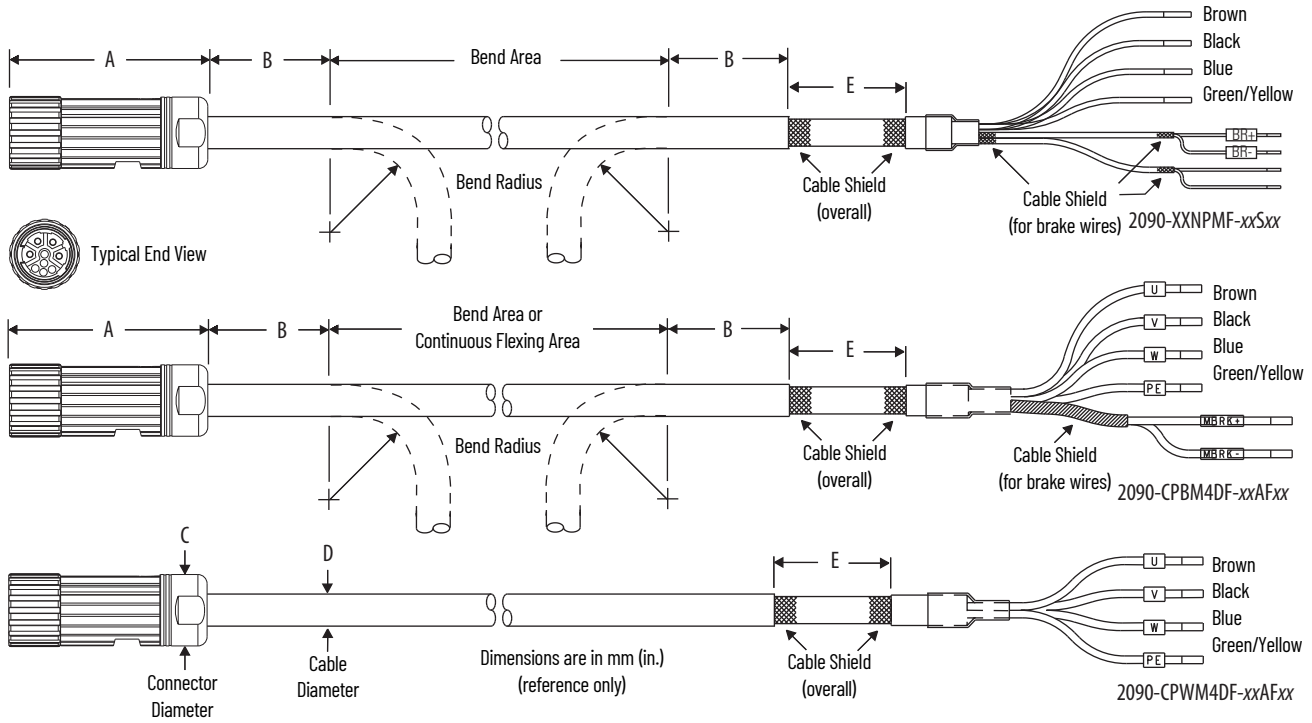


**Power Cable Dimensions (continuous-flex rated)**

| 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-CPBM7DF-16AFxx  | 147 (5.8)  | 87.5 (3.4)     | 150 (5.9)                           | 28 (1.1)   | 12.5 (0.49) | 150 (5.9)  |
| 2090-CPWM7DF-16AFxx  |            | 67.9 (2.7)     | 116 (4.6)                           |            | 9.7 (0.38)  |            |
| 2090-CPBM7DF-14AFxx  |            | 95.9 (3.8)     | 164 (6.5)                           |            | 13.7 (0.54) |            |
| 2090-CPWM7DF-14AFxx  |            | 72.8 (2.9)     | 125 (4.9)                           |            | 10.4 (0.41) |            |
| 2090-CPBM7DF-10AFxx  | 100 (3.9)  | 125 (4.9)      | 214 (8.4)                           | 46 (1.8)   | 17.8 (0.70) | 90 (3.5)   |
| 2090-CPWM7DF-10AFxx  |            | 110 (4.3)      | 188 (7.4)                           |            | 15.7 (0.62) |            |
| 2090-CPBM7DF-08AFxx  |            | 144 (5.7)      | 247 (9.7)                           |            | 20.6 (0.81) |            |
| 2090-CPWM7DF-08AFxx  |            | 141 (5.5)      | 242 (9.5)                           |            | 20.2 (0.79) |            |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.

**Power Cable Dimensions (threaded DIN connector)**



**Power Cable Dimensions (standard, non-flex)**

| Power Cable Cat. No. | A mm (in.) | B <sup>(1)</sup> 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)                 | 46.0 (1.8) | 19.0 (0.75) | 90.0 (3.5) |

(1) Dimension B is based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.

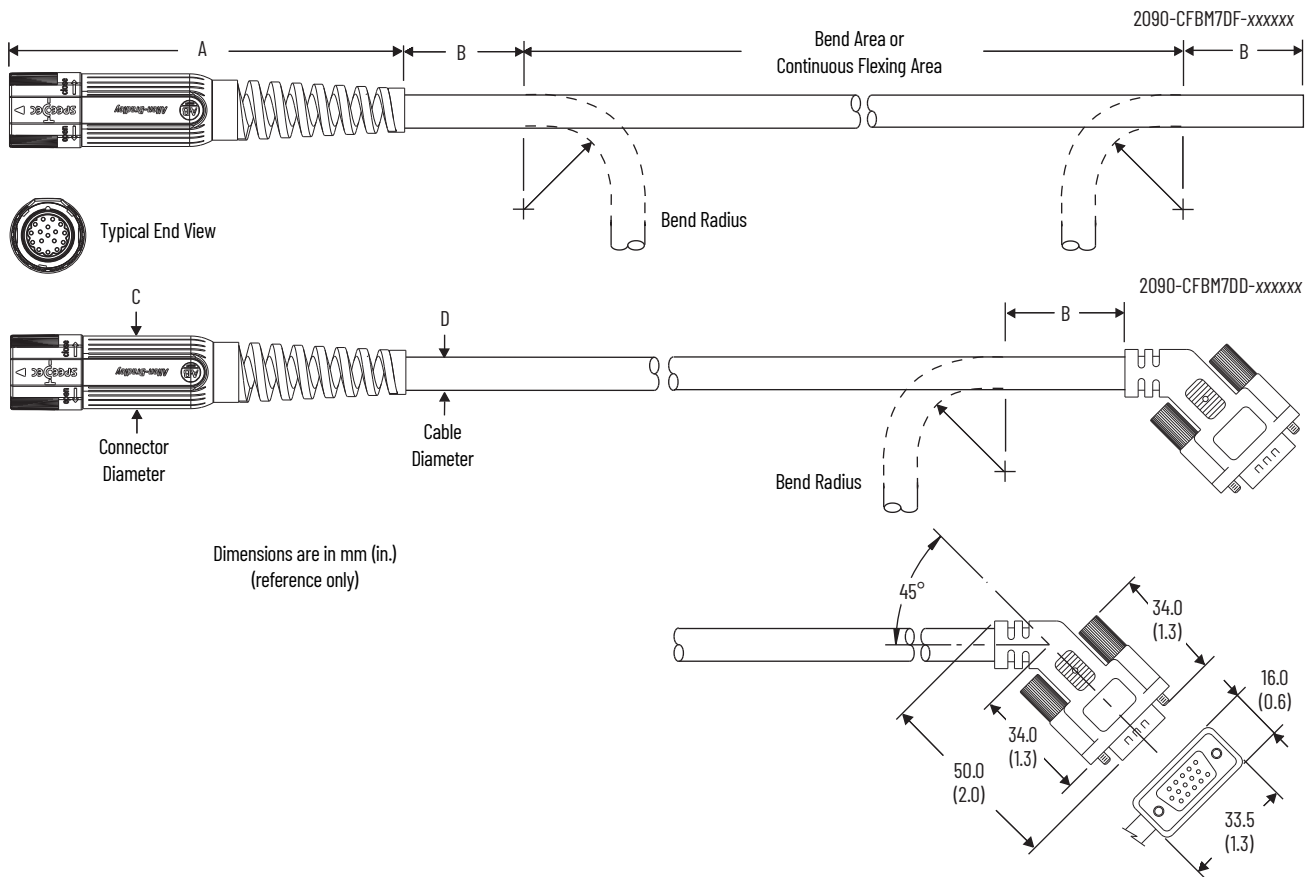
**Power Cable Dimensions (continuous-flex rated)**

| Power Cable Cat. No. | A mm (in.) | B <sup>(1)</sup> mm (in.) | Continuous Bend Radius <sup>(1)</sup> 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 and Continuous Bend Radius are based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.

## Motor Feedback Cables

### Feedback Cable Dimensions (SpeedTec DIN connector)



### Feedback Cable Dimensions (standard, non-flex)

| Feedback Cable Cat. No. | A mm (in.) | B <sup>(1)</sup> mm (in.) | C mm (in.) | D mm (in.) |
|-------------------------|------------|---------------------------|------------|------------|
| 2090-CFBM7DF-CEAxx      | 147 (5.8)  | 68.6 (2.7)                | 28.0 (1.1) | 9.8 (0.38) |
| 2090-CFBM7DD-CEAxx      |            |                           |            |            |

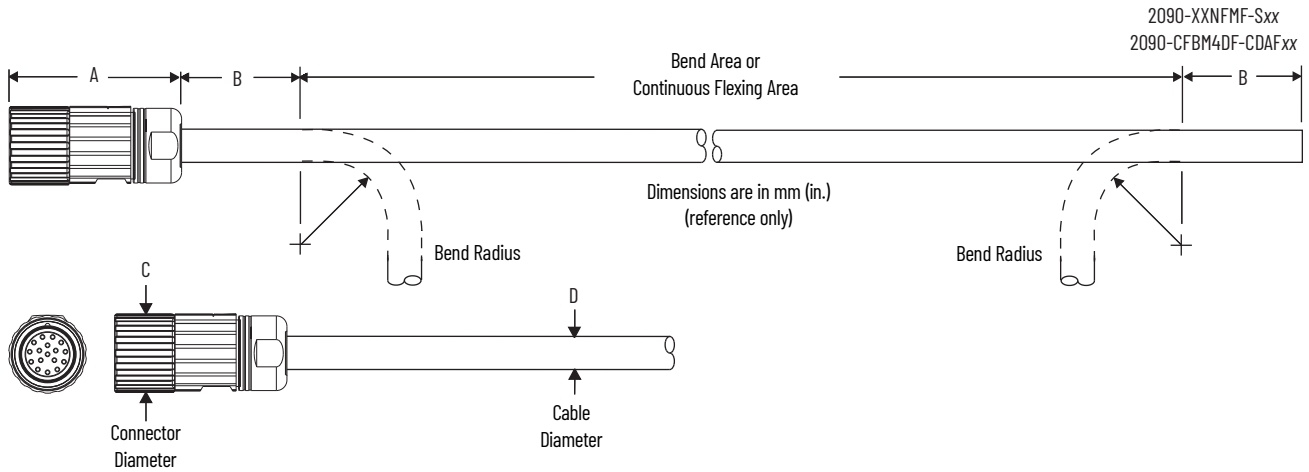
(1) Dimension B is based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.

### Feedback Cable Dimensions (continuous-flex rated)

| Feedback Cable Cat. No. | A mm (in.) | B <sup>(1)</sup> mm (in.) | Continuous Bend Radius <sup>(1)</sup> mm (in.) | C mm (in.) | D mm (in.)  |
|-------------------------|------------|---------------------------|--|------------|-------------|
| 2090-CFBM7DF-CEAFxx     | 147 (5.8)  | 72.1 (2.8)                | 124 (4.9)                                      | 28.0 (1.1) | 10.3 (0.40) |
| 2090-CFBM7DD-CEAFxx     |            |                           |  |            |             |
| 2090-CFBM7DF-CDAFxx     |            | 81.9 (3.2)                | 140 (5.5)                                      |            | 11.7 (0.46) |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.

**Feedback Cable Dimensions (threaded DIN connector)**



**Feedback Cable Dimensions (standard, non-flex)**

| Feedback Cable Cat. No. | A mm (in.) | B <sup>(1)</sup> mm (in.) | C mm (in.) | D mm (in.)  |
|-------------------------|------------|---------------------------|------------|-------------|
| 2090-XXNFMF-Sxx         | 57.0 (2.2) | 70 (2.7)                  | 26.0 (1.0) | 10.0 (0.40) |

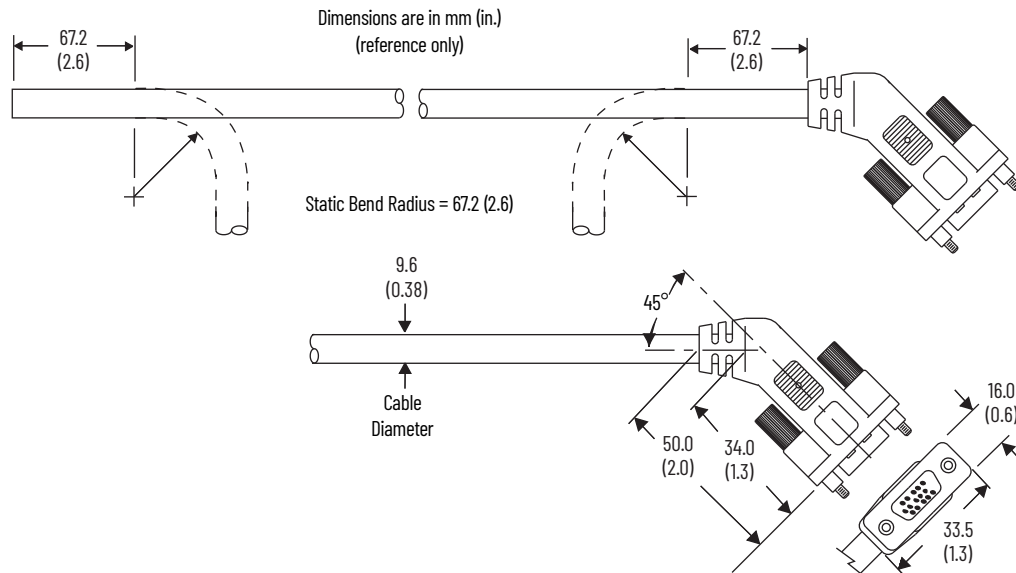
(1) Dimension B is based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.

**Feedback Cable Dimensions (continuous-flex rated)**

| Feedback Cable Cat. No. | A mm (in.) | B <sup>(1)</sup> mm (in.) | Continuous Bend Radius <sup>(1)</sup> mm (in.) | C mm (in.) | D mm (in.)  |
|-------------------------|------------|---------------------------|--|------------|-------------|
| 2090-CFBM4DF-CDAFxx     | 57.0 (2.2) | 81.9 (3.2)                | 140 (5.5)                                      | 26.0 (1.0) | 11.7 (0.46) |

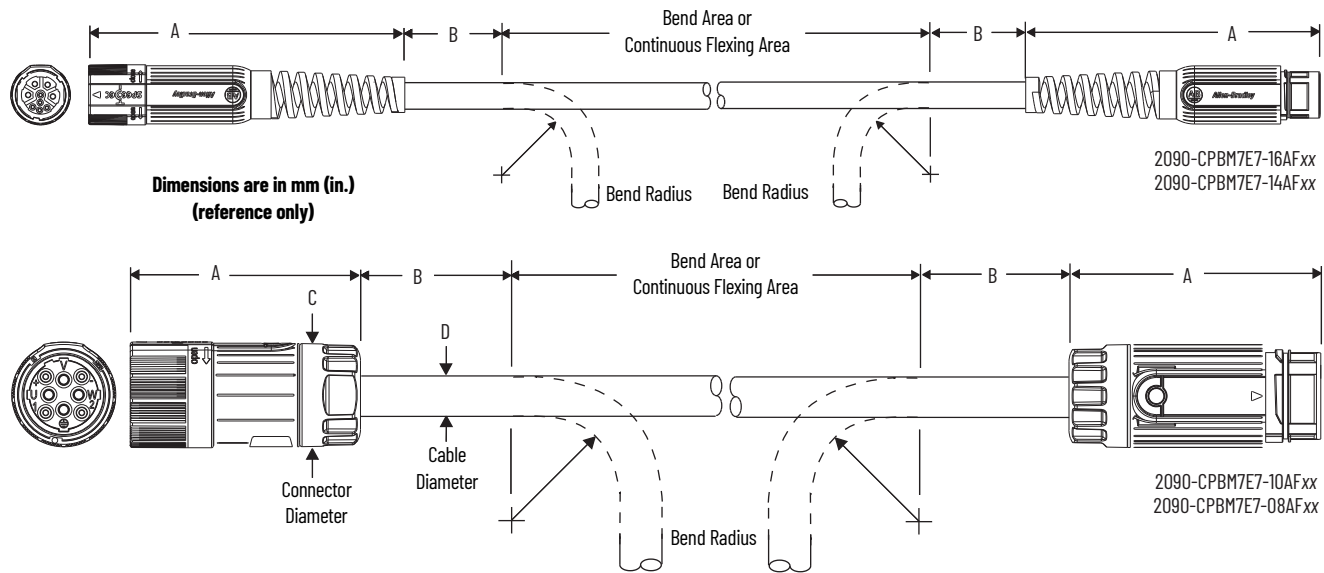
(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.

