

Size 20 Removable Signal and  
Thermocouple Crimp Contacts

Size 8 Removable Power, Shielded,  
Air and High Voltage Contacts

DSCC 85039

IEC 60807-3

UL Recognized  
File #E49351

CSA Recognized  
File #LR54219

Telecommunication UL File #E140980



CBC series connectors offer professional, industrial and military performance levels. Connectors are designed for use in sheltered, mildly corrosive environments having a wide range of temperature, pressure and humidity changes. CBC series connectors offer mixed crimp-removable contact combinations of power, shielded, air, high voltage, signal, and thermocouple contacts within the same connector body. Refer to size 8 removable contacts power, shielded, air and high voltage section, pages 68-80 for technical characteristics. Sixteen connector variants are offered in six standard shell sizes.

A wide assortment of cable support hoods and locking systems is available from stock.

CBC series connectors also offer a Blind Mating connector system for applications requiring connector couplings in recessed areas or for mobile power coupling systems.

CBC series connectors utilize precision machined contacts and they meet the applicable performance and dimensional requirements of IEC 60807-3, Performance Levels One and Two, DSCC 85039 and MIL-DTL-24308.

## Connectors Designed To Customer Specifications

*Positronic Combo-D connectors can be modified to customers specifications.*

**Examples:** select loading of contacts for cost savings or to gain creepage and clearance distances; longer PCB terminations; customer specified hardware; sealing for water resistance.

**Contact Technical Sales with your particular requirements.**



Positronic  
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# PROFESSIONAL, INDUSTRIAL AND MILITARY QUALITY THREE PERFORMANCE LEVELS FOR BEST COST/PERFORMANCE RATIO STANDARD DENSITY CRIMP REMOVABLE CONTACTS

**Combo-D  
D-Sub**

## TECHNICAL CHARACTERISTICS

### MATERIALS AND FINISHES:

<b>Insulator:</b>	Glass filled polyester per ASTM D 5927, UL 94V-0, blue color.
<b>Contacts:</b>	Precision machined copper alloy.
<b><u>SIGNAL:</u></b>	Gold flash over nickel plate and gold 0.000050 [1.27μ] over nickel plate. Other finishes available upon request, see page 81.
<b><u>POWER:</u></b>	Gold flash over nickel. Other finishes available upon request, see page 81.
<b><u>SHIELDED:</u></b>	For contact platings, see page 68.
<b><u>HIGH VOLTAGE:</u></b>	For contact platings, see page 68.
<b>Shells:</b>	Steel with tin plate; zinc plate; stainless steel passivated. Other materials and finishes available upon request.
<b>Mounting Spacers:</b>	Nylon; copper alloy or steel with zinc plate or tin plate; phosphor bronze with tin plate; stainless steel, passivated.
<b>Jackscrew Systems:</b>	Brass or steel with zinc plate or clear zinc plate or tin plate; stainless steel, passivated.
<b>Hoods:</b>	Composite and plastic UL94V-0; brass or steel with zinc plate. Aluminum; aluminum with electroless nickel plate. For aluminum hoods, zinc content is 1% maximum. Die cast zinc.
<b>Non-magnetic versions are available, contact Technical Sales.</b>	

### MECHANICAL CHARACTERISTICS:

<b>Signal Contacts, Crimp Removable:</b>	Size 20 contacts, male – 0.040 inch [1.02mm] mating diameter; Female rugged open entry or PosiBand closed entry contact design, see page 69 for details.
<b>Contact Retention In Insulator:</b>	Signal: 9 lbs. [40N]. Power, shielded and high voltage: 22 lbs. [98N]
<b>Crimp Contact Terminations:</b>	Closed barrel crimp, wire sizes 18 AWG [1.0mm <sup>2</sup> ] through 30 AWG [0.05 mm <sup>2</sup> ]
<b>Power Contacts, Removable, Crimp or Solder Termination:</b>	Size 8 contacts, male – 0.142 inch [3.61mm] mating diameter. Terminations for 6, 8, 10, 12, and 16 AWG. Female contact features Large Surface Area (L.S.A.) closed entry contact design utilizing BeCu mechanical retention member. Closed crimp barrel.
<b>Shielded Contacts, Removable:</b>	See table of cable sizes for contact termination dimensions, page 78.
<b>High Voltage Contacts:</b>	Straight and right angle (90°) terminations – 0.041 inch [1.04mm] min. hole diameter.
<b>Shells:</b>	Male shells may be dimpled for EMI/ESD ground paths.

