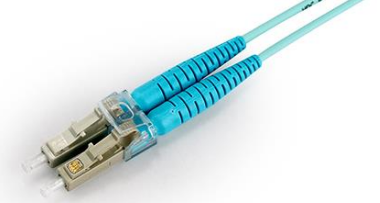




Circular Plastic Connectors (CPC)





As production environments become increasingly automated and decentralized, connections simply must work. TE Automation & Control works with you every step of the way to solve your connectivity challenges, delivering innovative solutions to reliably connect, power and control every aspect of production—from the circuit board to the harshest working environments.

Circular Plastic Connectors (CPC) be used practically anywhere signal and/or power are used to enter/exit a system.

Value Proposition



Circular Plastic Connectors (CPC) enable engineers to design rugged products quickly and affordably by offering a versatile range of power and signal connectivity solutions.

- **Meet rugged and space-saving requirements.**
 - UL94V-0 stabilized heat resistant plastic housings and variants.
 - Design for either IP65 or IP67 sealing when needed.
 - Eliminate rectangular connector waste when space saving is critical.
- **Speed up go-to-market and reduce installation time.**
 - Select from a broad portfolio to move from idea to design to production faster.
 - Quickly pair power and signal for a variety of input and output requirements when a hybrid approach is needed.
 - Select the best contact termination based on application—not the connector. (Hand, semi-automated or automatic termination tooling)
- **Design with cost-effective, high-performance materials and configuration.**
 - Leverage the lightweight, all-plastic shell as a lower cost alternative to metal.
 - Eliminate the cost of hand tools for mating with the connect-disconnect polarized housings.
 - Make repair easy with less downtime with removable crimp contacts and replaceable coupling rings.

Circular Plastic Connectors (CPC) offer a rugged, reliable connector system suitable for a wide range of applications. CPC is UL Recognized (File No. E28476) and CSA Certified (File No. LR 7189).

- Industrial machinery, factory automation; material handling equipment
- Rail and Transit vehicles and systems
- Medical Instrumentation & Equipment
- Communication equipment, networking, data storage, computers & peripherals
- HVAC, Commercial and building equipment
- Lighting and signage
- Motor vehicles - Auto/bus/truck; off-road and recreational vehicles; agricultural machinery; construction equipment
- Aerospace and defense equipment and systems



Typical Applications

Circular Plastic Connectors (CPC) can be used practically anywhere signal and/or power are used to enter/exit a system.

- Welding equipment
- Locomotives
- Production equipment
- Smart Carte stations
- Architectural lighting
- Digital signage
- Remote radio heads



CPC comes in six different series to allow you to choose the product best suited to your design requirements

Series 1 – Standard Density: Signals up to 13A (also available in Sealed)

Series 2 – High Density: Signals up to 7.5A

Series 3 – Power Density: Power up to 25A

Series 4 – Power and Signal Combination: Signals up to 13A, Power up to 25A

Series 5 – Power (Sealable): Power up to 45A

Series 6 – Power and Signal Combination (Sealable): Signals up to 13A, Power up to 45A

Series 1 (Sealed), 5 and 6 now available in F1 rated material

UV-Resistant Sealed CPC

- F1 rated material withstands UV exposure per industry standards, prolonging equipment life
- IP67 sealing capability allows equipment usage in wet locations without added cost of supplemental enclosure
- Circular design maximizes contact density, lowering equipment space requirements for power and signal interconnections



UV-Resistant Sealed CPC

Part Number	Description
SERIES 1: SIGNAL	
1977876-1	Panel Mount Receptacle Housing, 11-4, Standard Sex
1977877-1	Free Hanging Receptacle Housing, 11-4, Standard Sex
1977878-1	Plug Housing, 11-4, Standard Sex
1977879-1	Panel Mount Receptacle Housing, 11-4, Reverse Sex
1977880-1	Free Hanging Receptacle Housing, 11-4, Reverse Sex
1977881-1	Plug Housing, 11-4, Reverse Sex
1977882-1	Panel Mount Receptacle Housing, 13-9, Standard Sex
1977883-1	Free Hanging Receptacle Housing, 13-9, Standard Sex
1977884-1	Plug Housing, 13-9, Standard Sex
1977885-1	Panel Mount Receptacle Housing, 23-37, Standard Sex
1977886-1	Free Hanging Receptacle Housing, 23-37, Standard Sex
1977887-1	Plug Housing, 23-37, Standard Sex
SERIES 5: POWER	
1977888-1	Panel Mount Receptacle Housing, 17-3, Reverse Sex
1977889-1	Plug Housing, 17-3, Reverse Sex
SERIES 6: POWER & SIGNAL (HYBRID)	
1977890-1	Panel Mount Receptacle Housing, 23-16, Standard Sex
1977891-1	Free Hanging Receptacle Housing, 23-16, Standard Sex
1977892-1	Plug Housing, 23-16, Standard Sex