**Feedback Cable Dimensions (catalog number 2090-UXNFM-Sxx)**



## Continuous-flex Extension Cables

### Power Cable Dimensions (SpeedTec DIN)

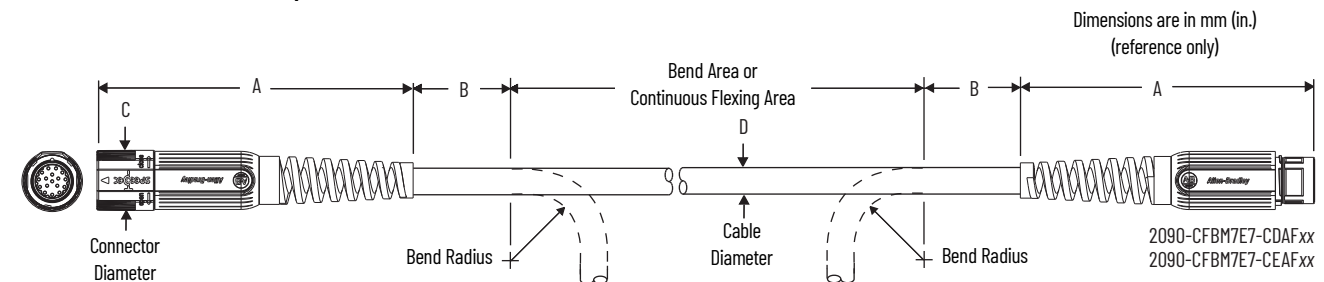


### Power Cable Dimensions (continuous-flex rated)

| Power Cable Cat. No. | A mm (in.) | B <sup>(1)</sup> mm (in.) | Continuous Bend Radius <sup>(1)</sup> 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)                                      | 46.0 (1.8) | 17.8 (0.70) |
| 2090-CPBM7E7-08AFxx  |            | 144 (5.7)                 | 247 (9.7)                                      |            | 20.6 (0.81) |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.

### Feedback Cable Dimensions (SpeedTec DIN)



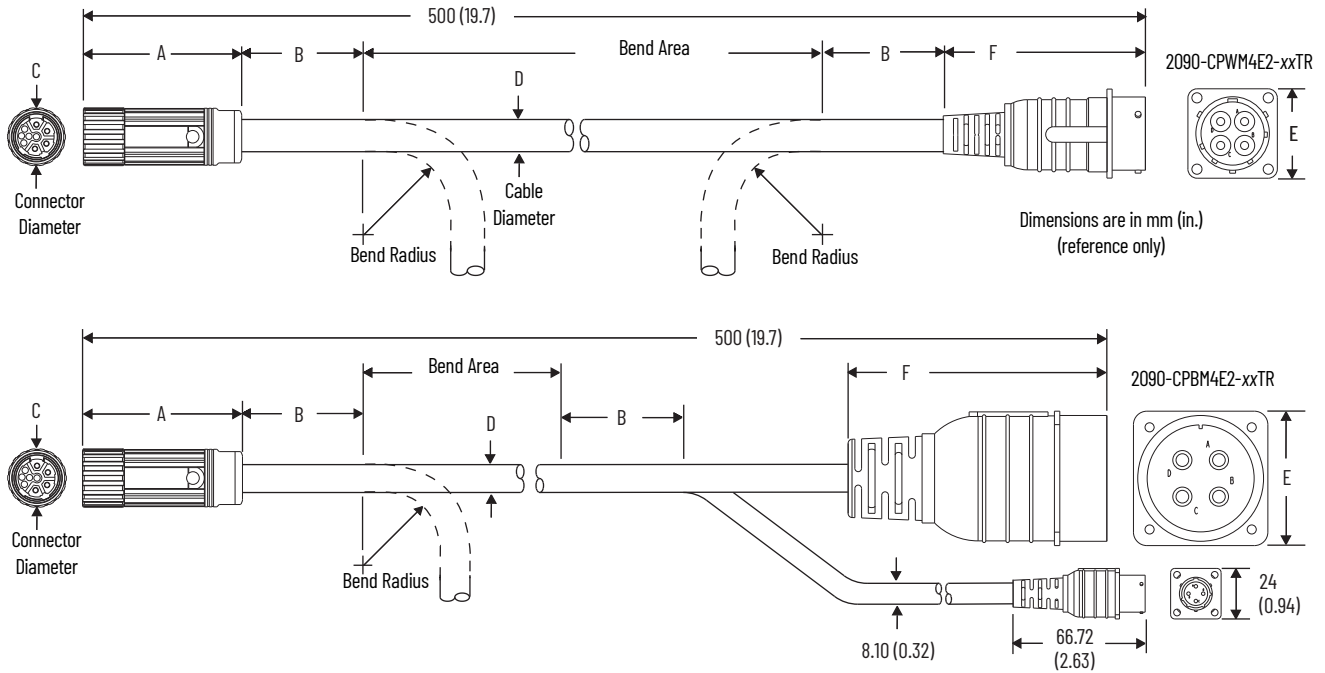
### Feedback Cable Dimensions (continuous-flex rated)

| Feedback Cable Cat. No. | A mm (in.) | B <sup>(1)</sup> mm (in.) | Continuous Bend Radius <sup>(1)</sup> 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 and Continuous Bend Radius are based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on [page 43](#) for more information.

# Transition Cables

## Power Cable Dimensions

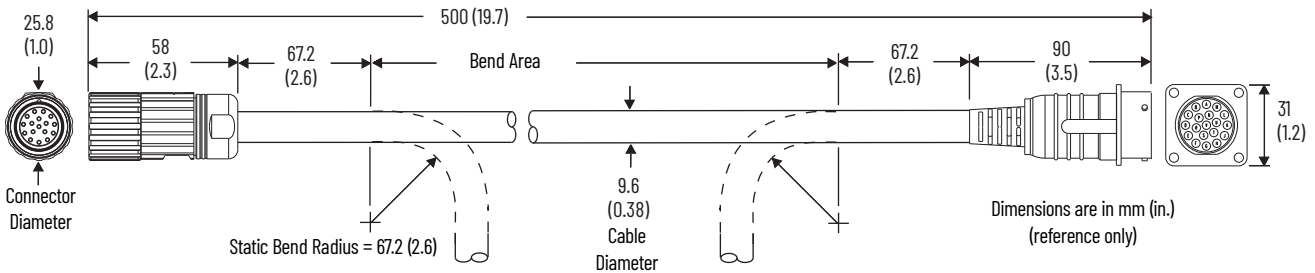


## Power Cable Dimensions (standard, non-flex)

| 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)     | 46.0 (1.81) | 18.4 (0.74) | 46.0 (1.81) |            |
| 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)     | 64.0 (2.5)  | 20.5 (0.81) | 46.0 (1.81) | 146 (5.75) |
| 2090-CPWM4E2-08TR    | 95.0 (3.74) | 132 (5.20)     |             | 18.9 (0.74) |             |            |
| 2090-CPBM4E2-04TR    | 147 (5.77)  | 201 (7.91)     | 64.0 (2.5)  | 28.7 (1.13) | 64.0 (2.52) | 131 (5.17) |
| 2090-CPWM4E2-04TR    |             |                |             |             | 63.7 (2.51) | 132 (5.20) |

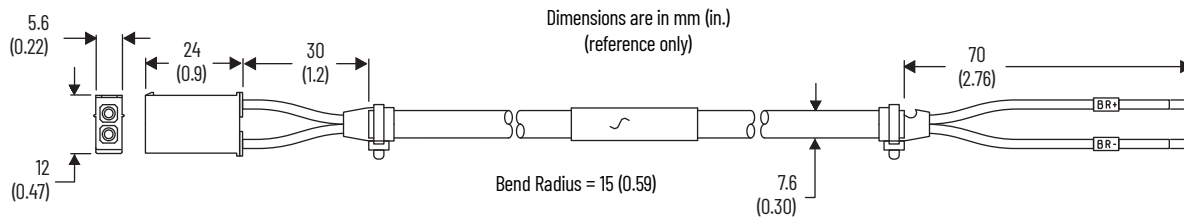
(1) Dimension B is based on the cable diameter. Refer to Motor Power and Feedback Cable Bend Radius Definitions on page 43 for more information.

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



## Motor Brake Cables

### Brake Cable Dimensions (catalog number 2090-DANBT-18Sxx)



## Kinetix Motor-end Cable Connector Kits

Motor-end connector kits are available for building your own cables. These kits are intended for bayonet, circular DIN (M4 and M7), and circular plastic (M6) cable connectors.

### Bayonet Motor-end Cable Connector Kits

| Motor Cat. No.   | Connector Kit Cat. No. | Description                                 |
|--|------------------------|---|
| MPL-A/B3xxx-xx2xAA, MPL-A/B4xxx-xx2xAA, MPL-A/B45xxx-xx2xAA<br>MPL-A520K-xx2xAA<br>MPL-B520K-xx2xAA, MPL-B540K-xx2xAA, MPL-B540D-xx2xAA,<br>MPL-B560F-xx2xAA, and MPL-B580F-xx2xAA | 2090-MPPC-S            | Straight Power Connector Kit,<br>12 AWG max |
| MPL-B6xxx-xx2xAA, MPL-B8xxx-xx2xAA,<br>MPL-B960B-xx2xAA, MPL-B960C-xx2xAA, MPL-B980B-xx2xAA, MPL-B980C-xx2xAA  | 2090-MPPC-08S          | Straight Power Connector Kit,<br>8 AWG max  |
| MPL-A/B3xxx-xx2xAA, MPL-A/B4xxx-xx2xAA, MPL-A/B45xxx-xx2xAA, MPL-A/B5xxx-xx2xAA<br>MPL-B6xxx-xx2xAA, MPL-B8xxx-xx2xAA, MPL-B9xxx-xx2xAA  | 2090-MPFC-S            | Straight Feedback Connector Kit             |
| All MPL-A/Bxxx-xx2xAA  | 2090-MPBC-S            | Straight Brake Connector Kit                |

## Circular DIN Motor-end Cable Connector Kits

### Feedback Cable Connector Kits



### Power Cable Connector Kits



## Motor-end Connector Kit Cross-reference Tables

The tables beginning on [page 53](#) provide a cross-reference for the circular DIN (M4 and M7) connector kits above to the compatible motor series catalog number. Also provided are the bulkhead adapters for securing the cables as they pass through the cabinet and crimping tools required for properly attaching the power wires to sockets and pins. See Kinetix 2090 Circular-DIN Connector Kits, Flange Kits, and Crimp Tools, publication [2090-IN042](#), for more information.

Connector kits and crimping tools are also available for circular plastic (M6) connectors. Refer to [page 54](#) for the compatible motor series and crimp tool catalog numbers.



## 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<br>SpeedTec plug, M23 connector<br>16, 14, and 12 AWG motor power<br>18 AWG motor brake | 2090-TCR47-M23                 | 2090-KPB47-12CF           | MPL-A/B15xxx-V/Ex7xAA, MPL-A/B2xxx-V/Ex7xAA<br>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,<br>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<br>SpeedTec plug, M40 connector<br>10, 8, and 6 AWG motor power<br>18 AWG motor brake   | 2090-TCR47-M40<br>(power pins) | 2090-KPB47-06CF           | MPL-A5xx, MPL-B580, MPL-B6xx,<br>MPL-B860, MPL-B880C, MPL-B960B, MPL-B980B   |
|                        |   |                                |                           | MPM-A1651F, MPM-B1651M, MPM-B1652E, MPM-A/B1652F, MPM-B1653E,<br>MPM-A/B1653F, MPM-A/B215xx  |
|                        |   | 2090-TCR47-M23<br>(brake pins) |                           | MPF-A/B5xxx-S/Mx7xAA   |
|                        |   |                                |                           | RDB-B2151F, RDB-B2152F, RDB-B2153C, RDB-B2153E,<br>RDB-B29029, RDB-B29036, RDB-B410xx  |
| 2090-KPBE7-12AA        | Extension cable connector<br>SpeedTec plug, M23 connector<br>16, 14, and 12 AWG motor power<br>18 AWG motor brake | 2090-TCR47-M23                 | 2090-KPB47-12CF           | MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx,<br>MPL-B520, MPL-B540, MPL-B560   |
|                        |   |                                |                           | MPM-A/B115xx, MPM-A/B130xx, MPM-B1651C, MPM-B1651F, MPM-B1652C,<br>MPM-B1653C  |
|                        |   |                                |                           | MPF-A/B3xxx-S/Mx7xAA, MPF-A/B4xxx-S/Mx7xAA, MPF-A/B45xxx-S/Mx7xAA  |
|                        |   |                                |                           | RDB-B130xx, RDB-B165xx,<br>RDB-B21519, RDB-B2151C, RDB-B21529, RDB-B2152C, RDB-B21539,<br>RDB-B2901x, RDB-B29024, RDB-B29026, RDB-B29034 |
| 2090-KPBE7-06AA        | Extension cable connector<br>SpeedTec plug, M40 connector<br>10, 8, and 6 AWG motor power<br>18 AWG motor brake   | 2090-TCR47-M40<br>(power pins) | 2090-KPB47-06CF           | MPL-A5xx, MPL-B580, MPL-B6xx, MPL-B860, MPL-B880C, MPL-B960B,<br>MPL-B980B   |
|                        |   |                                |                           | MPM-A1651F, MPM-B1651M, MPM-B1652E, MPM-A/B1652F, MPM-B1653E,<br>MPM-A/B1653F, MPM-A/B215xx  |
|                        |   | 2090-TCR47-M23<br>(brake pins) |                           | MPF-A/B5xxx-S/Mx7xAA   |
|                        |   |                                |                           | RDB-B2151F, RDB-B2152F, RDB-B2153C, RDB-B2153E,<br>RDB-B29029, RDB-B29036, RDB-B410xx  |

## 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<br>Threaded plug, M23 connector<br>16, 14, and 12 AWG motor power<br>18 AWG motor brake | 2090-TCR47-M23   | 2090-KPB47-12CF           | MPL-A/B15xxx-V/Ex4xAA, MPL-A/B2xxx-V/Ex4xAA  |
|                        |   |  |                           | MPF-A/B3xxx-S/Mx4xAA, MPF-A/B4xxx-S/Mx4xAA, MPF-A/B45xxx-S/Mx4xAA,<br>MPF-A/B5xxx-S/Mx4xAA |
|                        |   |  |                           | MPS-A/B3xx, MPS-A/B45xx, MPS-B5xx (threaded motor connectors)                              |
| 2090-KPBM4-06AA        | Motor-end cable connector<br>Threaded plug, M40 connector<br>10, 8, and 6 AWG motor power<br>18 AWG motor brake   | 2090-TCR47-M40<br>(power pins)<br><br>2090-TCR47-M23<br>(brake pins) | 2090-KPB47-06CF           | MPF-A/B5xxx-S/Mx4xAA   |

**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<br>SpeedTec plug, M23 connector | N/A<br>(soldered contacts) | 2090-KFB47-CF             | MPL-A/B15xxx-V/Ex7xAA or MPL-A/B2xxx-V/Ex7xAA<br>MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx<br>MPL-B6xx, MPL-B8xx, MPL-B9xx<br>MPM-A/B115xx, MPM-A/B130xx, MPM-A/B165xx, MPM-A/B215xx<br>MPF-A/B3xxx-S/Mx7xAA, MPF-A/B4xxx-S/Mx7xAA, MPF-A/B45xxx-S/Mx7xAA,<br>MPF-A/B5xxx-S/Mx7xAA<br>MPS-A/B3xx, MPS-A/B45xx, MPS-A/B5xx (SpeedTec motor connectors)<br>RDB-B130xx, RDB-B165xx, RDB-B215xx, RDB-B290xx, RDB-B410xx |
| 2090-KFBE7-CAAA        | Extension cable connector<br>SpeedTec plug, M23 connector |                            |                           | MPL-A/B3xx, MPL-A/B4xx, MPL-A/B45xx, MPL-A/B5xx,<br>MPL-B6xx, MPL-B8xx, MPL-B9xx<br>MPM-A/B115xx, MPM-A/B130xx, MPM-A/B165xx, MPM-A/B215xx<br>MPF-A/B3xxx-S/Mx7xAA, MPF-A/B4xxx-S/Mx7xAA, MPF-A/B45xxx-S/Mx7xAA,<br>MPF-A/B5xxx-S/Mx7xAA<br>RDB-B130xx, RDB-B165xx, RDB-B215xx, RDB-B290xx, RDB-B410xx  |
| 2090-KFBM4-CAAA        | Motor-end cable connector<br>Threaded plug, M23 connector |                            |                           | MPL-A/B15xxx-V/Ex4xAA or MPL-A/B2xxx-V/Ex4xAA<br>MPF-A/B3xxx-S/Mx4xAA, MPF-A/B4xxx-S/Mx4xAA, MPF-A/B45xxx-S/Mx4xAA,<br>MPF-A/B5xxx-S/Mx4xAA<br>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                       |                     |

## Kinetix Bulkhead Adapter Kits

These bulkhead adapter kits let you secure your cables as they pass through the cabinet. Adapter kits apply to Kinetix TL and TLY motor power and feedback cables and Kinetix integrated drive-motor hybrid cables.

