



## CMC hybrid connectors and mating headers provide sealed, high-density, modular and cost-effective wire-to-board and wire-to-wire connection systems for heavy-duty powertrain and body-electronics applications in automotive and commercial vehicles

The CMC connector family from Molex is a sealed, high-density connection system developed for the transportation industry. It is designed to perform in high-conductivity applications and in harsh environments.

Standard CMC headers for wire-to-board connections are available in a variety of off-the-shelf 1-, 2- or 3-pocket configurations. CMC connection system is validated to following standards: ISO 8092-2, PSA B217050, USCAR 2, AK LV 214 and JD 53.3.

CMC 32- and 48-circuit connection systems accommodate SAE specified TXL 18 AWG wires. For more information on Molex's CMC product family, visit: [www.molex.com/product/cmc.html](http://www.molex.com/product/cmc.html).

### Features and Benefits

High performing sealed connection system using matte seal technology for CP 0.635mm and 1.50mm terminals and using single wire seal technology (SWS) for CP 2.80mm terminal

Can perform in sealed applications where IP6K7 and IP6K9K rating and 500m bar water tightness are required

High density system due to compact connector design and fine pitch size of 2.54mm

Requires reduced space on customer printed circuit boards (PCB's) or engine compartments

System features three different terminal sizes CP 0.635mm, 1.550mm and 2.80mm.

Supports low, medium and high current applications from 2.5A up to 21.0A to perform in harsh environments and high conductivity applications

Modular connector system with a choice of different circuit sizes including: 22, 24, 28, 32, 36, 48 and 53

Cost-effective system; uses same connector type for different harness size needs

System offers several color codings and mechanical polarisation due to easy visual installation and avoid mismatching of the headers and connectors

Reduces cycle time during harness assembly

32-circuit wire-to-wire system featuring male plug designed for either bracket or clip mounting

Allows for adoption of complete CMC connection system throughout entire vehicle  
Plug design allows flexibility based on a customer's space and application requirements

Blind plugs available to close unused connector cavities

Secure sealing system meeting IP6K7 and IP6K9K and 500mbar air pressure provides design flexibility and increases efficiency to reduce costs

### Applications

Applications: Wire-to-Board  
Powertrain  
Engine Control Unit (ECU)  
Gear box  
Suspension controller  
Electronic parking brake

Body Electronics  
Junction/Fuse box  
Lighting control system  
Electric doors

Applications: Wire-to-Wire  
Powertrain  
Body Electronics

Transportation Market:  
Cars  
Trucks  
Buses  
Agricultural equipment  
Construction equipment  
Motorcycle  
Marine

## CMC Hybrid Connectors Standard and Power Versions

### Standard Female Connectors

**64319** 32-Circuit Connector  
**64320** 48-Circuit Connector  
**64325** Blind Plugs

### Power Female Connectors

**64318** 28-Circuit Connector  
**64321** 53-Circuit Receptacle  
**64325** Blind Plug and SWS  
**64326** 22-Circuit Connector

### CP Terminals

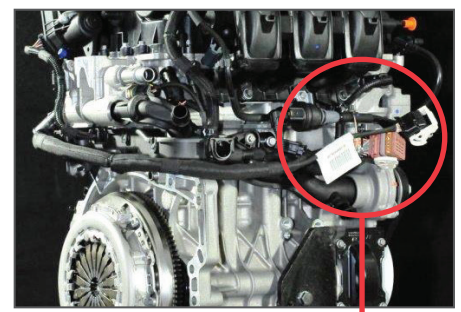
**64322** CP 0.635mm  
**64323** CP 1.50mm  
**64324** CP 2.80mm

