



MCBX Series connectors are mixed density, combination D-Sub connectors built for high-performance applications requiring rugged machined shells. Features include:

- Ability to mix power and signal together in one D-Sub package
- Twenty-five (25) layout options available
- Machined shells for ruggedness, planarity, and precision
- Unique accessories include EMI grounding strips, keyed jackscrews, and banding backshell
- Quality and performance in accordance with MIL-DTL-24308

Trust the **MCBX** to deliver *The Science of Certainty* in mission-critical applications.

TECH SPECS

GENERAL

Part Number Prefix	MCBX
Performance Level	Mil/Aero Spaceflight
Qualifications	Meets or exceeds performance requirements for MIL-DTL-24308 Meets or exceeds performance requirements for NASA Goddard GSFC-311
RoHS Compliance	Optional

MATERIAL

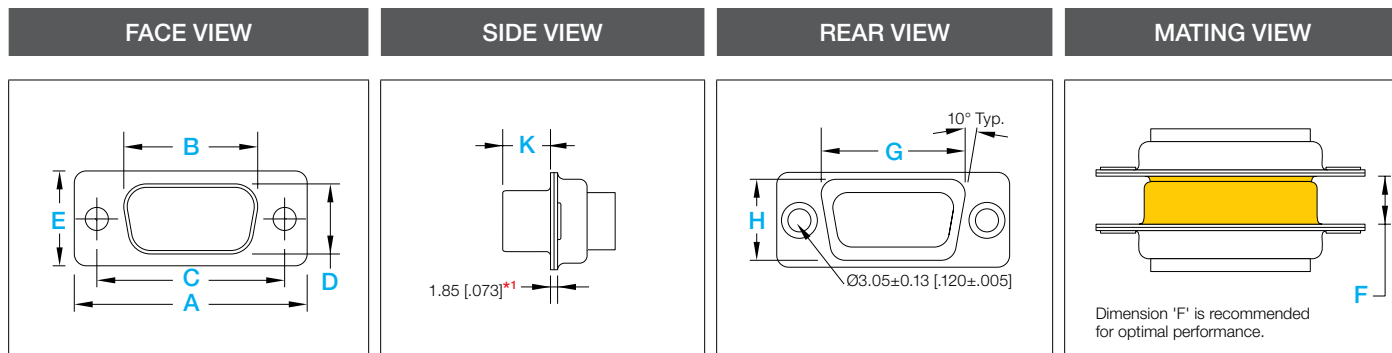
IN ACCORDANCE WITH

Insulator	PBT	MIL-DTL-24308 §3.3.5.1
Insulator Color	Blue (PBT)	
Flammability Rating	UL 94V-0	UL 94
Contact Material	Copper alloy	MIL-DTL-24308 §3.3.4; AS39029 MIL-DTL-24308 §3.3.4.2; AS39029
Signal Contact Plating	50 µin gold over nickel or copper underplate	MIL-DTL-24308 §3.3.4.1; AS39029 MIL-DTL-24308 §3.3.4.2; AS39029
Power Contact Plating	50 µin gold over nickel or copper underplate	MIL-DTL-24308 §3.3.4.1
Shell Material	Aluminum Stainless steel <i>For other shell options, please contact Technical Sales</i>	ASTM B221 ASTM A240
Shell Finish	Electroless nickel Stainless steel, passivated Cadmium Chemical conversion coating	See page 3
Interfacial Seal	<i>Contact Technical Sales</i>	
Rear Grommet	<i>Contact Technical Sales</i>	