### Kinetix 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                      | -                                    |             |              |                             |
|                           | 2090-CPBM7DF-16AAxx                      | 2090-CPBM7DF-16AFxx                  | Power/brake |              |                             |
|                           | 2090-CPBM7DF-14AAxx                      | 2090-CPBM7DF-14AFxx                  |             |              |                             |
|                           | 2090-CPBM7DF-12AAxx                      | -                                    |             |              |                             |
|                           | -  | 2090-CPBM7E7-16AAxx                  |             |              |                             |
|                           | -  | 2090-CPBM7E7-14AAxx                  | Power only  |              |                             |
|                           | -  | 2090-CPWM4DF-16AFxx                  |             |              |                             |
|                           | -  | 2090-CPBM4DF-16AFxx                  | Power/brake |              |                             |
| 2090-XXNPMF-16Sxx         | -  |                                      |             |              |                             |
| 2090-KPB47-06CF           | 2090-CPWM7DF-10AAxx                      | 2090-CPWM7DF-10AFxx                  | Power only  | SpeedTec DIN | 46.0 (1.8)                  |
|                           | 2090-CPWM7DF-08AAxx                      | 2090-CPWM7DF-08AFxx                  | Power/brake |              |                             |
|                           | 2090-CPBM7DF-10AAxx                      | 2090-CPBM7DF-10AFxx                  |             |              |                             |
|                           | 2090-CPBM7DF-08AAxx                      | 2090-CPBM7DF-08AFxx                  |             |              |                             |
|                           | 2090-CPBM7DF-06AAxx                      | -                                    |             |              |                             |

### Kinetix 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                     |             |              |                             |
|                           | -   | 2090-CFBM7DF-CDAFxx                     |             |              |                             |
|                           | -   | 2090-CFBM7E7-CDAFxx                     |             |              |                             |
|                           | -   | 2090-CFBM7E7-CEAFxx                     |             |              |                             |
| 2090-KFB47-CF             | 2090-CFBM4DF-CEAAxx                         | -                                       | Feedback    | Threaded DIN | 26.0 (1.0)                  |
|                           | -   | 2090-CFBM4DF-CDAFxx                     |             |              |                             |
|                           | 2090-XXNFMF-Sxx                             | -                                       |             |              |                             |

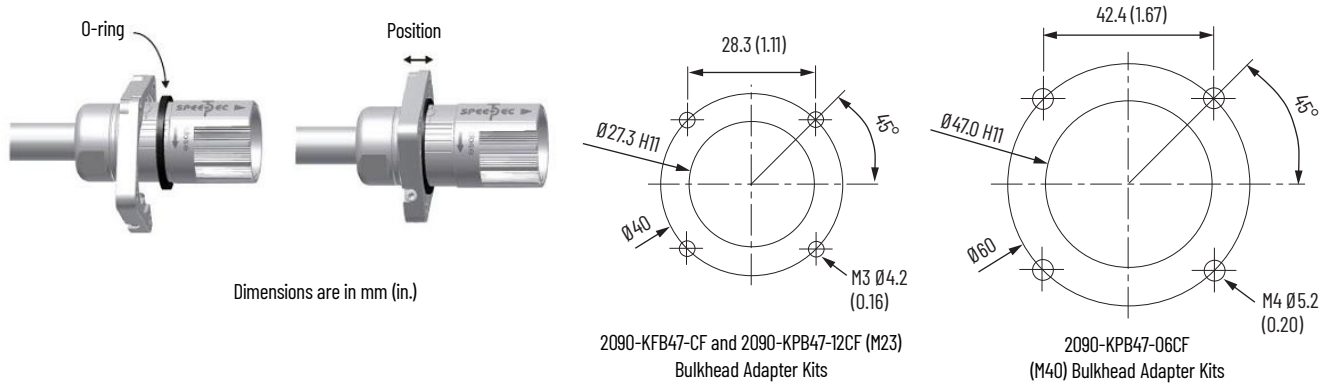
### Kinetix Integrated Motor-Drive Hybrid Cable Compatibility

| 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   |             |          |                             |

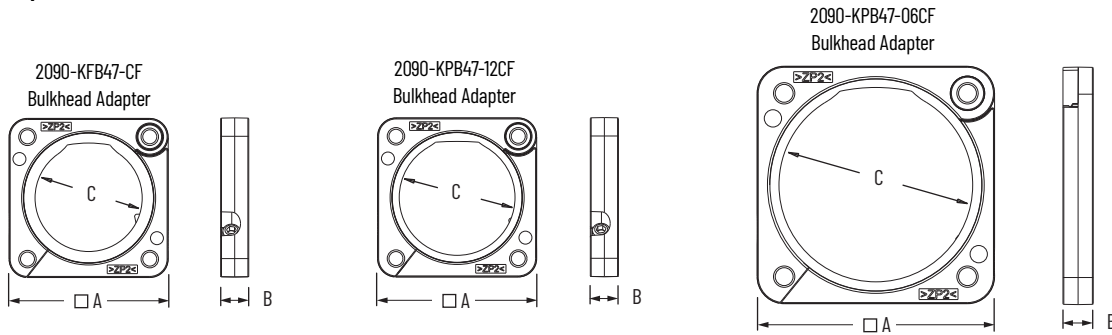
## Bulkhead Adapter Kit Dimensions

These bulkhead adapter dimensions apply to Kinetix TL and TLY motor power and feedback cables, integrated motor-drive hybrid cables, and single cables.

### Bulkhead Adapter Kit Mounting Dimensions



### Bulkhead Adapter Kit Dimensions



| Bulkhead Adapter Cat. No. | Size | Dimension A<br>mm (in.) | Dimension B<br>mm (in.) | Dimension C (reference)<br>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 TL and TLY Motor Power and Feedback Cables

A wide variety of power and feedback cables with rugged 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.

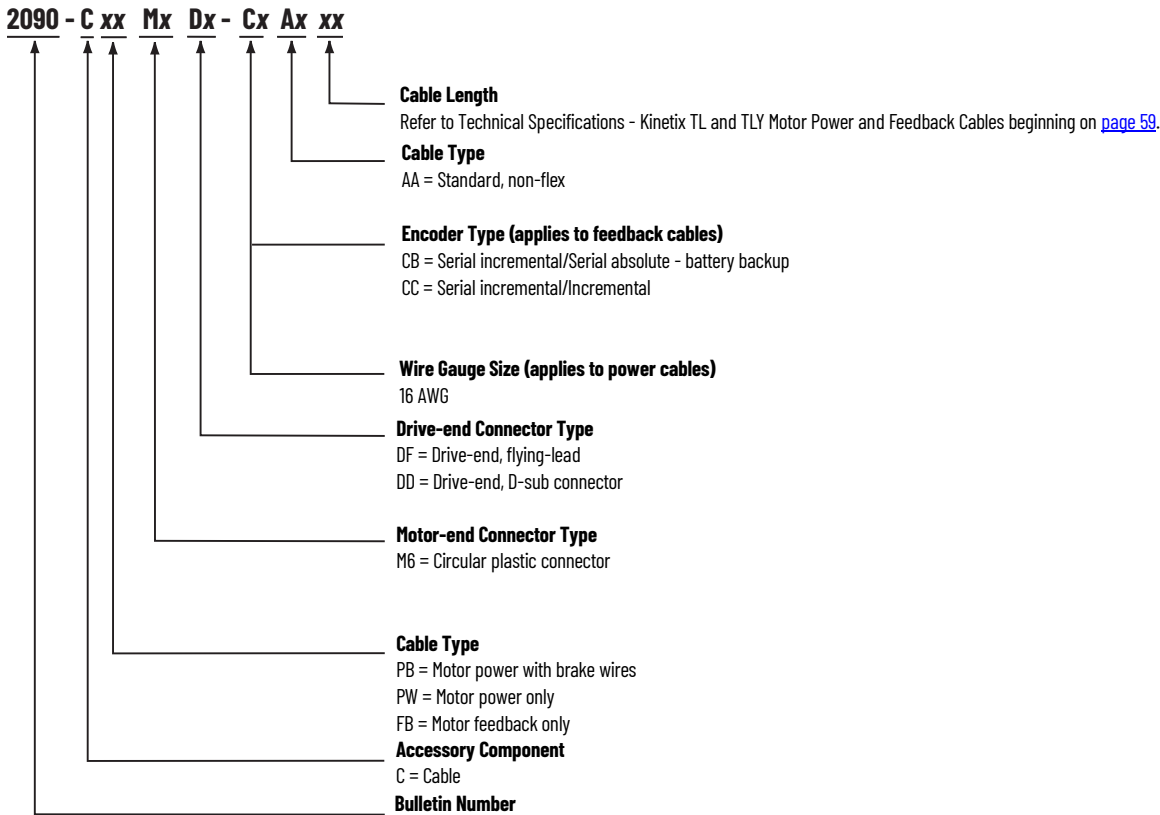
**IMPORTANT** All flying-lead feedback cables require breakout components or connector kits for drive-end terminations. Refer to Breakout Components and Connector Kits in Kinetix 3, 300, 350, 2000, 6000, 6200, 6500, 7000 Servo Drives Specifications, publication [KNX-TD005](#) for catalog numbers and descriptions.

**IMPORTANT** Standard (non-flex) cables have a regular maintenance and installation bend radius of 7 times the cable diameter.

## Catalog Numbers - Kinetix TL and TLY Power and Feedback Cables

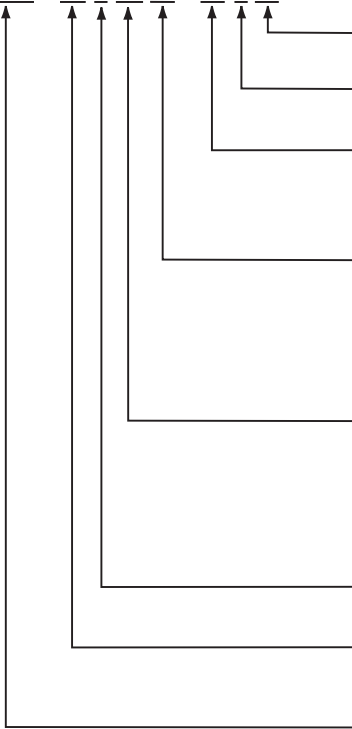
Catalog numbers consist of various characters, each of which identifies a specific option for that component. Use the catalog numbering charts below to understand the configuration of your component. For questions regarding product availability, contact your Allen-Bradley distributor.

### Motor Power/Brake, Feedback, and Extension Cables



## Motor Power, Feedback, and Brake Cables

2090 - xx x xx xx - xx S xx



- Cable Length**  
Refer to Technical Specifications - Kinetix TL and TLY Motor Power and Feedback Cables beginning on [page 59](#).
- Motor Connector**  
S = Straight
- Wire Gauge Size (AWG)**  
16 = Motor power cable  
18 = Motor brake cables  
Blank = Feedback cables
- Motor/Actuator Series**  
T = TL-Axxxx-B
- Cable Type**  
P = Motor power  
F = Motor feedback connector (flying-leads at drive)  
FC = Motor feedback (connectors at both ends, Kinetix TL and TLY)  
B = Motor brake
- Flex Option**  
N = Standard cable (non-flex)
- Drive Family**  
DA = Kinetix 5300, Kinetix 5100, Kinetix 3 drives  
XX = All other drives
- Bulletin Number**

# Kinetix TL and TLY Power and Feedback Cables Overview

## Feedback Cable Descriptions (standard, non-flex)

| Standard Cable Cat. No. | Description   | Cable Configuration |           | Connector Type        |
|-------------------------|---|---------------------|-----------|-----------------------|
|                         |   | Motor End           | Drive End |                       |
| 2090-CFBM6DF-CBAAxx     | <ul style="list-style-type: none"> <li>Drive-end flying-leads (DF)</li> <li>High-resolution, battery backup or Incremental applications (CB)</li> </ul> |                     |           | Circular Plastic (M6) |
| 2090-CFBM6DD-CCAAxx     | <ul style="list-style-type: none"> <li>Drive-end 15-pin connector (DD)</li> <li>Incremental applications only (CC)</li> </ul>                           |                     |           |                       |
| 2090-DANFCT-Sxx         | <ul style="list-style-type: none"> <li>Drive-end 20-pin connector</li> <li>High-resolution applications</li> </ul>                                      |                     |           |                       |

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

| Standard Cable Cat. No. | Description   | Cable Configuration |           | Connector Type        |
|-------------------------|---|---------------------|-----------|-----------------------|
|                         |   | Motor End           | Drive End |                       |
| 2090-CPBM6DF-16AAxx     | <ul style="list-style-type: none"> <li>Drive-end flying-leads (DF)</li> <li>Power/brake wires (PB)</li> </ul> |                     |           | Circular Plastic (M6) |
| 2090-CPWM6DF-16AAxx     | <ul style="list-style-type: none"> <li>Drive-end flying-leads (DF)</li> <li>Power wires only (PW)</li> </ul>  |                     |           |                       |
| 2090-DANPT-16Sxx        | <ul style="list-style-type: none"> <li>Drive-end flying-leads</li> <li>Power wires only</li> </ul>            |                     |           | Rectangular Plastic   |
| 2090-DANBT-18Sxx        | Drive-end flying-lead brake wires   |                     |           |                       |

# Technical Specifications - Kinetix TL and TLY Motor Power and Feedback Cables

**IMPORTANT** Maximum motor cable length depends on the feedback type and overall system design. The drive-system power supply, AC input-power type, and AC input voltage are among the configuration variables. For more information on maximum cable lengths see your servo drive user manual or the Kinetix 5700, 5500, 5300, 5100 Servo Drives Specifications Technical Data, publication [KNX-TD003](#).

## Power Cable Specifications

| Power Cables Cat. No. | Cable Type/<br>Jacket Color                      | Description   | Wire Size AWG | Weight, approx kg/m (lb/ft) | Standard Cable Lengths m (ft) |           |           |
|-----------------------|--|---|---------------|-----------------------------|-------------------------------|-----------|-----------|
| 2090-CPWM6DF-16AAxx   | Standard (non-flex) cable, Industrial TPE, Black | Four conductor, 600V, shielded cable for three-phase power.   | 16            | 0.138 (0.093)               | 01 (3.2)                      | 05 (16.4) | 15 (49.2) |
| 2090-DANPT-16Sxx      |  |   | 16            |                             | 02 (6.5)                      | 07 (22.9) | 20 (65.6) |
| 2090-CPBM6DF-16AAxx   |  | Four conductor, 600V, shielded cable for three-phase power with additional two conductors 18 AWG for motor brake. | 16            | 0.180 (0.121)               | 03 (9.8)                      | 09 (29.5) | 25 (82.0) |
|                       |  |   |               |                             | 04 (13.1)                     | 12 (39.4) | 30 (98.4) |

## Brake Cable Specifications

| Brake Cables Cat. No. | Cable Type/<br>Jacket Color                      | Description  | Wire Size AWG | Weight, approx kg/m (lb/ft) | Standard Cable Lengths m (ft) |           |           |
|-----------------------|--|--|---------------|-----------------------------|-------------------------------|-----------|-----------|
| 2090-DANBT-18Sxx      | Standard (non-flex) cable, Industrial TPE, Black | Two conductor, 600V, 18 AWG, shielded cable for motor brake. | 18            | 0.070 (0.047)               | 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) |

**Feedback Cable Specifications**

| Feedback Cables Cat. No. | Cable Type/Jacket Color                          | Description  | Wire Size AWG                          | Weight, approx kg/m (lb/ft) | Standard Cable Lengths m (ft)   |
|--------------------------|--|--|--|-----------------------------|---|
| 2090-CFBM6DF-CBAAxx      | Standard (non-flex) cable, Industrial TPE, Black | Circular plastic connector (motor end) to flying leads (drive end), 300V.          | 28 Feedback<br>16 Power, 5V<br>22 BAT+ | 0.120 (1.35)                | 01 (3.2)    05 (16.4)    15 (49.2)<br>02 (6.5)    07 (22.9)    20 (65.6)<br>03 (9.8)    09 (29.5)    25 (82.0)<br>04 (13.1)    12 (39.4)    30 (98.4) |
| 2090-CFBM6DD-CCAAxx      |  | Circular plastic connector (motor end) to premolded connector (drive end), 300V.   | 28 Feedback<br>16 Power, 5V            |                             |   |
| 2090-DANFCT-Sxx          |  | Rectangular plastic connector (motor end) to premolded connector (drive end), 30V. | 28 Feedback<br>16 Power, 5V<br>22 BAT+ | 0.130 (0.088)               |   |