<b>Polarization:</b>	Trapezoidally shaped shells and polarized jackscrews.
<b>Locking Systems:</b>	Jackscrews and vibration locking systems.
<b>Mechanical Operations:</b>	500 operations for open entry contact, 1000 operations for PosiBand closed entry contact with 0.000050 [1.27μ] gold plating. Per IEC 60512-5.

### ELECTRICAL CHARACTERISTICS:

#### SIZE 20 CONTACTS

<b>Contact Current Rating:</b>	7.5 amperes nominal.
<b>Initial Contact Resistance:</b>	0.008 ohms maximum.
<b>Proof Voltage:</b>	1000 V r.m.s.

#### SIZE 8 CONTACTS

##### POWER CONTACTS

*For electrical characteristics, see page 4.*

##### SHIELDED CONTACTS

*For electrical characteristics, see page 69.*

##### HIGH VOLTAGE CONTACTS

*For electrical characteristics, see page 69.*

#### CONNECTOR

<b>Insulation Resistance:</b>	5 G ohms.
<b>Clearance and Creepage Distance:</b>	0.039 [1.0mm] minimum.
<b>Working Voltage:</b>	300 V r.m.s.

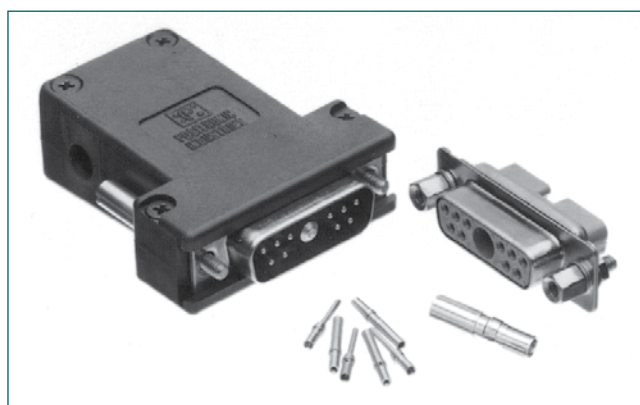
### CLIMATIC CHARACTERISTICS:

<b>Temperature Range:</b>	-55°C to +125°C.
<b>Damp Heat, Steady State:</b>	10 days.

### THERMOCOUPLE CONTACTS:

Size 20 crimp contacts are available. See page 74 for details.

PCB mount contacts are available in CBD/CBM series, see page 4 for details.



**CBC11W1M10Z00  
WITH MS4012D CONTACT**

**CBC11W1S100T20  
WITH FC4008D CONTACT**

**\*1 CONTACT VARIANTS**

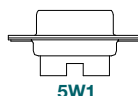
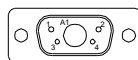
FACE VIEW OF MALE OR REAR VIEW OF FEMALE

**NOTES:**

- \*1 Additional contact variants may be tooled at customer request.
- \*2 13W6 and 27W2 variant currently available in female only. Contact Technical Sales for availability of male connector.

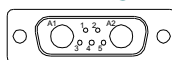
**Note:** Connectors can be kitted with all applicable removable contacts, contact Technical Sales for connector part number.

**— SHELL SIZE 1 —**

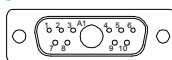


5W1

**— SHELL SIZE 2 —**

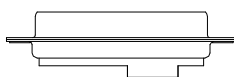
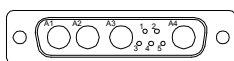


7W2

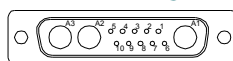


11W1

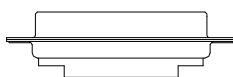
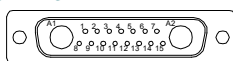
**— SHELL SIZE 3 —**



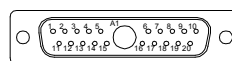
9W4



13W3

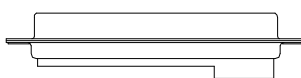
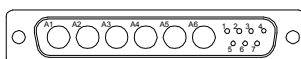


