

# cannon

## D-Subminiature Product Selection Guide



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# D-Subminiature Connectors

## Key Markets & Applications

Invented by Cannon engineers in 1952 for aircraft radio systems, the D-Subminiature was designed as a smaller, lightweight rectangular alternative to larger, heavier connectors of the time. Today, Cannon continues its legacy of innovation through highly engineered D-Sub connector styles, sizes, configurations and accessories. From rocket launchers and telecommunications, to avionics and high-speed rail, its performance, reliability and versatility have made this Cannon invention one of the most widely used connectors in the world.



Space & Satellites



Military Vehicles



Commercial Avionics

D\*M, D\*MM, D\*MA with NM, NMB option connectors are used when non magnetic characteristics are required.

Hermetic Military D connectors are designed to meet environmental conditions of extreme pressure differential.

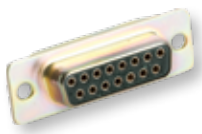
These high reliability D-Sub connectors are the finest quality and are qualified to MIL-DTL-24308.

	Non-Magnetic Series	D*H	MIL-DTL-24308 <sup>2</sup>
Space	X	X	
Military/Aerospace	X	X	X
Medical/Food Processing	X	X	
Mass Transit	X		
Industrial	X	X	
Telecom			
Wire Gauge Range AWG	AWG 18 - 28	up to AWG 20	AWG 20 - 24
Mating Cycles	50, 200, 500	500	500
RoHS Compliant	available	no	no
Layout	9, 15, 25, 37, 50, 15, 26, 44, 62, 78, 104 (high density) and Combo D	9, 15, 25, 37, 50	9, 15, 25, 37, 50, 15, 26, 44, 62, 78, 104 (high density)
Dielectric Withstanding Voltage <sup>1</sup>	1000 VAC	750 VAC	1000 VAC
Current Rating (Amps)	7.5 A max.	7.5 A max.	7.5 A max.
Contact Resistance	10 milli Ohm max.	15 milli Ohm max.	10 milli Ohm max. (Signal Contacts)
Operating Temperature	-55°C/125°C	-54°C/125°C	-50°C/150°C
Salt Spray Test Resistance in Hours	48 hrs	48 hrs	48 hrs
<b>Shell</b>			
Material	copper alloy	low carbon steel	steel
Finish	gold over copper	electro-deposited tin over cadmium over copper flash	yellow chromate over cadmium or zinc
<b>Insulator</b>			
Material	Glass-filled Thermoplastic, UL 94V-0	compression glass	Glass-filled Thermoplastic, UL 94V-0
Color	white or black	n/a	black
Contact	machined	machined	machined
Material	copper alloy	steel	copper alloy
Finish	gold over copper	electro-deposited tin over cadmium over copper flash	1.27 μm gold over nickel
<b>Contact Termination/Styles</b>			
Crimp	X		X
Solder Pot	X	X	X
Straight Solder	X		X
Right Angled Solder	X		X
IDC (insulation displacement connection)			
Wire Wrap			X
Coax	X		
Fiber Optic	X		
High Power	X		
High Voltage	X		
Press Fit			
Eyelet		X	

<sup>1</sup>At Sea Level

<sup>2</sup>Qualified to MIL-DTL-24308/1, /2, /3, /4, /23 and /24 for Finish Suffix F and Z





D\*M straight PCB connectors are equivalent to MIL-DTL-24308 qualified versions (except for finishes).

A broad range of D-Sub connectors are available with stainless steel shells for corrosion resistance.

D\*NG pressfit connectors provide a low-cost alternative to traditional through hole solder contacts (straight only).

Speedy D connectors terminate ribbon cables without stripping and without splicing.

D\*U is a low-cost, crimp type D-Subminiature series.