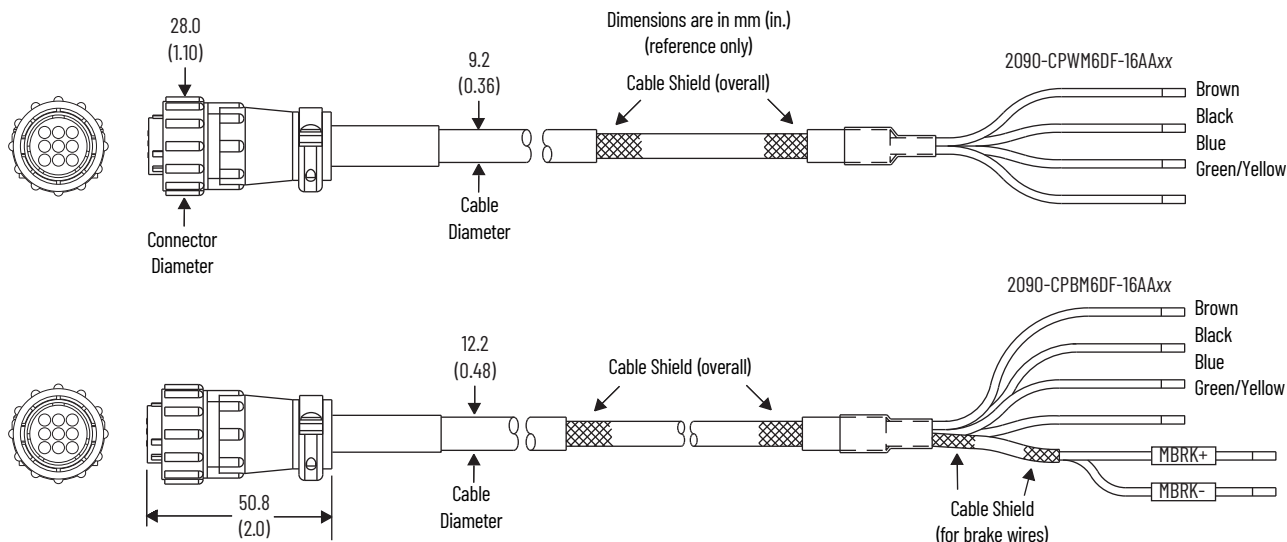
**Dimensions - Kinetix TL and TLY Motor Power and Feedback Cables**

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**

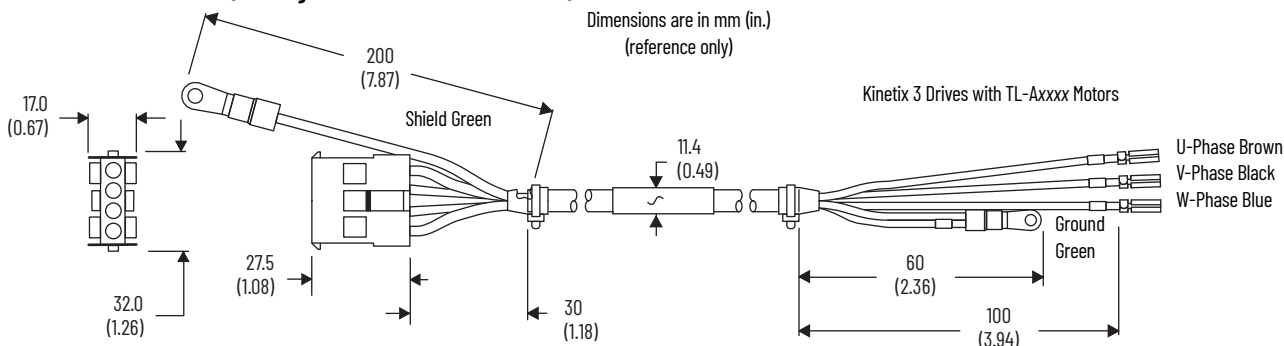
| Type of Bend Radius | Type of Cable       | Description   |
|---------------------|---------------------|---|
| Static bend radius  | Standard (non-flex) | The static (installation) bend radius and dimension B are 7 times the cable diameter:<br>• Do not begin a static bend inside dimension B.<br>• Use this measurement when routing the cable in a non-flex application between motor and drive (the bend area).<br>– The bend area is where standard (non-flex) or continuous-flex cables can be bent to their specified bend radius. |

**Power Cable Dimensions (catalog number 2090-CPxM6DF-16AAxx)**

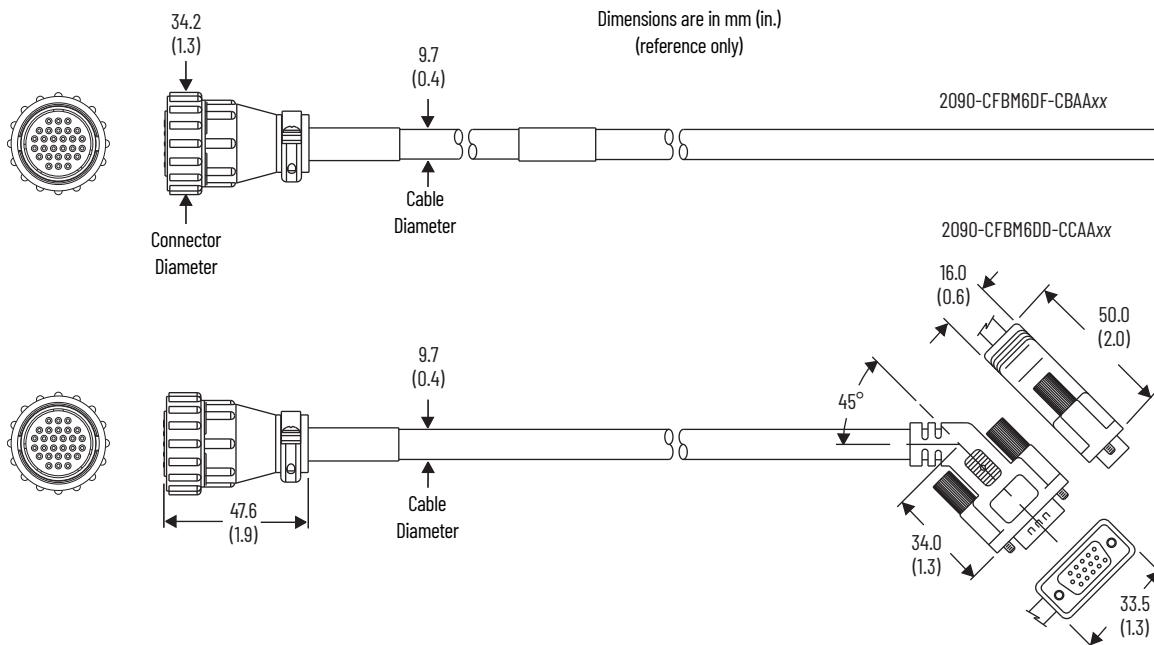




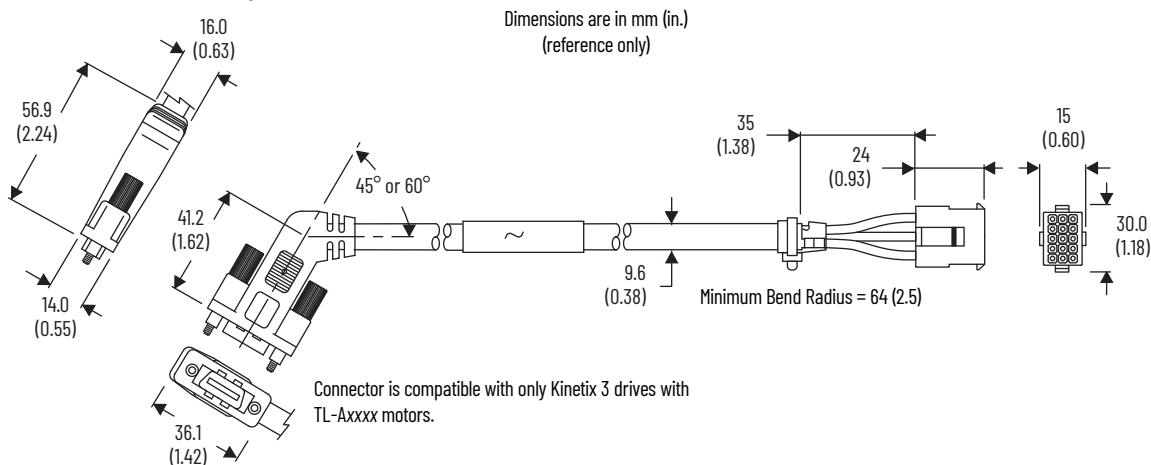
**Power Cable Dimensions (catalog number 2090-DANPT-16Sxx)**



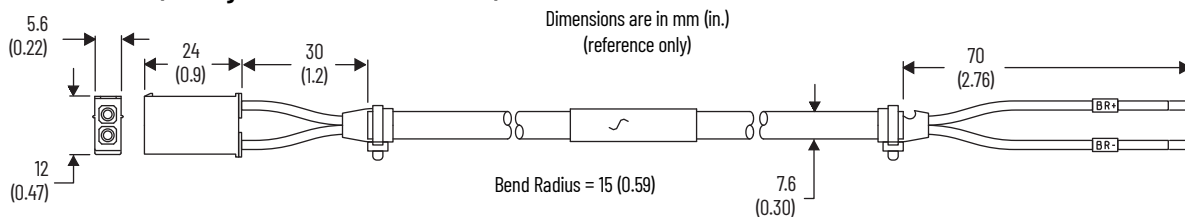
**Feedback Cable Dimensions (catalog numbers 2090-CFBM6DF-CBAxx and 2090-CFBM6DD-CCAxx)**



**Feedback Cable Dimensions (catalog number 2090-DANFCT-Sxx)**



**Brake Cable Dimensions (catalog number 2090-DANBT-18Sxx)**



## Kinetix TLP Motor Power and Feedback Cables

Kinetix TLP power and feedback cables are designed specifically for applications with Kinetix TLP servo motors and Kinetix 5100 or Kinetix 5300 drives. Cables equipped with rectangular connectors mate with the on-motor cables that are included with TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors. Cables equipped with military style connectors mate with all other (larger) Kinetix TLP servo motors. Standard (non-flex) motor power and feedback cables are available, as are continuous-flex rated cables that are intended for moving applications. Continuous-flex extension cables are also available for your applications that require them.

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**IMPORTANT** Feedback cables include a drive-end connector, but 2198-K5xCK-D15M feedback connector kits are available and provide drive-end terminations when building your own cables. Refer to Kinetix TLP Motor-end Cable Connector Kits beginning on [page 75](#) for power and feedback cable connector kit catalog numbers and descriptions. Refer to the Kinetix 5700, 5500, 5300, 5100 Servo Drives Specifications Technical Data, publication [KNX-TD003](#), for more information on the 2198-K5xCK-D15M connector kit that is used with Kinetix 5100 and Kinetix 5300 servo drives.

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**IMPORTANT** Standard (non-flex) cables have a regular maintenance and installation bend radius of 7 times the cable diameter. For flexing applications, continuous-flex cables have an operational bend radius of 12 times the cable diameter.

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The Kinetix TLP power and feedback cables are designed to match with Kinetix TLP servo motors and Kinetix 5100 or Kinetix 5300 drives for optimal system performance. Kinetix TLP cables offer up to 50 m (164 ft) in length and a variety of options for your application needs.

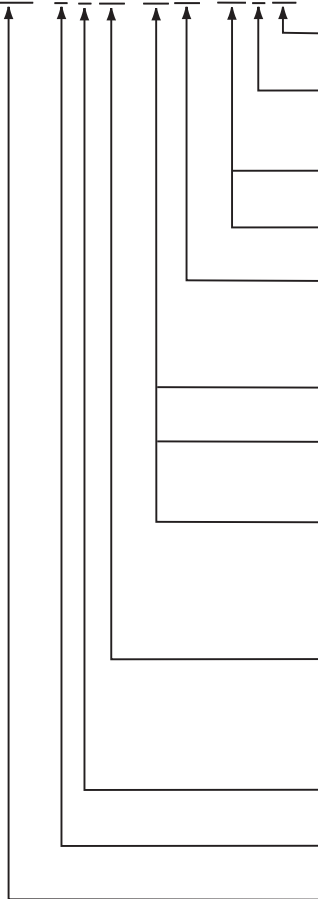
### Kinetix TLP Motor Cable Features

- UL Recognized: 18, 16, 12, 8, 6, and 4 AWG power cable
  - UL AWM, 600V, 105 °C construction
  - cUR AWM I/II A, 600V, 105 °C construction
- UL Recognized: Feedback cable
  - UL AWM, 300V, 80 °C construction for up to 20 m (65.6 ft) cable length
  - UL AWM, 30V, 80 °C construction for 30 m (98.4 ft) and 50 m (164 ft) cable length
- UL Recognized: Brake cable
  - UL AWM, 300V, 105 °C construction
- Molded connectors for 16 and 18 AWG, military style connectors for 16...4 AWG
- PVC cable jacket
- Tested for EMC/EMI system performance

## Catalog Numbers - Kinetix TLP Power and Feedback Cables

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.

**2090 - C T xx - xx xx - xx x xx**



### Cable Length

Refer to Technical Specifications - Kinetix TLP Power and Feedback Cables beginning on [page 68](#).

### Cable Type

A = Standard, non-flex

F = Continuous-flex

### Wire Gauge Size (PB, PW, and BK cable types)

20, 18, 16, 14, 12, 10, 08, 06, and 04 AWG

### Encoder Type (FB cable types)

CF = Serial absolute, battery backup

### Drive-end Connector Type

DF = Flying-lead power and brake cable

DD = Premolded connector on feedback cable

ET = Extension receptacle on power, feedback, and brake cables

### Motor-end Connector Type (BK cable type)

MB = Military style, applies to TLP-A/B200-550, and TLP-A/B200-750 and TLP-A/B235-xxx motors

### Motor-end Connector Type (FB cable type)

MA = Rectangular, applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors

MF = Military style, applies to TLP-A/B115, TLP-A/B145, TLP-A/B200, and TLP-A/B235 motors

### Motor-end Connector Type (PB and PW cable type)

MA = Rectangular, applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors

MC = Military style, applies to TLP-A/B115-xxx and TLP-A/B145-xxx motors

MD = Military style, applies to TLP-A/B200-200, TLP-A/B200-300, TLP-A/B200-350, and TLP-A/B200-450 motors

ME = Military style, applies to TLP-A/B200-550, and TLP-A/B200-750 and TLP-A/B235-xxx motors

### Cable Type

PB = Motor power with brake wires

PW = Motor power only

FB = Motor feedback

BK = Motor brake

### Matching Motor Family

T = Compatible with Kinetix TLP servo motors

### Accessory Component


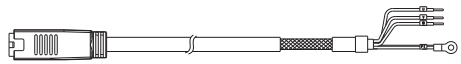


C = Cable

### Bulletin Number

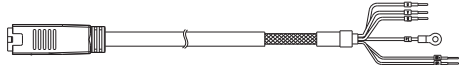



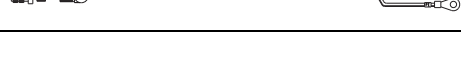

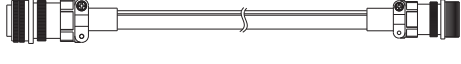
## Kinetix TLP Motor Cables Overview

2090-CTPx-MADF cables attach to on-motor cable connectors. 2090-CTPx-MC/D/E cables attach to military-style connectors. 2090-CTPx-MxET extension cables provide continuous-flex cable technology between your standard (non-flex) cable and the continuous-flex application.