TECH SPECS

MATERIAL		IN ACCORDANCE WITH
EMI Spring	Copper alloy, plated with electroless nickel	ASTM B194; AMS-C-26074
Adhesive/Sealant	RTV 133 MasterBond Supreme 10AOHT 3M DP190 <i>For low outgassing requirements, please contact Technical Sales</i>	
Conductive Gasket	CHOFORM 5513 <i>For non-conductive options or configurations compatible with Spira-Shield metal EMI shielding, please contact Technical Sales</i>	
ELECTRICAL		IN ACCORDANCE WITH
Working Voltage (rms)	300V	EIA-364-20
Initial Contact Resistance	Size 8 0.5 mΩ maximum Size 16 1 mΩ maximum Size 20 4 mΩ maximum Size 22 5 mΩ maximum	MIL-DTL-24308 §3.5.9; EIA-364-06; IEC 60512-2, Test 2b
Contact Current Rating at 70°C Temperature Rise	Up to 75A, see page 10	UL 1977
Insulation Resistance	5 GΩ	MIL-DTL-24308 §3.5.8; EIA-364-21
Proof Voltage	1000V	EIA-364-20
MECHANICAL		IN ACCORDANCE WITH
Female Contact Design	PosiBand Closed Entry (LSA for size 8)	
Contact Retention In Insulator	40N [9 lbs] (Applies to removable signal contacts) 98N [22 lbs] (Applies to size 8 contacts)	MIL-DTL-24308 §3.5.5; EIA-364-29
Resistance To Soldering Heat - Selective Soldering - Wave Soldering	360°C [680°F] for 4 seconds 260°C [500°F] for 20 seconds	MIL-STD-202-210, condition A MIL-STD-202-210, condition C
Polarization	Trapezoidal shape of shell	
Mechanical Durability	500 cycles	MIL-DTL-24308 §3.5.16; EIA-364-09
ENVIRONMENTAL		IN ACCORDANCE WITH
Operating Temperature	-55 to 125°C	MIL-DTL-24308 §3.5.11; EIA-364-32
Outgassing	Low outgassing options (TML <1.0%, CVCM <0.1%, RML <1.0%) are available, please contact Technical Sales.	ASTM E 595; ECSS-Q-ST-70-02C
Waterproof	<i>Contact Technical Sales</i>	

SHELL DIMENSIONS

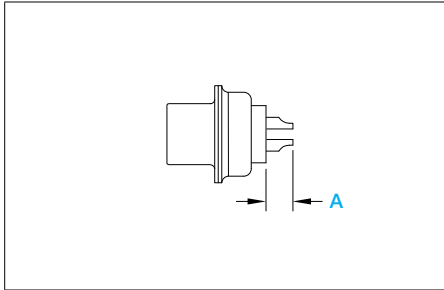


*1 The 1.85 [0.073] shell thickness in the SIDE VIEW is only valid for configurations without angle brackets.

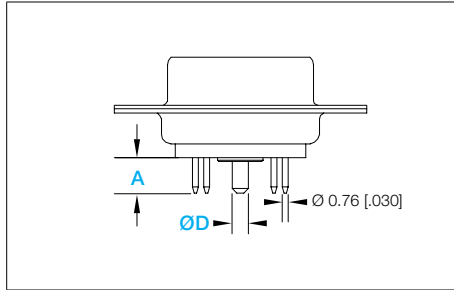
SHELL SIZE	GENDER	A ±0.38 [.015]	B ±0.13 [.005]	C ±0.13 [.005]	D ±0.13 [.005]	E ±0.38 [.015]	G ±0.25 [.010]	H ±0.25 [.010]	K ±0.13 [.005]	F ±0.38 [.015]
1	Male	30.81 [1.213]	18.75 [.738]	24.99 [.984]	10.19 [.401]	12.55 [.494]	19.82 [.780]	10.82 [.426]	5.92 [.233]	6.73 [.265]
	Female		16.33 [.643]		7.90 [.311]				6.17 [.243]	
2	Male	39.14 [1.541]	27.08 [1.066]	33.32 [1.312]	10.19 [.401]	12.55 [.494]	28.15 [1.108]	10.82 [.426]	5.92 [.233]	6.73 [.265]
	Female		24.66 [.971]		7.90 [.311]				6.17 [.243]	
3	Male	53.04 [2.088]	40.79 [1.606]	47.04 [1.852]	10.19 [.401]	12.55 [.494]	41.87 [1.648]	10.82 [.426]	5.84 [.230]	6.50 [.256]
	Female		38.19 [1.504]		7.90 [.311]				6.17 [.243]	
4	Male	69.32 [2.729]	57.25 [2.254]	63.50 [2.500]	10.19 [.401]	12.55 [.494]	58.28 [2.294]	10.82 [.426]	5.84 [.230]	6.50 [.256]
	Female		54.84 [2.159]		7.90 [.311]				6.17 [.243]	
5	Male	66.93 [2.635]	54.64 [2.151]	61.11 [2.406]	13.03 [.513]	15.37 [.605]	55.88 [2.200]	13.67 [.538]	5.84 [.230]	6.50 [.256]
	Female		52.43 [2.064]		10.74 [.423]				6.17 [.243]	
6	Male	69.32 [2.729]	58.01 [2.284]	63.50 [2.500]	14.61 [.575]	16.97 [.668]	59.03 [2.324]	15.24 [.600]	5.84 [.230]	6.50 [.256]
	Female		55.60 [2.189]		12.32 [.485]				6.17 [.243]	

