

# Amphenol MIL-DTL-38999, Series III, TV



**New  
Featured**



**New  
Featured**



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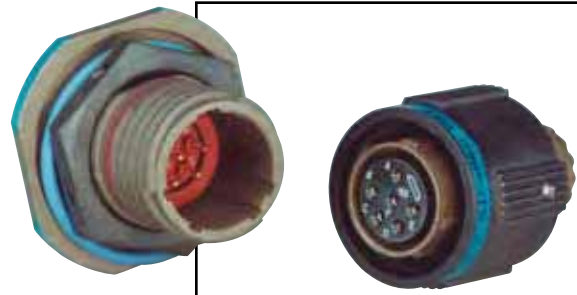
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## MIL-DTL-38999 Series III Typical Markets:

- Military & Commercial Aviation
- Military Vehicles
- Missiles & Ordnance
- C4ISR
- Space Applications

**Amphenol**  
Aerospace



### Tri-Start™ MIL-DTL-38999 Series III

#### with Metal Shells - Aluminum, Stainless Steel, Class K Firewall

Amphenol® Tri-Start MIL-DTL-38999\* Series III Connectors offer the highest performance capabilities for both general duty and severe environment applications. Meeting or exceeding MIL-DTL-38999 Series III requirements, the Tri-Start connector with standard metal shells (aluminum or stainless steel with several finish options) offers these features:

- **EMI Shielding** - solid metal to metal coupling, grounding fingers, electroless nickel plating, and thicker wall sections provide superior EMI shielding capability of 65dB minimum at 10 GHz
- **Contact Protection** - recessed pins in this 100% scoop-proof connector minimize potential contact damage
- **Moisture Resistance** - improved interfacial seal design helps prevent electrolytic erosion of contacts
- **Corrosion Resistance** - shells of stainless steel or cadmium over nickel plating withstand a 500 hour salt spray exposure
- **Vibration/Shock** - operates under severe high temperature vibration, through 200°C
- **Firewall Capability** - available in a stainless steel shell, class RK, RS
- **Lockwiring Eliminated** - unique, self-locking, quick coupling connector eliminates lockwiring
- **Quick Coupling** - completely mates and self-locks in a 360° turn of the coupling nut
- **Inventory Support Commonality** - uses standard MIL-DTL-38999 contacts, application tools, insert arrangements
- **Electrostatic Discharge Protection (ESD)** - protection for sensitive circuitry without diodes, varistors, etc., with the use of the Faraday Cage principle which shunts high voltage, high current discharge events (see page 422)
- **Hermetic** - air leakage limited to  $1 \times 10^{-7} \text{ cm}^3$  per second optional
- **Qualified Specifications** - Stainless Steel qualified to BACC63DB and BACC63DC specifications

#### Optional Shell Geometries

Amphenol offers a number of different shell configurations to fit your needs.

- Deep Reach Shells - For increased panel thickness
- Stand-off Flange Shells - For attachments to Printed Circuit boards.
- Connector with Integral Strain Reliefs

\* MIL-DTL-38999 Series III supersedes MIL-C-38999 Series III.

Applicable Patents:  
 Tri-Start™ Connector Patent 4,109,990.  
 Composite Connector Patents:  
 4,268,103; 4,648,670; 4,682,832; 4,703,987.  
 Clutch-Lok® Patent 6,152,753.



### Series III

Composite Tri-Start,  
 Qualified to MIL-DTL-38999, Rev. J

MIL-Qualified to MIL-DTL-38999, Rev. K, the Amphenol® Composite Tri-Start Connector offers a lightweight, corrosion resistant connector with the same high performance features as its metal counterpart. The Composite Tri-Start Connector also includes the following features:

- **Lightweight** - 17% – 70% weight savings (17–40% weight savings vs. Aluminum) (60–70% weight savings vs. Stainless steel) See Composite weight comparison chart on page 20.
- **Corrosion Resistance** - available in standard MIL-DTL-38999 olive drab cadmium (-65°C to 175°C) and electroless nickel plating (-65°C to 200°C), both with standing 2000 hours of salt spray exposure. The base material is able to withstand an indefinite exposure to salt spray.
- **Durability** - 1500 couplings minimum (in reference to connector couplings, not contacts)
- **Extended Life Contact** - Mil-approved plating process which provides 1500 couplings minimum
- Qualified to BACC63CT and BACC63CU specifications



#### CLUTCH-LOK™ MIL-DTL-38999 Series III High Vibration Connector

The Tri-Start option CLUTCH-LOK offers all advantages of stainless steel/Class K firewall for MIL-DTL-38999 Series III connectors, plus a unique clutch design that actually tightens itself under vibration.

Features include:

- High degree of differential torque
  - No settling back to the next ratchet tooth
  - Completely intermateable with all existing MIL-DTL-38999 Series III connectors
  - Offers advantage in inaccessible, hard to reach areas where mating torque is difficult to apply and complete coupling is not verifiable by inspection
- See page 29 for description, 22 – 24 for ordering.

38999  
SJT I II III

26482  
Matrix 2

83723 III  
Matrix Pyle

5015  
Crimp Rear Release Matrix

26500 Pyle

Printed  
Circuit Board

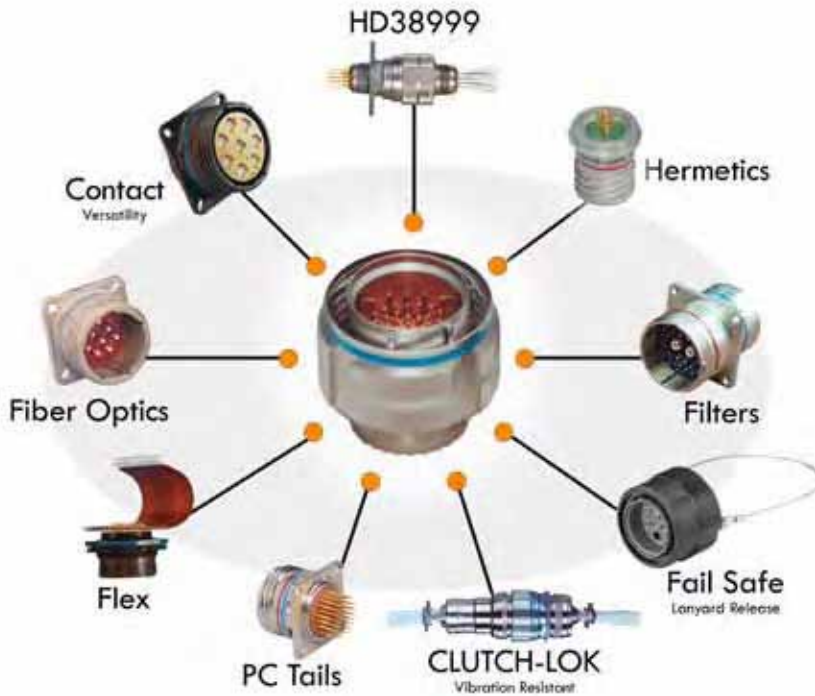
EMI Filter  
Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

## Series III, TV Tri-Start Connectors, offer more versatility & options than any other interconnection family!



High reliability and increased versatility best describe Amphenol MIL-DTL-38999, Series III circular connectors. Originally designed for the harshest of environments and most demanding of applications, Amphenol MIL-DTL-38999 Series III, Tri-Start connectors continue to evolve in pace with the needs of an ever-changing market.

Amphenol Tri-Start connectors can be configured with a number of application specific technologies like Filters, Hermetics, PC Tails, Fiber Optics, Flex, CLUTCH-LOK, Fail Safe, and contacts. Flexibility aids in design optimization through the combination of different technologies within a common, time-tested, harsh environment connector body.

For more information about options please call 800-678-0141 or visit [www.amphenol-aerospace.com](http://www.amphenol-aerospace.com).

## Performance

### Designed for Performance

Numerous advantages in performance capability are designed into the Amphenol Tri-Start Connector. A positive metal to metal coupling design, grounding fingers, and electroless nickel plating provide superior EMI shielding capability of 65 dB minimum at 10 GHz.

Acme threads provide coupling durability. Thicker wall sections and a greater coupling surface area improve strength and shock resistance. Blunting of the thread on both the coupling nut and receptacle eliminates cross coupling. The connector quickly mates and self locks in a 360° turn of the coupling nut.

Elongated mounting holes permit the Tri-Start Connector to intermount with various existing MIL-Spec box or wall mount receptacles, giving it a design replacement advantage.

Shells of stainless steel, or cadmium over nickel plating prevent severe corrosion. Resistance is tested through exposure to a 500 hour salt spray. Composite versions provide protection from salt spray exposure for 2000 hours. Other finish options are available; see how to order Tri-Start metal and Tri-Start Composite.

Recessed pins minimize potential contact damage in this 100% scoop-proof connector. In a blind mating application, mating shells cannot “scoop” the pins and cause a shorting or bending of contacts.

The design of the Amphenol Tri-Start interfacial seal meets the MIL-DTL-38999 Series III requirements for electrolytic erosion resistance.

A rigid dielectric insert with excellent electrical characteristics provides durable protection to the contacts. The socket contacts are probe proof, and all contacts are rear removable. They are plated in the standard 50 micro inches minimum gold, with 100 micro inches as an option, and are available in standard Tri-Start insert arrangements and special Pyle® insert arrangements in sizes 10 power, 12, 16, 20 and 22D contacts. Special insert patterns are also available with larger contacts in sizes 4 and 0.

III	38999
II	
I	
	SJT
Matrix 2	26482
Matrix	83723 III
Pyle	5015
Crimp Rear Release Matrix	26500 Pyle
Printed Circuit Board	
EMI Filter Transient	
Fiber Optics	
High Speed Contacts	
Options Others	



Depending on the shell style, shell size and contact count, weight savings can range from 17% to 40% compared to standard aluminum product