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

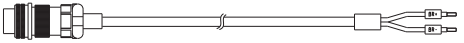
| Standard Cable Cat. No.  | Description   | Cable Configuration  |           | Motor Connector |
|--|---|--|-----------|-----------------|
|  |   | Motor End  | Drive End |                 |
| 2090-CTPB-MADF-xxAxx   | <ul style="list-style-type: none"> <li>Applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors (MA)</li> <li>Drive-end flying-leads (DF)</li> <li>Power/brake wires (PB)</li> </ul>  |  |           | Rectangular     |
| 2090-CTPW-MADF-xxAxx   | <ul style="list-style-type: none"> <li>Applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors (MA)</li> <li>Drive-end flying-leads (DF)</li> <li>Power wires only (PW)</li> </ul>   |  |           |                 |
| 2090-CTPB-MCDF-xxAxx<br>2090-CTPB-MDDF-xxAxx                         | <ul style="list-style-type: none"> <li>Applies to TLP-A/B115...TLP-A/B145 motors (MC)</li> <li>Applies to TLP-A/B200 (MD)</li> <li>Drive-end flying-leads (DF)</li> <li>Power/brake wires (PB)</li> </ul>   |  |           | Military style  |
| 2090-CTPW-MCDF-xxAxx<br>2090-CTPW-MDDF-xxAxx<br>2090-CTPW-MEDF-xxAxx | <ul style="list-style-type: none"> <li>Applies to TLP-A/B115...TLP-A/B145 motors (MC)</li> <li>Applies to TLP-A/B200 motors (MD)</li> <li>Applies to TLP-A/B200...TLP-A/B235 motors (ME)</li> <li>Drive-end flying-leads (DF)</li> <li>Power wires only (PW)</li> </ul> |  |           |                 |

### Power/Brake Cable Descriptions (continuous-flex)

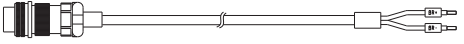
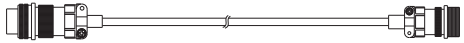
| Continuous-flex Cable Cat. No.                                       | Description  | Cable Configuration  |           | Motor Connector |
|--|--|--|-----------|-----------------|
|  |  | Motor End  | Drive End |                 |
| 2090-CTPB-MADF-xxFxx   | <ul style="list-style-type: none"> <li>Applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors (MA)</li> <li>Drive-end flying-leads (DF)</li> <li>Power/brake wires (PB)</li> </ul>   |  |           | Rectangular     |
| 2090-CTPW-MADF-xxFxx   | <ul style="list-style-type: none"> <li>Applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors (MA)</li> <li>Drive-end flying-leads (DF)</li> <li>Power wires only (PW)</li> </ul>  |  |           |                 |
| 2090-CTPB-MAET-xxFxx<br>2090-CTPW-MAET-xxFxx                         | <ul style="list-style-type: none"> <li>Applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors (MA)</li> <li>Drive-end (male) connector, extension (ET)</li> <li>Power/brake wires (PB)</li> <li>Power wires only (PW)</li> </ul>   |  |           |                 |
| 2090-CTPB-MCDF-xxFxx<br>2090-CTPB-MDDF-xxFxx                         | <ul style="list-style-type: none"> <li>Applies to TLP-A/B115...TLP-A/B145 motors (MC)</li> <li>Applies to TLP-A/B200 motors (MD)</li> <li>Drive-end flying-leads (DF)</li> <li>Power/brake wires (PB)</li> </ul>   |  |           | Military style  |
| 2090-CTPW-MCDF-xxFxx<br>2090-CTPW-MDDF-xxFxx<br>2090-CTPW-MEDF-xxFxx | <ul style="list-style-type: none"> <li>Applies to TLP-A/B115...TLP-A/B145 motors (MC)</li> <li>Applies to TLP-A/B200 motors (MD)</li> <li>Applies to TLP-A/B200 motors (ME)</li> <li>Drive-end flying-leads (DF)</li> <li>Power wires only (PW)</li> </ul>                             |  |           |                 |
| 2090-CTPB-MCET-xxFxx<br>2090-CTPB-MDET-xxFxx                         | <ul style="list-style-type: none"> <li>Applies to TLP-A/B115...TLP-A/B145 motors (MC)</li> <li>Applies to TLP-A/B200 (MD)</li> <li>Drive-end (male) connector, extension (ET)</li> <li>Power/brake wires (PB)</li> </ul>   |  |           |                 |
| 2090-CTPW-MCET-xxFxx<br>2090-CTPW-MDET-xxFxx<br>2090-CTPW-MEET-xxFxx | <ul style="list-style-type: none"> <li>Applies to TLP-A/B115...TLP-A/B145 motors (MC)</li> <li>Applies to TLP-A/B200 motors (MD)</li> <li>Applies to TLP-A/B200...TLP-A/B235 motors (ME)</li> <li>Drive-end (male) connector, extension (ET)</li> <li>Power wires only (PW)</li> </ul> |  |           | Military style  |

Brake wires for TLP-A/B200-550, TLP-A/B200-750, and TLP-A/B235-xxx servo motors are in a separate cable. 2090-CTBK-MBET extension cables provide continuous-flex cable technology between your standard (non-flex) cable and the continuous-flex application.

**Brake Cable Descriptions (standard, non-flex)**

| Standard Cable Cat. No. | Description  | Cable Configuration  |           | Motor Connector |
|-------------------------|--|--|-----------|-----------------|
|                         |  | Motor End  | Drive End |                 |
| 2090-CTBK-MBDF-20Axx    | <ul style="list-style-type: none"> <li>Applies to TLP-A/B200-550, TLP-A/B200-750, and TLP-A/B235-xxx motors (MB)</li> <li>Drive-end flying-leads (DF)</li> <li>Brake wires (BK)</li> </ul> |  |           | Military style  |

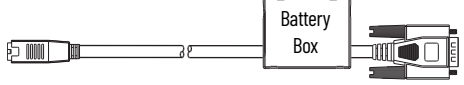
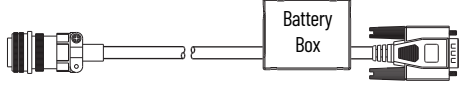
**Brake Cable Descriptions (continuous-flex)**

| Continuous-flex Cable Cat. No. | Description   | Cable Configuration  |           | Motor Connector |
|--------------------------------|---|--|-----------|-----------------|
|                                |   | Motor End  | Drive End |                 |
| 2090-CTBK-MBDF-20Fxx           | <ul style="list-style-type: none"> <li>Applies to TLP-A/B200-550, TLP-A/B200-750, and TLP-A/B235-xxx motors (MB)</li> <li>Drive-end flying-leads (DF)</li> <li>Brake wires (BK)</li> </ul>                |  |           | Military style  |
| 2090-CTBK-MBET-20Fxx           | <ul style="list-style-type: none"> <li>Applies to TLP-A/B200-550, TLP-A/B200-750, and TLP-A/B235-xxx motors (MB)</li> <li>Drive-end (male) connector, extension (ET)</li> <li>Brake wires (BK)</li> </ul> |  |           | Military style  |


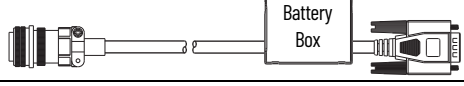
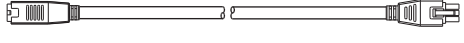
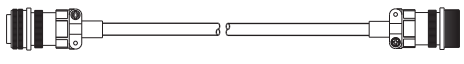
2090-CTFB-MADD cables attach to the on-motor cable. 2090-CTFB-MFDD cables attach to the motor feedback connector. Drive-end connectors attach to Kinetix 5100 and Kinetix 5300 feedback connectors.

2090-CTFB-MxET extension cables provide continuous-flex cable technology between your standard (non-flex) cable and the continuous-flex application.

**Feedback Cable Descriptions (standard, non-flex)**

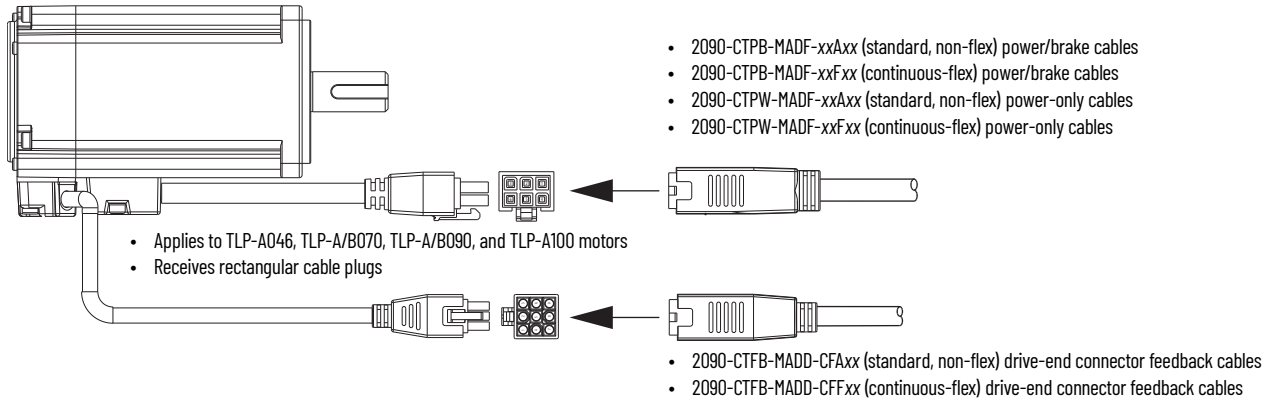
| Standard Cable Cat. No. | Description   | Cable Configuration  |           | Motor Connector |
|-------------------------|---|--|-----------|-----------------|
|                         |   | Motor End  | Drive End |                 |
| 2090-CTFB-MADD-CFAxx    | <ul style="list-style-type: none"> <li>Applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors (MA)</li> <li>Battery box for Kinetix TLP and TL/TLY encoders</li> <li>Feedback connector (FB)</li> </ul> |  |           | Rectangular     |
| 2090-CTFB-MFDD-CFAxx    | <ul style="list-style-type: none"> <li>Applies to TLP-A/B115...TLP-A/B235 motors (MF)</li> <li>Battery box for Kinetix TLP and TL/TLY encoders</li> <li>Feedback connector (FB)</li> </ul>                        |  |           | Military style  |

**Feedback Cable Descriptions (continuous-flex)**

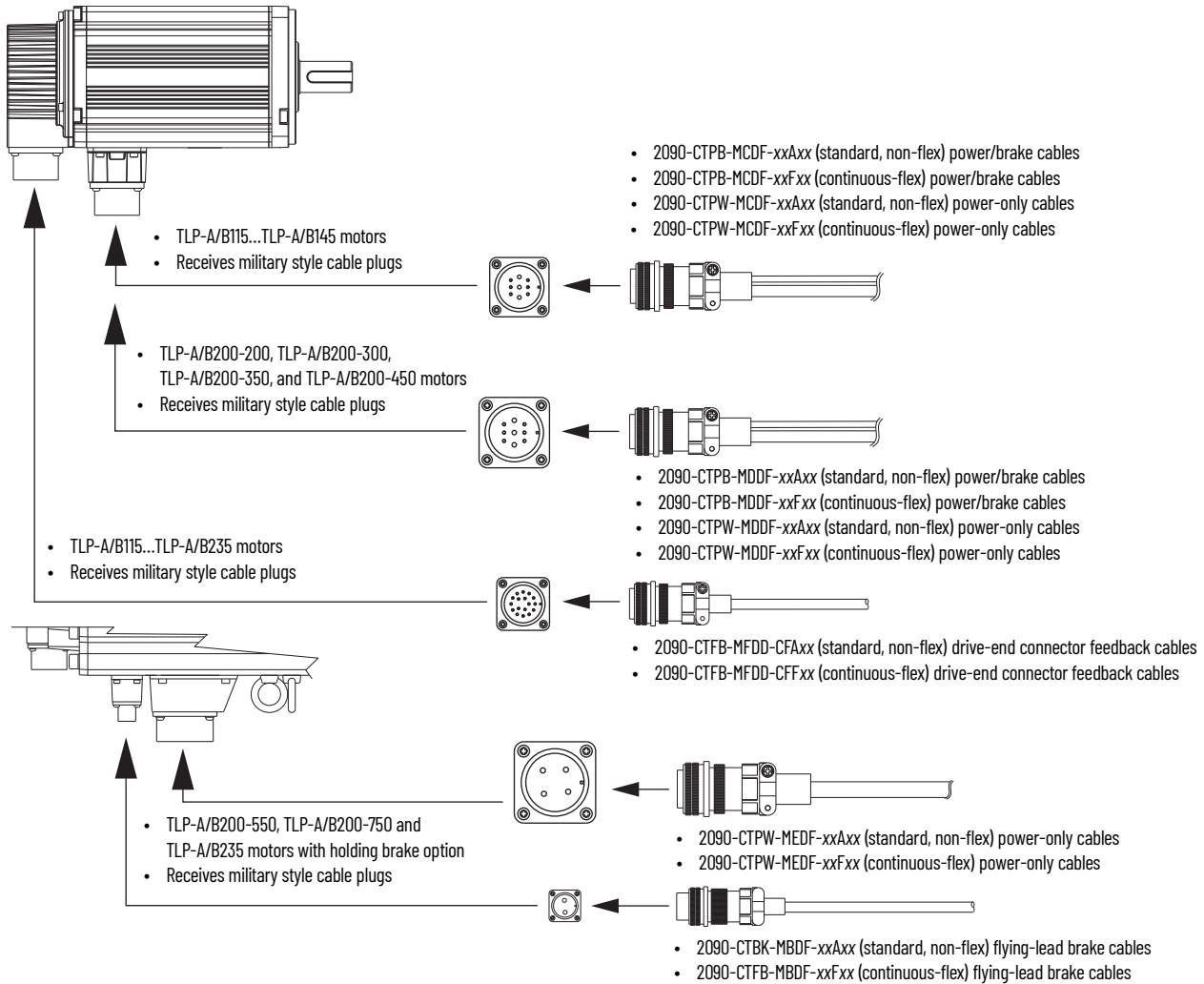
| Standard Cable Cat. No. | Description   | Cable Configuration  |           | Motor Connector |
|-------------------------|---|--|-----------|-----------------|
|                         |   | Motor End  | Drive End |                 |
| 2090-CTFB-MADD-CFFxx    | <ul style="list-style-type: none"> <li>Applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors (MA)</li> <li>Battery box for Kinetix TLP and TL/TLY encoders</li> <li>Feedback connector (FB)</li> </ul> |  |           | Rectangular     |
| 2090-CTFB-MFDD-CFFxx    | <ul style="list-style-type: none"> <li>Applies to TLP-A/B115...TLP-A/B235 motors (MF)</li> <li>Battery box for Kinetix TLP and TL/TLY encoders</li> <li>Feedback connector (FB)</li> </ul>                        |  |           | Military style  |
| 2090-CTFB-MAET-CFFxx    | <ul style="list-style-type: none"> <li>Applies to TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 motors (MA)</li> <li>Drive-end (male) connector, extension (ET)</li> <li>Feedback connector (FB)</li> </ul>      |  |           | Rectangular     |
| 2090-CTFB-MEET-CFFxx    | <ul style="list-style-type: none"> <li>Applies to TLP-A/B115...TLP-A/B235 motors (MF)</li> <li>Drive-end (male) connector, extension (ET)</li> <li>Feedback connector (FB)</li> </ul>                             |  |           | Military style  |

## Motor Connector/Cable Compatibility

TLP-A046, TLP-A/B070, TLP-A/B090, and TLP-A100 servo motors are equipped with rectangular connectors.



TLP-A/B115, TLP-A/B145, TLP-A/B200, TLP-A/B235 servo motors are equipped with military style connectors.



## Kinetix TLP Motor Cable Selection

This table provides motor cable catalog numbers for use with Kinetix TLP servo motors. Motor power, feedback, and motor brakes (if applicable) cables are specified. The IP rating is dependent on the use of Kinetix 2090 cables as listed in the table.

**IMPORTANT** Maximum motor cable length depends on the feedback type. For more information on maximum cable lengths, see your servo drive user manual or the Kinetix 5700, 5500, 5300, 5100 Servo Drives Specifications Technical Data, publication [KNX-TD003](#).

## Kinetix TLP Motor and Cable Combinations

### Rotary Motor (200V-class)

| Cat. No. <sup>(1)</sup>  | Motor Power/Brake Cable  | Feedback Cable Cat. No.  | Brake Cat. No.   |
|--|--|--|--|
| TLP-A046-xxx,<br>TLP-A070-xxx,<br>TLP-A090-xxx, <sup>(2)</sup><br>TLP-A100-xxx | 2090-CTPx-MADF-18Axx (standard) or<br>2090-CTPx-MADF-18Fxx (continuous-flex) | 2090-CTFB-MADD-CFAxx<br>(standard) or<br>2090-CTFB-MADD-CFFxx<br>(continuous-flex) |  |
| TLP-A115-100, <sup>(3)</sup><br>TLP-A145-050, TLP-A145-100                     | 2090-CTPx-MCDF-16Axx (standard) or<br>2090-CTPx-MCDF-16Fxx (continuous-flex) |  | Not applicable. Brake<br>conductors are included in the<br>power cable.            |
| TLP-A115-200,<br>TLP-A145-090, TLP-A145-150, TLP-A145-250                      | 2090-CTPx-MCDF-12Axx (standard) or<br>2090-CTPx-MCDF-12Fxx (continuous-flex) |  |  |
| TLP-A200-200, TLP-A200-300, TLP-A200-350 <sup>(4)</sup>                        | 2090-CTPx-MDDF-12Axx (standard) or<br>2090-CTPx-MDDF-12Fxx (continuous-flex) | 2090-CTFB-MFDD-CFAxx<br>(standard) or<br>2090-CTFB-MFDD-CFFxx<br>(continuous-flex) |  |
| TLP-A200-450   | 2090-CTPx-MDDF-08Axx (standard) or<br>2090-CTPx-MDDF-08Fxx (continuous-flex) |  |  |
| TLP-A200-550, TLP-A200-750, TLP-A235-11K <sup>(5) (6)</sup>                    | 2090-CTPW-MEDF-06Axx (standard) or<br>2090-CTPW-MEDF-06Fxx (continuous-flex) |  | 2090-CTBK-MBDF-20Axx<br>(standard) or<br>2090-CTBK-MBDF-20Fxx<br>(continuous-flex) |
| TLP-A235-15K <sup>(7) (6)</sup>  | 2090-CTPW-MEDF-04Axx (standard) or<br>2090-CTPW-MEDF-04Fxx (continuous-flex) |  |  |

(1) The TLP-A046...TLP-A100 frame on-motor cables include 18 AWG conductors that are compatible with 2090-CTPx-MADF-18xxx cable conductors.

