

D38999 Mil Spec Connector Guide

D38999 Mil Spec Connectors Explained



Part Number Breakdown

D38999 Part Number Breakdown.

[Learn more »](#)

Assembly Instructions

D38999 assembly instruction.

[Learn more »](#)

Part Number Index

List of MIL_DTL-D38999 part numbers.

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Introduction

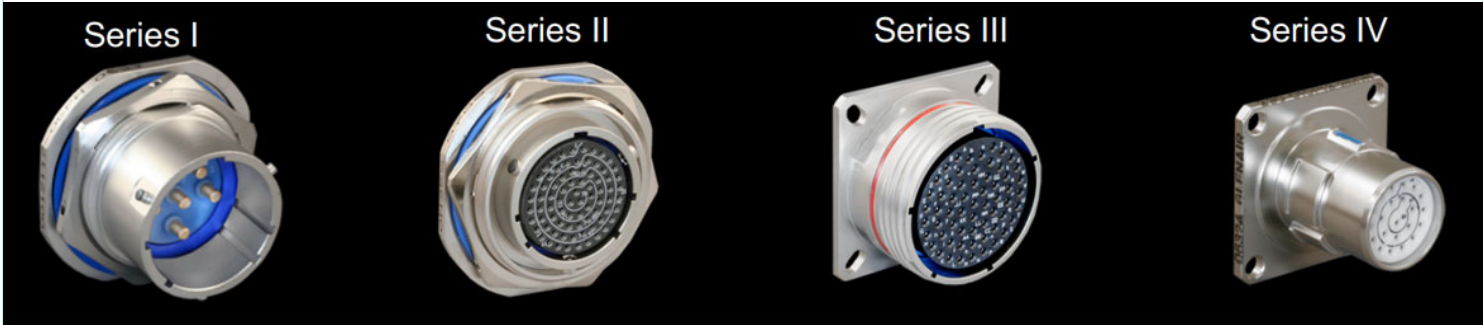
Previously known as MIL-C-38999, MIL-DTL-38999 connectors come in four series: Series I, Series II, Series III and Series IV. They are environmentally resistant connectors that use removable crimp contacts and have an operating range of -65 to +200°C.

Series I connectors are bayonet coupled and have high-vibration properties. They are scoop proof and are ideal for heavy wind and moisture environments. They are utilised when a fast disconnect coupling system is required.

Series II connectors are bayonet coupled, are non-scoop proof, and have a low profile, so are used when weight or space is limited, or in low-vibration, high moisture, and strong wind situations.

Series III connectors are coupled by a quick screw Tri start thread, are scoop proof, and are best suited for normal mating and unmating applications and can be used in high temperature, moisture, wind, or vibration environments when used with the correct accessories. Series III connectors are most commonly use in Military and Aerospace designs.

Series IV connectors are coupled by a Breech-Lok mechanism, are scoop proof, lightweight and suitable for blind mating applications, and they also have high-vibration attributes. They are well suited in high wind and moisture environments when used with the appropriate accessories.



38999	Coupling	Scoop Proof	Durability	High Impact Schock	Bend Moment	Price
Series I	Standard Bayonet	Yes	500	Yes	650 lbs in	\$
Series II	Low-Profile Bayonet	No	250	No	150 lbs in	\$
Series III	Triple Start Threded	Yes	500	Yes	1000 lbs in	\$\$
Series IV	Breach-Lok	Yes	500	Yes - Heavy	1000 lbs in	\$\$\$

MIL-DTL-38999 Specifications and Datasheets



(<https://landandmaritimeapps.dla.mil/Downloads/MilSpec/Docs/MIL-DTL-38999/dtl38999.pdf>)

(<https://landandmaritimeapps.dla.mil/Downloads/MilSpec/Docs/MIL-DTL-38999/dtl38999.pdf>).

The most recent MIL-DTL-38999 specification can be downloaded from Defense Logistics Agency Land and Maritime website: [click here to download](#)