**Tri-Start Weight in Ounces (includes contacts)**

# Weight

	Wall Mount Receptacle (00 • Military D38999/20)						Jam Nut Receptacle (07) • Military D38999/24						Plug (06) • Military D38999/26					
	Stainless Steel		Aluminum		Composite		Stainless Steel		Aluminum		Composite		Stainless Steel		Aluminum		Composite	
	Pin	Socket	Pin	Socket	Pin	Socket	Pin	Socket	Pin	Socket	Pin	Socket	Pin	Socket	Pin	Socket	Pin	Socket
9-35	.7216	.7840	.3248	.3777	.2588	.3121	1.1472	1.2096	.4416	.5040	.3489	.4413	1.0736	1.1360	.4236	.4625	.2606	.2994
9-98	.7216	.7776	.2496	.3056	.1664	.2224	1.1472	1.2032	.4416	.4976	.3744	.4640	1.0736	1.1296	.3968	.4624	.2991	.2337
11-35	.9488	1.0800	.3632	.4960	.2753	.4081	1.4304	1.5632	.5936	.7264	.4679	.6007	1.2480	1.3808	.5312	.6389	.3450	.4582
11-98	.9488	1.0620	.3632	.4768	.2753	.3889	1.4304	1.5440	.5936	.7072	.4679	.5815	1.2480	1.3616	.5330	.6283	.3468	.4457
13-8	1.2096	1.3888	.4800	.6592	.3696	.5488	1.9104	2.0896	.7664	.9456	.6560	.8352	1.8048	1.9840	.7936	.9728	.5237	.5952
13-35	1.2160	1.4320	.4864	.7024	.3762	.5922	1.9168	2.1328	.7728	.9888	.6136	.8296	1.8112	2.0272	.8000	.8472	.5301	.6531
13-98	1.2160	1.4016	.4864	.6720	.3762	.5618	1.9168	2.1024	.7728	.9584	.6136	.7992	1.8112	1.9968	.7978	.9856	.5244	.7157
15-5	1.5312	1.7904	.6352	.8944	.5027	.7619	2.3792	2.6384	.9728	1.2320	.7749	1.0341	2.2704	2.5456	.9632	1.1719	.6450	.8467
15-18	1.5456	1.8416	.7760	.9456	.6432	.8128	2.3936	2.6896	.9872	1.2832	.8544	1.1504	2.2848	2.5808	.9776	1.2736	.6594	.8208
15-35	1.5424	1.8768	.6464	.9808	.5139	.8483	2.3904	2.7344	.9840	1.3280	.7861	1.1301	2.2816	2.6256	1.2179	1.3184	.8961	1.0002
17-6	2.1488	2.5904	.9360	1.3776	.7812	1.2228	2.9152	3.3568	1.2336	1.6752	.9940	1.4356	2.5008	3.1024	1.1408	1.7424	.8160	1.4176
17-26	2.1344	2.5600	.9216	1.3472	.7668	1.1924	2.9008	3.3264	1.2192	1.6448	.9796	1.4052	2.4864	2.9120	1.1264	1.3343	.8017	.8062
17-35	2.1360	2.6640	.9232	1.4512	.7684	1.2964	2.9024	3.4304	1.2208	1.7488	.9812	1.5092	2.4880	3.0160	1.1280	1.5497	.8033	1.2144
19-11	2.2592	2.6656	.9696	1.4528	.7925	1.2757	3.4352	3.9184	1.4720	1.9552	1.2033	1.6865	2.9808	3.4640	1.3472	1.8304	.9632	1.4464
19-32	2.1888	2.7264	.9760	1.5136	.7989	1.3365	3.4416	3.9792	1.4784	2.0160	1.2097	1.7473	2.9872	3.5248	1.3536	1.8912	.9696	1.5072
19-35	2.1920	2.8432	.9792	1.6304	.8021	1.4533	3.4448	4.0960	1.4816	2.1328	1.2129	1.8641	2.9904	3.6416	1.3568	2.0080	.9728	1.6240
21-11	2.7456	3.4640	1.3088	2.0272	1.1088	1.8272	3.9712	4.6896	1.8128	2.5312	1.6128	2.3312	3.4448	4.1632	1.7344	2.5312	1.3039	1.8710
21-16	2.6784	3.3168	1.2416	1.8800	1.0422	1.6806	3.9040	4.5424	1.7456	2.3840	1.4505	2.0889	3.3776	4.0160	1.6672	2.3168	1.2352	1.8736
21-35	2.6672	3.4992	1.2304	2.0624	1.0310	1.8630	3.8928	4.7248	1.7344	2.5664	1.4393	2.2713	3.3664	4.1984	1.6560	2.2309	1.2255	1.8003
21-41	2.6768	3.3600	1.2400	1.9232	1.0406	1.7238	3.9024	4.5856	1.7440	2.4272	1.4489	2.1321	3.3760	3.5792	1.6656	1.8688	1.2336	1.4368
23-21	3.0352	3.8624	1.4496	2.2768	1.2279	2.0551	4.2368	5.0640	1.9440	2.7712	1.6368	2.4640	3.7920	4.6192	1.9216	2.7488	1.4637	2.2896
23-35	3.0240	4.0448	1.4384	2.4592	1.2167	2.2375	4.2256	5.2464	1.9328	2.9536	1.6256	2.6464	3.7808	4.8016	1.9104	2.6087	1.4525	2.1507
23-53	2.8992	3.9072	1.4560	2.4816	1.2343	2.2599	4.2432	5.1088	1.9504	2.8160	1.6432	2.5088	3.7984	4.6640	1.9280	2.7936	1.4672	2.2384
25-4	3.4512	4.4800	1.7312	2.8816	1.4864	2.1904	4.8048	5.8272	2.2016	3.2480	1.9568	2.8720	4.2224	5.2496	2.2128	3.2560	1.7133	2.4163
25-19	3.5312	4.7264	1.8112	3.0064	1.5664	2.7616	4.8848	6.0816	2.2816	3.4784	2.0368	3.2336	4.3024	5.4992	2.2928	3.4896	1.7933	2.7058
25-20	3.8190	4.7150	2.0173	3.1125	1.7733	2.8512	5.1430	6.0380	2.4877	3.5421	2.1872	3.2416	4.4350	5.3300	2.2580	3.0182	1.8288	2.8928
25-35	3.4416	4.6656	1.7216	2.9456	1.4776	2.7016	4.7952	6.0192	2.1920	3.4160	1.8915	3.1155	4.2128	5.4368	2.2032	3.4272	1.7037	2.9277
25-61	3.4304	4.4848	1.7282	2.7648	1.4841	2.5208	4.7840	5.8384	2.1808	3.2352	1.8803	2.9347	4.2016	5.2560	2.1920	3.2464	1.6912	2.7456

All weight measurements are for reference only.

- 38999 III
- SJT I II
- 26482 Matrix 2
- 83723 III Pyle Matrix
- 5015 Crimp Rear Release Matrix
- 26500 Pyle
- Printed Circuit Board
- EMI Filter Transient
- Fiber Optics
- High Speed Contacts
- Options Others

### TRI-START, SERIES III TYPICAL SHIELDING EFFECTIVENESS TEST DATA

EMI/EMP SHIELDING EFFECTIVENESS dB  
TESTING BY TRIAXIAL METHOD



### TRI-START, SERIES III TYPICAL SHIELDING EFFECTIVENESS TEST DATA

EMI/EMP SHIELDING EFFECTIVENESS dB  
TESTING BY MODE STIRRING METHOD



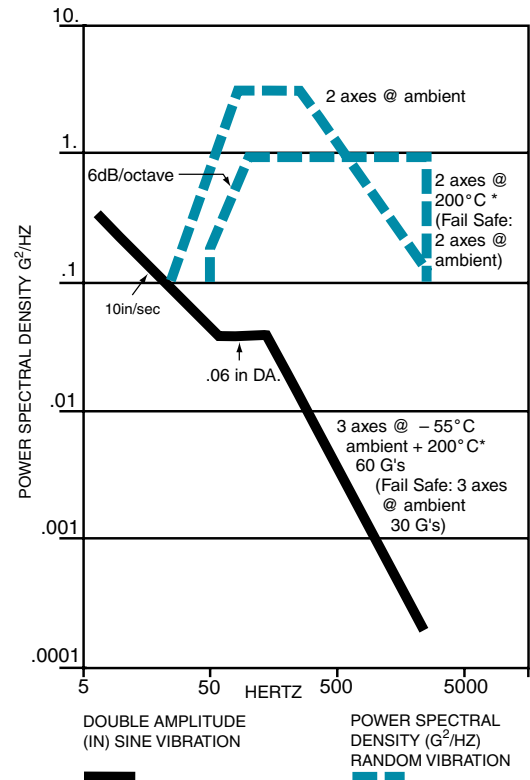
Amphenol® Tri-Start connectors provide EMI/EMP shielding capability which exceeds MIL-DTL-38999 Series III requirements.

The TV and CTV Series III connector with standard solid metal to metal coupling, EMI grounding fingers and conductive finishes has proven to be the ultimate in EMI/EMP shielding effectiveness. The charts illustrate shielding effectiveness data which is typical of Tri-Start connectors tested with the nickel finish (Class F-metal, Class M-composite) over a wide frequency range.

The vibration capability of the Tri-Start Series is shown in the chart below. This illustrates the most severe vibration envelope of any qualified connector available today.

These capabilities along with a +200°C, -65°C temperature rating and superior moisture sealing protection provide the user with a connector that can withstand the most rigorous application.

### TRI-START VIBRATION CRITERIA



\* Dependant on shell finish

Test data beyond 2GHz is subject to equipment variation.

NOTE: For test data information on the new Clutch-Lok Tri-Start, high vibration connectors, consult Amphenol Aerospace.

III	38999
II	
I	
SJT	
Matrix 2	26482
Matrix	83723 III
Pyle	
Crimp Rear Release Matrix	5015
	26500 Pyle
Circuit Board	Printed
Transient	EMI Filter
Fiber Optics	Fiber Optics
High Speed Contacts	High Speed Contacts
Others	Options

### Easy Steps to build a part number... Tri-Start Series III TV

1.	2.	3.	4.	5.	6.	7.
Commercial	Shell Style	Service Class	Shell Size– Insert Arrangement	Contact Type	Alternate Keying Position	Special Variations
TVPS	00	RF	9-35	P	B	(XXX)
Military	Shell Style	Service Class	Shell Size– Insert Arrangement	Contact Type	Alternate Keying Position	
D38999/	20	J	G35	P	N	

Step 1. Select a Connector Type

Step 2. Select a Shell Style

	Designates
TV	Tri-Start Series Connector
TVP	Back panel mounted receptacle
TVS	200° C rated
TVPS	Panel mounted, 200°C rated receptacle
MTV	CLUTCH-LOK connector with "MS" stamping (Note: remove dashes in how to order part number when ordering CLUTCH-LOK)
CTV	Composite MIL-DTL-38999 Series III Connector
CTVP	Panel mounted composite receptacle
CTVS	200° C rated, composite
CTVPS	Composite Panel mounted, 200° rated receptacle
D38999	Military MIL-DTL-38999 Series III Connector

COMMERCIAL				MILITARY			Designates	
TVP, TVPS, CTVP, CTVPS	TV, CTV	TVS	CTVS	CLUTCH-LOK	D38999 Military	D38999 Military Composite		MTV, D38999 CLUTCH-LOK
00					20	20		Wall Mount Receptacle
02								Box Mount Receptacle
					21			Box Mount Receptacle Hermetic
	01	01	01					Line Receptacle
	06	06	06		26	26		Straight Plug
	07	07	07		24	24		Jam Nut Receptacle
	09	09						Flange Mounted Plug
					23			Jam Nut Receptacle Hermetic
		I			25			Solder Mount Receptacle Hermetic
		HI			27			Weld Mounted Receptacle, (Hermetic) Only
				26			26	CLUTCH-LOK high vibration straight plug (service Classes RK & RS only)
					29			Lanyard release plug with pin contacts
					30			Lanyard release plug with socket contacts
					31			Lanyard release plug for MIL-STD-1760 with pin contacts
					32			Plug protection cap
					33			Receptacle protection cap



Wall Mount Receptacle



Line Receptacle



Box Mount Receptacle



Straight Plug



Jam Nut Receptacle



Flange Mounting Plug



Deep Reach Receptacle



Solder Mount Hermetic Receptacle



Lanyard Release Plug

# MIL-DTL-38999, Series III TV

## How to Order (Military and Commercial)



### Step 3. Select a Service Class

1.	2.	3.	4.	5.	6.	7.
Connector Type	Shell Style	Service Class	Shell Size-Insert Arrg.	Contact Type	Alternate Position	Special Variations
		<b>RX</b>				

TV, TVP	CTV, CTVP	CTVS, CTVPS	TVS	TVPS	CLUTCH-LOK	Military	Finish	Description
			<b>RX</b>			<b>C</b>	Anodic Coating	Alternate finish, Non-conductive, anodic coated aluminum, 500 hour salt spray, 200°C. Consult Amphenol, Sidney NY for details, options and availability of non-cadmium or nickel finishes.
		<b>RF-Composite</b>	<b>RF-Metal</b>	<b>RF-Metal</b>		<b>F-Metal</b> <b>M-Composite</b>	Electroless Nickel	electroless nickel plated aluminum (composite) optimum EMI shielding effectiveness-65dB @ 10GHz specification min., 48 hour salt spray, 200°C (Composite-2000 hours dynamic salt spray).
		<b>RGF-Composite</b>	<b>RGF-Metal</b>				Electroless Nickel	electroless nickel plated ground plane aluminum (composite), 200°C
						<b>G</b>	Electroless Nickel	Space grade, electroless nickel, 48 hour salt spray, 200°C
<b>RGW-Metal</b>	<b>RGW-Composite</b>						Olive Drab Cadmium	Olive drab cadmium plated ground plane aluminum (composite), 175°C
			<b>RK**</b>	<b>RK**</b>	<b>RK**</b>	<b>K</b>	Passivated Stainless Steel	Corrosion resistant stainless steel, firewall capability, plus 500 hour salt spray resistance, EMI -45 dB @ 10 GHz specification min., 200°C
			<b>RL</b>	<b>RL</b>		<b>L</b>	Stainless Steel w/ Nickel Plate	Corrosion resistant steel, electro deposited nickel, 500 hour salt spray, 200°C, non firewall
<b>RW-Metal</b>	<b>RW-Composite</b>					<b>W-Metal</b> <b>J-Composite</b>	Olive Drab Cadmium	Corrosion resistant olive drab cadmium plate aluminum (composite), 500 hour salt spray, EMI -50 dB @ 10 GHz specification min., 175°C (Composite-2000 hours dynamic salt spray).
			<b>Y</b>	<b>Y</b>		<b>Y</b>	Stainless Steel	Hermetic seal, passivated stainless steel, 200°C
			<b>RS*</b>	<b>RS*</b>	<b>RS*</b>	<b>S</b>	Stainless Steel w/ Nickel Plate	(Non-hermetic connectors), Nickel plated, corrosion resistant steel, firewall capability, 500 hour salt spray, 200°
			<b>YN</b>	<b>YN</b>		<b>N</b>	Stainless Steel w/ Nickel Plate	(Hermetic connectors), Nickel plated corrosion resistant steel, 200°C
<b>DT</b>						<b>T</b>	Durmalon plated	Nickel-PTFE alternative to Cadmium. Corrosion resistant, 500 hour salt spray, EMI-50dB at 10GHz specification min., 175°C
<b>DZ</b>						<b>Z</b>	Zinc-Nickel Plated	Zinc-Nickel Alternative to Cadmium corrosion resistant, 500 hour salt spray, Conductive, -65°C to +175°C

### Quadrax or Differential Twinax:

\* Consult Amphenol Aerospace, Sidney, NY for availability. \*\*Coaxial arrangements are not available in these classes.