(2) For TLP-A090-xxx motors, use 2090-CTPx-MADF-16xxx motor power/brake cable to comply with NFPA 79 requirements.

(3) For TLP-A115-100 motors, use 2090-CTPx-MCDF-12xxx motor power/brake cable to comply with NFPA 79 requirements.

(4) For TLP-A200-350 motors, use 2090-CTPx-MDDF-08xxx motor power/brake cable to comply with NFPA 79 requirements.

(5) For TLP-A235-11K motors, use 2090-CTPx-MEDF-04xxx motor power cable to comply with NFPA 79 requirements.

(6) Only these motors have separate brake connectors and brake cables. All other motors have brake wires included with the motor power/brake connector.

(7) For TLP-A235-15K motors, you must build your own motor power cable to comply with NFPA 79 requirements.

### Rotary Motor (400V-class)

| Cat. No. <sup>(1)</sup>   | Motor Power/Brake Cable  | Feedback Cable Cat. No.  | Brake Cat. No.   |
|---|--|--|--|
| TLP-B070-040<br>TLP-B090-075  | 2090-CTPx-MADF-18Axx (standard) or<br>2090-CTPx-MADF-18Fxx (continuous-flex) | 2090-CTFB-MADD-CFAxx<br>(standard) or<br>2090-CTFB-MADD-CFFxx<br>(continuous-flex) |  |
| TLP-B115-100, TLP-B115-200 <sup>(2)</sup><br>TLP-B145-050, TLP-B145-100<br>TLP-B145-150, TLP-B145-200 | 2090-CTPx-MCDF-16Axx (standard) or<br>2090-CTPx-MCDF-16Fxx (continuous-flex) |  | Not applicable. Brake<br>conductors are included in<br>the power cable.            |
| TLP-B145-250  | 2090-CTPx-MCDF-12Axx (standard) or<br>2090-CTPx-MCDF-12Fxx (continuous-flex) |  |  |
| TLP-B200-300, TLP-B200-450  | 2090-CTPx-MDDF-12Axx (standard) or<br>2090-CTPx-MDDF-12Fxx (continuous-flex) | 2090-CTFB-MFDD-CFAxx<br>(standard) or<br>2090-CTFB-MFDD-CFFxx<br>(continuous-flex) |  |
| TLP-B200-550, TLP-B200-750  | 2090-CTPx-MDDF-08Axx (standard) or<br>2090-CTPx-MDDF-08Fxx (continuous-flex) |  |  |
| TLP-B235-11K, TLP-B235-14K <sup>(3)</sup>   | 2090-CTPW-MEDF-06Axx (standard) or<br>2090-CTPW-MEDF-06Fxx (continuous-flex) |  | 2090-CTBK-MBDF-20Axx<br>(standard) or<br>2090-CTBK-MBDF-20Fxx<br>(continuous-flex) |

(1) The TLP-B070-040 and TLP-B090-075 frame on-motor cables include 18 AWG conductors that are compatible with 2090-CTPx-MADF-18xxx cable conductors.

(2) For TLP-B115-200 motors, use 2090-CTPx-MCDF-12xxx motor power/brake cable to comply with NFPA 79 requirements.

(3) Only these motors have separate brake connectors and brake cables. All other motors have brake wires included with the motor power/brake connector.

# Technical Specifications - Kinetix TLP Power and Feedback Cables

**IMPORTANT** Maximum motor cable length depends on the feedback type. For more information on maximum cable lengths see your servo drive user manual or the Kinetix 5700, 5500, 5300, 5100 Servo Drives Specifications Technical Data, publication [KNX-TD003](#).

## Power Cable (non-flex) Specifications

| Power Cable Cat. No. | Cable Type/<br>Jacket Color                        | Description  | Wire Size <sup>(1)</sup><br>AWG | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)  |
|----------------------|--|--|---------------------------------|--------------------------------|---|
| 2090-CTPB-MADF-18Axx | Power/brake<br>Industrial PVC,<br>Half matte black | Four conductor, 600V, shielded cable for three-phase power with additional two brake conductors. | 18                              | 0.129 (0.086)                  | 03 (9.8)      20 (65.6)<br>05 (16.4)      30 (98.4)<br>10 (32.8)      50 (164)<br>15 (49.2) |
| 2090-CTPB-MADF-16Axx |  |  | 16                              | 0.191 (0.128)                  |   |
| 2090-CTPB-MCDF-16Axx |  |  | 16                              | 0.240 (0.161)                  |   |
| 2090-CTPB-MCDF-12Axx |  |  | 12                              | 0.420 (0.282)                  |   |
| 2090-CTPB-MDDF-12Axx |  |  | 12                              | 0.450 (0.302)                  |   |
| 2090-CTPB-MDDF-08Axx |  |  | 08                              | 0.808 (0.543)                  |   |
| 2090-CTPW-MADF-18Axx | Power-only<br>Industrial PVC,<br>Half matte black  | Four conductor, 600V, shielded cable for three-phase power.                                      | 18                              | 0.112 (0.075)                  |   |
| 2090-CTPW-MADF-16Axx |  |  | 16                              | 0.172 (0.115)                  |   |
| 2090-CTPW-MCDF-16Axx |  |  | 16                              | 0.200 (0.134)                  |   |
| 2090-CTPW-MCDF-12Axx |  |  | 12                              | 0.333 (0.224)                  |   |
| 2090-CTPW-MDDF-12Axx |  |  | 12                              | 0.381 (0.256)                  |   |
| 2090-CTPW-MDDF-08Axx |  |  | 08                              | 0.767 (0.515)                  |   |
| 2090-CTPW-MEDF-06Axx |  |  | 06                              | 1.438 (1.223)                  |   |
| 2090-CTPW-MEDF-04Axx |  |  | 04                              | 1.820 (1.223)                  |   |

(1) 2090-CTPB-MADF brake conductors are 22 AWG. 2090-CTPB-MCDF and 2090-CTPB-MDDF brake conductors are 20 AWG.

## Power Cable (continuous-flex) Specifications

| Power Cable Cat. No. | Cable Type/<br>Jacket Color                        | Description  | Wire Size <sup>(1)</sup><br>AWG | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)  |
|----------------------|--|--|---------------------------------|--------------------------------|---|
| 2090-CTPB-MADF-18Fxx | Power/brake<br>Industrial PVC,<br>Half matte black | Four conductor, 600V, shielded cable for three-phase power with additional two brake conductors. | 18                              | 0.129 (0.086)                  | 03 (9.8)      20 (65.6)<br>05 (16.4)      30 (98.4)<br>10 (32.8)      50 (164)<br>15 (49.2) |
| 2090-CTPB-MADF-16Fxx |  |  | 16                              | 0.191 (0.128)                  |   |
| 2090-CTPB-MCDF-16Fxx |  |  | 16                              | 0.240 (0.161)                  |   |
| 2090-CTPB-MCDF-12Fxx |  |  | 12                              | 0.420 (0.282)                  |   |
| 2090-CTPB-MDDF-12Fxx |  |  | 12                              | 0.450 (0.302)                  |   |
| 2090-CTPB-MDDF-08Fxx |  |  | 08                              | 0.808 (0.543)                  |   |
| 2090-CTPW-MADF-18Fxx | Power-only<br>Industrial PVC,<br>Half matte black  | Four conductor, 600V, shielded cable for three-phase power.                                      | 18                              | 0.112 (0.075)                  |   |
| 2090-CTPW-MADF-16Fxx |  |  | 16                              | 0.172 (0.115)                  |   |
| 2090-CTPW-MCDF-16Fxx |  |  | 16                              | 0.200 (0.134)                  |   |
| 2090-CTPW-MCDF-12Fxx |  |  | 12                              | 0.333 (0.224)                  |   |
| 2090-CTPW-MDDF-12Fxx |  |  | 12                              | 0.381 (0.256)                  |   |
| 2090-CTPW-MDDF-08Fxx |  |  | 08                              | 0.767 (0.515)                  |   |
| 2090-CTPW-MEDF-06Fxx |  |  | 06                              | 1.438 (1.223)                  |   |
| 2090-CTPW-MEDF-04Fxx |  |  | 04                              | 1.820 (1.223)                  |   |

(1) 2090-CTPB-MADF brake conductors are 22 AWG. 2090-CTPB-MCDF and 2090-CTPB-MDDF brake conductors are 20 AWG.

## Feedback Cable Specifications

| Feedback Cable Cat. No. | Cable Type/<br>Jacket Color                               | Description   | Wire Size<br>AWG                           | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)  |
|-------------------------|---|---|--|--------------------------------|---|
| 2090-CTFB-MADD-CFAxx    | Standard, non-flex<br>Industrial PVC,<br>Half matte black | Six conductor, 600V, shielded cable for motor feedback. | 24 Feedback <sup>(1)</sup><br>22 Power, 5V | 0.086 (0.058)                  | 03 (9.8)      20 (65.6)<br>05 (16.4)      30 (98.4)<br>10 (32.8)      50 (164)<br>15 (49.2) |
| 2090-CTFB-MFDD-CFAxx    |   |   |  | 0.100 (0.067)                  |   |
| 2090-CTFB-MADD-CFFxx    | Continuous-flex<br>Industrial PVC,<br>Half matte black    |   | 26 Feedback <sup>(2)</sup><br>16 Power, 5V | 0.086 (0.058)                  |   |
| 2090-CTFB-MFDD-CFFxx    |   |   |  | 0.100 (0.067)                  |   |

(1) Applies to 2090-CTFB-MxDD-CFxxx cables with 05, 10, 15, and 20 m cables lengths.

(2) Applies to 2090-CTFB-MxDD-CFxxx cables with 30 and 50 m cables lengths.



### Brake Cable Specifications

| Brake Cable Cat. No. | Cable Type/<br>Jacket Color                               | Description   | Wire Size<br>AWG | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)  |
|----------------------|---|---|------------------|--------------------------------|---|
| 2090-CTBK-MBDF-20Axx | Standard, non-flex<br>Industrial PVC,<br>Half matte black | Two conductor, 600V, shielded cable for motor<br>brake power. | 20               | 0.045 (0.030)                  | 03 (9.8)      20 (65.6)<br>05 (16.4)      30 (98.4)<br>10 (32.8)      50 (164)<br>15 (49.2) |
| 2090-CTBK-MBDF-20Fxx | Continuous-flex<br>Industrial PVC,<br>Half matte black    |   | 20               |                                |   |

### Continuous-flex Extension Cable Specifications

| Extension Cable Cat. No. | Cable Type/<br>Jacket Color                        | Description   | Weight, approx<br>kg/m (lb/ft) | Standard Cable Lengths<br>m (ft)   |
|--------------------------|--|---|--------------------------------|------------------------------------|
| 2090-CTPB-MAET-18Fxx     | Power/brake<br>Industrial PVC,<br>Half matte black | Four conductor, 600V, shielded cable for three-phase power with<br>additional two brake conductors. Connector plug on motor end to<br>receptacle for mating with power/brake cable. | 0.135 (0.091)                  | 03 (9.8)<br>05 (16.4)<br>10 (32.8) |
| 2090-CTPB-MAET-16Fxx     |  |   | 0.216 (0.145)                  |                                    |
| 2090-CTPB-MCET-16Fxx     |  |   | 0.275 (0.185)                  |                                    |
| 2090-CTPB-MCET-12Fxx     |  |   | 0.456 (0.306)                  |                                    |
| 2090-CTPB-MDET-12Fxx     |  |   | 0.482 (0.324)                  |                                    |
| 2090-CTPB-MDET-08Fxx     |  |   | 0.869 (0.584)                  |                                    |
| 2090-CTPW-MAET-18Fxx     | Power-only<br>Industrial PVC,<br>Half matte black  | Four conductor, 600V, shielded cable for three-phase power.<br>Connector plug on motor end to receptacle for mating with power<br>cable.  | 0.112 (0.076)                  |                                    |
| 2090-CTPW-MAET-16Fxx     |  |   | 0.190 (0.128)                  |                                    |
| 2090-CTPW-MCET-16Fxx     |  |   | 0.200 (0.134)                  |                                    |
| 2090-CTPW-MCET-12Fxx     |  |   | 0.378 (0.254)                  |                                    |
| 2090-CTPW-MDET-12Fxx     |  |   | 0.441 (0.296)                  |                                    |
| 2090-CTPW-MDET-08Fxx     |  |   | 0.829 (0.557)                  |                                    |
| 2090-CTPW-MEET-06Fxx     | 1.537 (1.033)                                      |   |                                |                                    |
| 2090-CTPW-MEET-04Fxx     | 1.920 (1.290)                                      |   |                                |                                    |
| 2090-CTFB-MAET-CFFxx     | Feedback<br>Industrial PVC,<br>Half matte black    | Six conductor, 600V, shielded cable for motor feedback. Connector<br>plug on motor end to receptacle for mating with feedback cable.  | 0.079 (0.053)                  |                                    |
| 2090-CTFB-MEET-CFFxx     |  |   | 0.128 (0.086)                  |                                    |
| 2090-CTBK-MBET-20Fxx     | Brake<br>Industrial PVC,<br>Half matte black       | Two conductor, 600V, shielded cable for motor brake power.<br>Connector plug on motor end to receptacle for mating with brake<br>cable.   | 0.058 (0.039)                  |                                    |

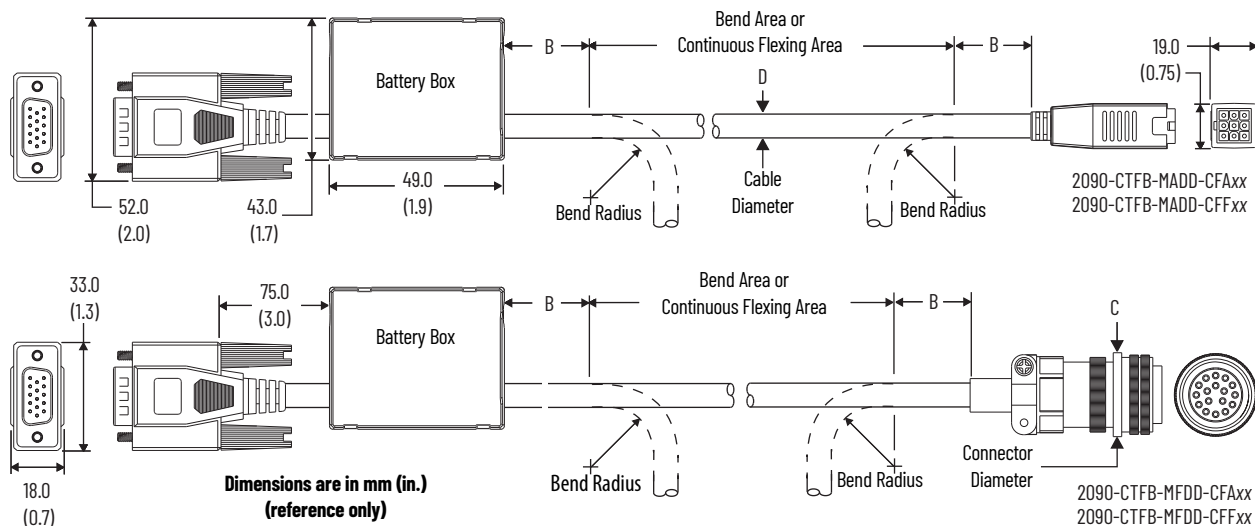
## Dimensions - Kinetix TLP Motor Cables

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/brake, Feedback, and Brake 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:   |
|                        | Continuous flex     | <ul style="list-style-type: none"> <li>Do not begin a static bend inside dimension B.</li> <li>Use this measurement when routing the cable in a non-flex application between motor and drive (the bend area).                             <ul style="list-style-type: none"> <li>The bend area is where standard (non-flex) or continuous-flex cables can be bent to their specified bend radius.</li> </ul> </li> </ul>  |
| Continuous bend radius | Continuous flex     | The continuous bend radius for 2090-CTxx-Mxxx motor power and feedback cables is 12 times the cable diameter: <ul style="list-style-type: none"> <li>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.</li> <li>Use this measurement when routing the cable in a continuous-flex application between motor and drive (the continuous-flexing area).                             <ul style="list-style-type: none"> <li>The continuous flexing area is where continuous-flex cables can be flexed repeatedly.</li> </ul> </li> </ul> |