### Wire-to-Board Connection

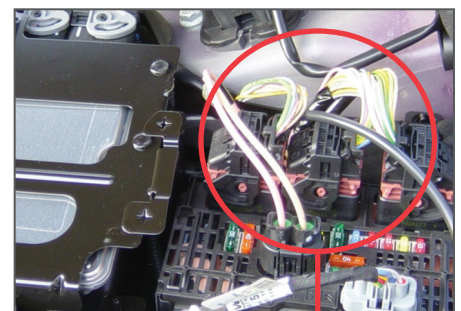
**36638, 500762, 502225, 98997**  
**64333, 64334, 34763,47745**

### Wire-to-Wire Connection

**501820** 32-Circuit Male Plug  
**501826** 32-Circuit Wire  
Cap Straight  
**98649** 32-Circuit Wire  
Cap Left/ Right  
**501827** 0.60mm Male Terminal  
**501828** 1.50mm Male Terminal



Engine harness application: 53- and 32-circuit CMC connectors in use



Body control, fuse box application: 28-circuit CMC power connectors in use

## Specifications

### MAIN TECHNICAL CHARACTERISTICS

Vibration: 15G  
 Sealing: IP6K7, IP6K9K  
 Operating temperature: -40 to + 125°C  
 Available wire sizes:  
 CP 0.60mm<sup>2</sup> terminals: 0.35 to 0.75mm<sup>2</sup>, 18 TXL AWG, 20 TXL AWG  
 CP 1.50mm<sup>2</sup> terminals: 0.50 to 2.00mm<sup>2</sup>, 14 TXL AWG, 16 TXL AWG  
 Available plating options:  
 Tin (Sn) and Gold (Au)

### REFERENCE INFORMATION

Packaging: Box with carton interleaf  
 Mates with: CMC Headers shown on page 8  
 Use with:  
 Terminals:  
 Series 64322 CP 0.635mm  
 Series 64323 CP 1.50mm  
 Plugs:  
 64325-1010 for CP 0.635mm cavity  
 64325-1023 for CP 1.50mm cavity  
 Wire Caps:  
 32-Way: 64319-1201  
 48-Way: 64320-1301  
 Designed in: Millimeters

### ELECTRICAL

Current:  
 CP 0.635mm terminals - max.  
 2.5A (0.75mm<sup>2</sup> wire)\*  
 CP 1.50mm terminals - max.  
 12.0A (2.00mm<sup>2</sup> wire)\*

\*Current tested on a fully loaded connector;  
 current for temperature increase of 40°C

Contact Resistance:  
 0.635mm terminals: 8 milliohms max.  
 1.50mm terminals: 4 milliohms max.  
 Dielectric Withstanding Voltage:  
 1000V AC for 1 minute  
 Insulation Resistance: 100 Megohms min.

### MECHANICAL

Contact Insertion Force:  
 0.635mm terminal: 12N max.  
 1.50mm terminal: 20N max.  
 Contact Retention to Housing:  
 0.635mm terminal: 60N min.  
 1.50mm terminal: 100N min.  
 Wire Pull-Out Force: 100N min.  
 Mating Force: 70N max.  
 Unmating Force: 70N max.  
 Durability: 20 mating cycles

### PHYSICAL

Housing: PBT, Glass-filled  
 RoHS: Yes  
 Operating Temperature: -40 to +125°C  
 Note: Check mating header temperature class for potential limitations

### SEALING

IP6K7, IP6K9K

For more details please refer to PS-64319-001 / PS-64319-002 / AS-64319-002

## CMC Hybrid Connectors Standard and Power Versions

- 64319** 32-Circuit Connector
- 64320** 48-Circuit Connector
- 64325** Blind Plugs



32-Circuit CMC Connector



48-Circuit CMC Connector

## ORDERING INFORMATION

### Female Connectors

Order No.	No. of Circuits	Colour Coding	Wire Output	
64319-3211	32	Black	Right	
64319-3216		Blue		
64319-3218		Grey		
64319-3219		Brown		
64319-1211		Black		Left
64319-1216	Blue			
64319-1218	Grey			
64319-1219	Brown			
64320-3311	48	Black	Right	
64320-3315		Green		
64320-3318		Grey		
64320-3319		Brown		
64320-1311		Black		Left
64320-1315		Green		
64320-1318		Grey		
64320-1319		Brown		
64319-2211		24	Black - Row 1 closed	
64319-2218			Grey - Row 4 closed	
64319-4211	Black - Row 1 closed			
64319-4218	Grey - Row 4 closed			
64320-2311	36	Black - Row 1 closed	Left	
64320-2319		Brown - Row 1 closed		
64320-4311		Black - Row 1 closed	Right	
64320-4319		Brown - Row 1 closed		