The incorporation of Quadrax or Differential Twinax contacts requires a modified connector to accommodate keyed contacts.

\* D38999/26KJ20PN, is a series III stainless steel plug with twin axial and coaxial contacts that may not meet the firewall requirement of the specification. D38999/26KJ61HN, is a series III stainless steel plug with high durability contacts. However, the connector will be limited to 500 cycles of durability. Insert arrangements using multi-axial (i.e. coax, twinax, triax shielded) contacts should not be used in firewall applications.

### Step 4. Select a Shell Size & Insert Arrangement see pg. 4-7

Shell Size & Insert

Arrangement are on pages 4-7. First number represents Shell Size, second number is the Insert Arrangement.

1.	2.	3.	4.	5.	6.	7.
Connector Type	Shell Style	Service Class	Shell Size-Insert Arrg.	Contact Type	Alternate Position	Special Variations
			<b>22-2</b>	<b>P</b>		

### Step 5. Select a Contact Type

Designates	
<b>P</b>	Pin Contacts
<b>S</b>	Socket Contacts
<b>H</b>	1500 Cycle Pin Contacts - Recommended for composite
<b>J</b>	1500 Cycle Socket Contacts - Recommended for composite
<b>A</b>	Same as "P" except supplied less pin Contacts (For Military D38999 prefix only)
<b>B</b>	Same as "S" except supplied less socket contacts ( A & B designate nonstandard contact applications) (For Military D38999 prefix only)
<b>X</b>	Eyelet contacts, hermetics only

III  
38999  
II  
I  
SJT

26482  
Matrix 2

83723 III  
Matrix  
Pyle

5015  
Crimp Rear  
Release Matrix

26500 Pyle

Printed  
Circuit Board

EMI Filter  
Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

38999 III  
SJT I II

26482 Matrix 2

83723 III Pyle Matrix

5015 Crimp Rear Release Matrix

26500 Pyle

Printed Circuit Board

EMI Filter Transient

Fiber Optics

High Speed Contacts

Options Others

### Step 6. Select an Alternate Keying Position

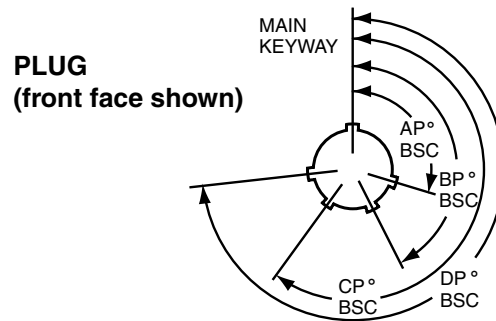
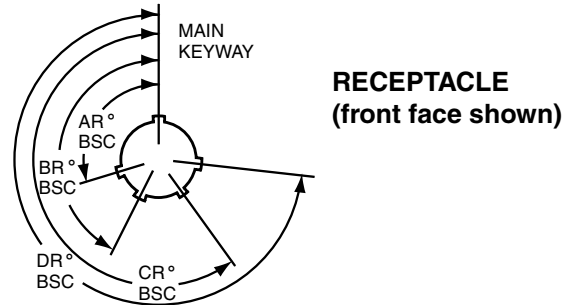
#### Key/Keyway Position

Shell Size	Key & Keyway Arrangement Identification Letter	AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
9	N*	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
11, 13, and 15	N*	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
17 and 19	N*	51	141	184	242
	A	80	142	196	293
	B	135	170	200	310
	C	49	169	200	244
	D	66	140	200	257
21, 23, and 25	N*	62	145	180	280
	A	79	153	197	272
	B	80	142	196	293
	C	135	170	200	310
	D	49	169	200	244
25L, 33, and 37	N*	66	140	188	257
	A	62	145	188	280
	B	79	153	188	272
	C	80	142	188	310
	D	49	169	188	244
	N*	66	140	188	257
	A	62	145	188	280
	B	79	153	188	272
	C	80	142	188	310
	D	49	169	188	244

\* An "N" designation is used on D38999 military part number but not on the commercial versions

1.	2.	3.	4.	5.	6.	7.
Connector Type	Shell Style	Service Class	Shell Size-Insert Arrg.	Contact Type	Alternate Position	Special Variations
					B	

A plug with a given rotation letter will mate with a receptacle with the same rotation letter. The angles for a given connector are the same whether it contains pins or sockets. Master key stay fixed, minor keys rotate. Inserts are not rotated in conjunction with the master key/keyway.



### Step 7. Special Variations

Consult Amphenol Aerospace, Sidney NY for variations.

1.	2.	3.	4.	5.	6.	7.
Connector Type	Shell Style	Service Class	Shell Size-Insert Arrg.	Contact Type	Alternate Position	Special Variations
						(xxx)



### Easy Steps to build a part number... Boeing BACC63 CT & CU

1. 2. 3. 4. 5. 6. 7. 8.

Boeing Basic Number	Style	Shell Size	Shell Finish & Contact	Insert Arrangement	Contact Type	Alternate Keying Position	Ordering Option
BACC63	CT	15	—	19	P	N	H

## Composite

**Step 1. Boeing Number BACC63**

**Step 2. Select a Style**

	Designates
CT	Composite Plug
CU	Composite Receptacle

**Step 3. Shell Size 15**

	Designates
15	One Shell Size

**Step 4. Select a Shell Finish & Contact**

	Designates
C	CT Style Only. Cadmium Plated, Grounded
D	Cadmium Plated, ungrounded
G	Nickel Plated, Grounded
—	Nickel Plated, Ungrounded

**Step 5. Insert Arrangements-**  
Consult Amphenol Aerospace for insert Arrangements available.

**Step 6. Select a Contact Type**

	Designates
P	Pin
S	Socket

**Step 7. Select an Alternate Keying Position**

	Designates
N	Normal
A-E	Alternates

**Step 8. Ordering Option**

	Designates
H	Without Contacts & Seal Plugs
Blank	With contacts and seal plugs

### Easy Steps to build a part number... Boeing BACC63 DB & DC

1. 2. 3. 4. 5. 6. 7. 8.

Boeing Basic Number	Style	Shell Size	Separator	Insert Arrangement	Contact Type	Alternate Keying Position	Ordering Option
BACC63	DB	15	—	19	P	N	H
BACC63	DC	17	—	8	P	N	H

## Stainless Steel

**Step 1. Boeing Number BACC63**

**Step 2. Select a Style**

	Designates
DB	Stainless Steel Plug
DC	Stainless Steel Receptacle

**Step 3. Select a Shell Size**

	Designates
9-25	Shell Size

**Step 4. Separator**

	Designates
—	Separator

**Step 5. Insert Arrangements-**  
Consult Amphenol Aerospace for insert Arrangements available.

**Step 7. Select an Alternate Keying Position**

	Designates
N	Normal
A-E	Alternates

**Step 8. Ordering Option**

	Designates
H	Without Contacts & Seal Plugs
Blank	With contacts and seal plugs

**Step 6. Select a Contact Type**

	Designates
P	Pin
S	Socket

III	38999
II	
I	
SJT	
Matrix 2	26482
Matrix	83723 III
Pyle	5015
Crimp Rear Release Matrix	
	26500 Pyle
Printed Circuit Board	
EMI Filter	Transient
Fiber Optics	
High Speed	Contacts
Options	Others

### Wall Mounting Receptacle

38999

SJT

26482

Matrix 2

83723 III

Matrix Pyle

5015

Crimp Rear Release Matrix

26500

Pyle

Printed

Circuit Board

EMI Filter

Transient

Fiber Optics

High Speed

Contacts

Options

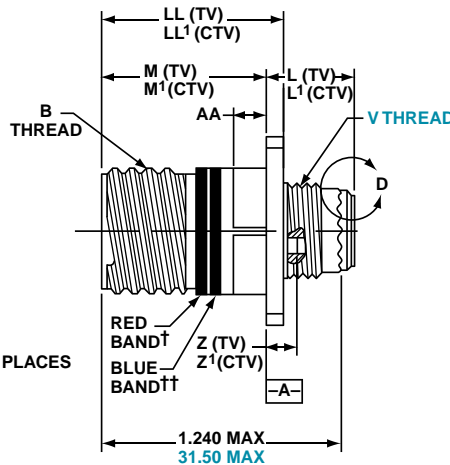
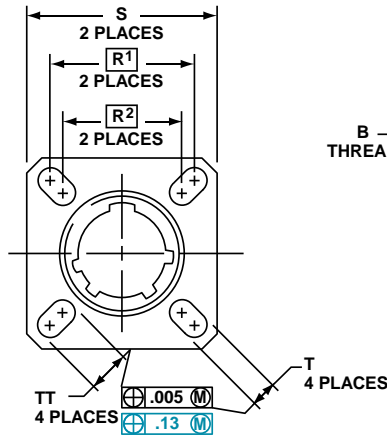
Others

#### PART #

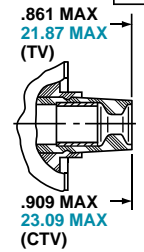
To complete, see how to order pages 22-24.

Connector Type Shell Style Service Class Shell Size & Insert Arrg Contact Type Alternate Position Special Variations

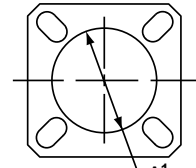
TVP	00	RW	9-35	P	B	(453)
TVPS	00	RK	X-X	X	X	(XXX)
TVPS	00	RF	X-X	X	X	(XXX)
TVPS	00	RS	X-X	X	X	(XXX)
CTVP	00	RW	X-X	X	X	(XXX)
CTVPS	00	RF	X-X	X	X	(XXX)
D38999/	20	X	X-X	X	X	NA



VIEW D FOR SIZE 8 COAXIAL ONLY, RELATIVE TO -A-

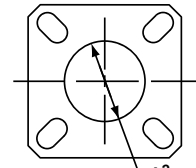
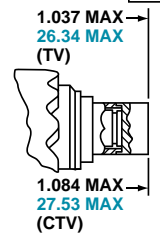


PANEL HOLE DIMENSIONS



BACK PANEL MOUNTING

VIEW D FOR SIZE 8 TWINAX ONLY, RELATIVE TO -A-



FRONT PANEL MOUNTING

† Red band indicates fully mated

†† Blue band indicates rear release contact retention system

Inches

Shell Size	MS Shell Size Code	B Thread Class 2A 0.1P=0.3L-TS (Plated)	L Max. (TV)	L' Max. (CTV)	M +.000 - .005 (TV)	M' +.000 - .005 (CTV)	R <sup>1</sup>	R <sup>2</sup>	S Max.	T ±.008	Z Max. (TV)	Z' Max. (CTV)	A <sup>1</sup> Back Panel Mount	A <sup>2</sup> Front Panel Mount	AA Max. Panel Thickness	LL +.006 - .000 (TV)	LL1 ±.005 (CTV)	TT ±.008
9	A	.6250	.469	.514	.820	.773	.719	.594	.948	.128	.153	.198	.650	.510	.234	.905	.908	.216
11	B	.7500	.469	.514	.820	.773	.812	.719	1.043	.128	.153	.198	.800	.620	.234	.905	.908	.194
13	C	.8750	.469	.514	.820	.773	.906	.812	1.137	.128	.153	.198	.910	.740	.234	.905	.908	.194
15	D	1.0000	.469	.514	.820	.773	.969	.906	1.232	.128	.153	.198	1.040	.900	.234	.905	.908	.173
17	E	1.1875	.469	.514	.820	.773	1.062	.969	1.323	.128	.153	.198	1.210	1.010	.234	.905	.908	.194
19	F	1.2500	.469	.514	.820	.773	1.156	1.062	1.449	.128	.153	.198	1.280	1.130	.234	.905	.908	.194
21	G	1.3750	.500	.545	.790	.741	1.250	1.156	1.575	.128	.183	.228	1.410	1.250	.204	.905	.904	.194
23	H	1.5000	.500	.545	.790	.741	1.375	1.250	1.701	.154	.183	.228	1.530	1.360	.204	.905	.904	.242
25	J	1.6250	.500	.545	.790	.741	1.500	1.375	1.823	.154	.183	.228	1.660	1.470	.204	.905	.904	.242