### Feedback Cable Dimensions

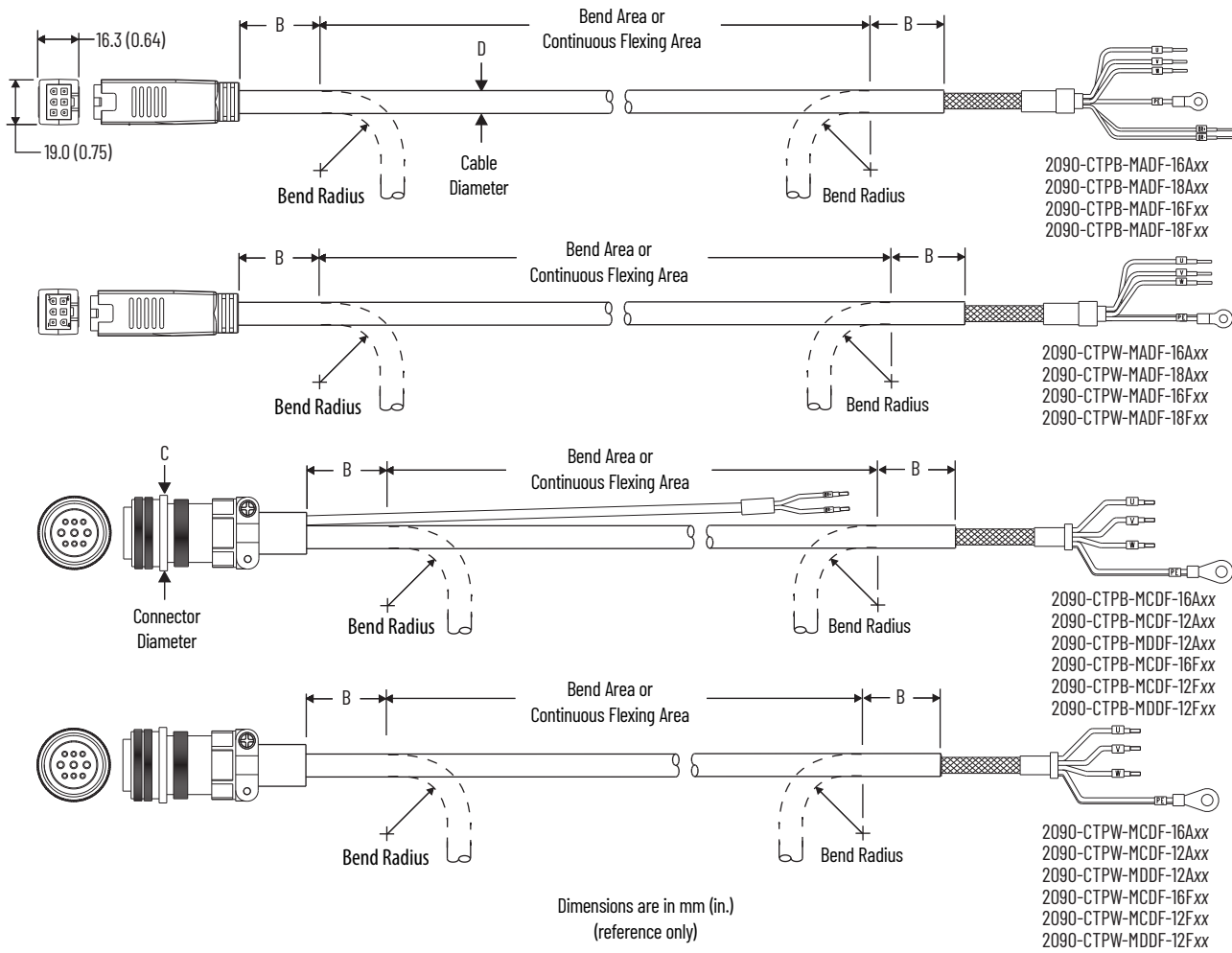


### Feedback Cable Dimensions

| Power Cable Cat. No. | B (1)<br>mm (in.) | Continuous Bend Radius (1)<br>mm (in.) | C (2)<br>mm (in.) | D<br>mm (in.) |
|----------------------|-------------------|--|-------------------|---------------|
| 2090-CTFB-MADD-CFxxx | 49.0 (1.93)       | 84.0 (3.31)                            | 19.0 (0.75)       | 7.0 (0.28)    |
| 2090-CTFB-MFDD-CFxxx |                   |  | 37.2 (1.50)       |               |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to [Motor Power/brake, Feedback, and Brake Cable Bend Radius Definitions](#) on [page 70](#) for more information.  
 (2) Drive-end (15-pin) connector that is 33.0 mm (1.30 in.) high, requires a 50 mm (1.97 in.) hole to pass through.  
 The motor-end (rectangular) connector that is 19.0 mm (0.75 in.) square, requires a 26 mm (1.02 in.) hole to pass through.  
 The motor-end (military-style) connector that is 37.2 mm (1.50 in.) diameter, requires a 48 mm (1.89 in.) hole to pass through.

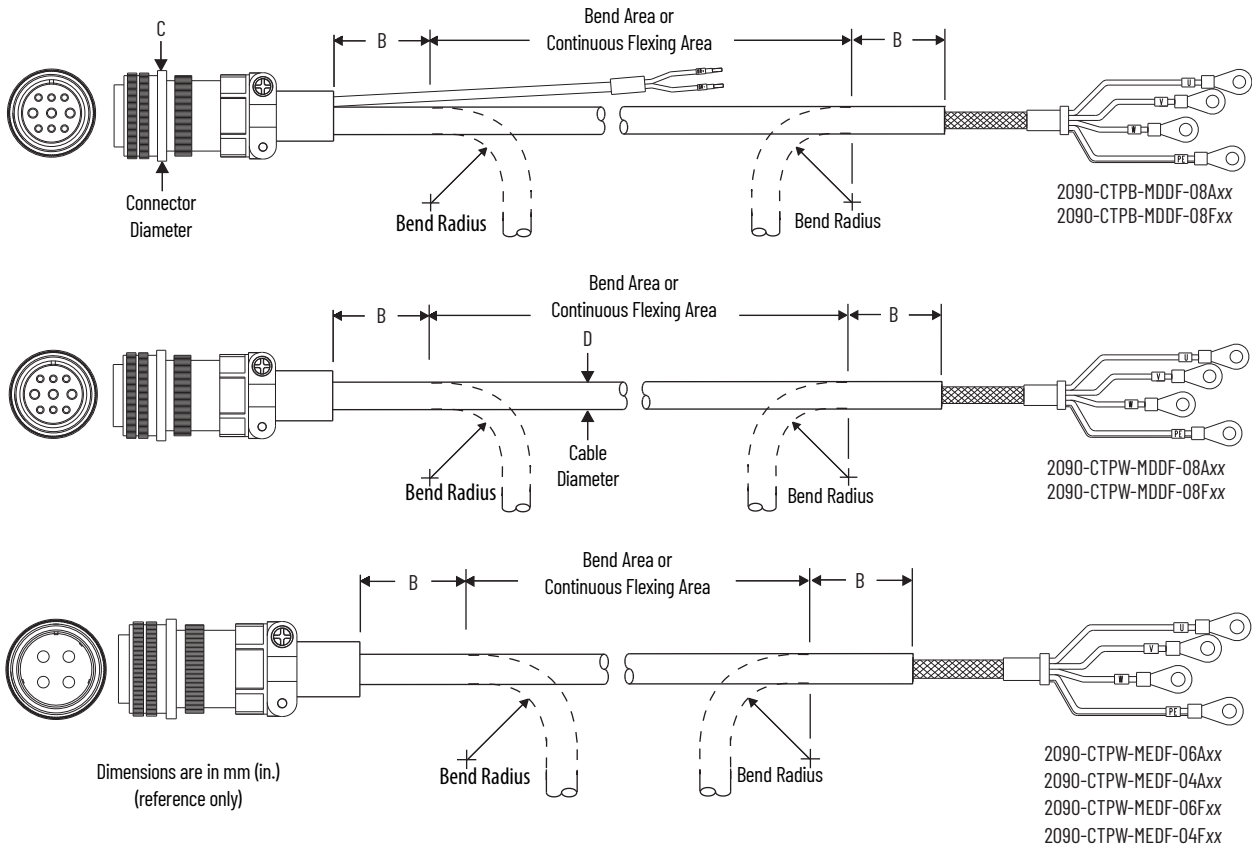
**Power Cable Dimensions (18, 16, 12 AWG cables)**



| Power Cable Cat. No. | B <sup>(1)</sup><br>mm (in.) | Continuous Bend Radius <sup>(1)</sup><br>mm (in.) | C <sup>(2)</sup><br>mm (in.) | D<br>mm (in.) |
|----------------------|------------------------------|---|------------------------------|---------------|
| 2090-CTPB-MADF-18xxx | 63.0 (2.48)                  | 108 (4.25)  | 19.0 (0.75)                  | 9.0 (0.35)    |
| 2090-CTPB-MADF-16xxx | 84.0 (3.31)                  | 144 (5.67)  |                              | 12.0 (0.47)   |
| 2090-CTPW-MADF-18xxx | 56.7 (2.23)                  | 97.2 (3.83)                                       |                              | 8.1 (0.32)    |
| 2090-CTPW-MADF-16xxx | 77.0 (3.03)                  | 132 (5.20)  |                              | 11.0 (0.43)   |
| 2090-CTPB-MCDF-16xxx | 77.0 (3.03)                  | 132 (5.20)  | 37.2 (1.46)                  | 11.0 (0.43)   |
| 2090-CTPB-MCDF-12xxx | 101.5 (4.0)                  | 174 (6.85)  |                              | 14.5 (0.57)   |
| 2090-CTPW-MCDF-16xxx | 77.0 (3.03)                  | 132 (5.20)  |                              | 11.0 (0.43)   |
| 2090-CTPW-MCDF-12xxx | 101.5 (4.0)                  | 174 (6.85)  |                              | 14.5 (0.57)   |
| 2090-CTPB-MDDF-12xxx | 101.5 (4.0)                  | 174 (6.85)  | 43.0 (1.69)                  | 14.5 (0.57)   |
| 2090-CTPW-MDDF-12xxx |                              |   |                              | 14.5 (0.57)   |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to [Motor Power/brake, Feedback, and Brake Cable Bend Radius Definitions](#) on [page 70](#) for more information.  
 (2) The motor-end (rectangular) connector that is 19.0 mm (0.75 in.) high, requires a 24 mm (0.94 in.) hole to pass through.  
 The motor-end (military-style) connector that is 37.2 mm (1.50 in.) diameter, requires a 48 mm (1.89 in.) hole to pass through.  
 The motor-end (military-style) connector that is 43.0 (1.69) diameter, requires a 53 mm (2.09 in.) hole to pass through.

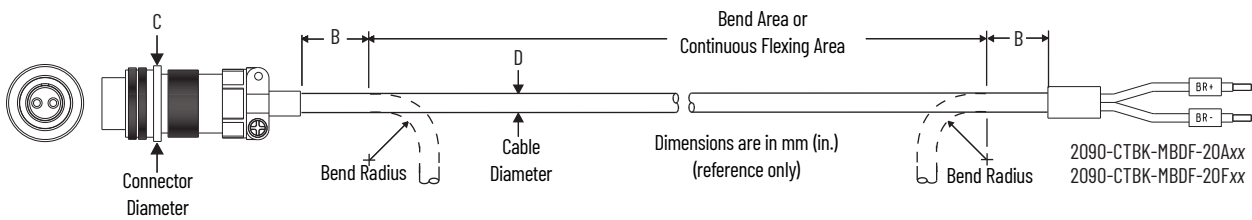
Power Cable Dimensions (08, 06, 04 AWG cables)



| Power Cable Cat. No. | B <sup>(1)</sup><br>mm (in.) | Continuous Bend Radius <sup>(1)</sup><br>mm (in.) | C <sup>(2)</sup><br>mm (in.) | D<br>mm (in.) |
|----------------------|------------------------------|---|------------------------------|---------------|
| 2090-CTPB-MDDF-08xxx | 154 (6.06)                   | 264 (10.39)                                       | 43.0 (1.69)                  | 22.0 (0.87)   |
| 2090-CTPW-MDDF-08xxx |                              |   |                              |               |
| 2090-CTPW-MEDF-06xxx | 196 (7.72)                   | 336 (13.23)                                       | 55.2 (2.17)                  | 28.0 (1.10)   |
| 2090-CTPW-MEDF-04xxx | 224 (8.82)                   | 384 (15.12)                                       |                              | 32.0 (1.26)   |

- (1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to [Motor Power/brake, Feedback, and Brake Cable Bend Radius Definitions](#) on [page 70](#) for more information.
- (2) The motor-end (military-style) connector that is 43.0 mm (1.69 in.) diameter, requires a 53 mm (2.09 in.) hole to pass through. The motor-end (military-style) connector that is 55.2 mm (2.17 in.) diameter, requires a 65 mm (2.56 in.) hole to pass through.

Brake Cable Dimensions



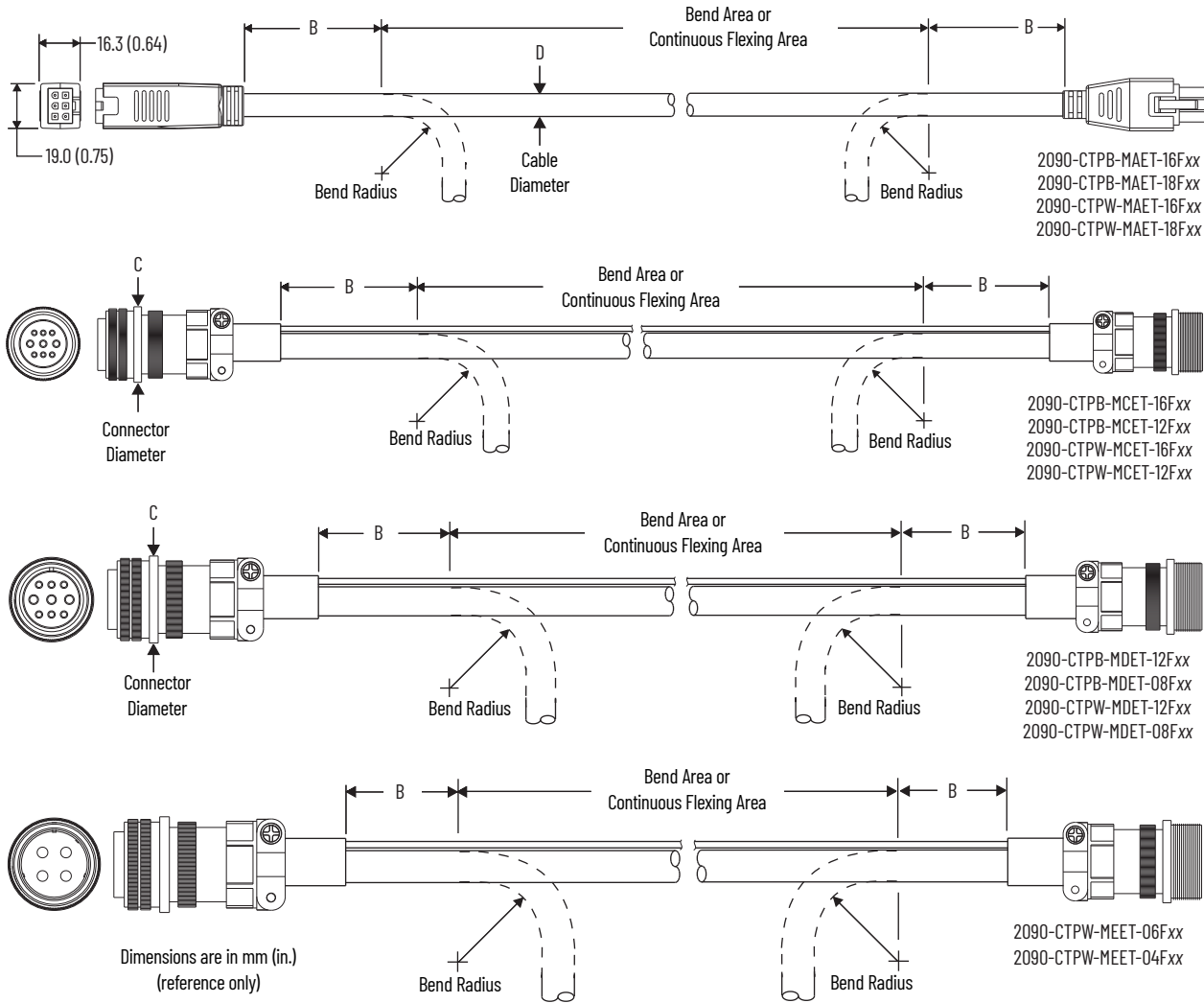
Brake Cable Dimensions

| Power Cable Cat. No. | B <sup>(1)</sup><br>mm (in.) | Continuous Bend Radius <sup>(1)</sup><br>mm (in.) | C <sup>(2)</sup><br>mm (in.) | D<br>mm (in.) |
|----------------------|------------------------------|---|------------------------------|---------------|
| 2090-CTBK-MBDF-20xxx | 38.5 (1.52)                  | 66.0 (2.60)                                       | 23.0 (0.91)                  | 5.5 (0.22)    |

- (1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to [Motor Power/brake, Feedback, and Brake Cable Bend Radius Definitions](#) on [page 70](#) for more information.
- (2) The motor-end (military-style) connector that is 23.0 mm (0.91 in.) diameter, requires 28.0 mm (1.10 in.) hole to pass through.