### Wire Caps

Order No.	Circuits	Housing Color
64319-1201	32	Black
64320-1301	48	

### Blind Plugs

Order No.	Terminal Width	Housing Color
64325-1010	0.635mm	White
64325-1023	1.50mm	Orange

## Specifications

### MAIN TECHNICAL CHARACTERISTICS

Vibration: 15G  
 Sealing: IP6K7, IP6K9K  
 Operating temperature: -40 to + 125°C  
 Available wire sizes:  
 CP 0.60mm<sup>2</sup> terminals: 0.35 to 0.75mm<sup>2</sup>, 18 TXL AWG, 20 TXL AWG  
 CP 1.50mm<sup>2</sup>: 0.50 to 2.00mm<sup>2</sup>, 14 TXL AWG, 16 TXL AWG  
 CP 2.80mm<sup>2</sup> terminals: 0.50 to 5.00mm<sup>2</sup>, 10, 12, 14, 16, 18, 20 TXL AWG  
 Available plating options:  
 Tin (Sn) and Gold (Au)

### REFERENCE INFORMATION

Packaging: Box with carton interleaf  
 Mates with: CMC Headers shown on page 8  
 Use with:  
 Terminals:  
 Series 64322 CP 0.635mm  
 Series 64323 CP 1.50mm  
 Series 64324 CP 2.80mm  
 Plugs:  
 64325-1010 for CP 0.635mm cavity  
 64325-1023 for CP 1.50mm cavity  
 64325-1091 seal plug for CP 2.80mm cavity  
 Wire Caps:  
 28-Way: 64320-1301  
 53-Way: 64321-1101  
 Designed in: Millimeters

### ELECTRICAL

Current:  
 CP 0.635mm terminals - max. 2.5A (0.75mm<sup>2</sup> wire)\*  
 CP 1.50mm terminals - max. 12.0A (2.00mm<sup>2</sup> wire)\*  
 CP 2.80mm terminals - max. 21.0A (5.00mm<sup>2</sup> wire)\*  
 \*Current tested on a fully loaded connector;  
 current for temperature increase of 40°C

Contact Resistance:  
 0.635mm terminal: 8 milliohms max.  
 1.50mm terminal: 4 milliohms max.  
 2.80mm terminal: 3 milliohms max.  
 Dielectric Withstanding Voltage:  
 1000V AC for 1 minute  
 Insulation Resistance: 100 Megohms min.

### MECHANICAL

Contact Insertion Force:  
 0.635mm terminal: 12N max.  
 1.50mm terminal: 20N max.  
 2.80mm terminal: 25N max.  
 Contact Retention to Housing:  
 0.635mm terminal: 60N min.  
 1.50mm terminal: 100N min.  
 2.80mm terminal: 100N min.

Wire Pull-Out Force: 100N min.  
 28-circuit: 64320  
 Mating Force: 70N max.  
 Unmating Force: 70N max.  
 53-circuit: 64321  
 Mating Force: 80N max.  
 Unmating Force: 80N max.  
 Durability: 20 mating cycles

### PHYSICAL

Housing: PBT Polyester, Glass-filled  
 RoHS: Yes  
 Operating Temperature: -40 to +125°C  
 Note: Check mating header temperature class for potential limitations