CONTACT TERMINATIONS

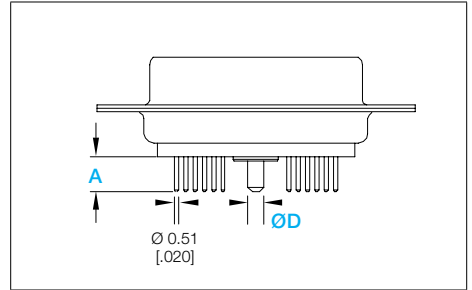
Solder Cup



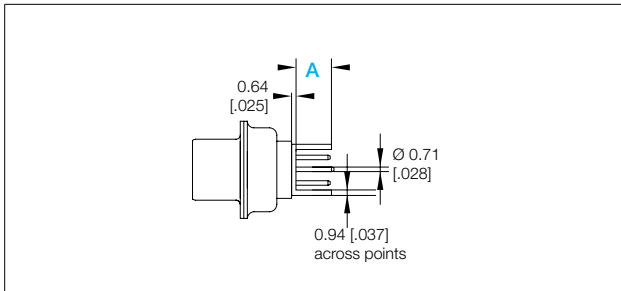
Straight Solder (Standard Density)



Straight Solder (High Density)



Straight Solder, code 65

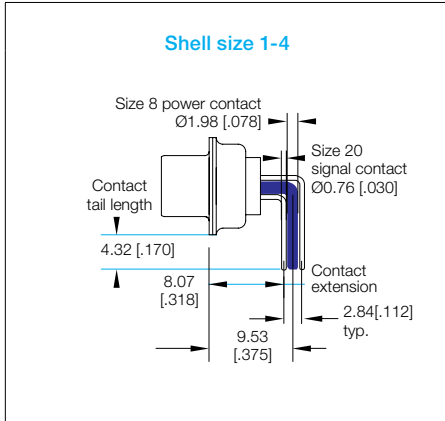


Code	Termination type	A	ØD Size 8
2	Solder cup	3.18 [.125]	--
3	Straight solder	4.32 [.170]	--
35	Straight solder	4.32 [.170]	1.98 [.078]
37	Straight solder	4.32 [.170]	3.18 [.125]
65	Straight solder	4.32 [.170]	--

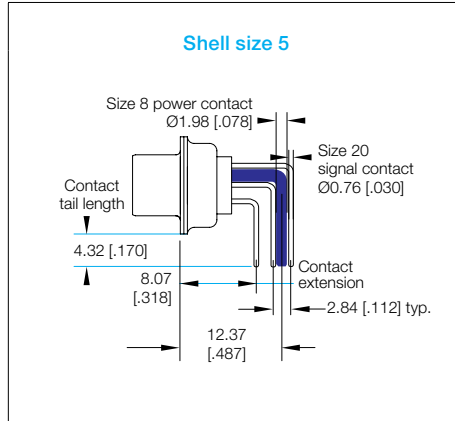
CONTACT TERMINATIONS

See page 35 for PCB mounting hole locations.