# Continuous-flex Extension Cables

## Power Cable Dimensions

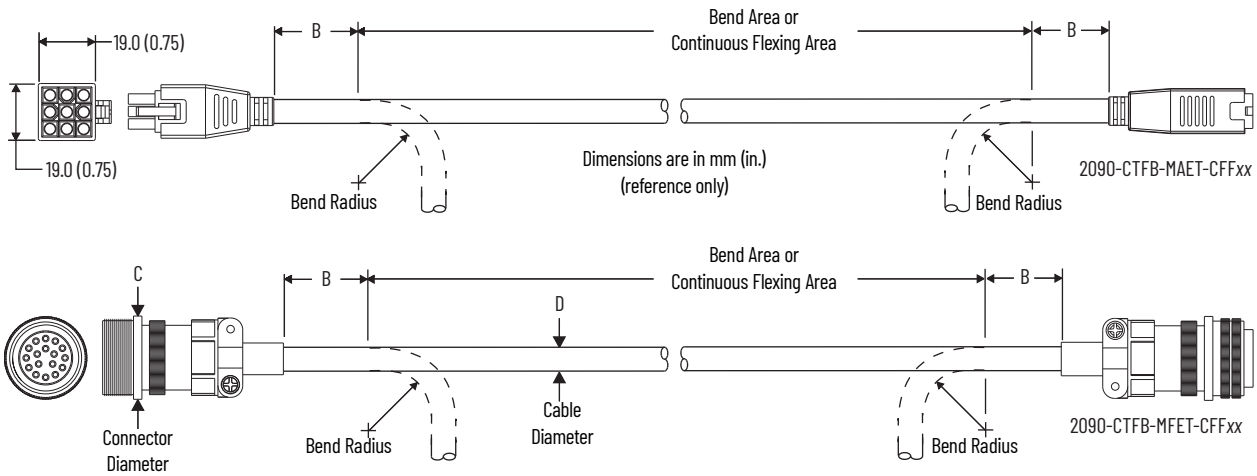


| Power Cable Cat. No. | B (1)<br>mm (in.) | Continuous Bend Radius (1)<br>mm (in.) | C (2)<br>mm (in.) | D<br>mm (in.) |             |
|----------------------|-------------------|--|-------------------|---------------|-------------|
| 2090-CTPB-MAET-18Fxx | 63.0 (2.48)       | 108 (4.25)                             | 19.0 (0.75)       | 9.0 (0.35)    |             |
| 2090-CTPB-MAET-16Fxx | 84.0 (3.31)       | 144 (5.67)                             |                   | 12.0 (0.47)   |             |
| 2090-CTPW-MAET-18Fxx | 56.7 (2.23)       | 97.2 (3.83)                            |                   | 8.1 (0.32)    |             |
| 2090-CTPW-MAET-16Fxx | 77.0 (3.03)       | 132 (5.20)                             |                   | 11.0 (0.43)   |             |
| 2090-CTPB-MCET-16Fxx | 77.0 (3.03)       | 132 (5.20)                             | 37.2 (1.46)       | 11.0 (0.43)   |             |
| 2090-CTPB-MCET-12Fxx | 101.5 (4.0)       | 174 (6.85)                             |                   | 14.5 (0.57)   |             |
| 2090-CTPW-MCET-16Fxx | 77.0 (3.03)       | 132 (5.20)                             |                   | 11.0 (0.43)   |             |
| 2090-CTPW-MCET-12Fxx | 101.5 (4.0)       | 174 (6.85)                             |                   | 14.5 (0.57)   |             |
| 2090-CTPB-MDET-12Fxx | 101.5 (4.0)       | 174 (6.85)                             | 43.0 (1.69)       | 14.5 (0.57)   |             |
| 2090-CTPW-MDET-12Fxx |                   |  |                   | 22.0 (0.87)   |             |
| 2090-CTPB-MDET-08Fxx | 154 (6.06)        | 264 (10.39)                            |                   |               | 55.2 (2.17) |
| 2090-CTPW-MDET-08Fxx | 196 (7.72)        | 336 (13.23)                            |                   | 32.0 (1.26)   |             |
| 2090-CTPW-MEET-06Fxx |                   |  | 224 (8.82)        |               | 384 (15.12) |

(1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to [Motor Power/brake, Feedback, and Brake Cable Bend Radius Definitions](#) on [page 70](#) for more information.

(2) The motor-end (rectangular) connector that is 19.0 mm (0.75 in.) high, requires a 24 mm (0.94 in.) hole to pass through.  
 The motor-end (military-style) connector that is 37.2 mm (1.50 in.) diameter, requires a 48 mm (1.89 in.) hole to pass through.  
 The motor-end (military-style) connector that is 43.0 mm (1.69 in.) diameter, requires a 53 mm (2.09 in.) hole to pass through.  
 The motor-end (military-style) connector that is 55.2 mm (2.17 in.) diameter, requires a 65 mm (2.56 in.) hole to pass through.

**Feedback Cable Dimensions**

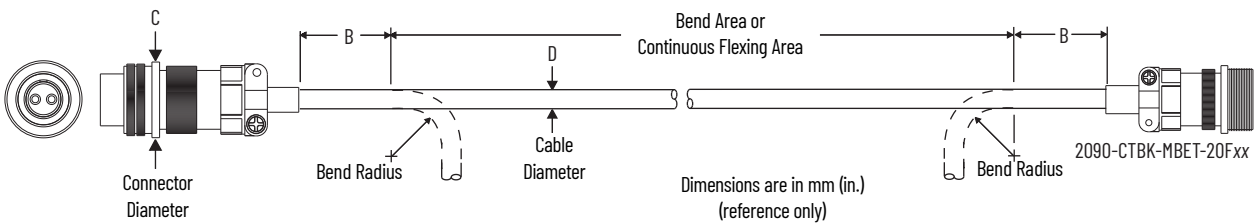


**Feedback Cable Dimensions**

| Power Cable Cat. No. | B <sup>(1)</sup><br>mm (in.) | Continuous Bend Radius <sup>(1)</sup><br>mm (in.) | C <sup>(2)</sup><br>mm (in.) | D<br>mm (in.) |
|----------------------|------------------------------|---|------------------------------|---------------|
| 2090-CTFB-MAET-CFFxx | 49.0 (1.93)                  | 84.0 (3.31)                                       | 19.0 (0.75)                  | 7.0 (0.28)    |
| 2090-CTFB-MEET-CFFxx |                              |   | 37.2 (1.50)                  |               |

- (1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to [Motor Power/brake, Feedback, and Brake Cable Bend Radius Definitions](#) on [page 70](#) for more information.
- (2) The motor-end (rectangular) connector that is 19.0 mm (0.75 in.) square, requires a 26 mm (1.02 in.) hole to pass through.  
The motor-end (military-style) connector that is 37.2 mm (1.50 in.) diameter, requires a 48 mm (1.89 in.) hole to pass through.

**Brake Cable Dimensions**



**Brake Cable Dimensions**

| Power Cable Cat. No. | B <sup>(1)</sup><br>mm (in.) | Continuous Bend Radius <sup>(1)</sup><br>mm (in.) | C <sup>(2)</sup><br>mm (in.) | D<br>mm (in.) |
|----------------------|------------------------------|---|------------------------------|---------------|
| 2090-CTBK-MBET-20Fxx | 38.5 (1.52)                  | 66.0 (2.60)                                       | 23.0 (0.91)                  | 5.5 (0.22)    |

- (1) Dimension B and Continuous Bend Radius are based on the cable diameter. Refer to [Motor Power/brake, Feedback, and Brake Cable Bend Radius Definitions](#) on [page 70](#) for more information.
- (2) The motor-end (military-style) connector that is 23.0 mm (0.91 in.) diameter, requires a 28.0 mm (1.10 in.) hole to pass through.

## Kinetix TLP Motor-end Cable Connector Kits

Motor-end connector kits are available for building your own cables. These kits are intended for Kinetix TLP cable connectors.

### Kinetix TLP Motor-end Cable Connector Kits

| Cable Type     | Motor Cat. No.  | Connector Kit Cat. No.  | Description   |   |
|----------------|---|-------------------------|---|---|
| Rectangular    | TLP-A046-xxx, TLP-A/B070-xxx,<br>TLP-A/B090-xxx, TLP-A100-xxx     | 6-pin motor<br>power    | 2090-KTPC-MA-AA                                       | Straight power connector on motor end.                |
|                |   |                         | 2090-KTPC-MA-AE                                       | Straight power connector with extension connector.    |
|                |   | 9-pin motor<br>feedback | 2090-KTFB-MA-AA                                       | Straight feedback connector.                          |
|                |   |                         | 2090-KTFB-MA-AE                                       | Straight feedback connector with extension connector. |
| Military style | TLP-A/B115-xxx, TLP-A/B235-xxx                                    | 2090-KTFB-MF-AA         | Straight feedback connector.                          |   |
|                |   | 2090-KTFB-MF-AE         | Straight feedback connector with extension connector. |   |
|                | TLP-A/B115-xxx, TLP-A/B145-xxx                                    | 2090-KTPC-MC-AA         | Straight power connector.                             |   |
|                |   | 2090-KTPC-MC-AE         | Straight power connector with extension connector.    |   |
|                | TLP-A/B200-200, TLP-A/B200-300,<br>TLP-A/B200-350, TLP-A/B200-450 | 2090-KTPC-MD-AA         | Straight power connector.                             |   |
|                |   | 2090-KTPC-MD-AE         | Straight power connector with extension connector.    |   |
|                | TLP-A/B200-550, TLP-A/B200-750,<br>TLP-A/B235-xxx                 | 2090-KTPC-ME-AA         | Straight power connector.                             |   |
|                |   | 2090-KTPC-ME-AE         | Straight power connector with extension connector.    |   |
|                |   | 2090-KTBK-MB-AA         | Straight brake connector.                             |   |
|                |   | 2090-KTBK-MB-AE         | Straight brake connector with extension connector.    |   |

See Build Your Own Kinetix TLP Motor Cables Installation Instructions, publication [2090-IN048](#), for more information.

**Notes:**



## Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

### Additional Resources

| Resource   | Description  |   |
|--|--|---|
| Kinetix Rotary Motion Specifications, publication <a href="#">KNX-TD001</a>  | Provides product specifications for Kinetix VPL, VPC, VPF, VPH, VPS, Kinetix MPL, MPM, MPF, MPS; Kinetix TL and TLY, Kinetix RDB, Kinetix MMA, and Kinetix HPK rotary motors.  |   |
| Kinetix Linear Motion Specifications, publication <a href="#">KNX-TD002</a>  | Provides product specifications for Kinetix MPAS and MPMA linear stages, Kinetix VPAR, MPAR, and MPAI electric cylinders, and Kinetix LDC and Kinetix LDL linear motors.   |   |
| Kinetix 5700, 5500, 5300, 5100 Servo Drives Specifications, publication <a href="#">KNX-TD003</a>  | Provides product specifications for Kinetix Integrated Motion over the EtherNet/IP network and EtherNet/IP networking servo drive families.  |   |
| Kinetix 3, 300, 350, 2000, 6000, 6200, 6500, 7000 Servo Drives Specifications, publication <a href="#">KNX-TD005</a>   | Provides product specifications for Kinetix Integrated Motion over the EtherNet/IP network (Kinetix 6500 and Kinetix 350), Integrated Motion over Sercos interface (Kinetix 6200, Kinetix 6000, Kinetix 2000, and Kinetix 7000), and component (Kinetix 3) servo drive families.   |   |
| Kinetix Motion Control Selection Guide, publication <a href="#">KNX-SG001</a>  | Provides an overview of Kinetix servo drives, motors, actuators, and motion accessories designed to help make initial decisions for the motion control products best suited for your system requirements.  |   |
| Kinetix 5700 Drive Systems Design Guide, publication <a href="#">KNX-RM010</a>   | Provides system design guide to determine and select the required (drive specific) drive module, power accessory, connector kit, motor cable, and interface cable catalog numbers for your drive and motor/actuator motion control system. Included are system performance specifications and torque/speed curves (rotary motion) and force/velocity curves (linear motion) for your motion application. |   |
| Kinetix 5500 Drive Systems Design Guide, publication <a href="#">KNX-RM009</a>   |  |   |
| Kinetix 5300 Drive Systems Design Guide, publication <a href="#">KNX-RM012</a>   |  |   |
| Kinetix 5100 Drive Systems Design Guide, publication <a href="#">KNX-RM011</a>   |  |   |
| Kinetix 6000 and Kinetix 6200/6500 Drive Systems Design Guide, publication <a href="#">KNX-RM003</a>   |  |   |
| Kinetix 300/350 Drive Systems Design Guide, publication <a href="#">KNX-RM004</a>  |  |   |
| Kinetix 3 Drive Systems Design Guide, publication <a href="#">KNX-RM005</a>  |  |   |
| Kinetix 2000 Drive Systems Design Guide, publication <a href="#">KNX-RM006</a>   |  |   |
| Kinetix 7000 Drive Systems Design Guide, publication <a href="#">GMC-RM007</a>   |  |   |
| Kinetix 5700 Servo Drives User Manual, publication <a href="#">2198-UM002</a>  |  | Provides information on how to install, configure, startup, and troubleshoot your Kinetix servo drive system. |
| Kinetix 5500 Servo Drives User Manual, publication <a href="#">2198-UM001</a>  |  |   |
| Kinetix 5300 Single-axis EtherNet/IP Servo Drives User Manual, publication <a href="#">2198-UM005</a>  |  |   |
| Kinetix 5100 EtherNet/IP Indexing Servo Drives User Manual, publication <a href="#">2198-UM004</a>   |  |   |
| Kinetix 6200 and Kinetix 6500 Modular Multi-axis Servo Drives User Manual, publication <a href="#">2094-UM002</a>  |  |   |
| Kinetix 6000 Multi-axis Servo Drives User Manual, publication <a href="#">2094-UM001</a>   |  |   |
| Kinetix 7000 High Power Servo Drives User Manual, publication <a href="#">2099-UM001</a>   |  |   |
| Kinetix 2000 Multi-axis Servo Drives User Manual, publication <a href="#">2093-UM001</a>   |  |   |
| Kinetix 300 EtherNet/IP Indexing Servo Drives User Manual, publication <a href="#">2097-UM001</a>  |  |   |
| Kinetix 350 Single-axis EtherNet/IP Servo Drives User Manual, publication <a href="#">2097-UM002</a>   |  |   |
| Kinetix 3 Component Servo Drives User Manual, publication <a href="#">2071-UM001</a>   |  |   |
| Kinetix Halogen-free PUR and PVC Single Motor Cables Quick Reference, publication <a href="#">2090-OR002</a>   | Provides product specifications comparing 2090-CSBM1xx-xxLFxx (Halogen-free PUR) and 2090-CSxM1xx-xxVAxx (PVC) single motor cables.  |   |
| Industrial Ethernet Media Brochure, publication <a href="#">1585-BR001</a>   | Provides information to determine which Bulletin 1585 Ethernet cable fits your application and the product specifications to help select the appropriate components.   |   |
| Motion Analyzer System Sizing and Selection Tool <a href="https://motionanalyzer.rockwellautomation.com/">https://motionanalyzer.rockwellautomation.com/</a> | Provides comprehensive motion application sizing tool used for analysis, optimization, selection, and validation of your Kinetix Motion Control system.  |   |
| Rockwell Automation Product Selection website, <a href="http://rok.auto/systemtools">rok.auto/systemtools</a>  | Provides online product selection and system configuration tools, including AutoCAD (DXF) drawings.  |   |
| Ethernet Reference Manual, <a href="#">ENET-RM002</a>  | Describes basic Ethernet concepts, infrastructure components, and infrastructure features.   |   |
| Product Certifications website, <a href="http://rok.auto/certifications">rok.auto/certifications</a> .   | Provides declarations of conformity, certificates, and other certification details.  |   |

You can view or download publications at [rok.auto/literature](http://rok.auto/literature).

# Rockwell Automation Support

Use these resources to access support information.

|   |  |  |
|---|--|--|
| <b>Technical Support Center</b>                         | Find help with how-to videos, FAQs, chat, user forums, and product notification updates.           | <a href="http://rok.auto/support">rok.auto/support</a>             |
| <b>Knowledgebase</b>                                    | Access Knowledgebase articles.   | <a href="http://rok.auto/knowledgebase">rok.auto/knowledgebase</a> |
| <b>Local Technical Support Phone Numbers</b>            | Locate the telephone number for your country.  | <a href="http://rok.auto/phonesupport">rok.auto/phonesupport</a>   |
| <b>Literature Library</b>                               | Find installation instructions, manuals, brochures, and technical data publications.               | <a href="http://rok.auto/literature">rok.auto/literature</a>       |
| <b>Product Compatibility and Download Center (PCDC)</b> | Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes. | <a href="http://rok.auto/pcdc">rok.auto/pcdc</a>                   |

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