

# CIRCULAR PLASTIC CONNECTORS (CPC) SELECTION GUIDE



Miniature CPC

## Considerations when specifying Circular Plastic Connectors:

- Wire type and size requirements
- Number of circuits required
- Current and voltage rating requirements
- Is environmental sealing or splash protection required?
- How much space is available for the connector?
- Is a plastic housing suitable for the application or is a more durable metal-shell housing required?
- Volume of contacts to be crimped - impacts recommended application tooling and contact packaging
- Required accessories



Standard CPC

## Industry Applications:

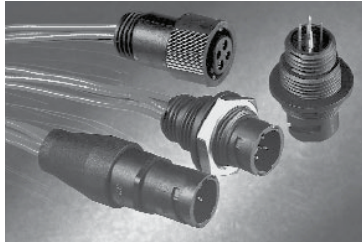
### Miniature CPC

Industrial machinery  
Instrumentation  
Motor vehicles  
Recreational vehicles

### Standard CPC

Industrial machinery  
Instrumentation  
Agricultural  
Equipment  
Welding equipment  
HVAC  
Lighting  
Security  
Motor vehicles  
Recreational vehicles

## MINIATURE CPC CONNECTORS



Miniature CPC

- Small circular connector system for wire-to-wire and wire-to-panel configurations
- 1 to 9 positions
- Uses existing Mini-Universal MATE-N-LOK crimp, snap-in contacts
- Sealing to IP67 prevents ingress of dirt or fluids
- 1/4-turn coupling ring with positive lock and alignment features



### IEC 60529 IP (Internal Protection) Definition

- The first number (1-6) in an IP number specifies the degree of protection against ingress of solid foreign objects.
- The second number (0-7) specifies the degree of protection against ingress of water.
- IP65 and IP67 ratings, defined as follows, apply to certain CPC connectors: IP65 - Protection against ingress of dust and protection against water stream out of a nozzle from any direction (jetting).
- IP67 - Protection against ingress of dust and protection against temporary immersion

## SUMMARY CHART

Product Name	Number of Positions	Contact System	Wire Range (AWG)	Current Rating (A)	Voltage Rating (V)	Coupling Mechanism	Wire to Wire	Wire to Panel	Sealing
Miniature CPC	1 to 9	Universal MATE-N-LOK Crimp, Snap-in Contacts	30-22	5	250	1/4-Turn Coupling Ring	X	X	IP67

Reference: Catalog 1309175 (Miniature)

### Accessories:

- Cable clamps
- Heat shrink boots
- Flange seals
- Dust caps

## STANDARD CPC CONNECTORS

### SERIES 1



- Standard density connector: Signals up to 25A (also available in Sealed)
- 4-37 Positions
- Accepts size 16 multimate pin & socket contacts
- Sealable to IEC IP67
- Sizes: 11-4, 13-7, 13-9, 17-9, 17-14, 17-16, 23-19, 23-24, 23-37
- Sealed UV - resistant version available

### SERIES 2



- High density connector: Signals up to 7.5A
- 8-63 Positions
- Accepts size 20 DF/DM contacts
- Smaller contact allows more circuit positions than Series 1 connectors
- Sizes: 11-8, 11-9, 17-28, 23-57, 23-63

### SERIES 3



- Power Density: Power up to 47A
- 3-7 positions
- Accepts Type XII “box” style power contacts
- Contact wire range is 16-10 AWG
- Sizes: 17-3 and 23-7

### SERIES 4



- Combination standard & power density: Signals up to 25A, power up to 47A
- 13-22 positions
- Accepts size 16 multimate contacts and Type XII power contacts in same housing
- Sizes 23-13: 8 signal, 5 power 23-16: 12 signal, 4 power 23-22: 20 signal, 2 power

### SERIES 5



- Power density connector (Sealable): Power up to 50A
- Sealable to IP65 or IP67
- 3 positions
- Accepts economical POWERBAND stamped & formed contacts capable of carrying up to 50 amps
- Size 17-3: One-Piece rated for IP 67 performance Two-Piece rated for IP 65 performance
- Sealed UV - Resistant version available

### SERIES 6



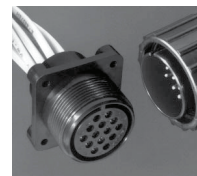
- Combination standard & power density (Sealable): Signals up to 25A, power up to 50A
- Sealable to IP65 or IP67
- 10 positions
- Uses both multimate size 16 contacts and POWERBAND 50-amp contacts in same housing
- Sizes 23-16: 12 signal, 4 power - One-Piece rated for IP 67 performance 17-10: 8 signal, 2 power - Two-Piece rated for IP 65 performance
- Sealed UV - Resistant version available

### CIRCULAR PLASTIC METAL-SHELL (CMC)



- Consists of a thermoplastic insert in a nickel-plated, zinc alloy shell
- Available in series 1-4 configurations (same contact configuration as all-plastic version)
- Optional “Tetraseal” interface seal provides splash-proof sealing between connector metal shells