D*M	Stainless Steel	D*NG	D*SF	D*U
	X			
X	X			
	X			
X	X			
X	X	X	X	X
			X	
Not Applicable	AWG 18 - 30		AWG 26 - 28	AWG 18 - 30
50, 200, 500	50, 200, 500	50, 200, 500	50, 200, 500	50, 200, 500
available	yes	yes	yes	available
9, 15, 25, 37, 50	9, 15, 25, 37, 50, 15, 26, 44, 62, 78, 104 (high density) and Combo D	9, 15, 25, 37, 50	9, 15, 25, 37	9, 15, 25, 37, 50
1000 VAC	1000 VDC	1200 VAC	780 VAC	1000 VAC
7.5 A max.	7.5 A max.	5.0 A at 25°C 3.5 A at 70°C	1.5 A max.	5.0 A max.
7.5 milli Ohm max.	10 milli Ohm max.	10 milli Ohm max.	15 milli Ohm max.	15 milli Ohm max.
-55°C/125°C	-55°C/125°C	-55°C/125°C	-55°C/125°C	-55°C/125°C
48 hrs	48 hrs	20 hrs	20 hrs	20 hrs
steel	stainless steel	steel	steel	steel
RoHS - Tin/Nickel yellow chromate over cadmium or zinc	passivated	tin	tin	RoHS - Tin/Nickel yellow chromate over cadmium
Glass-filled Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0	Thermoplastic, UL 94V-0	Thermoplastic, UL 94V-0	Glass filled Thermoplastic, UL 94V-0
black	black or white	black	black	black
machined	machined	stamped	stamped	stamped or machined
copper alloy	copper alloy	copper alloy	copper alloy	copper alloy
gold over nickel	gold over nickel	gold over nickel (standard); gold over PdNi	gold over nickel	gold over nickel
	X			X
X	X			
X	X			X
X	X			
X	X		X	
	X			
	X			
	X			
	X			
	X			
		X		



D\* connectors are available for high performance uses according to DIN 41652.

ZD\* connectors are available for applications where price is the primary driver.

ZD\*A high density connectors are available for applications where price is the primary driver.

D\*A crimp connectors are available for applications where price is the primary driver.

Combo-D connectors offer an industry standard shield I/O interconnect, with the flexibility of a customized special.

D*	ZD*	ZD*A	D*A	Combo-D
				X
X				X
X	X	X	X	X
Not Applicable	AWG 20 - 28	AWG 24 - 26	AWG 20 - 28	AWG 8 - 26
50, 200, 500	50, 200	50, 200	50, 200	50, 200, 500
yes	yes	yes	yes	yes (Mil: no)
9, 15, 25, 37, 50	9, 15, 25, 37, 50	15, 26, 44, 62, 78	9, 15, 25, 37, 50	E: 2W2; 2WK2; 5W1 A: 3W3; 3WK3; 7W2; 11W1 B: 5W5; 9W4; 13W3; 17W2; 21W1 C: 8W8; 13W6; 17W5; 21WA4; 25W3; 27W2 D: 24W7; 36W4; 43W2; 47W1
1250 VAC	1000 VAC	500 VAC	500 VAC	varies
5.0 A at 25°C 3.5 A at 70°C	5.0 A max.	2.0 A max.	5.0 A max.	7.5 A max. (Signal contacts) 5.0 A max. (Coaxial contacts) 65 A max. (HEP) 5.0 A max. (HV contacts)
10 milli Ohm max.	20 milli Ohm max.	15 milli Ohm max.	15 milli Ohm max.	10 milli Ohm max. (Signal contacts)
-55°C/125°C	-55°C/105°C	-55°C/105°C	-55°C/105°C	-55°C/125°C (Mil: 150°C)
20 hrs	12 hrs	12 hrs	12 hrs	20 hrs (Mil: 48 hrs)
steel	steel	steel	steel	steel
tin	tin	tin	tin	tin
Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0	Thermoplastic, UL 94V-0	Glass-filled Thermoplastic, UL 94V-0
black	black	black	black	black
machined	stamped	stamped	stamped	machined
copper alloy	brass (male) phosphore bronze (female)	copper alloy	copper alloy	copper alloy
gold over nickel	gold over nickel in contact area, balance tin	gold over nickel	gold over nickel	gold over nickel
		X	X	X
X	X	X		X
X	X	X		X
X	X	X		X
X				X
				X
				X
				X
				X

# Cannon Combo-D Part Number Configurator

## US Version

DBM	E	9C4	P	J	K87
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### Product Family Designator