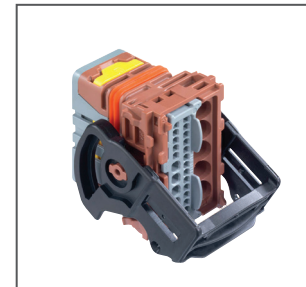
### SEALING

IP6K7, IP6K9K

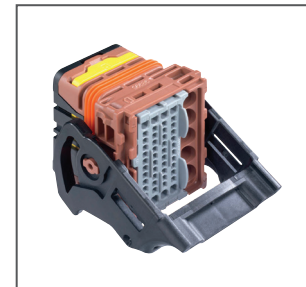
For more details please refer to  
 PS-64318-001 / AS-64318-002  
 PS-64321-001 / AS-64321-002

## CMC Hybrid Connectors Standard and Power Versions

**64318** 28-Circuit Connector  
**64321** 53-Circuit Connector  
**64325** Blind Plugs



28-Circuit CMC Connector



53-Circuit CMC Connector

## ORDERING INFORMATION

### Female Connectors

Order No.	Circuits	Color Key Coding	Wire Output
64318-3011	28	Black	Right
64318-3018		Grey	
64318-3019		Brown	
64318-1011		Black	Left
64318-1018		Grey	
64318-1019		Brown	
64321-2011	53	Black	Right
64321-2018		Grey	
64321-2019		Brown	
64321-1011		Black	Left
64321-1018		Grey	
64321-1019		Brown	

### Wire Caps

Order No.	Circuits	Housing Color
64320-1301	28	Black
64321-1101	53	

### Blind Plugs

Order No.	Terminal Width	Housing Color
64325-1010	0.635mm	White
64325-1023	1.50mm	Orange
64325-1091	2.80mm	Black

## Specifications

### MAIN TECHNICAL CHARACTERISTICS

Vibration: 15G  
 Sealing: IP6K7, IP6K9K  
 Operating temperature: -40 to + 125°C  
 Available wire sizes:  
 CP 0.60mm<sup>2</sup> terminals: 0.35 to 0.75mm<sup>2</sup>, 18 TXL AWG, 20 TXL AWG  
 CP 2.80mm<sup>2</sup> terminals: 0.50 to 5.00mm<sup>2</sup>, 10, 12, 14, 16, 18, 20 TXL AWG  
 Available plating options:  
 Tin (Sn) and Gold (Au)

### REFERENCE INFORMATION

Packaging:  
 Connector: Box with carton interleaf  
 Wire Cap:  
 Bulk pack in carton box  
 Mates With:  
 Currently no promotable mating part available; please contact Global Product Manager for details  
 Use With:  
 Terminals:  
 Series 64322 CP 0.635mm  
 Series 64324 CP 2.80mm†  
 Blind Plugs:  
 64325-1010 for CP 0.635mm cavity  
 64325-1091 seal plug for CP 2.80mm cavity  
 Wire Cap: 64319-1201  
 Designed In: Millimeters

### MECHANICAL

Contact Insertion Force:  
 0.635mm terminal: 12N max.  
 2.80mm terminal: 25N max.  
 Contact Retention to Housing:  
 0.635mm terminal: 60N min.  
 2.80mm terminal: 100N min.  
 Wire Pull-Out Force: 100N min.  
 Mating Force: 80N max.  
 Unmating Force: 80N max.  
 Durability (min.): 20 mating cycles

### ELECTRICAL

Current (max.):  
 CP 0.635mm terminals - max.  
 4.5A (0.75mm<sup>2</sup> wire)\*  
 CP 2.80mm terminals - max.  
 26.0A (5.00mm<sup>2</sup> wire)\*  
 \*Current tested on a fully loaded connector; current for temperature increase of 40°C

### Contact Resistance (low level):

0.635mm terminal: 8 milliohms max.  
 2.80mm terminal: 3 milliohms max.  
 Dielectric Withstanding Voltage: No breakdown  
 Insulation Resistance: 100 Megohms min.