### MIL-C-5015 STYLE CPC



- All-plastic connector that intermates with other manufacturer’s metal-shell Mil-C-5015 type connectors
- Intermates with size 20-14 and 18-10 connectors
- Uses multimate size 16 contacts

## STANDARD CPC CONNECTORS

### SUMMARY CHART

Series	Description	Positions	Full Sealing*	Optional Interface Sealing**	20 DF/DM	Type II	Type III+ & High Current Enhanced	Type III+ Posted	High Current Power	Type XII Power	POWERBAND
<b>All Plastic CPC</b>											
Series 1	Standard Density	4-37	IP67 <sup>†</sup>	✓		✓	✓	✓	✓		
Series 2	High Density	8-63		✓	✓						
Series 3	Power Density	3-7								✓	
Series 4	Combination Standard & Power Density	13-22				✓	✓		✓	✓	
Series 5	Power Density	3	IP65 & IP67								✓
Series 6	Combination Standard & Power Density	10	IP65 & IP67			✓	✓				✓
<b>Metal-Shell CPC</b>											
Series 1	Standard Density	5-37		✓		✓	✓	✓	✓		
Series 2	High Density	28, 63		✓	✓						
Series 3	Power Density	3, 7		✓						✓	
Series 4	Combination Standard & Power Density	16, 22		✓		✓	✓		✓	✓	
<b>MIL Style CPC</b>											
5015	Plastic Housing, MIL-C-5015	10, 14					✓ <sup>††</sup>				

\*Has wire entry seals and peripheral interface seals. \*\*Has peripheral interface seal only that provides splash-proof sealing between mating halves.

<sup>†</sup>Series 1 Connectors are also available unsealed. <sup>††</sup>High Current enhanced version is not compatible with MIL-C-5015 Style CPC

### CPC CONNECTOR CONTACTS

Type	Current Rating (A)*	Wire (AWG)	Size/Type	Description
20 DF	7.5	28-20	Size 20 (.040" Dia.)	Stamped & Formed, Crimp Snap-in
20 DM	7.5	24-20	Size 20 (.040" Dia.)	Screw Machined, Crimp Snap-in
Type II	13	28-14	Size 16 (.062" Dia.)	"Multimate", Screw Machined, Crimp Snap-in
Type III+	13	30-14	Size 16 (.062" Dia.)	"Multimate", Stamped & Formed, Crimp Snap-in
Type III+ High Current Enhanced	25	30-14	Size 16 (.062" Dia.)	"Multimate", Stamped & Formed, Crimp Snap-in
Type III+ Posted	13	n/a	Size 16 (.062" Dia.)	"Multimate", Stamped & Formed, For PCB, Wire-Wrap or TERMI-POINT Clips
High Current Power	23	18-14	Size 16 (.062" Dia.)	"Louvertac", Screw Machined, Crimp Snap-in
Type XII	47	16-10	Box Design	Stamped & Formed, Crimp Snap-in
POWERBAND	50	14-10	.125" Dia.	Stamped & Formed, Crimp Snap-in, Louvertac

\*Maximum current for single contact and largest wire size

Reference: Catalog 82021

# CIRCULAR PLASTIC CONNECTORS

## PRODUCT FACTS



- Lightweight, all-plastic and metal-shell circular connectors
- Quick connect/disconnect capability with thread assist and positive detent coupling
- Available in panel or chassis mount and free-hanging configurations
- Housings constructed from UL 94V-0 rated thermoplastic material

## ACCESSORIES



- Cable clamps
- Flexible cable boots
- Keying plugs
- Interface seals
- Flange seals
- Dust caps
- Heat shrink sealing boots

## MANUAL HAND TOOLS FOR INTERCHANGEABLE DIE SETS



- SDE (Standard Die Envelope) die sets



- PRO-CRIMPER III hand tool



- CERTI-CRIMP straight



- CERTI-CRIMP "C" head straight action hand tool

## LEAD MAKERS



- UNIQA-PRO



- GAMMA 333 PC-V

## CRIMP MACHINES



- AMP-O-ELECTRIC model "GII" terminating machines



- Crimp Quality Monitor II (CQM II)



- AMP 3K and AMP 5K terminating machines

## ELECTRIC MACHINE / PNEUMATIC HAND TOOL



- 626 Pneumatic tool system



- SDE terminator

## STRIPPER-CRIMPER MACHINES

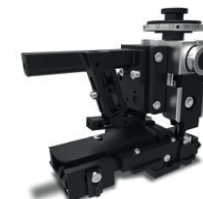


- Cosmic 60R wire stripping machine



- Cosmic 927R micro-cable stripper

## APPLICATORS



- Ocean applicator

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USA:	+1 (800) 522-6752
Canada:	+1 (905) 475-6222
Mexico:	+52 (0) 55-1106-0800
Latin/S. America:	+54 (0) 11-4733-2200
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China:	+86 (0) 400-820-6015