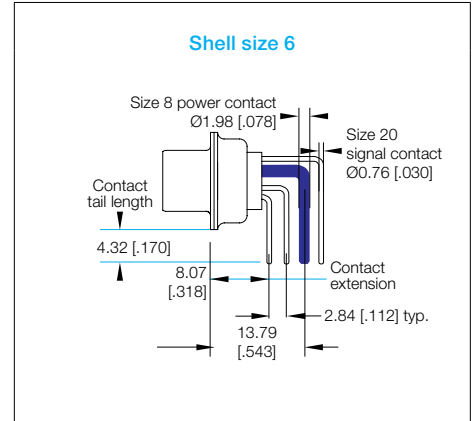
Right Angle Solder, code 5, 55



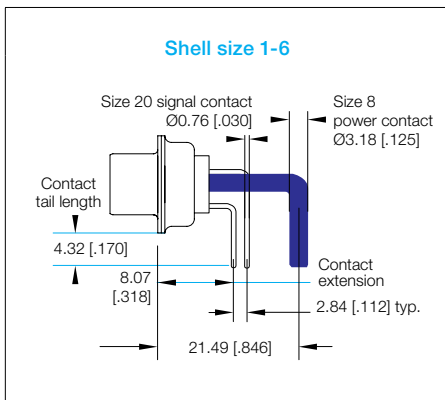
Right Angle Solder, code 5, 55



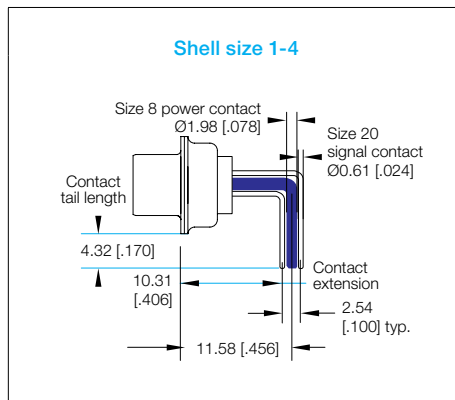
Right Angle Solder, code 5, 55



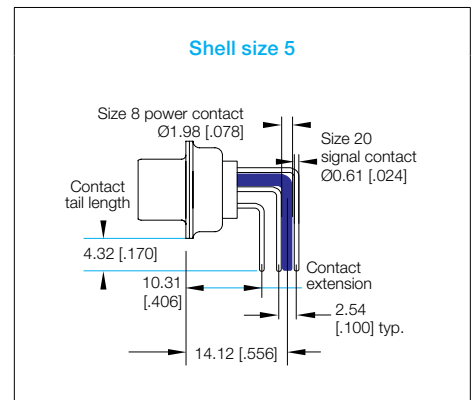
Right Angle Solder, code 5, 57



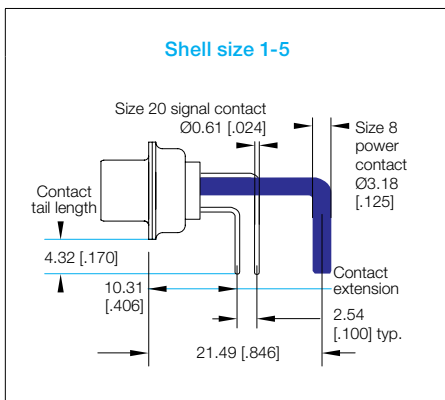
Right Angle Solder, code 7 and 75



Right Angle Solder, code 7 and 75



Right Angle Solder, code 7 and 77



Right Angle Solder, code 85, shell size 1-5

With FRT4201D or MRT4201D shielded contacts

Shell size	A
1	8.07 [.318]
2	8.07 [.318]
3	8.07 [.318]
4	8.07 [.318]
5*	14.76 [.581]

* Supplied inverted, contact technical sales

CREATE A PART

For additional options and accessories, please see following page.