Manufacturer	Datasheet			
	Series I	Series II	Series III	Series IV
Amphenol	 (/datasheets/Amphenol/Amphenol-MIL-DTL-38999-series-I-II.pdf)	 (/datasheets/Amphenol/Amphenol-MIL-DTL-38999-series-I-II.pdf)	 (/datasheets/Amphenol/Amphenol_D38999_Series_III.pdf)	
Conesys	 (/datasheets/Conesys/Conesys-MIL-DTL-38999-Series-I.pdf)	 (/datasheets/Conesys/Conesys-MIL-DTL-38999-Series-II.pdf)	 (/datasheets/Conesys/Conesys-MIL-DTL-38999-Series-III.pdf)	 (/datasheets/Conesys/Conesys-MIL-DTL-38999-Series-IV.pdf)
Eaton				 (/datasheets/Eaton/Eaton-MIL-DTL-38999-Series-I-II-III-IV.pdf)
Glenair	 (/datasheets/Glenair/Glenair-Mil-DTL-38999-Series-I-II-III-IV.pdf)	 (/datasheets/Glenair/Glenair-Mil-DTL-38999-Series-I-II-III-IV.pdf)	 (/datasheets/Glenair/Glenair-Mil-DTL-38999-Series-I-II-III-IV.pdf)	 (/datasheets/Glenair/Glenair-Mil-DTL-38999-Series-I-II-III-IV.pdf)

Manufacturer	Datasheet			
	Series I	Series II	Series III	Seri
ITT-Cannon	 (/datasheets/ITT-Cannon/ITT-Cannon-38999-Series-I-II-III.pdf)	 (/datasheets/ITT-Cannon/ITT-Cannon-38999-Series-I-II-III.pdf)	 (/datasheets/ITT-Cannon/ITT-Cannon-38999-Series-I-II-III.pdf)	
Souriau			 (/datasheets/Souriau/Souriau-Mil-DTL-38999-Series-III.pdf)	
TE Deutsch	 (/datasheets/TE/TE_Deutsch_D38999_Series_I.pdf)		 (/datasheets/TE/TE_Deutsch_D38999_Series_III.pdf)	

Part Number Breakdown

D38999 Part Number Decoder Tool

Try our **Part Number Decoder Tool**! Enter any D38999 part number in the box below and we will decode it for you. We already entered the "D38999/" prefix so you don't have to.

TRY IT NOW

D38999/20FA35SN

D38999 connector part numbers are composed of six sections in addition to the D38999 prefix:

D38999 / 26 W G 11 S N

Shell Type

D38999 / 26 W G 11 S N

Material and Finish

D38999 / 26 W G 11 S N

Shell Size

D38999 / 26 W G 11 S N

Insert Arrangement

D38999 / 26 W G 11 S N

Contact Type

D38999 / 26 W G 11 S N

Keying Position

The meaning of the codes in each section is explained below.

Shell Type

D38999 / 26 W G 11 S N

Series III	Series IV	Shell Type Description
 D38999/20	 D38999/40	Receptacle, Wall Mount Flange
 D38999/21	D38999/41	Receptacle, Box Mount, Hermetic
-	 D38999/42	Receptacle, Box Mount
D38999/23	D38999/43	Receptacle, Jam Nut Mount, Hermetic
 D38999/24	 D38999/44	Receptacle, Jam Nut Mount
D38999/25	D38999/45	Receptacle, Solder Mount, Hermetic
 D38999/26	 D38999/46	Plug, EMI Grounding Fingers
-	 D38999/47	Plug
D38999/27	D38999/48	Receptacle, Weld Mount, Hermetic

Shell types 26, 46 and 47 are plugs. All other shells are receptacles. Odd numbered receptacle shell types denote hermetic construction: 21, 23, 25, 27, 41, 43 and 45.



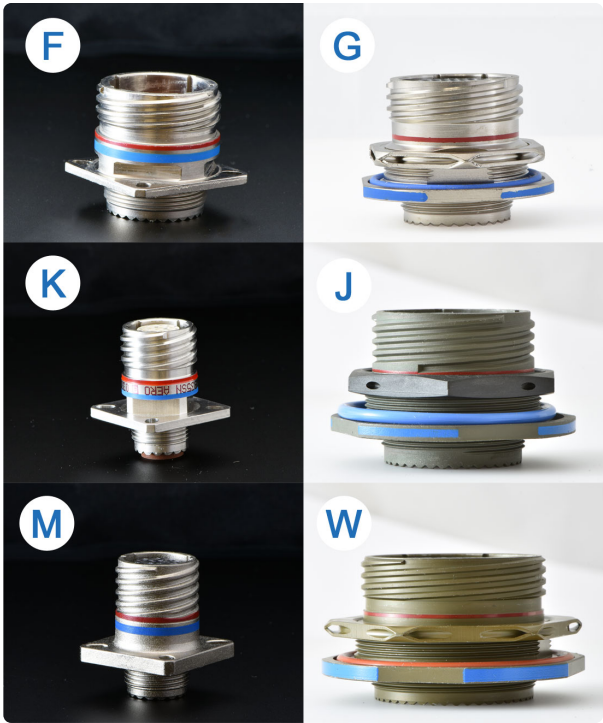
(images/shell-styles.jpg)