Series 1 Details

Series 1



Series 1—Standard Density

- Size 16 contacts
- Sizes 11-4, 13-7, 13-9, 17-9, 17-14, 17-16, 23-19, 23-24, 23-37

Contact Types:

- Multimate Type III+
- Multimate Type II
- Multimate Enhanced High Current Type III+
- Multimate High Current Power Contact
- Subminiature Coax Contacts
- Straight posted and right angle version available
- Sealed version also available



11-4



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13-7



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13-9



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17-9



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17-14



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17-16



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23-19



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23-24



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Click [here](#) to view the contact arrangements for this series.

Series 2 Details

Series 2



Series 2—High Density

- Size 20 HD contacts
- Sizes 11-8, 11-9, 17-28, 23-57, 23-63

Contact Types:

- HD-20 DF—Precision Formed
- HD-20 DM—Screw Machined
- Posted version available



Click [here](#) to view the contact arrangements for this series.

Series 3 Details

Series 3



Series 3—Power Density

- Type XII Power Contacts
- Sizes 17-3 and 23-7

Contact Types:

- Type XII Power Contacts
- Type XII High Current Power Contacts



17-3



23-7



Click [here](#) to view the contact arrangements for this series.

Series 4 Details

Series 4



Series 4—Power and Signal Combination

- Combination Size 16 contacts and Type XII Power Contacts
- Combines the signal and coaxial circuit capabilities of Series 1 with the power circuit capabilities of Series 3 and 5
- Sizes available:
 - 23-13M:
 - 8 Size 16 contacts
 - 5 Type XII Power Contacts
 - 23-16M:
 - 12 Size 16 contacts
 - 4 Type XII Power Contacts
 - 23-22M:
 - 20 Size 16 contacts
 - 22 Type XII Power Contacts
 - 23-9M:
 - 3 Size 16 contacts
 - 6 .125 POWERBAND contacts

23-13



QJR You Choose

23-16



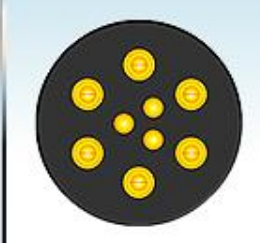
QJR You Choose

23-22



QJR You Choose

23-9



QJR You Choose

Click [here](#) to view the contact arrangements for this series.

Series 5 Details

Series 5



Series 5—Power (Sealable)

- Reverse sex only
 - Size 17-3
 - .125 POWERBAND Contacts
- One piece
 - [IP](#) 67 rating
- Two piece
 - [IP](#) 65 rating



17-3



Click [here](#) to view the contact arrangements for this series.

Series 6 Details

Series 6



Series 6—Power and Signal Combination (Sealable)

- Combination size 16 Multimate and POWERBAND contacts
- Combines the signal and coaxial circuit capabilities of Series 1 with the power circuit capabilities of Series 5
- Wire and mating face seals

Sizes available:

• One piece:

- 23-16:
 - 12 Size 16 contacts
 - Four .125 POWERBAND contacts
 - Standard and reverse sex
 - [IP 67](#) rating

• Two piece:

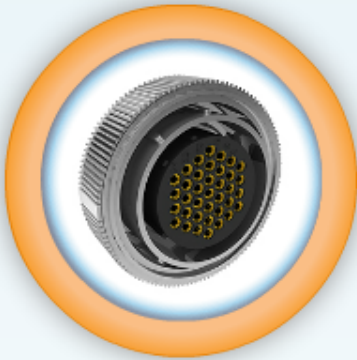
- 17-10:
 - 8 Size 16 contacts
 - Two .125 POWERBAND contacts
 - Reverse sex only
 - [IP 65](#) rating



Click [here](#) to view the contact arrangements for this series.

CMC (Circular Metal Shell)

CMC



Metal-Shell Circular Plastic Connectors—CMC

- Provides the reliability of all-metal connectors at a much lower cost
- Black thermoplastic insert in a nickel-plated zinc alloy shell
- Series 1, 2, 3, and 4 available
- Optional TETRASEALS ring



Metal-Shell Circular Plastic Connector Size Chart

Connector Type					
Series 1 Standard Sex	14-5	14-7	22-16	28-24	28-37
Series 1 Reverse Sex	14-5	14-7	22-14	28-37	
Series 2 Standard Sex	22-28	28-63			
Series 2 Reverse Sex	22-28	28-57			
Series 3 Standard and Reverse Sex	22-3	28-7			
Series 4 Standard Sex	28-16M	28-22M			