MCBX		17W2		S	55	R7	0	0	S	/AA	-15	
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Series	MCBX Combo-D
Layout	<p>SHELL SIZE 1</p> <p>2WK2 (2) #8</p> <p>5W1 (1) #8, (4) #20</p> <p>SHELL SIZE 2</p> <p>3W3 (3) #8</p> <p>3WK3 (3) #8</p> <p>7W2 (2) #8, (5) #20</p> <p>11W1 (1) #8, (10) #20</p> <p>SHELL SIZE 3</p> <p>5W5 (5) #8</p> <p>9W4 (4) #8, (5) #20</p> <p>13W3 (3) #8, (10) #20</p> <p>17W2 (2) #8, (15) #20</p> <p>21W1 (1) #8, (20) #20</p> <p>SHELL SIZE 4</p> <p>8W8 (8) #8</p> <p>13W6 (6) #8, (7) #20</p> <p>17W5 (5) #8, (12) #20</p> <p>21WA4 (4) #8, (17) #20</p> <p>25W3 (3) #8, (22) #20</p> <p>27W2 (2) #8, (20) #20</p> <p>SHELL SIZE 5</p> <p>24W7 (7) #8, (17) #20</p> <p>36W4 (4) #8, (32) #20</p> <p>43W2 (2) #8, (41) #20</p> <p>47W1 (1) #8, (46) #20</p> <p>SHELL SIZE 6</p> <p>46W4 (4) #8, (42) #20</p>
Contact Gender	<p>M Male pin</p> <p>NEW MG Male pin with grounding strips</p> <p>S Female socket</p>
Termination	<p>Other size 8 contact styles can be ordered separately - see Contacts section</p> <p>0 Connector ordered without contacts</p> <p>1 Wire, signal crimp contacts included</p> <p>11 Crimp signal & MC/FC 4012D power contacts included</p> <p>15 Crimp signal & MC/FC 4008D power contacts included</p> <p>19 Wire, M39029 crimp contacts included, 20 - 24 AWG [0.50mm² - 0.25mm²].</p> <p>2 Fixed solder cup, signal contacts only</p> <p>3 Straight solder, signal contacts only, 4.32 [.170] tail length</p> <p>35 Straight solder, signal and 1.98 [.078] Ø power contacts, 4.32 [.170] tail length</p> <p>37 Straight solder, signal and 3.18 [.125] Ø power contacts, 4.32 [.170] tail length</p> <p>5 Right angle solder, signal contacts only, 8.07 [3.18] signal contact extension</p> <p>55 Right angle solder, signal and 1.98 [.078] Ø power contacts, 8.07 [3.18] signal contact extension</p> <p>57 Right angle solder, signal and 3.18 [.125] Ø power contacts, 8.07 [3.18] signal contact extension</p> <p>65 Straight solder, signal and size 8 shielded contacts, 4.32 [.170] tail length</p> <p>85 Right angle solder, signal and size 8 shielded contacts, 8.07 [3.18] signal contact extension</p>
Mounting Options	<p>0 Clearance hole, 3.05 [.120] Ø</p> <p>R2*1 Angle brackets integrated with shell, alignment bar with non-removable female jackposts</p> <p>R6*1 Angle brackets integrated with shell, clearance hole, 3.05 [.120] Ø, alignment bar</p> <p>R7*1 Angle brackets integrated with shell, 4-40 threaded hole, alignment bar</p> <p>R8*1 Angle brackets integrated with shell, 4-40 locknut, alignment bar</p> <p>S Standoffs, swaged, 4-40</p> <p>S5 Locknut, swaged, 4-40</p> <p>S6 Standoffs, swaged, 4-40, boardlocks</p>

Modifications	-XXXX See bottom of following page for typical modification options
Contact Plating	<p>-15 50µin Au (min) over Ni over Cu</p> <p>-50 50µin Au (min) over Cu</p>
Environmental Compliance	/AA RoHS
Shells	<p>K Aluminum, electroless nickel finish</p> <p>S Stainless steel, passivated</p>
Locking Systems	<p>0 None</p> <p>E5 Rotating male jackscrews internal hex</p> <p>NEW K Rotating male jackscrews, low-profile, internal hex, 36-position polarization (mates to S jackpost)</p> <p>NEW S Fixed female jackposts, 36-position polarization (mates to K jackscrew)</p> <p>T2 Fixed female jackposts, washer set</p> <p>All locking system options are compatible with EN and EJ backshells</p>
Backshells & Boardlocks	<p>0 None</p> <p>C*2 Banding feature on rear shell, diamond knurl (eliminates the need for backshell)</p> <p>NEW EN Backshell, aluminum, top opening, machined, electroless nickel finish, grounding clips</p> <p>N Boardlocks, for use with R angle brackets in Mounting Options step</p>

For additional options and accessories, please see following page.

*1 Alignment bar is not included for 2WK2, 3WK3, 3W3, 5W5, and 8W8 Layouts with right angle termination styles.

*2 Only available for use with Code 0, 1, 11, 12, 15 and 19 in Termination step