### SEALING

IP6K7, IP6K9K

## CMC Hybrid Connectors Standard and Power Versions

**64326** 22-Circuit Female Connector

**64319** Wire Cap

**64325** Blind Plugs



22-Circuit CMC Connector

### PHYSICAL

Housing:  
 PBT Polyester, Class UL-V0, Glass-filled  
 Operating Temperature: -40 to +125°C  
 RoHS: Yes  
 For more details please refer to PS-64326-001 / AS-64318-002

## ORDERING INFORMATION

### Female Connectors

Order No.	Color Key Coding	Wire Output
64326-1001	Black	Right
64326-1005	Brown	
64326-1009	Blue	
64326-1002	Black	Left
64326-1006	Brown	
64326-1010	Blue	

†Single wire seals (SWS) must be used with CP 2.80mm terminals - see page 5 for details

### Wire Caps

Order No.	Color
64319-1201	Black

### Blind Plugs

Order No.	Terminal Width	Housing Color
64325-1010	0.635mm	White
64325-1091	2.80mm	Black

## CONNECTOR INTERFACE COMPARISON – MOLEX CMC STANDARD AND POWER FEMALE CONNECTORS

	22-Circuit	24-Circuit	28-Circuit	32-Circuit	36-Circuit	48-Circuit	53-Circuit
0.635mm CP terminal count	20	18	18	24	30	40	40
1.50mm CP terminal count	-	6	5	8	6	8	8
2.80mm CP terminal count	2	-	5	-	-	-	5
Connector Interface							
Comment		Same interface as 32-circuit but row 1 or 4 closed			Same interface as 32-circuit but row 1 or 4 closed		

## Specifications

CP terminals are used for the CMC Hybrid Connector system. Three different CP terminal sizes are available: 0.635mm, 1.50mm, and 2.80mm†. They support low, medium and high current data requirements.

The robust shape of CP terminals is specially designed to perform in high-conductivity applications and in harsh environments. It is a 2-piece design in which the terminal body is made out of high-conductivity copper alloy and the terminal box is made out of stainless steel.

CP terminals are available in tin and gold plating, and allow crimping of individual wire sizes as shown in the table below.

The HP (high-performance) 0.635mm CP terminal designed to withstand up to 50 mating cycles is available in gold plating.

CP 0.635mm terminal now allows crimping of SAE AWG 18 TXL wire to support requirements from US based customers.

## ORDERING INFORMATION

### CP Terminals

Order No.	Terminal Width	Plating	Wire Size in mm <sup>2</sup> *	Wire Insulation diameter in mm*	Wire Size In AWG*
64322-1019	0.635mm	Tin (Sn)	0.35	1.25 - 1.40	22
64322-1029			0.75	1.60 - 1.90	18
64322-1039			0.5	1.40 - 1.70	20
64322-1219		1.27µm Gold (Au)	0.75	1.60 - 1.90	18
64322-1229			0.35	1.25 - 1.40	22
64322-1239	0.5		1.40 - 1.70	20	
64322-1339	0.75		1.60 - 1.90	18	
64322-1349	0.635mm HP	1.27µm Gold (Au)	0.35	1.25 - 1.40	22
64322-1359			0.5	1.40 - 1.70	20
64323-1029	1.50mm	Tin (Sn)	0.5 to 1.0	1.40 - 2.15	18
64323-1039			> 1.0 to 2.0	2.10 - 2.80	14, 16
64323-1219		1.27µm Gold (Au)	0.5 to 1.0	1.40 - 2.15	18
64323-1319			> 3.0 to 5.0	3.40 - 4.00	10
64324-1019	†2.80mm	Tin (Sn)	> 2.0 to 3.0	2.65 - 3.45	12
64324-1029			> 1.0 to 2.0	2.10 - 2.80	14, 16
64324-1039			0.5 to 1.0	1.40 - 2.15	18, 20
64324-1049			> 3.0 to 5.0	3.40 - 4.00	10
64324-1119		1.27µm Gold (Au)	> 2.0 to 3.0	2.65 - 3.45	12
64324-1129			> 1.0 to 2.0	2.10 - 2.80	14, 16
64324-1139			> 3.0 to 5.0	3.40 - 4.00	10
64324-1149			> 2.0 to 3.0	2.65 - 3.45	12
			> 1.0 to 2.0	2.10 - 2.80	14, 16
			0.5 to 1.0	1.40 - 2.15	18, 20