17W2

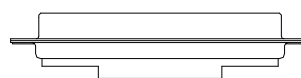
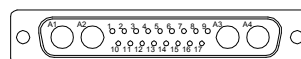


21W1

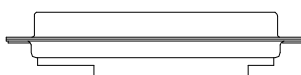
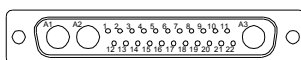
**— SHELL SIZE 4 —**



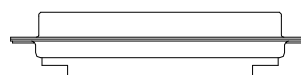
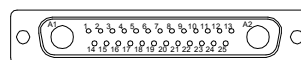
\*2 13W6



21WA4

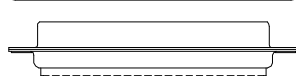
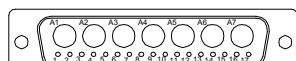


25W3

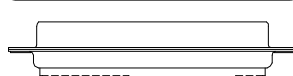


\*2 27W2

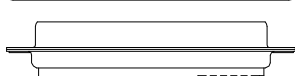
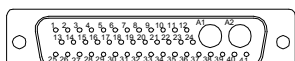
**— SHELL SIZE 5 —**



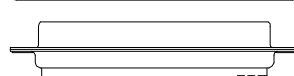
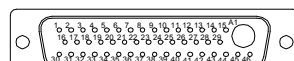
24W7



36W4

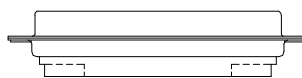


43W2



47W1

**— SHELL SIZE 6 —**



46W4

DIMENSIONS ARE IN INCHES [MILLIMETERS].  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.



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**PROFESSIONAL, INDUSTRIAL AND MILITARY QUALITY**  
**THREE PERFORMANCE LEVELS FOR BEST COST/PERFORMANCE RATIO**  
**STANDARD DENSITY CRIMP REMOVABLE CONTACTS**

**Combo-D**  
**D-Sub**

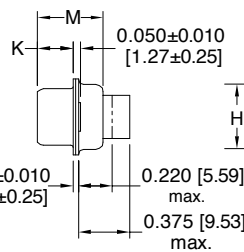
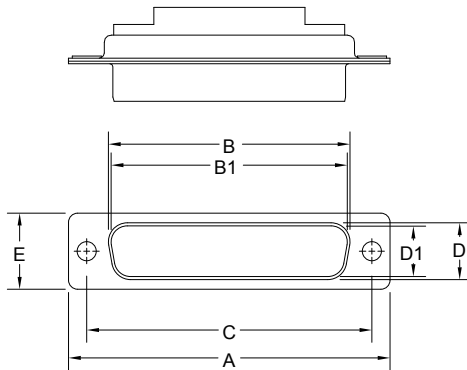
**STANDARD SHELL ASSEMBLY**



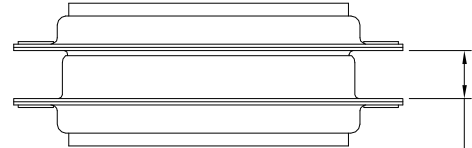
**CBC7W2S00000**

**CBC17W2M00000**

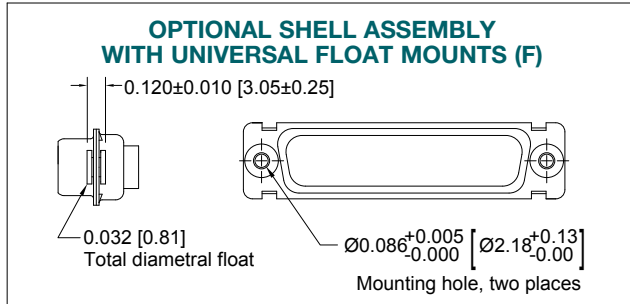
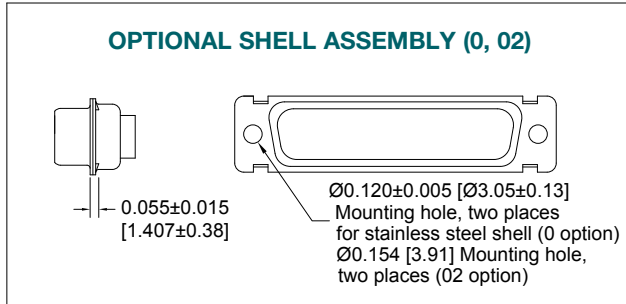
**TYPICAL CONNECTOR TOP VIEW**