- D\*M = Solder Cup  
(Industrial & Space/Non-Magnetic)
- D\*MM = Solder Cup  
(Military / Hi-Rel, 50 microinch gold plating)
- D\*A = Crimp

### Hardware Modifier

- blank = .120" (3.05mm) Through Hole
- C = 90° Metal Bracket, #4-40 Fastener and Boardlock
- D = 90° Metal Bracket, #4-40 Fastener and #4-40 Screwlock
- E = #4-40 Clinchnut
- G = 90° Metal Bracket, #4-40 Fastener, #4-40 Screwlock, Boardlock
- H = .300" (7.6mm) Standoff, #4-40 Screwlock
- J = 90° Metal Bracket, M3 Fastener, M3 Screwlock, Boardlock
- K = .162" (4.11mm) Through Hole
- L = 90° Metal Bracket, M3 Fastener, Boardlock
- N = .300" (7.6 mm) Standoff, #4-40 Screwlock, Boardlock
- O = 90° Metal Bracket, M3 Fastener, M3 Screwlock
- P = 90° Metal Bracket, #4-40 Fastener
- Q = .300" (7.6 mm) M3 Standoff
- S = 90° Metal Bracket, M3 Fastener
- T = .300" (7.6 mm) M3 Standoff
- U = .300" (7.6 mm) Standoff, M3 Screwlock and Boardlock
- V = .300" (7.6 mm) #4-40 Standoff
- W = .300" (7.6mm) Standoff, M3 Screwlock
- X = M3 Clinchnut
- Y = Dual Float Mount
- Z = .300" (7.6mm) #4-40 Standoff, Boardlock

### Shell Material and Plating Modification Code

- blank = Carbon steel, Yellow chromate over zinc
- A101 = Carbon steel, Yellow chromate over cadmium
- A197 = Carbon steel, Pure Tin over Nickel (socket side only) **RoHS**
- K87 = Carbon steel Pure Tin over Nickel (pin shell with grounding dimples) **RoHS**
- F225 = Stainless steel, Passivated **RoHS**
- NMBK52 = Gold plated, non-magnetic for space applications

### Contact Termination Code

- blank = Solder cup (D\*M/D\*MM), Crimp (D\*A)
- J = 90° PCB signal contact, (ø.030" × .170" long)
- N = Straight PCB signal contact, (ø.030" × .178" long)
- V = 90° PCB signal contact, (ø.024" × .157" long)
- Y = Straight PCB signal contact, (ø.024" × .178" long)

### Contact Gender

- P = Pin /Male (plug)
- S = Socket /Female (receptacle)

### Layout (Example: 5W1- Total number of 5 contacts with 1 size 8 cavity)

- Shell Size E: 2W2, 2WK2, 5W1
- Shell Size A: 3W3, 3WK3, 7W2, 11W1
- Shell Size B: 5W5, 9W4, 13W3, 17W2, 21W1
- Shell Size C: 8W8, 13W6, 17W5, 21WA4, 25W3, 27W2
- Shell Size D: 24W7, 36W4, 43W2, 47W1

- W = Empty size 8 cavities
- C = 75 Ohm Coax installed (straight or 90°)
- X = 50 Ohm Coax installed (straight or 90°)
- H = High power installed (straight)
- P = High power installed (Euro, 90° only)
- V = High voltage installed (available in straight PC only)
- G = Guide pin or guide socket installed
- R = Mini High Power 90° installed
- E = HEP Contact (installed or loose)

# Cannon Combo-D Part Number Configurator

## European Version

DBM	E	9C4	P	P00	1A5N	A191	K87	146
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### Product Family Designator

- D\*M = D\*M Combo-D
- \* = Shell size – E, A, B, C and D

### Hardware Modifier

- blank = 3,05mm (.120") Through Hole
- E = #4-40 Clinchnut (solder cup, straight solder pin and 1A0N)
- N = 7,66 mm (.300") with #4-40 post and pushfit, only OL4
- Q = 7,66 mm (.300") M3 standoff, only OL4
- T = 7,66 mm (.300") M3 post, only OL4
- U = 7,66 mm (.300") standoff, M3 Post with pushfit, only OL4
- V = 7,66 mm (.300") #4-40 standoff, only OL4
- X = M-3 Clinchnut (solder cup, straight solder pin and 1A0N)
- Y = Dual Float Mount, only solder cup
- Z = 7,66 mm (.300") #4-40 with pushfit, only OL4