TETRASEALS is a trademark of Parker Hannifin Corporation

Accessories

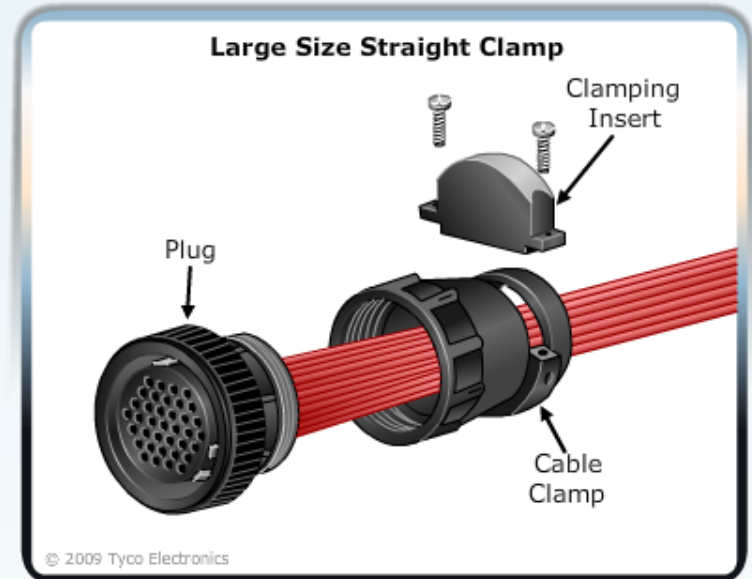
Accessories



- Sealing caps/protective caps
- Jacket cable seals
- Cable entry seal/heat shrink boots
- Rubber boots
- Cable clamps:
 - Large size straight clamp
 - Self-centering straight clamp
 - Right angle clamp
 - Standard size straight clamp
 - Flexible cable boot with internal cable grip
 - Back shell extender
- Panel mount flange
- Keying plugs

CMC Accessories

- Sealing caps/protective caps
- Cable entry seal/heat shrink boots
- Keying plugs
- Cable clamps



Move your mouse over the accessories to view the respective images.

Mini CPC

Miniature CPC



Miniature (Mini) CPC Connectors

- Mini Universal MATE-N-LOK Contacts
- Sizes 8-1, 8-2, 8-3, 8-4, 11-5, 11-6, 11-7, 11-8, 11-9
- ¼ turn coupling ring with positive lock and alignment feature
- IP 67 rating

Accessories:

- Strain relief
- Heat shrink boots
- Flange seals
- Jam nuts
- Dust caps



Mil-C-5015 Style

Mil-C-5015 Style



Mil-C-5015 Style

- Specifically designed to be intermateable with Metal-Shell Mil-C-5015 connector systems
- Lighter weight and lower cost than metal-shell connectors in an existing system

Multimate Type III+ Mil-C-5015 Style

- These contacts can only be used with this housing due to increased length of the contacts
- Sizes 20-14, 18-10



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20-14



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18-10



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Application Tooling

- Hand, semi-automated and automated termination tooling and equipment available

- Catalog 82021 contains contact to tooling X-ref

- Due to longevity of Multimate Type II and III+ contacts, a broad base of termination equipment is present at CM's

Application Tooling

Mechanical Hand Tools for Interchangeable Die Sets

These tools are used for multiterminate, single and multiterminate applications. They are used to terminate an individual contact wire on a fully terminated or a partially terminated board strip.

SSE (Standard Die Exchange) Die Set

SSE die sets provide cost-effective flexibility through many options for a common die set carrier. The SSE die sets can be selected for use with C295-C297P hand tools, PNC-C297P11 hand tools, the C297 Terminator and the C297 Pneumatic Tool System.

PRO-CRIMP III Hand Tool, Part No. 52480-1

Commercial grade hand tool for crimping various products. Features ratchet control to provide complete crimp cycle. Accepts both standard and modified style die sets. Locks are provided with pinned style die sets for proper contact and wire positioning, and to help minimize contact resistance and heating during crimping. Approximate weight 1.3 lb (0.60 kg).

C297-CRIMP Straight Action Hand Tool (SAHT)

Premium grade hand tool. Features ratchet control to provide complete crimp cycle. The tool closes in a straight line, includes a ratchet lock and wire stop, plus an insulation strip adjustment lever, when applicable. Approximate weight 1.3 lb (0.60 kg).

C297-CRIMP "C" Head Straight Action Hand Tool (SAHT), Part No. 52715-1

Premium grade hand tool. Features ratchet control to provide complete crimp cycle. The interchangeable die sets close in a straight line to maintain contact or terminal location during crimping. When applicable, tool water feature such as a contact or terminal locator and wire stop, are built into the die set. Approximate weight 1.3 lb (0.60 kg).