Millimeters

Shell Size	MS Shell Size Code	L Max. (TV)	L' Max. (CTV)	M +.00 - .13 (TV)	M' +.00 - .13 (CTV)	R <sup>1</sup>	R <sup>2</sup>	S Max.	T ±.20	V Thread Metric	Z Max. (TV)	Z' Max. (CTV)	A <sup>1</sup> Back Panel Mount	A <sup>2</sup> Front Panel Mount	AA Max.	LL +.15 - .00 (TV)	LL1 ±.13 (CTV)	TT ±.20
9	A	11.91	13.06	20.83	19.63	18.26	15.09	24.1	3.25	M12X1-6g	3.89	5.03	16.66	13.11	5.94	22.99	23.06	5.49
11	B	11.91	13.06	20.83	19.63	20.62	18.26	26.5	3.25	M15X1-6g	3.89	5.03	20.22	15.88	5.94	22.99	23.06	4.93
13	C	11.91	13.06	20.83	19.63	23.01	20.62	28.9	3.25	M18X1-6g	3.89	5.03	23.42	19.05	5.94	22.99	23.06	4.93
15	D	11.91	13.06	20.83	19.63	24.61	23.01	31.3	3.25	M22X1-6g	3.89	5.03	26.59	23.01	5.94	22.99	23.06	4.39
17	E	11.91	13.06	20.83	19.63	26.97	24.61	33.7	3.25	M25X1-6g	3.89	5.03	30.96	25.81	5.94	22.99	23.06	4.93
19	F	11.91	13.06	20.83	19.63	29.36	26.97	36.9	3.25	M28X1-6g	3.89	5.03	32.94	28.98	5.94	22.99	23.06	4.93
21	G	12.70	13.84	20.07	18.82	31.75	29.36	40.1	3.25	M31X1-6g	4.65	5.79	36.12	32.16	5.18	22.99	22.96	4.93
23	H	12.70	13.84	20.07	18.82	34.93	31.75	43.3	3.91	M34X1-6g	4.65	5.79	39.29	34.93	5.18	22.99	22.96	6.15
25	J	12.70	13.84	20.07	18.82	38.10	34.93	46.4	3.91	M37X1-6g	4.65	5.79	42.47	37.69	5.18	22.99	22.96	6.15

All dimensions for reference only

□ Designates true position dimensioning

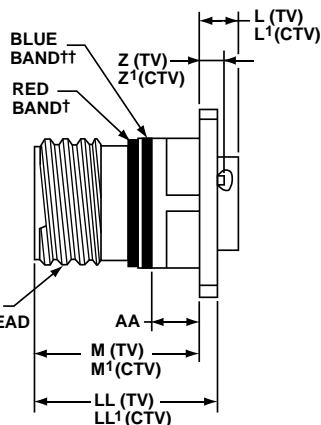
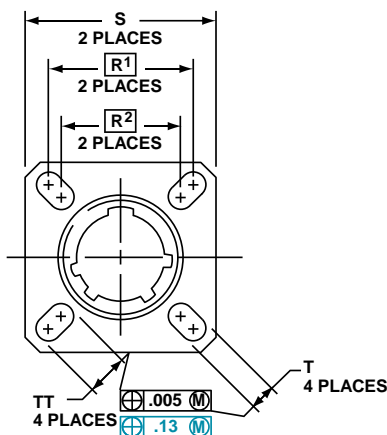
# TVP02R – Crimp, Metal CTVP02R – Crimp, Composite

## Box Mounting Receptacle

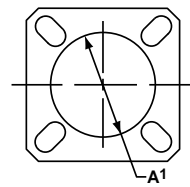
### PART #

To complete, see how to order pages 22-24.

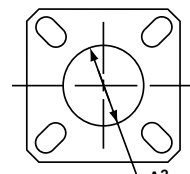
Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TVP	02	RW	9-35	P	B	(453)
TVPS	02	RK	X-X	X	X	(XXX)
TVPS	02	RF	X-X	X	X	(XXX)
TVPS	02	RS	X-X	X	X	(XXX)
CTVP	02	RW	X-X	X	X	(XXX)
CTVPS	02	RF	X-X	X	X	(XXX)



### PANEL HOLE DIMENSIONS



### BACK PANEL MOUNTING



### FRONT PANEL MOUNTING

† Red band indicates fully mated

†† Blue band indicates rear release contact retention system

Consult Amphenol Aerospace for availability of composite box mount receptacles.

Shell Size	MS Shell Size Code	B Thread Class 2A 0.1P=0.3L-TS (Plated)	L Max. (TV)	L' Max. (CTV)	M +.000 - .005 (TV)	M' +.000 - .005 (CTV)	R <sup>1</sup>	R <sup>2</sup>	S Max.	T ±.008	Z Max. (TV)	Z' Max. (CTV)	A <sup>1</sup> Back Panel Mount	A <sup>2</sup> Front Panel Mount	AA Max. Panel Thickness	LL +.006 - .000 (TV)	LL1 ±.005 (CTV)	TT ±.008
9	A	.6250	.205	.250	.820	.773	.719	.594	.948	.128	.153	.198	.650	.510	.234	.905	.908	.216
11	B	.7500	.205	.250	.820	.773	.812	.719	1.043	.128	.153	.198	.800	.620	.234	.905	.908	.194
13	C	.8750	.205	.250	.820	.773	.906	.812	1.137	.128	.153	.198	.910	.740	.234	.905	.908	.194
15	D	1.0000	.205	.250	.820	.773	.969	.906	1.232	.128	.153	.198	1.040	.900	.234	.905	.908	.173
17	E	1.1875	.205	.250	.820	.773	1.062	.969	1.323	.128	.153	.198	1.210	1.010	.234	.905	.908	.194
19	F	1.2500	.205	.250	.820	.773	1.156	1.062	1.449	.128	.153	.198	1.280	1.130	.234	.905	.908	.194
21	G	1.3750	.235	.280	.790	.741	1.250	1.156	1.575	.128	.183	.228	1.410	1.250	.204	.905	.904	.194
23	H	1.5000	.235	.280	.790	.741	1.375	1.250	1.701	.154	.183	.228	1.530	1.360	.204	.905	.904	.242
25	J	1.6250	.235	.280	.790	.741	1.500	1.375	1.823	.154	.183	.228	1.660	1.470	.204	.905	.904	.242

Inches

Shell Size	MS Shell Size Code	L Max. (TV)	L' Max. (CTV)	M +.00 - .13 (TV)	M' +.00 - .13 (CTV)	R <sup>1</sup>	R <sup>2</sup>	S Max.	T ±.20	Z Max. (TV)	Z' Max. (CTV)	A <sup>1</sup> Back Panel Mount	A <sup>2</sup> Front Panel Mount	AA Max.	LL +.15 - .00 (TV)	LL1 ±.13 (CTV)	TT ±.20
9	A	5.21	6.35	20.83	19.63	18.26	15.09	24.1	3.25	3.89	5.03	16.66	13.11	5.94	22.99	23.06	5.49
11	B	5.21	6.35	20.83	19.63	20.62	18.26	26.5	3.25	3.89	5.03	20.22	15.88	5.94	22.99	23.06	4.93
13	C	5.21	6.35	20.83	19.63	23.01	20.62	28.9	3.25	3.89	5.03	23.42	19.05	5.94	22.99	23.06	4.93
15	D	5.21	6.35	20.83	19.63	24.61	23.01	31.3	3.25	3.89	5.03	26.59	23.01	5.94	22.99	23.06	4.39
17	E	5.21	6.35	20.83	19.63	26.97	24.61	33.7	3.25	3.89	5.03	30.96	25.81	5.94	22.99	23.06	4.93
19	F	5.21	6.35	20.83	19.63	29.36	26.97	36.9	3.25	3.89	5.03	32.94	28.98	5.94	22.99	23.06	4.93
21	G	5.97	7.11	20.07	18.82	31.75	29.36	40.1	3.25	4.65	5.79	36.12	32.16	5.18	22.99	22.96	4.93
23	H	5.97	7.11	20.07	18.82	34.92	31.75	43.3	3.91	4.65	5.79	39.29	34.93	5.18	22.99	22.96	6.15
25	J	5.97	7.11	20.07	18.82	38.10	34.92	46.4	3.91	4.65	5.79	42.47	37.69	5.18	22.99	22.96	6.15

Millimeters

All dimensions for reference only

Designates true position dimensioning

III **38999**

II I SJT

**26482**  
Matrix 2

**83723 III**  
Matrix Pyle

**5015**  
Crimp Rear Release Matrix

**26500 Pyle**

**Printed**  
Circuit Board

**EMI Filter**  
Transient

**Fiber Optics**

**High Speed**  
Contacts

**Options**  
Others

### Straight Plug

- 38999 III
- SJT I II
- 26482 Matrix 2
- 83723 III Pyle Matrix
- 5015 Crimp Rear Release Matrix
- 26500 Pyle
- Printed Circuit Board
- EMI Filter Transient
- Fiber Optics
- High Speed Contacts
- Options Others

#### PART #

To complete, see how to order pages 22-24.

Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TV	06	RW	9-35	P	B	(453)
TVS	06	RK	X-X	X	X	(XXX)
TVS	06	RF	X-X	X	X	(XXX)
TVS	06	RS	X-X	X	X	(XXX)
CTV	06	RW	X-X	X	X	(XXX)
CTVS	06	RF	X-X	X	X	(XXX)
D38999/	26	X	X-X	X	X	NA

#### METAL



VIEW D FOR SIZE 8 COAXIAL ONLY, RELATIVE TO -A-



#### COMPOSITE



VIEW D FOR SIZE 8 TWINAX ONLY, RELATIVE TO -A-



† Blue band indicates rear release contact retention system

Inches

Shell Size	MS Shell Size Code	B Thread 0.1P-0.3L-TS-2B (Plated)	Q Dia. Max.
9	A	.6250	.858
11	B	.7500	.984
13	C	.8750	1.157
15	D	1.0000	1.280
17	E	1.1875	1.406
19	F	1.2500	1.516
21	G	1.3750	1.642
23	H	1.5000	1.768
25	J	1.6250	1.890

Millimeters

Shell Size	MS Shell Size Code	Q Max.	V Thread Metric
9	A	21.8	M12X1-6g
11	B	25.0	M15X1-6g
13	C	29.4	M18X1-6g
15	D	32.5	M22X1-6g
17	E	35.7	M25X1-6g
19	F	38.5	M28X1-6g
21	G	41.7	M31X1-6g
23	H	44.9	M34X1-6g
25	J	48.0	M37X1-6g

All dimensions for reference only.



# TV26/MTV26 – Crimp, Metal CLUTCH-LOK™ Plug



## For High Vibration Applications

### PART #

To complete, see how to order pages 22-24.

Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TV	26	RK	9-35	P	N	(453)
TV	26	RS	X-X	X	N	(XXX)
MTV	26	RK	X-X	X	N	(XXX)
MTV	26	RS	X-X	X	N	(XXX)

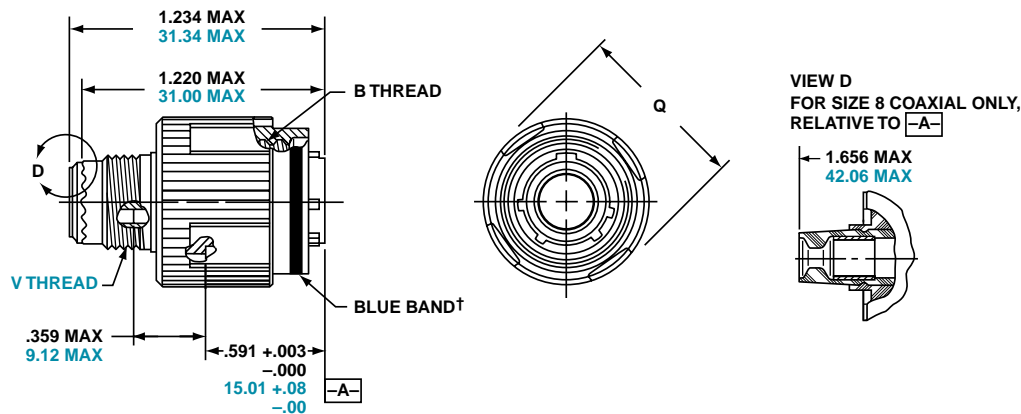
For parts with MS Stamping use MTV26( ) part number as shown above.

Designed for high vibration and harsh environments such as aircraft gas turbine engines, the CLUTCH-LOK is also an ideal choice for demanding applications such as aircraft, space and military ground vehicles. The unique clutch design of the Amphenol CLUTCH-LOK means that you don't have to compromise the need for quick, smooth mating of plugs and receptacles in order to get increased uncoupling torque.