**RECOMMENDED MATING DIMENSIONS**



Shell Sizes 1 & 2 =  
0.265±0.015 [6.73±0.38]  
Shell Sizes 3, 4, 5 & 6 =  
0.256±0.015 [6.50±0.38]



SHELL SIZES	A ±0.015 [0.38]	B ±0.005 [0.13]	B1 ±0.005 [0.13]	C ±0.005 [0.13]	D ±0.005 [0.13]	D1 ±0.005 [0.13]	E ±0.015 [0.38]	G ±0.010 [0.25]	H ±0.010 [0.25]	K ±0.005 [0.13]	M ±0.010 [0.25]
SHELL SIZE 1 MALE	1.213 [30.81]		0.666 [16.92]	0.984 [24.99]		0.329 [8.36]	0.494 [12.55]	0.759 [19.28]	0.422 [10.72]	0.233 [5.92]	0.422 [10.72]
SHELL SIZE 1 FEMALE	1.213 [30.81]	0.643 [16.33]		0.984 [24.99]	0.311 [7.90]		0.494 [12.55]	0.759 [19.28]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
SHELL SIZE 2 MALE	1.541 [39.14]		0.994 [25.25]	1.312 [33.32]		0.329 [8.36]	0.494 [12.55]	1.083 [27.51]	0.422 [10.72]	0.233 [5.92]	0.422 [10.72]
SHELL SIZE 2 FEMALE	1.541 [39.14]	0.971 [24.66]		1.312 [33.32]	0.311 [7.90]		0.494 [12.55]	1.083 [27.51]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
SHELL SIZE 3 MALE	2.088 [53.04]		1.534 [38.96]	1.852 [47.04]		0.329 [8.36]	0.494 [12.55]	1.625 [41.28]	0.422 [10.72]	0.230 [5.84]	0.426 [10.82]
SHELL SIZE 3 FEMALE	2.088 [53.04]	1.511 [38.38]		1.852 [47.04]	0.311 [7.90]		0.494 [12.55]	1.625 [41.28]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
SHELL SIZE 4 MALE	2.729 [69.32]		2.182 [55.42]	2.500 [63.50]		0.329 [8.36]	0.494 [12.55]	2.272 [57.71]	0.422 [10.72]	0.230 [5.84]	0.426 [10.82]
SHELL SIZE 4 FEMALE	2.729 [69.32]	2.159 [54.84]		2.500 [63.50]	0.311 [7.90]		0.494 [12.55]	2.272 [57.71]	0.422 [10.72]	0.243 [6.17]	0.429 [10.90]
SHELL SIZE 5 MALE	2.635 [66.93]		2.079 [52.81]	2.406 [61.11]		0.441 [11.20]	0.605 [15.37]	2.178 [55.32]	0.534 [13.56]	0.230 [5.84]	0.426 [10.82]
SHELL SIZE 5 FEMALE	2.635 [66.93]	2.064 [52.43]		2.406 [61.11]	0.423 [10.74]		0.605 [15.37]	2.178 [55.32]	0.534 [13.56]	0.243 [6.17]	0.429 [10.90]
SHELL SIZE 6 MALE	2.729 [69.32]		2.212 [56.18]	2.500 [63.50]		0.503 [12.78]	0.668 [16.97]	2.302 [58.47]	0.596 [15.14]	0.230 [5.84]	0.426 [10.82]
SHELL SIZE 6 FEMALE	2.729 [69.32]	2.189 [55.60]		2.500 [63.50]	0.485 [12.32]		0.668 [16.97]	2.302 [58.47]	0.596 [15.14]	0.243 [6.17]	0.429 [10.90]

DIMENSIONS ARE IN INCHES [MILLIMETERS].  
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

## ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 8

STEP	1	2	3	4	5	6	7	8	9	10
EXAMPLE	CBC	7W2	M	1	0	Z	0	0	/AA	-14
<b>STEP 1 - BASIC SERIES</b> CBC Series										<b>*2 STEP 10 - SPECIAL OPTIONS</b>  <b>FOR SPECIAL OPTIONS, SEE SPECIAL OPTIONS APPENDIX ON PAGE 81.</b>
<b>STEP 2 - CONNECTOR VARIANTS</b> Shell Size 1 5W1 Shell Size 2 7W2, 11W1 Shell Size 3 9W4, 13W3, 17W2, 21W1 Shell Size 4 *13W6, 21WA4, 25W3, *127W2 Shell Size 5 24W7, 36W4, 43W2, 47W1 Shell Size 6 46W4										
<b>STEP 3 - CONNECTOR GENDER</b> M - Male S - Female - Industrial or Military Level PosiBand Closed Entry Signal Contacts  Professional Level female open entry contacts are available and can be ordered separately, see page 73.										
<b>STEP 4 - CONTACT TERMINATION TYPE</b> 0 - Connector ordered without contacts. Order signal, power, shielded, high voltage, air and thermocouple contacts separately. See pages 68-80 for contact part numbers. 1 - Signal contacts, 20 AWG-24 AWG [0.5mm <sup>2</sup> -0.25mm <sup>2</sup> ]. 11 - Signal contacts, 20 AWG-24 AWG [0.5mm <sup>2</sup> -0.25mm <sup>2</sup> ] with MC/FC 4012D Power Contact. 12 - Signal contacts, 20 AWG-24 AWG [0.5mm <sup>2</sup> -0.25mm <sup>2</sup> ] with MC/FC 4016D power contact. 13 - Signal contacts, 20 AWG-24 AWG [0.5mm <sup>2</sup> -0.25mm <sup>2</sup> ] with MCC/FCC 4101D shielded contacts. 14 - Signal contacts, 20 AWG-24 AWG [0.5mm <sup>2</sup> -0.25mm <sup>2</sup> ] with MCC/FCC 4102D shielded contacts.										
<b>*2 STEP 5 - MOUNTING STYLE</b> 0 - Mounting Hole, 0.120 [3.05] Ø 02 - Mounting Hole, 0.154 [3.91] Ø F - Float Mounts, Universal S2 - Swaged Spacer, 4-40 Threads, 0.125 [3.18] Length S5 - Swaged Locknut, 4-40 Threads										<b>STEP 9 - ENVIRONMENTAL COMPLIANCE OPTIONS</b>  /AA - RoHS Compliant  <b>NOTE:</b> If compliance to environmental legislation is not required, this step will not be used. Example: CBC7W2M10Z00
										<b>STEP 8 - SHELL OPTIONS</b>  0 - Zinc Plated. *4 S - Stainless Steel, passivated. X - Tin Plated. Z - Tin Plated and Dimpled (male connectors only)
										<b>*2 STEP 7 - LOCKING AND POLARIZING SYSTEMS</b>  0 - None. V3 - Lock Tab, connector front panel mounted. V5 - Lock Tab, connector rear panel mounted. VL - Lock Lever, used with Hoods only. T - Fixed Female Jackscrews. T2 - Fixed Female Jackscrews. T6 - Fixed Male and Female Polarized Jackscrews. E - Rotating Male Jackscrews. E2 - Rotating Male Screw Locks. E3 - Rotating Male with Internal Hex for 3/32 Hex Drives E6 - Rotating Male and Female Polarized Jackscrews.
										<b>*2 STEP 6 - HOODS</b>  0 - None H - Hood, Top Opening, Metal, shell sizes 2 through 5 AN - Lightweight Aluminum Hood, nickel finish. AC - Lightweight Aluminum Hood, no finish. *3 G - Hood, EMI/RFI, Die Cast Zinc, shell sizes 1 through 6 Z - Hood, Top or Side Opening, robust extended height, plastic and composite, with rotating jackscrews, shell sizes 1 through 5

### NOTES

- \*1 Connector variant 13W6 and 27W2 are currently available in female only, contact Technical Sales for availability of male connector.
- \*2 For additional information on accessories listed in steps 5, 6, 7 and 10, see Accessory Catalog.
- \*3 When using G hood with CBC variants, use the extended height hood. See Accessories Catalog for extended G hood options.
- \*4 For stainless steel dimpled male versions, contact Technical Sales.

For crimping information and crimp tools,  
see Application Tools section, page 82.