### Single Wire Seals (SWS) for CP 2.80mm Terminal

Order No.	Description	Color
64325-1332	For cable 1.29mm to 2.06mm	Red
64325-1345	For cable 2.03mm to 2.80mm	Green
64325-1358	For cable 2.80mm to 3.50mm	Gray
64325-1366	For cable 3.50mm to 4.21mm	Blue

† Single wire seals (SWS) must be used with CP 2.80mm terminals

## CMC Hybrid Connectors Standard and Power Versions

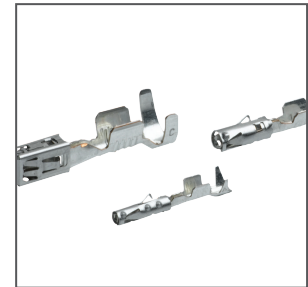
### CMC CP Terminals

**64322** CP 0.635mm

**64323** CP 1.50mm

**64324** CP 2.80mm

**64325** Single Wire Seals



CP Terminals

\*For more details please refer to AS-64322-001 / AS-64323-001 / AS-64324-001

Please refer to AS-64319-002 for terminal usage in harness assembly when using TXL 18 AWG wires



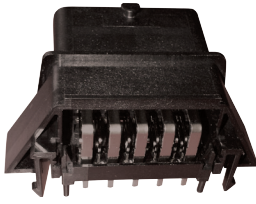
Single Wire Seals

## ORDERING INFORMATION

## CMC Hybrid Connectors Standard and Power Versions

### Wire-to-Board Connection

36638, 500762, 502225, 98997,  
64333, 64334, 34763, 47745



1 pocket CMC Header, series 47745  
28-Circuit  
Solder Tail



1 pocket CMC Header, series 64334  
32-circuits  
Solder Tail



1 pocket CMC Header, series 500762  
48-Circuit  
Solder Tail



1 pocket CMC Header, series 36638  
48-Circuit  
Solder Tail



1 pocket CMC Header, series 98997  
53-Circuit  
Solder Tail



2 pocket CMC Header, series 502225  
80-circuits, 32+48  
Solder Tail



2 pocket CMC Header, Series 36638  
96-circuits, 48+48  
Solder Tail



3 pocket CMC Header, series 64333  
112-circuits, 32+48+32  
Solder Tail



3 pocket CMC Header, series 34763  
154-circuits, 48+53+53  
Compliant-Pin, Pressfit

## ORDERING INFORMATION

### Right-Angle, Wire-to-Board Headers

Circuits	Part No.	Mates with CMC Connector	Mating color coding	Description	No. of pockets	Pin count 0.63mm	Pin count 1.50mm	Pin count 2.80mm	Terminal type
28	47745-0100	64318-1011 or 64318-3011	Black	28-circuit CMC header * Grey and Brown codings launching May 2013	1	18	5	5	Solder pin
	47745-0XX0*	64318-1018 or 64318-3018	Grey						
	47745-0XX0*	64318-1019 or 64318-3019	Brown						
32	64334-0100	64319-3211	Black	32-circuit CMC header		24	8	0	
	64334-0300	64319-3219	Brown						
36	36638-0006 36638-0008	64320-2311 or 64320-4311	Black	36-circuit CMC header		30	6	0	
	36638-0007 36638-0009	64320-2319 or 64320-4319	Brown						
	36638-0013	64320-2311 or 64320-4311	Black	36-circuit CMC header - Signal pins in AU 1.27μ					
	47732-0361			36-circuit CMC header based on 500762-0481					
48	500762-0481	64320-1311 or 64320-3311	Black	48-circuit CMC header	40	8	0		
	36638-0002 36638-0004	64320-1311 or 64320-3311	Black						
	36638-0003 36638-0005	64320-1319 or 64320-3319	Brown						
53	98997-1002	64321-1011 or 64321-2011	Black	53-circuit Header	40	8	5		
72	36638-0001 36638-0010	64320-2319 and 64320-4311	Brown	72-circuit Header	2	60	12	0	
80	502225-0801	64320-1319 and 64319-3211	48 Brown + 32 Black	80-circuit Header		64	16	0	
96	36638-0011 36638-0012	64320-1319 and 64320-3311	48 Brown + 48 Black	96-circuit Header		80	16	0	
112	64333-0100	64319-3211 and 64320-3319 and 64319-1218	32 Black + 48 Brown + 32 Grey	112-circuit Header	3	88	24	0	
154	34763-0001	64321-2011 and 64321-2019 and 64320-1318	53 black + 53 Brown + 48 Grey	154-circuit Header		120	24	10	Compliant pin EON style