Examples of different D38999 shell styles

Material and Finish

D38999 / 26WG 11 S N

Code	Image	Material	Finish
F		Aluminum	Electroless Nickel Plated (48-hr. Salt Spray)
G		Aluminum	Space-Grade Electroless Nickel (48-hr. Salt Spray)
H		Hermetic	Space Grade
J		Composite	Olive Drab Cadmium (2000-hr. Salt Spray)
K		Stainless Steel	Corrosion-Resistant Stainless Steel - Firewall (500-hr. Salt Spray)
L		Stainless Steel	Electrodeposited Nickel (48-hr. Salt Spray)
M		Composite	Electroless Nickel Plated (2000-hr. Salt Spray)
N		Hermetic	Stainless Steel, Nickel Plated
S		Stainless Steel	Nickel Plated (500-hr. Salt Spray)
T		Aluminum	Nickel PTFE (500-hr. Salt Spray)
W		Aluminum	Olive Drab Cadmium (500-hr. Salt Spray)
Y		Hermetic	Stainless Steel, Passivated
Z		Aluminum	Black Zinc Nickel (500-hr. Salt Spray)



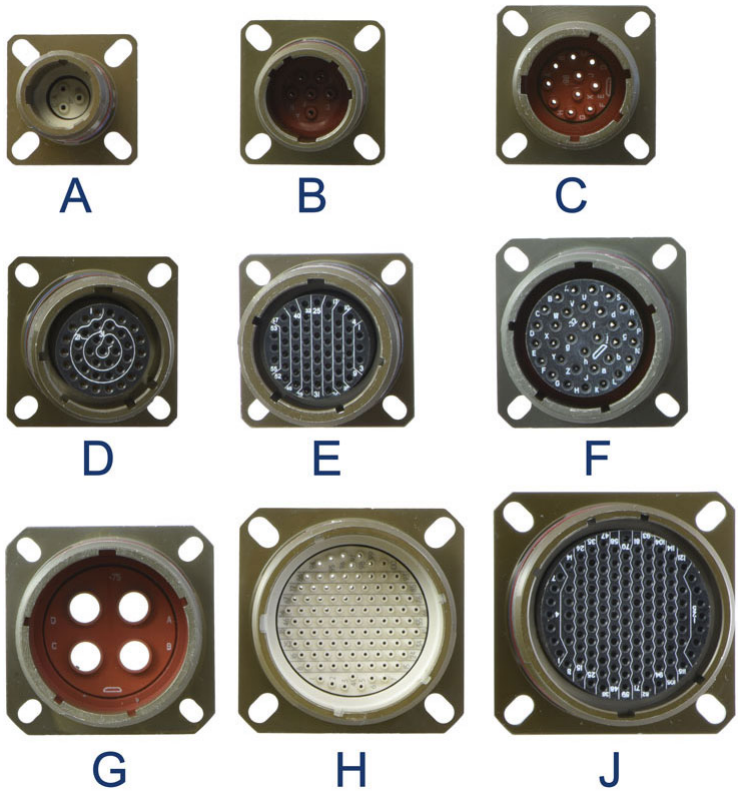
(images/Finish-Examples.jpg)

Examples of D38999 finish materials

Shell Size

D38999 / 26 W G 11 S N

D38999 connectors are available in 9 shell sizes.



D38999 connector shell sizes: A, B, C, D, E, F, G, H, J

Insert Arrangement

D38999 / 26 W **G 11** S N

MIL-STD-1560 Insert Arrangements

Click on the insert arrangement to enlarge it. To find the layout of an inseret, look for the insert arrangement code under the shell size letter.

A

B

C

D

E

F

G

H

J

Connector Pin Counts

Shell Size and Insert Arrangements		Number of Pins			
D38999 Series III	Service Rating	22D	20	16	12
A35	M	6			
A98	I		3		
B2	I			2	
B4	I		4		
B5	I		5		
B35	M	13			
B98	I		6		
B99	I		7		
C4	I			4	
C8	I		8		
C35	M	22			
C98	I		10		
D5	II			5	
D15	I		14	1	
D18	I		18		
D19	I		19		
D35	M	37			
D97	I		8	4	
E6	I				6
E8	II			8	
E26	I		26		
E35	M	55			
E99	I		21	2	
F11	II			11	
F28	I		26	2	
F30	I		29	1	
F32	I		32		
F35	M	66			
F45	M	67			
G11	I				11
G16	II			16	
G24	I		24		
G25	I		25		
G27	I		27		
G35	M	79			
G39	I		37	2	