### Layout (Total number of contacts + number of size 8 cavities)

- Shell Size E: 2W2, 2WK2, 5W1
- Shell Size A: 3W3, 3WK3, 7W2, 11W1
- Shell Size B: 5W5, 9W4, 13W3, 17W2, 21W1
- Shell Size C: 8W8, 13W6, 17W5, 21WA4, 25W3, 27W2
- Shell Size D: 24W7, 36W4, 43W2, 47W1
- W = Empty size 8 cavities
- C = 75 Ohm Coax installed (straight or 90°)
- X = 50 Ohm Coax installed (straight or 90°)
- H = High power installed (straight)
- P = High power installed (Euro, 90° only)
- V = High voltage installed (available in straight PC only)
- G = Guide pin or guide socket installed
- R = Mini High Power 90° installed

### Contact Gender

- P = Pin /Male (plug)
- S = Socket /Female (receptacle)

### Code only applicable for Pressfit High Power size 8 contact

- P00 = Pressfit High power PCB dia 2,9 mm
- P01 = Pressfit High power PCB dia 3,1 mm
- P02 = Pressfit High power PCB dia 3,5 mm

### PCB Mounting Method

- 146 = Pushfit for PCB hole dia. 3,0 mm
- 161 = Pushfit for PCB hole dia. 3,2 mm, straight version only
- 162 = Pushfit for PCB hole dia. 3,2 mm, 90° version only

### Shell Plating Modification Code

- blank = Yellow chromate over zinc
- A197 = Pure Tin over Nickel (socket side only) **RoHS**
- K87 = Pure Tin over Nickel (pin shell with grounding dimples) **RoHS**

### Contact Plating Modification Code

- blank = performance class 3 (50 mating cycles)
- A191 = performance class 2 (200 mating cycles)
- A190 = performance class 1 (500 mating cycles)

### Contact Tail Modifier

- blank = Solder cup (size 8 contacts not loaded on these versions)
- OL2 = Not standard, please call factory
- OL3 = Solder pin /pc tail, straight
- 1A0N = Without mounting bracket, hole dia. 3,05 mm
- 1A5N = Plastic bracket with bushing dia. 3,05 mm
- 1A6N = Plastic bracket with #4-40 threaded post
- 1A7N = Metal bracket and #4-40 captive nut
- 1A8N = Metal bracket with #4-40 threaded post
- 1A9N = Metal bracket and M3 captive nut
- 1ADN = Plastic bracket with grounding bracket and bushing dia. 3,05 mm
- 1AFN = Metal bracket with bushing dia. 3,05 mm
- 1AGN = Plastic bracket with grounding bracket and M3 threaded post
- 1AHN = Metal bracket with M3 threaded post
- 1AJN = Plastic bracket with grounding bracket and #4-40 threaded post
- 1APN = Plastic bracket with M3 threaded post – Not available, please use 1AHN instead
- 1ATN = Plastic bracket and M3 captive nut – Not available, please use 1A9N instead
- 1AUN = Plastic bracket and #4-40 captive nut
- 1AVN = Plastic bracket with grounding bracket and captive M3 nut – Not available, please use 1A9N instead
- 1AWN = Plastic bracket with grounding bracket and captive #4-40 nut – Not available, please use 1A7N instead
- 1AEN = 90° low profile metal bracket with M3 captive nut
- 1AAN = Low profile metal bracket and #4-40 captive nut – Not available, please use 1A7N instead
- 1ABN = Low profile metal bracket and M3 threaded post – Not available, please use 1AHN instead
- 1ACN = Low profile metal bracket and #4-40 threaded post – Not available, please use 1A8N instead
- 1ALN = Low profile metal bracket and bushing dia. 3,05 mm – Not available, please use 1AFN instead



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