## Specifications

### REFERENCE INFORMATION

Packaging:  
Box with Carton Interleaf  
Mates with:  
CMC Receptacles – 32-Circuit  
64319-1211  
64319-3211  
Use with:  
CP Terminals:  
Series 64322 CP 0.635mm  
Series 64323 CP 1.50mm  
Male Terminals:  
501827-0101 (0.635mm)  
501828-0101 (1.50mm)  
Wire Cap:  
501826-3201  
98649-1003  
Designed in: Millimeters

### ELECTRICAL

Current:\*  
CP 0.635mm terminals – max. 2.5A  
(0.75mm<sup>2</sup> wire)\*  
CP 1.50mm terminals – max. 12.0A  
(2.00mm<sup>2</sup> wire)\*  
\*Current tested on a fully loaded connector;  
current for temperature increase of 40°C

Contact Resistance:  
0.635mm terminals: 8 milliohms max.  
1.50mm terminals: 4 milliohms max.  
Dielectric Withstanding Voltage:  
1000V AC for 1 minute  
Insulation Resistance: 100 Megohms min.

### MECHANICAL

Contact Insertion Force:  
0.635mm terminal: 12N max.  
1.50mm terminal: 25N max.  
Contact Retention to Housing:  
Female Terminal:  
0.635mm terminal: 60N min.  
1.50mm terminal: 100N min  
Male Terminal:  
0.635mm terminal: 40N min.  
1.50mm terminal: 80N min.  
Wire Pull-Out Force: 100N min.  
Mating Force: 70N max.  
Unmating Force: 70N max.  
Durability: 20 mating cycles

### PHYSICAL

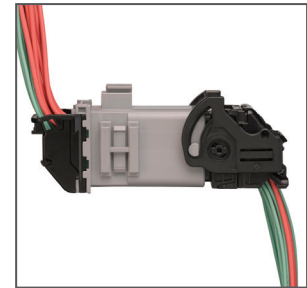
Housing: PBT, Glass-filled  
Lead-Free: Yes  
Operating Temperature: -40 to +125°C

### SEALING

IP6K7, IP6K9K

## CMC Hybrid Connectors Standard and Power Versions

**501820** 32-Circuit Header  
**501826** 32-Circuit Wire Cap Straight  
**98649** 32-Circuit Wire Cap Left/Right  
**501827** 0.60mm Male Terminal  
**501828** 1.50mm Male Terminal



## ORDERING INFORMATION

### Male Connector

Order No.	Number of Circuits	Color Coding
501820-3201	32	Black

### Wire Cap

Order No.	Terminal Width	Housing Color
501826-3201	Straight	Black
98649-1003	Left or Right	

### Terminals

Order No.	Terminal Width (mm)	Plating	Wire Size in mm <sup>2</sup> *
501827-0101	0.63	Tin (Sn)	0.30 - 0.50
501828-0101	1.50		0.85
501828-0111			1.25 to 2.0