Shell Size and Insert Arrangements	Number of Pins				
D38999 Series IV	22D	20	16	12	10
B5		5			
B35	13				
B98		6			
B99		7			
C4			4		
C35	22				
C98		10			
D5			5		
D18		18			
D19	37	19			
D35 ???					
D97		8	4		
E6				6	
E8			8		
E26		26			
E35	55				
F11			11		
G41		41			
H21			21		
H35	100				
H55		55			
J4		48	8		
J11		2			9
J19				19	
J24			12	12	
J29			29		
J35	128				
J43		23	20		
J61		61			
F32		32			
F35	66				
G11				11	
G16			16		
G35	79				

Shell Size and Insert Arrangements		Number of Pins			
D38999 Series III	Service Rating	22D	20	16	12
G41	I		41		
H21	II			21	
H32	I		32		
H34	I		34		
H35	M	100			
H36	I		36		
H53	I		53		
H55	I		55		
H97	I			16	
H99	II			11	
J4	I		48	8	
J19	I				19
J24	I			12	12
J29	I			29	
J35	M	128			
J43	I		23	20	
J61	I		61		

Contact Type

D38999 / 26 W G 11  N

Sealed Connectors

Hermetic Connectors

Contact Color Codes

P	Pin	C	PC Tail Pin
A	Less Pin	D	PC Tail Socket
H	1500-Cycle Pin	X	Eyelet Pin
S	Socket	Y	Eyelet Socket
B	Less Socket		
J	1500-Cycle Socket		

SAE-AS39029 QPL Contacts



Shielded Contacts



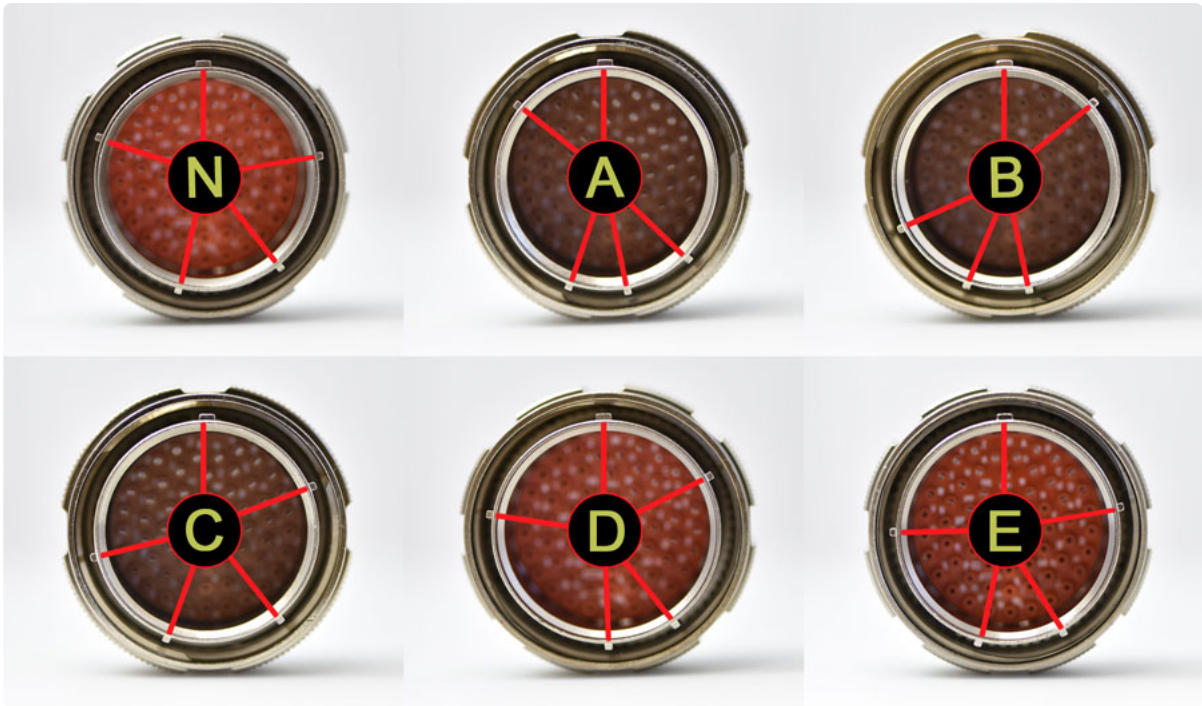
M39029 Contacts are used in D38999 connectors.