Electric Machines for Interchangeable Die Sets

SSE Terminator, Part No. 149075-2

An electric crimp terminator with compact design features a die set holder that is compatible with all AMP C295-C297P11 hand die sets. Hand or foot actuated options are available. (3 Approved)

Pneumatic Hand Tool for Interchangeable Die Sets

S25 Pneumatic Tool System

Lightweight air-actuated module feeding system. Accepts a wide variety of interchangeable hand tools for crimping contacts, terminals and solder onto wire ranges from AMP C295 to most flat copper and fiber optic cable. Available with either hand or foot activation switches. Optional ratchet control available to provide complete crimp cycle.

For additional contact, see page 70 or see literature, visit cm.com

For more literature, visit cm.com

Application Tooling (Continued)

Crimp Machines

AMP-CLECTRIC Model "C" Terminating Machine, Part No. 525450-1, -4, -6, -8

Automotive bench machines for crimping twisted terminals and contacts, including a gear and ratchet direct motor drive mechanism control for ease of setup and operation, and painting and lighting designed for operation in commercial and safety applications. All models are equipped with either manual or automatic operation. Adjustment of crimp height, machine-mounted sensors, are used to help crimp quality monitoring using conventional resistance style applications. For more literature, visit cm.com.

AMP-TAMP-TRONIC Machine, Part No. 52675

AMP-CLECTRIC Model "C" Terminating Machine with a permanently mounted application that accepts interchangeable die sets to apply a variety of large round terminals and options. Many of the die sets can also be used in AMP-CLECTRIC Terminating Machine with a large application. For more literature, visit cm.com.

Crimp Quality Monitor (CQM), Part No. 529450-2

The unique system provides EXCELLENCE in crimp inspection. It measures the crimp height of each termination, and evaluates the quality of each crimp. If a crimp is questionable, the monitor alerts the operator with both visual and audible alerts. It also provides ports for printing and interfacing. When used with AMP-CLECTRIC Model "C" Terminating Machines, the monitor is mounted to the machine. When used with AMP-TAMP-TRONIC Load Making Machines, it is integrated into the machine's operating system.

For more literature, visit cm.com.

System III Applicator

The System III Applicator introduces several new technologies into the applicator including a precision servo-electric rotational feeding system, a built-in data module for storing terminal crimp and set-up information, a precision fit insert tool, and a newly designed barrel dispenser. It will reduce the process quality of the TEM computer and avoid loading.

For more literature, visit cm.com.

AMP-TAMP-TRONIC Model "C" Terminating Machine with a permanently mounted application that accepts interchangeable die sets to apply a variety of large round terminals and options. Many of the die sets can also be used in AMP-CLECTRIC Terminating Machine with a large application. For more literature, visit cm.com.

3,000 lb (1361 kg) max. strip length (AMP-S245), 6,000 lb (2722 kg) max. strip length (AMP-S245)

- Toolless removal of applicator and spacers
- High capability
- Quick tool operation — NO OGA and extra line loss from S-245 terminals
- Accepts Heavy Duty Hand Crimp Applicators
- Wide range of options — equipment such as ballcast precision crimp height adjust, ballcast counter, CQM capability and work light

For more literature, visit cm.com.

The AMP-S245 and AMP-S245M Terminators are designed for customers that require the increased initial and quality of an automotive machine at a competitive price. By incorporating the most commonly requested and offering a long list of optional equipment, these terminators offer flexibility to meet the specific needs of various applications at the lowest possible cost.

The AMP-S245 and AMP-S245M Terminators are designed for customers that require the increased initial and quality of an automotive machine at a competitive price. By incorporating the most commonly requested and offering a long list of optional equipment, these terminators offer flexibility to meet the specific needs of various applications at the lowest possible cost.

For more literature, visit cm.com.

Circular Plastic Connector Advantages

TE's CPC products:

- Have a long history of proven quality and reliability
- Are less expensive than metal shell products
- Are designed with repairable contacts and replaceable coupling ring for easy field reparability
- Have a good base of contract manufacturers with application tooling for Type III+ contacts

Online information

- Landing page: www.te.com/products/circularplasticconnectors
- E-catalog – part number details, customer view models and customer drawings
- TE eLearning module – module covers CPC and Multimate Contacts; link on CPC landing page
- Datasheet for UV-Resistant CPC: 6-1773700-2; link on CPC landing page
- Web-based Sample Request system
- Product Specifications:
 - *108-10024 - Circular Plastic Connectors*
 - *108-10037 - Contact Type XII*
 - *108-10040 - Circular Metal Connectors*
 - *108-1579 - Sealed CPC*
- Application Specification:
 - *114-10038 - Circular Plastic Connectors*
 - *114-10000 - HD-20 Contacts*
 - *114-10004 - Type III+ (Size 16) Contacts*
 - *114-10005 - Type XII Contacts*