The CLUTCH-LOK has proven to not only remain mated and pass all the Series III specification requirements, it also has proven to actually tighten itself under vibration. This is a powerful advantage over the traditionally high vibration application connectors. The CLUTCH-LOK is also a tremendous advantage in inaccessible, hard to reach areas where mating torque is difficult to apply and complete coupling is not verifiable by inspection.

### CLUTCH-LOK features and benefits:

- High degree of differential torque
- Infinite free coupling and positive metal-to-metal bottoming with each mating
- No settling back to the next ratchet tooth
- Available with stainless steel shells and Class K firewall inserts
- All the advantages of MIL-DTL-38999 Series III including EMI/RFI shielding, electrolytic erosion resistance and contact protection with recessed pins
- Enhanced connector performance at affordable prices
- Completely intermateable with all existing MIL-DTL-38999 Series III connectors
- Fully QPL'd



† Blue band indicates rear release contact retention system

Shell Size	MS Shell Size Code	B Thread 0.1P-0.3L-TS-2B (Plated)	Q Dia. Max.
9	A	.6250	.858
11	B	.7500	.984
13	C	.8750	1.157
15	D	1.0000	1.280
17	E	1.1875	1.406
19	F	1.2500	1.516
21	G	1.3750	1.642
23	H	1.5000	1.768
25	J	1.6250	1.890

Shell Size	MS Shell Size Code	Q Max.	V Thread Metric
9	A	21.8	M12X1-6g
11	B	25.0	M15X1-6g
13	C	29.4	M18X1-6g
15	D	32.5	M22X1-6g
17	E	35.7	M25X1-6g
19	F	38.5	M28X1-6g
21	G	41.7	M31X1-6g
23	H	44.9	M34X1-6g
25	J	48.0	M37X1-6g

All dimensions for reference only.

- III 38999 SJT
- Matrix 2 26482
- Matrix Pyle 83723 III
- Release Matrix 5015 Crimp Rear
- 26500 Pyle
- Printed Circuit Board
- EMI Filter Transient
- Fiber Optics
- High Speed Contacts
- Options Others

### Jam Nut Receptacle

38999  
SJT I II III

26482  
Matrix 2

83723 III  
Matrix Pyle

5015  
Crimp Rear Release Matrix

26500 Pyle

Printed  
Circuit Board

EMI Filter  
Transient

Fiber Optics

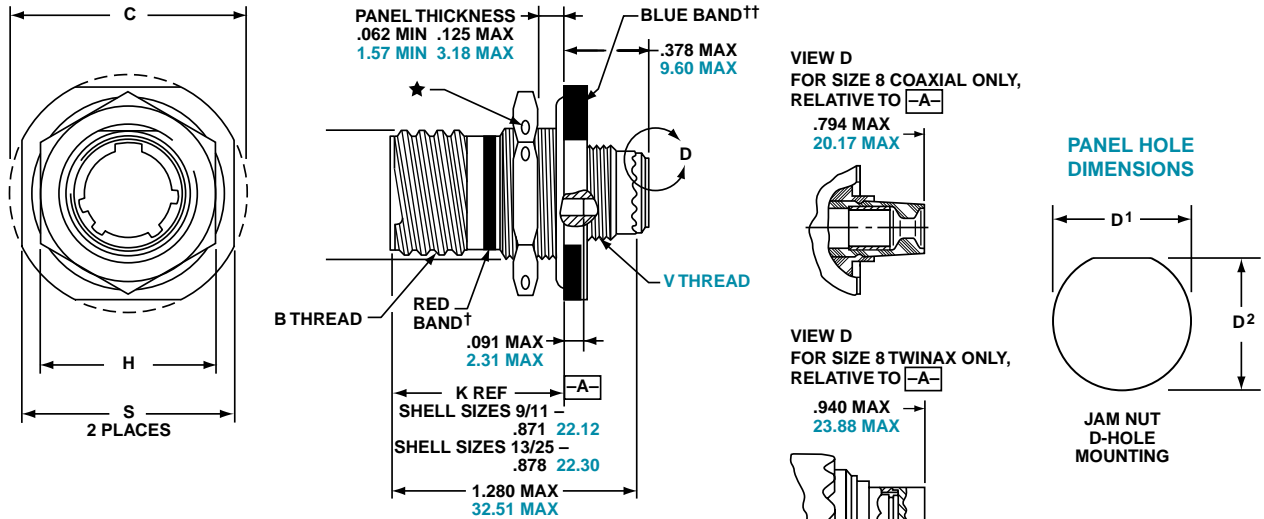
High Speed  
Contacts

Options  
Others

#### PART #

To complete, see how to order pages 22-24.

Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TV	07	RW	9-35	P	B	(453)
TVS	07	RK	X-X	X	X	(XXX)
TVS	07	RF	X-X	X	X	(XXX)
TVS	07	RS	X-X	X	X	(XXX)
CTV	07	RW	X-X	X	X	(XXX)
CTVS	07	RF	X-X	X	X	(XXX)
D38999/	24	X	X-X	X	X	NA



† Red band indicates fully mated

†† Blue band indicates rear release contact retention system

★ .059 dia min.

1.5 dia min., 3 lockwire holes Formed lockwire hole design (6 holes) is optional Inches

Shell Size	MS Shell Size Code	B Thread Class 2A 0.1P-0.3L-TS (Plated)	C Max.	D <sup>1</sup> +.010 - .000	D <sup>2</sup> +.000 - .010	H Hex +.017 - .016	S ±.010
9	A	.6250	1.199	.700	.670	.875	1.062
11	B	.7500	1.386	.825	.770	1.000	1.250
13	C	.8750	1.511	1.010	.955	1.188	1.375
15	D	1.0000	1.636	1.135	1.085	1.312	1.500
17	E	1.1875	1.761	1.260	1.210	1.438	1.625
19	F	1.2500	1.949	1.385	1.335	1.562	1.812
21	G	1.3750	2.073	1.510	1.460	1.688	1.938
23	H	1.5000	2.199	1.635	1.585	1.812	2.062
25	J	1.6250	2.323	1.760	1.710	2.000	2.188

Millimeters

Shell Size	MS Shell Size Code	C Max.	D <sup>1</sup> +.25 - .00	D <sup>2</sup> +.00 - .25	H Hex +.43 - .41	S ±.25	V Thread Metric
9	A	30.45	17.78	17.02	22.23	26.97	M12X1-6g
11	B	35.20	20.96	19.59	25.40	31.75	M15X1-6g
13	C	38.38	25.65	24.26	30.18	34.93	M18X1-6g
15	D	41.55	28.83	27.56	33.32	38.10	M22X1-6g
17	E	44.73	32.01	30.73	36.53	41.28	M25X1-6g
19	F	49.50	35.18	33.91	39.67	46.02	M28X1-6g
21	G	52.65	38.35	37.08	42.80	49.23	M31X1-6g
23	H	55.85	41.53	40.26	46.02	52.37	M34X1-6g
25	J	59.00	44.70	43.43	50.80	55.58	M37X1-6g

All dimensions for reference only NOTE: Deep reach receptacles are available for panel thicknesses up to .750 max.

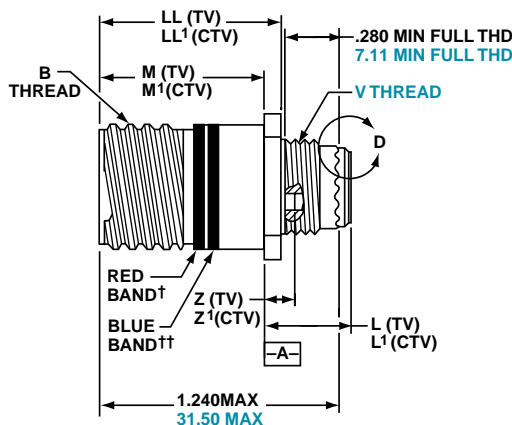
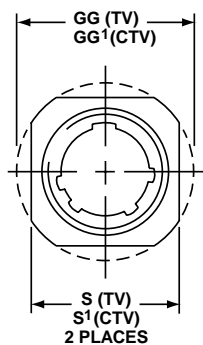
# TV01R – Crimp, Metal CTV01R – Crimp, Composite

## Line Receptacle

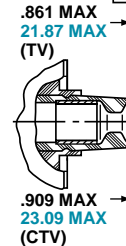
### PART #

To complete, see how to order pages 22-24.

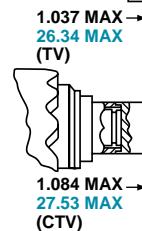
Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TV	01	RW	9-35	P	B	(453)
TVS	01	RF	X-X	X	X	(XXX)
CTV	01	RW	X-X	X	X	(XXX)
CTVS	01	RF	X-X	X	X	(XXX)



VIEW D  
FOR SIZE 8 COAXIAL ONLY,  
RELATIVE TO -A-



VIEW D  
FOR SIZE 8 TWINAX ONLY,  
RELATIVE TO -A-



† Red band indicates fully mated

†† Blue band indicates rear release contact retention system

Shell Size	MS Shell Size Code	B Thread 0.1P-0.3L-TS-2A (Plated)	M +.000 - .005 (TV)	M' +.000 - .005 (CTV)	L Max. (TV)	L' Max. (CTV)	S ±.010 (TV)	S' ±.010 (CTV)	Z Max (TV)	Z' Max (CTV)	GG ±.010 (TV)	GG' ±.010 (CTV)	LL +.006 - .000 (TV)	LL' ±.005 (CTV)
9	A	.6250	.820	.773	.469	.514	.675	.635	.153	.198	.812	.699	.905	.908
11	B	.7500	.820	.773	.469	.514	.800	.765	.153	.198	.905	.875	.905	.908
13	C	.8750	.820	.773	.469	.514	.925	.885	.153	.198	1.093	1.007	.905	.908
15	D	1.0000	.820	.773	.469	.514	1.050	1.100	.153	.198	1.219	1.140	.905	.908
17	E	1.1875	.820	.773	.469	.514	1.238	1.197	.153	.198	1.375	1.229	.905	.908
19	F	1.2500	.820	.773	.469	.514	1.300	1.260	.153	.198	1.469	1.380	.905	.908
21	G	1.3750	.790	.741	.500	.545	1.425	1.385	.183	.228	1.625	1.493	.905	.904
23	H	1.5000	.790	.741	.500	.545	1.550	1.510	.183	.228	1.750	1.626	.905	.904
25	J	1.6250	.790	.741	.500	.545	1.675	1.635	.183	.228	1.875	1.777	.905	.904

Shell Size	MS Shell Size Code	M +.00 - .013 (TV)	M' +.00 - .13 (CTV)	L Max. (TV)	L' Max. (CTV)	S ±.25 (TV)	S' ±.010 (CTV)	V Thread Metric	Z Max (TV)	Z' Max (CTV)	GG ±.25 (TV)	GG' ±.25 (CTV)	LL +.15 - .00 (TV)	LL' ±.13 (CTV)
9	A	20.83	19.63	11.91	13.06	17.15	16.13	M12X1-6g	3.89	5.03	20.62	17.75	22.99	23.06
11	B	20.83	19.63	11.91	13.06	20.32	19.43	M15X1-6g	3.89	5.03	22.99	22.22	22.99	23.06
13	C	20.83	19.63	11.91	13.06	23.50	22.47	M18X1-6g	3.89	5.03	27.76	25.57	22.99	23.06
15	D	20.83	19.63	11.91	13.06	26.67	27.94	M22X1-6g	3.89	5.03	30.96	28.95	22.99	23.06
17	E	20.83	19.63	11.91	13.06	31.45	30.40	M25X1-6g	3.89	5.03	34.93	31.21	22.99	23.06
19	F	20.83	19.63	11.91	13.06	33.02	32.00	M28X1-6g	3.89	5.03	37.31	35.05	22.99	23.06
21	G	20.07	18.82	12.70	13.84	36.20	35.18	M31X1-6g	4.65	5.79	41.28	37.92	22.99	22.96
23	H	20.07	18.82	12.70	13.84	39.37	38.35	M34X1-6g	4.65	5.79	44.45	41.30	22.99	22.96
25	J	20.07	18.82	12.70	13.84	42.55	41.53	M37X1-6g	4.65	5.79	47.63	45.13	22.99	22.96