Keying Position

D38999 / 26 W G 11 S N

There are six distinct keying positions available for each shell size in the D38999 series of connectors: N, A, B, C, D and E. The keying position is indicated by the last letter in the part number. A plug will only mate with a receptacle with the same keying code. The following figure shows different keying positions for D38999/26FJ61P plug.

Having 6 different keying positions allows use of up to six D38999/26FJ61P plugs in the same space without the possibility of mating a plug with incorrect receptacle.



All available keying positions for D38999/26FJ61P

Assembly Instructions

Tools

Wire Stripping

Contact Crimping

Contact Insertion

Contact Extraction

Tools

Wire Stripping

1. Strip wire to required length. When using hot wire stripping, do not wipe melted insulation material on wire strands; with mechanical strippers do not cut or nick strands.

2. Twist strands together to form a firm bundle.

3. Insert stripped wire into contact applying slight pressure until wire insulation butts against wire well. Check inspection hole to see that wire strands are visible. If there are strayed wire strands, entire wire end should be re-twisted. When wire is stripped and properly installed into contact, the next step is to crimp the wire inside the contact by using the proper crimping tool.

STRIPPING DIMENSIONS

WIRE SIZE	A
22, 22M, 22D	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)
10	.335 (8.51)
8 (power)	.470 (11.99)

Contact Crimping

1. Insert stripped wire into contact crimp pot. Wire must be visible through inspection hole.
2. Using correct crimp tool and locator, cycle the tool once to be sure the indentors are open, insert contact and wire into locator. Squeeze tool handles firmly and completely to insure a proper crimp. The tool will not release unless the crimp indentors in the tool head have been fully actuated.
3. Release crimped contact and wire from tool. Be certain the wire is visible through inspection hole in contact.

MIL-DTL-38999 Connectors : Contact Crimping Instructions



DEUTSCH Contact Crimping Instructions



Twinax Contacts Termination Procedure



Contact Insertion

1. First remove hardware from the plug and receptacle and slide the hardware over wires in proper sequence.
2. Use proper plastic or metal insertion tool for corresponding contact. Slide correct tool (with plastic tool use colored end) over wire insulation and slide forward until tool bottoms against rear contact shoulder.
3. Next align the tool and contact up to the properly identified cavity at rear of connector plug. Use firm, even pressure; do not use excessive pressure. It is recommended to start at the center cavity. Contact must be aligned with grommet hole and not inserted at an angle. Push forward until contact is felt to snap into position within insert.
4. Remove tool and pull back lightly on wire, making sure contact stays properly seated and isn't dragged back with the tool. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.
5. After all contacts are inserted, fill any empty cavities with wire sealing plugs. (Refer to sealing plug charts for Series III on page 29, for Series I & II and SJT see page 30-31.
6. Reassemble plug or receptacle hardware - slide forward and tighten using connector pliers. Connector holding tools are recommended while tightening back accessories. When using strain relief, center wires at bar clamp. Slide clamp grommet into position and tighten clamp bar screws. When tightening screws, pressure should be applied in the same direction that clamp is threaded to rear threads of connector. When not using clamp grommet, build up wire bundle with vinyl tape so clamp bar will maintain pressure on wires.

MIL-DTL-38999 Connectors - Contact Insertion Instructions



ELECTRICAL CONNECTORS AND TOOLING for Aerospace



Contact Extraction

- 1. Remove hardware from plug or receptacle and slide hardware back along wire bundle.
- 2. Use proper plastic or metal removal tool for corresponding contact. Slide correct size tool over wire insulation.
- 3. Insert plastic or metal removal tool into con- tact cavity until tool tips enter rear grommet and come to a positive stop. Hold tool tip firmly against positive stop on contact shoulder. Grip wire and simultaneously remove tool and contact. (On occasion, it may be necessary to remove tool, rotate 90° and reinsert.)

Jonard Tools Connector Tools Extraction/Insertion Kits



Part Number Index

D38999//2 (2) (D38999?/2) D38999/20 (7958) (D38999?20) D38999/21 (2382) (D38999?21) D38999/23 (2379) (D38999?23) D38999/24 (8036) (D38999?24)
D38999/25 (2382) (D38999?25) D38999/26 (9561) (D38999?26) D38999/27 (2376) (D38999?27) D38999/29 (5) (D38999?29) D38999/30 (1) (D38999?30)
D38999/31 (1) (D38999?31) D38999/33 (1) (D38999?33) D38999/40 (34) (D38999?40) D38999/42 (48) (D38999?42) D38999/44 (35) (D38999?44)
D38999/46 (65) (D38999?46) D38999/47 (4) (D38999?47) D38999/49 (4) (D38999?49)