All dimensions for reference only

38999  
SJT

26482  
Matrix 2

83723 III  
Matrix Pyle

5015  
Crimp Rear Release Matrix

26500 Pyle

Printed  
Circuit Board

EM I Filter  
Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

38999

SJT

26482 Matrix 2

83723 III Matrix Pyle

5015 Crimp Rear Release Matrix

26500 Pyle

Printed Circuit Board

EMI Filter Transient

Fiber Optics

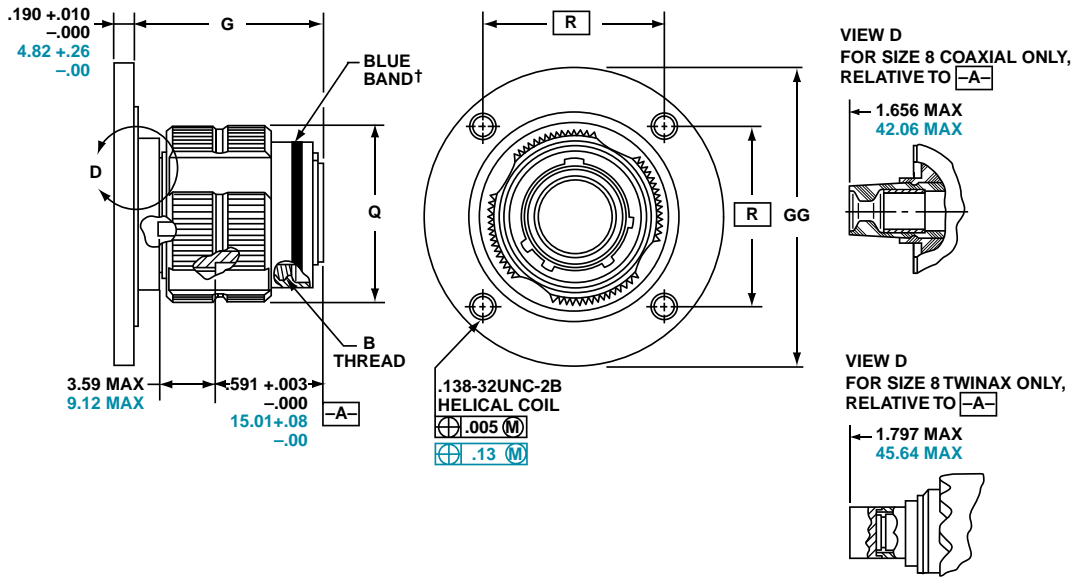
High Speed Contacts

Options Others

### PART #

To complete, see how to order pages 22-24.

Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TV	09	RW	9-35	P	B	(453)
TVS	09	RF	X-X	X	X	(000X)



† Blue band indicates rear release contact retention system

Inches

Shell Size	MS Shell Size Coded	B Thread 0.1P-0.3L-TS-2A (Plated)	G ±.060	Q Dia. Max	R	GG Dia ±.005
9**	A	.6250	1.106	.859	1.038	1.838
11	B	.7500	1.106	.969	1.115	1.948
13**	C	.8750	1.106	1.141	1.240	2.124
15	D	1.0000	1.106	1.266	1.327	2.248
17	E	1.1875	1.106	1.391	1.417	2.375
19	F	1.2500	1.356	1.500	1.557	2.495
21	G	1.3750	1.356	1.625	1.624	2.568
23	H	1.5000	1.356	1.750	1.713	2.723
25	J	1.6250	1.356	1.875	1.801	2.848

Millimeters

Shell Size	MS Shell Size Coded	G ±.152	Q Dia. Max	R	GG Dia ±.13
9**	A	28.09	21.82	26.37	46.69
11	B	28.09	24.62	28.32	49.48
13**	C	28.09	28.98	31.50	53.95
15	D	28.09	32.16	33.71	57.10
17	E	28.09	35.33	35.99	60.33
19	F	34.44	38.10	39.55	63.37
21	G	34.44	41.28	41.25	65.23
23	H	34.44	44.45	43.51	69.16
25	J	34.44	47.63	45.75	72.34

All dimensions for reference only

\*\* Partially tooled. Consult Amphenol Aerospace for availability

  Designates true position dimensioning



# TVPS02Y (D38999/21) – Hermetic

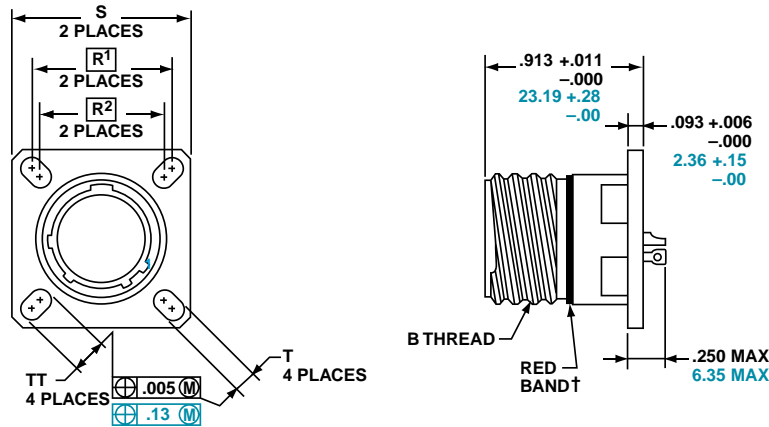
## Stainless Steel

### Box Mounting Receptacle

#### PART #

To complete, see how to order pages 22-24.

Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TVPS	02	Y	9-35	P	B	(453)
TVPS	02	YN	X-X	X	X	(XXX)
D38999/	21	X	X-X	X	X	NA



† Red band indicates fully mated

NOTE: Consult Amphenol Aerospace for availability of non-glass-sealed versions with printed circuit tail contacts.

Inches

Shell Size	MS Shell Size Coded	B Thread 0.1P-0.3L-TS (Plated)	R1	R2	S ±.010	T ±.008	TT ±.008
9	A	.6250	.719	.594	.938	.128	.216
11	B	.7500	.812	.719	1.031	.128	.194
13	C	.8750	.906	.812	1.125	.128	.194
15	D	1.0000	.969	.906	1.219	.128	.173
17	E	1.1875	1.062	.969	1.312	.128	.194
19	F	1.2500	1.156	1.062	1.438	.128	.194
21	G	1.3750	1.250	1.156	1.562	.128	.194
23	H	1.5000	1.375	1.250	1.688	.154	.242
25	J	1.6250	1.500	1.375	1.812	.154	.242

Millimeters

Shell Size	MS Shell Size Coded	R1	R2	S ±.25	T ±.20	TT ±.20
9	A	18.26	15.09	23.83	3.25	5.49
11	B	20.62	18.26	26.19	3.25	4.93
13	C	23.01	20.62	28.58	3.25	4.93
15	D	24.61	23.01	30.96	3.25	4.39
17	E	26.97	24.61	33.32	3.25	4.93
19	F	29.36	26.97	36.53	3.25	4.93
21	G	31.75	29.36	39.67	3.25	4.93
23	H	34.93	31.75	42.88	3.91	6.15
25	J	38.10	34.93	46.02	3.91	6.15

All dimensions for reference only

Designates true position dimensioning

- III 38999
- II
- I
- SJT
- 26482 Matrix 2
- 83723 III Matrix Pyle
- 5015 Crimp Rear Release Matrix
- 26500 Pyle
- Printed Circuit Board
- EMI Filter Transient
- Fiber Optics
- High Speed Contacts
- Options Others

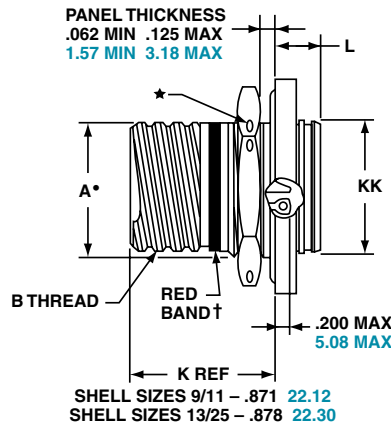
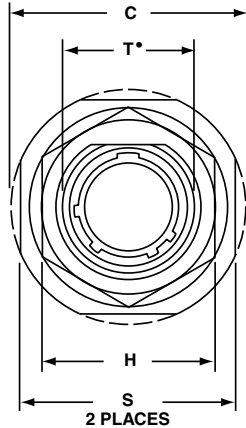
## Jam Nut Receptacle

38999  
SJT I II III

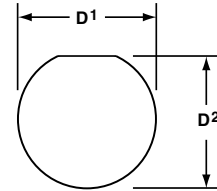
### PART #

To complete, see how to order pages 22-24.

Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TVS	07	Y	9-35	P	B	(453)
TVS	07	YN	X-X	X	X	(XXX)
D38999/	23	X	X-X	X	X	NA



### PANEL HOLE DIMENSIONS



### JAM NUT D-HOLE MOUNTING

† Red band indicates fully mated

★ .059 dia min.

1.5 dia min. 3 lockwire holes

Formed lockwire hole design (6 holes) is optional.

Inches

Shell Size	MS Shell Size code	A* +.000 -.010	B Thread Class 2A 0.1P- 0.3L-TS (Plated)	C Max	D <sup>1</sup> +.010 -.000	D <sup>2</sup> +.000 -.010	H Hex +.017 -.016	L Max	S ±.010	T* +.010 -.000	KK +.011 -.000
9	A	.669	.6250	1.199	.700	.670	.875	.357	1.062	.697	.642
11	B	.769	.7500	1.386	.825	.770	1.000	.357	1.250	.822	.766
13	C	.955	.8750	1.511	1.010	.955	1.188	.357	1.375	1.007	.892
15	D	1.084	1.0000	1.636	1.135	1.085	1.312	.357	1.500	1.134	1.018
17	E	1.208	1.1875	1.761	1.260	1.210	1.438	.357	1.625	1.259	1.142
19	F	1.333	1.2500	1.949	1.385	1.335	1.562	.381	1.812	1.384	1.268
21	G	1.459	1.3750	2.073	1.510	1.460	1.688	.381	1.938	1.507	1.392
23	H	1.575	1.5000	2.199	1.635	1.585	1.812	.381	2.062	1.634	1.518
25	J	1.709	1.6250	2.323	1.760	1.710	2.000	.381	2.188	1.759	1.642

Millimeters

Shell Size	MS Shell Size code	A* +.00 --.25	C Max	D <sup>1</sup> +.25 --.00	D <sup>2</sup> +.00 --.25	H Hex +.43 -.41	L Max	S ±.25	T* +.25 -.00	KK +.28 -.00
9	A	16.99	30.45	17.78	17.02	22.23	9.07	26.97	17.70	16.31
11	B	19.53	35.20	20.96	19.59	25.40	9.07	31.75	20.88	19.46
13	C	24.26	38.38	25.65	24.26	30.18	9.07	34.93	25.58	22.66
15	D	27.53	41.55	28.83	27.56	33.32	9.07	38.10	28.80	25.86
17	E	30.68	44.73	32.01	30.73	36.53	9.07	41.28	31.98	29.01
19	F	33.86	49.50	35.18	33.91	39.67	9.68	46.02	35.15	32.21
21	G	37.06	52.65	38.35	37.08	42.80	9.68	49.23	38.28	35.36
23	H	40.01	55.85	41.53	40.26	46.02	9.68	52.37	41.50	38.56
25	J	43.41	59.00	44.70	43.43	50.80	9.68	55.58	44.68	41.71

All dimensions for reference only

• D shaped panel cut-out dimensions

26482  
Matrix 2

83723 III  
Matrix Pyle

5015  
Crimp Rear  
Release Matrix

26500 Pyle

Printed  
Circuit Board

EMI Filter  
Transient

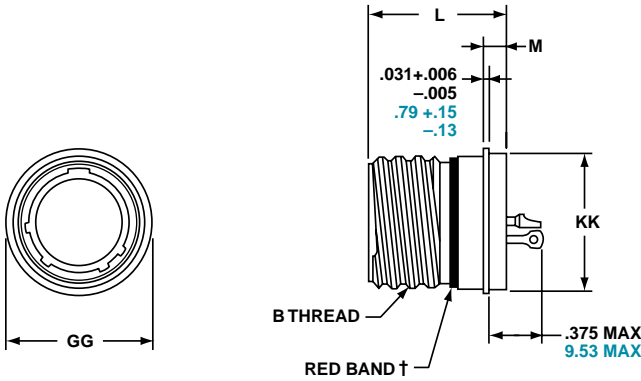
Fiber Optics

High Speed  
Contacts

Options  
Others

# TVSIY (D38999/25) – Hermetic Stainless Steel

## Solder Mounting Receptacle



### PART #

To complete, see how to order pages 22-24.

Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TVS	I	Y	9-35	P	B	(453)
TVS	I	YN	X-X	X	X	(XXX)
D38999/	25	X	X-X	X	X	NA

† Red band indicates fully mated

Inches

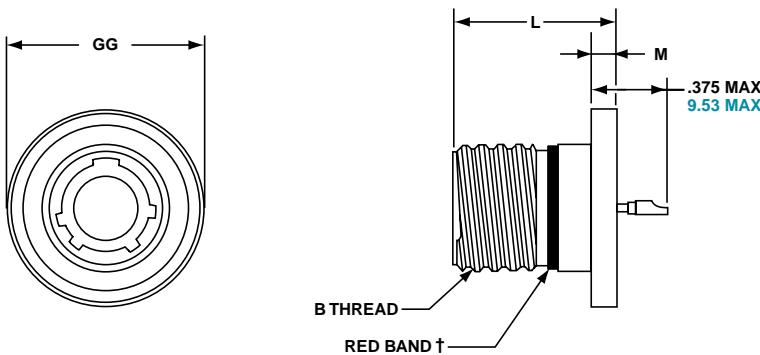
Shell Size	MS Shell Size Code	B Thread Class 2A 0.1P-0.3L-TS (Plated)	L +.011 - .005	M +.006 - .005	GG Dia. +.011 - .010	KK Dia +.011 - .005
9	A	.6250	.806	.125	.750	.672
11	B	.7500	.806	.125	.844	.781
13	C	.8750	.806	.125	.969	.906
15	D	1.0000	.806	.125	1.094	1.031
17	E	1.1875	.806	.125	1.218	1.156
19	F	1.2500	.806	.125	1.312	1.250
21	G	1.3750	.806	.125	1.438	1.375
23	H	1.5000	.838	.156	1.563	1.500
25	J	1.6250	.838	.156	1.688	1.625

Millimeters

Shell Size	MS Shell Size Code	L +.28 - .00	M +.15 - .13	GG Dia. +.28 - .25	KK Dia +.03 - .13
9	A	20.47	3.18	19.05	17.07
11	B	20.47	3.18	21.44	19.84
13	C	20.47	3.18	24.61	23.01
15	D	20.47	3.18	27.79	26.19
17	E	20.47	3.18	30.94	29.36
19	F	20.47	3.18	33.32	31.75
21	G	20.47	3.18	36.53	34.93
23	H	21.29	3.96	39.70	38.10
25	J	21.29	3.96	42.88	41.28

# TVSHIY (D38999/27) – Hermetic, Stainless Steel

## Weld Mounting Receptacle



### PART #

To complete, see how to order pages 22-24.

Connector Type	Shell Style	Service Class	Shell Size & Insert Arrg	Contact Type	Alternate Position	Special Variations
TVS	HI	Y	9-35	P	B	(453)
TVS	HI	YN	X-X	X	X	(XXX)
D38999/	27	X	X-X	X	X	NA

† Red band indicates fully mated

Inches

Shell Size	MS Shell Size Code	B Thread Class 2A 0.1P-0.3L-TS (Plated)	L +.011 - .000	M +.006 - .005	GG Dia. +.011 - .010
9	A	.6250	.806	.125	.973
11	B	.7500	.806	.125	1.095
13	C	.8750	.806	.125	1.221
15	D	1.0000	.806	.125	1.347
17	E	1.1875	.806	.125	1.434
19	F	1.2500	.806	.125	1.579
21	G	1.3750	.806	.125	1.721
23	H	1.5000	.838	.156	1.886
25	J	1.6250	.838	.156	1.973

Millimeters

Shell Size	MS Shell Size Code	L +.28 - .00	M +.15 - .13	GG Dia. +.25 - .00
9	A	20.47	3.18	24.71
11	B	20.47	3.18	27.81
13	C	20.47	3.18	31.01
15	D	20.47	3.18	34.21
17	E	20.47	3.18	36.42
19	F	20.47	3.18	40.11
21	G	20.47	3.18	43.71
23	H	21.29	3.96	47.90
25	J	21.29	3.96	50.11

All dimensions for reference only

- III 38999
- II I SJT
- Matrix 2 26482
- Matrix Pyle 83723 III
- Release Matrix 5015
- 26500 Pyle
- Printed Circuit Board
- EMI Filter Transient
- Fiber Optics
- High Speed Contacts
- Options Others

38999  
SJT I II III

26482  
Matrix 2

83723 III  
Matrix Pyle

5015  
Crimp Rear Release Matrix

26500 Pyle

Printed  
Circuit Board

EMI Filter  
Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

**Amphenol® Tri-Start Breakaway Fail Safe Connectors provide unequalled performance in environments requiring instant disengagement.**

Designed to provide quick disconnect of a connector plug and receptacle with an axial pull on the lanyard, the "Breakaway" Fail Safe connector family offers a wide range of electrical and mechanical features:

- Instant decoupling and damage free separation
- Completely intermateable with standard receptacles (D38999/20 and /24)
- Inventory support commonality through the use of standard insert arrangements and contacts

Breakaway un-mating is initiated by applying a pull force to the lanyard which causes the operating sleeve on the plug to move away from the receptacle. Coupling segments on the plug then move away from the mating receptacle while expanding, thus releasing the receptacle. After completion of the un-mating sequence, spring compression returns the sleeve and segments to their original positions. Un-mating of the plug may also be accomplished by normal rotation of the coupling ring without affecting the breakaway capability.



**Amphenol offers a variety of lanyard plug styles including MIL-STD-1760 types 1, 2 and 6 for Stores Management applications.**

**The Tri-Start Breakaway Fail Safe connector exceeds the MIL-Spec Series III requirements for EMI/EMP shielding and features include:**

- Solid metal-to-metal coupling
- EMI grounding fingers
- Conductive finishes

**Amphenol Breakaway Fail Safe connectors are qualified to MIL-DTL-38999/29, /30 and /31 (for MIL-STD-1760 Stores Management applications). In fact, Amphenol offers more qualified Breakaway shell size and insert combinations than any other QPL supplier.**

In addition to standard Breakaway connectors, Amphenol also manufactures custom breakaway connectors including those with:

- Highly durable non-metallic operating sleeves in a variety of lengths and diameters
- Increased pull-force capability
- Low-profile designs
- Custom lanyard lengths and backshells
- Low force separation capabilities
- Low insertion/separation force contacts
- Non-cadmium finishes

Whether you need a standard Breakaway, one of our custom Breakaways or, a unique Breakaway design, please contact your local Amphenol representative.

Contact Amphenol Aerospace for more information on breakaway, quick-disconnect connectors. Other Amphenol circular families (MIL-DTL-26482, MIL-DTL-83723) also offer breakaway quick-disconnect connectors.

See accessories for breakaway connectors on page 90.



**Breakaway with Coax Contacts**



**Special configuration Fail Safe used on space telescope application. Lanyard is replaced by a swivel ring for remote disconnect and "wing arms" have been added for manual actuation accessibility by gloved astronauts.**



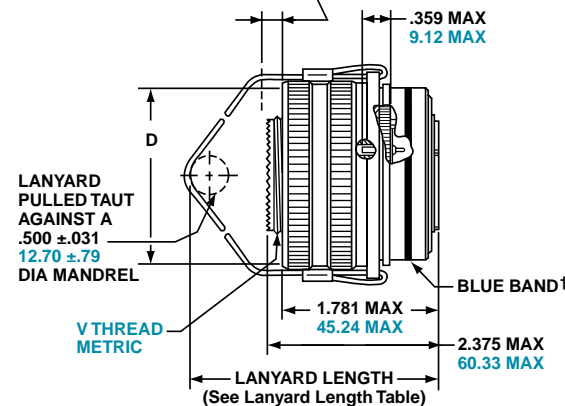
#### PART #

To complete, see how to order pages 38-39.

Connector Type	Shell Style	Shell Size & Insert Arrg	Lanyard Length Code	Contact Type/Alternate Insert Rotation	
D38999	29	29	E	P	(Pins Only)
D38999	30	X-X	X	X	(Sockets Only)
88	5565	X-X	X	X	
91	5565	X-X	X	X	

#### METAL

.374 MAX  
9.50 MAX  
OUTER SLEEVE MOVEMENT  
DURING UNMATING THREAD RELEASE



† Blue band indicates rear release contact retention system

Inches

Shell Size	MS Shell Size Code	B Max	D Max Accessory Dia.
11	B	1.846	1.109
13	C	1.972	1.250
15	D	2.079	1.375
17	E	2.205	1.500
19	F	2.301	1.625
21	G	2.472	1.750
23	H	2.594	1.875
25	J	2.705	2.000

Millimeters

Shell Size	MS Shell Size Code	B Max	D Max Accessory Dia.	V Thread Metric
11	B	46.89	28.17	M15X1.0-6g
13	C	50.09	31.75	M18X1.0-6g
15	D	52.81	34.93	M22X1.0-6g
17	E	56.01	38.10	M25X1.0-6g
19	F	58.45	41.28	M28X1.0-6g
21	G	62.79	44.45	M31X1.0-6g
23	H	65.89	47.63	M34X1.0-6g
25	J	68.71	50.08	M37X1.0-6g

All dimensions for reference only

- III 38999
- II
- I
- SJT
- 26482 Matrix 2
- 83723 III Matrix Pyle
- 5015 Crimp Rear Release Matrix
- 26500 Pyle
- Printed Circuit Board
- EMI Filter Transient
- Fiber Optics
- High Speed Contacts
- Options Others

### Easy Steps to build a part number... **Military**

1.	2.	3.	4.	5.	6.	7.
DOD Number Prefix	Spec Sheet Number	Service Class	Shell Size	Insert Arrangement	Lanyard Length Code	Alternate Keying Position
D38999/	29	F	E	6	P	N

#### Step 1. DOD Number Prefix

D38999/ designates MIL-DTL-38999, Series III, Tri-Start Connector

#### Step 2. Select a Specification Sheet Number

29	Designates Lanyard Release Plug with pin contacts
30	Designates Lanyard Release Plug with socket contacts

#### Step 3. Select a Service Class

<b>F</b>	Designates electroless nickel plated aluminum, optimum EMI shielding effectiveness –65dB@10 GHz specification min., 48 hour salt spray, 200°C
<b>W</b>	Designates corrosion resistant olive drab cadmium plate aluminum, 500 hour extended salt spray, EMI –50dB@10 GHz specification min., 175°C

#### Step 4. & 5 Insert Availability

Commercial Basic Part# Shell & Insert Arrg. Code	Shell Size-Insert Arrangement	Military Shell Size-Insert Arrangement	Service Rating	Total Contacts	Contact Size							
					22D	20	16	12	12 Coax	8 Coax	8 Twinax	
88/91-556508	11-2	*	I	2			2					
06	11-35	*	M	13	13							
07	11-98	*	I	6		6						
10	13-4	*	I	4			4					
11	13-8	*	I	8		8						
14	13-35	*	M	22	22							
13	13-98	*	I	10		10						
18	15-5	*	II	5			5					
23	15-15	*	I	15		14	1					
22	15-18	*	I	18		18						
19	15-19	*	I	19		19						
20	15-35	*	M	37	37							
21	15-97	*	I	12		8	4					
33	17-2	E-2	M	39	38							1
27	17-6	E-6	I	6				6				
28	17-8	E-8	II	8			8					
29	17-26	E-26	I	26		26						
30	17-35	E-35	M	55	55							
31	17-99	E-99	I	23		21	2					
37	19-11	F-11	II	11			11					
41	19-18	F-18	M	18	14							4
38	19-28	F-28	I	28		26	2					
39	19-32	F-32	I	32		32						
40	19-35	F-35	M	66	66							
47	21-11	G-11	I	11				11				
48	21-16	G-16	II	16			16					
49	21-35	G-35	M	79	79							
51	21-39	G-39	I	39		37	2					
50	21-41	G-41	I	41		41						
57	23-21	H-21	II	21			21					
58	23-35	H-35	M	100	100							
59	23-53	H-53	I	53		53						
61	23-54	*	M	53	40		9	4				
60	23-55	*	I	55		55						
71	25-4	J-4	I	56		48	8					
63	25-7	J-7	M/Twinax	99	97						2	
64	25-8	J-8	Twinax	8								8
66	25-19	J-19	I	19				19				
74	25-20	J-20	N	30		10	13		4			3
72	25-24	J-24	I	24			12	12				
67	25-29	J-29	I	29			29					
68	25-35	J-35	M	128	128							
69	25-43	J-43	I	43		23	20					
65	25-46	*	I	46		40	4			2*		
70	25-61	J-61	I	61		61						
73	25-90	J-90	I	46		40	4				2	

\*Not Mil Qualified

## Step 6. Military/ Commercial Lanyard Length Code

Table II

Lanyard Length (in.) ± .236	Lanyard Length (mm) ± 6.0	Lanyard Length Code For Part Number
4.016	102	A
4.528	115	B
5.000	127	C
5.512	140	D
6.024	153	E
6.535	166	F
7.008	178	G
7.520	191	H
7.992	203	I
8.503	216	J
9.016	229	K
9.528	242	L
10.000	254	M
10.512	267	N
11.024	280	P
11.535	293	R
12.008	305	S
12.520	318	T
13.031	331	U
14.016	356	V
15.000	381	W
16.024	407	X
17.008	432	Y
18.031	458	Z

## Step 7. Military Alternate Keying Position

For alternate positions of connector (to prevent cross-mating) see alternate positioning on page 24. (N indicates normal)

## Easy Steps to build a part number... Commercial

**FAIL SAFE 88-5565( ) & 91-5565( )**

Ordering procedure for example part number 88-556529-EP is shown below:

1.	2.	3.	4.	5.	6.
Service Class	Connector Type Identification	Shell Size & Insert Arrg. Code	Required Field	Lanyard Length Code	Contact Type/Alternate Keying Position
88	5565	29	0	E	P

### Step 1. Select a Service Class

88	Designates corrosion resistant olive drab cadmium plate over nickel, 500 hour extended salt spray, EMI -50dB @ 10 GHz specification min., 175°C
91	Designates electroless nickel plated aluminum, optimum EMI shielding effectiveness -65dB @ 10 GHz specification min., 48 hour salt spray, 200°C

These are standard finishes. Consult Amphenol Aerospace, Sidney, NY for other variations.

### Step 2. Select a Connector Type Identification

5565	Designates MIL-DTL-38999, Series III Tri-Start Lanyard Release Plug
------	---

### Step 3. Select a Commercial Shell Size & Insert Arrangement Code

MIL-DTL-38999, see insert availability chart on page 38.

### Step 4. Required Field

0	The required field is always a 0
---	----------------------------------

### Step 5. Select a Lanyard Length Code

See Table II (to the left) for lanyard length code number.

### Step 6. Select a Contact Type/Alternate Keying Position

P designates pin, S designates socket for normal positioning of contacts. When an alternate position of the connector is required to prevent cross-mating, a different letter (other than P or S) is used. See alternate positioning on page 24, then convert to Amphenol Commercial coding by the following chart.

Pin Contacts		Socket Contacts	
MS Letter	Amphenol letter	MS Letter	Amphenol Letter
PN	P (normal)	SN	S (normal)
PA	G	SA	H
PB	I	SB	J
PC	K	SC	L
PD	M	SD	N
PE	R	SE	T

III  
II  
I  
SJT  
38999

Matrix 2  
26482

Matrix  
Pyle  
83723 III

Release Matrix  
Crimp Rear  
5015

26500 Pyle

Printed  
Circuit Board

EMI Filter  
Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

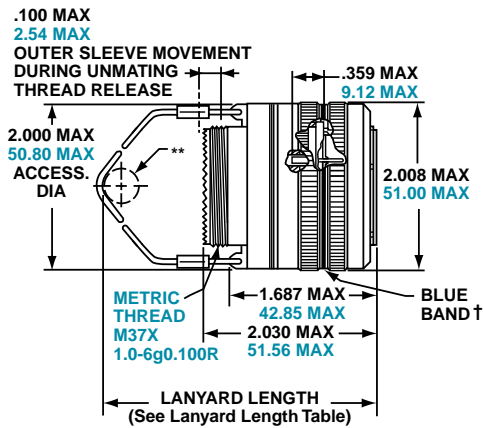
- 38999 III
- SJT I II
- 26482 Matrix 2
- 83723 III Pyle Matrix
- 5015 Crimp Rear Release Matrix
- 26500 Pyle
- Printed Circuit Board
- EMI Filter Transient
- Fiber Optics
- High Speed Contacts
- Options Others

PIN CONTACTS ONLY,  
SHELL SIZE 25 ONLY

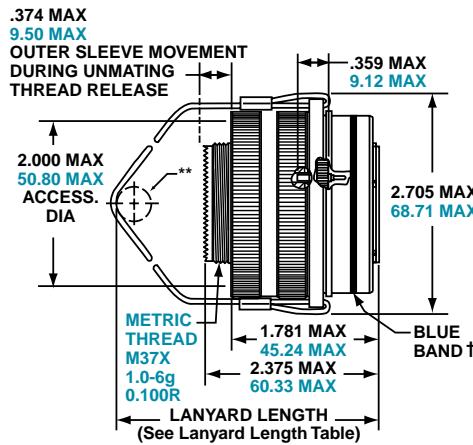
\*Part number reference.  
To complete, see how to order  
page 41.

D38999/31  
88-555875/76 } Type 6  
91-555875/76 }  
88-558518/19 } Type 2  
91-558518/19 }  
T3W-16B25-XXXX — Type 1

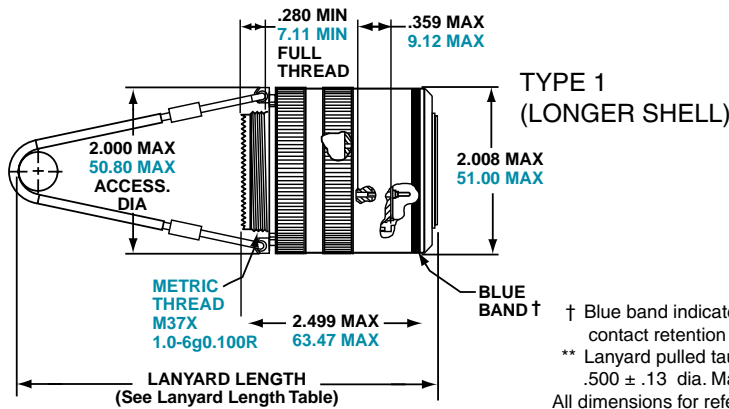
\*To order by Commercial Part  
numbers consult Amphenol.



TYPE 6



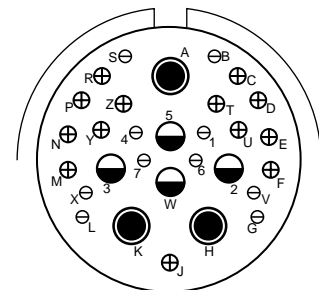
TYPE 2



TYPE 1  
(LONGER SHELL)

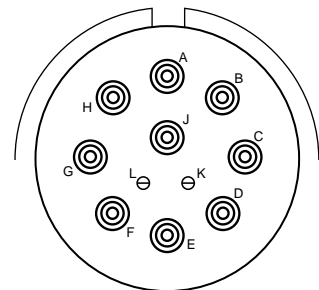
Tri-Start Lanyard Separation Forces		
Shell Size	Straight Plug (lbs. max.)	15 Degree Pull (lbs. max.)
25	90	100

**INSERT AVAILABILITY  
FAIL SAFE D38999/31  
FOR MIL-STD-1760**



25-20

Primary Interface Signal Set



25-11

Auxiliary Power Signal Set



Pin Contact Data for MIL-STD-1760

Insert Arrangement	Service Rating	Total Contacts	Contact			
			20	16	12 (Coax)	8 (Twinax)
25-20	N	30	10	13	4	3

Contacts for 25-20 Pattern

Shell Size	Arrg. Number	Number of Contacts	Size Contacts	Service Rating	Contact Location	Standard Contacts	
						Pin	Socket
25	-20	3	8	Twinax	A, H, K	M39029/90-529	M39029/91-530
		4	12	Coax	2,3	M39029/28-211	M39029/75-416
					W, 5	M39029/102-558	M39029/103-559
		13	16	N	C, D, E, F, J, M, N, P, R, T, U, Y, Z	M39029/58-364	M39029/56-352
10	20	N	B, G, L, S, V, X, 1, 4, 6, 7	M39029/58-363	M39029/56-351		

Insert Arrangement	Service Rating	Total Contacts	Contact Size	
			20	10 (power)
25-11	N	11	2	9



## Applications- Lanyard Release Plug

### HOW TO ORDER - BY MILITARY PART NUMBER FAIL SAFE D38999/31

Ordering procedure for example part number D38999/31WE20PN1 is shown below:

### Easy Steps to build a part number... Military

1.	2.	3.	4.	5.	6.	7.	8.
DOD Number Prefix	Spec Sheet Number	Service Class	Lanyard Length Code	Insert Arrangement	Contact Style	Alternate Keying Position	Type Number
D38999/	31	W	E	20	P	N	1

#### 1. Select a DOD Number Prefix

	Designates
D38999/	MIL-DTL-38999, Series III Tri-Start Connectors

#### 2. Specification Sheet Number

	Designates
31	Designates Lanyard Release Plug for MIL-STD-1760 with pin contacts

#### 3. Select a Service Class

	Designates
F	Electroless nickel plated aluminum, optimum EMI shielding effectiveness –65dB @ 10 GHz specification min., 48 hour salt spray, 200°C
W	Corrosion resistant olive drab cadmium plate aluminum, 500 hour extended salt spray, EMI –50dB @ 10 GHz specification min., 175°C

#### 4. Select a Lanyard Length Code

Lanyard Length (in.) ±.236	Lanyard Length (mm.) ± 6.0	Lanyard Length Code for Part Number
6.024	153.0	E
6.535	166.0	F
7.008	178.0	G
7.520	191.0	H
7.992	203.0	I
8.504	216.0	J
9.016	229.0	K
9.528	242.0	L

#### 5. Select an Insert Arrangement

Only 11 or 20 are available contact arrangement numbers. See page 40.

#### 6. Contact Style – P & A are Valid Options

	Designates
P	Replaces the “no designation” option in the PIN on revision C and earlier revision of the Mil-Spec.
A	Designates supplied less contacts.

#### 7. Alternate Keying Position

	Designates
N	Is required for normal position.

#### 8. Type Number

Type 1, 2 or 6. See drawings on page 40.

For accessories for lanyard release plugs see page 90.

III	38999
II	
I	
SJT	
Matrix 2	26482
Matrix	83723 III
Pyle	
Crimp Rear Release Matrix	5015
	26500 Pyle
Circuit Board	Printed
Transient	EMI Filter
	Fiber Optics
	High Speed Contacts
	Options Others

## D38999 Type Hybrid Breakaway – Series III Crimp, Metal Shell with Composite Operating Sleeve, And Lower Profile Lanyard Release Plug

III

38999  
I II

SJT

26482  
Matrix 2

83723 III  
Matrix Pyle

5015  
Crimp Rear  
Release Matrix

26500 Pyle

Printed  
Circuit Board

EMI Filter  
Transient

Fiber Optics

High Speed  
Contacts

Options  
Others

**New Hybrid Lanyard Breakaway Fail Safe connector with a composite thermoplastic outer operating sleeve for greater durability.**

This new hybrid breakaway is the breakaway of choice for the Navy F-18 program.

Amphenol's hybrid lanyard design offers greater durability over D38999 aluminum and composite designs because of its ability to handle abuse taken after weapons release. Other advantages include:

- Lower profile compared to full metal breakaway Fail Safe connectors
- Less weight

This Hybrid Breakaway meets the applicable requirements of MIL-DTL-38999/31 including random & sine vibration, ice resistance, fluid immersion and hydrolytic stability tests. (Test reports are available upon request).

Currently the hybrid breakaway is available in shell sizes 25 and 17. It uses standard inserts available for breakaway plugs sizes 25 and 17, and is also available with inserts 25-20 and 25-11 for MIL-STD-1760. Consult Amphenol Aerospace for ordering of the new hybrid breakaway connectors. These hybrid connectors will accommodate the standard backshells for breakaway connectors shown on page 90.



**New Hybrid Lanyard Release Plugs**  
(Metal inside shells and Composite, lower profile outer sleeves)

## Stores Management Type II, Rail Launch Plugs and receptacles that meet MIL-STD-1760

**Amphenol provides a Breakaway Rail Launch connector that is designed for use on aircraft that carry rail launch missiles such as AMRAAM.**

These connectors are designed for blindmating of stores on rail launch applications. They consist of a buffer plug and a missile receptacle that meet the specifications of MIL-STD-1760 Stores Management.

Other features and benefits include:

- Designed to MIL-C-83538 specifications
- Bayonet and push pull coupling
- Use standard MIL-DTL-38999 crimp termination with power, coax and twinax contacts also available
- Buffer provides flame barrier
- Buffers are replaceable

Consult Amphenol Aerospace for more information and ordering.



**Stores Management Type II Rail Launch Connectors**