Amphenol®

MIL-DTL-38999

Series III
Core Range

Amphenol®

BLACK ZINC NICKEL

Amphenol Ltd has responded to the requirements of the commercial, industrial and military markets to move away from the use of hazardous materials such as cadmium, by developing the RoHS compliant Black Zinc Nickel plating. This is available on a wide variety of connectors including proprietary MIL-DTL-38999. This conductive and non-reflective black finish is approved for 500hrs salt spray endurance and is fast becoming the new Defence Industry standard.

Key Features

- **Environmental** RoHS compliant, Cadmium free
- **Salt Spray** 500hrs endurance with shell-to-shell continuity <5mΩ
- **Shell-to-Shell Continuity** Less than <2.5mΩ initially
- **Mechanical** 500 mating cycles, non magnetic
- **Temperature Range** -65° to +175°C in accordance with MIL-DTL-38999
- **Compatibility** No significant galvanic reaction with cadmium, zinc cobalt or electroless nickel plated parts
- **Availability** Deployed on standard connector ranges such as MIL-DTL-38999, MIL-C-26482, Rhino Power

RoHSCompliant ✓

Amphenol: MIL-DTL-38999 Capability

The Amphenol Corporation offers the largest selection of MIL-DTL-38999 connectors in the world with fully QPL approved manufacturing sites in the UK, USA, France and India.

Amphenol Ltd, based in Whitstable, UK, designs, manufactures and markets circular, rectangular, electronic, fibre-optic and EMI/EMP filtered connectors as well as a variety of special application interconnect systems.

This product catalogue defines Amphenol Ltd's core range of MIL-DTL-38999 Series III connectors that are aligned technically, commercially and logistically to the demands of an ever changing and highly competitive marketplace.

By focusing on a preferred range of insert arrangements and shell styles, Amphenol Ltd is able to drive efficiencies through manufacturing processes which enable reduced lead-times and MOQs thus making Amphenol Ltd a highly effective, cost efficient supply chain partner.

The core MIL-DTL-38999 Series III product range highlighted within this catalogue is available as either proprietary or fully QPL qualified and in plating finishes including Cadmium or Black Zinc-Nickel. Other plating finishes and shell materials such as Stainless Steel, Nickel Aluminium Bronze and Titanium are also available.

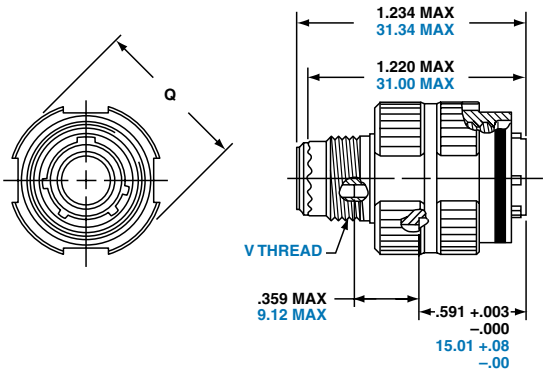
To meet the demands of the markets and applications MIL-DTL-38999 connectors can also be supplied with integrated EMI and EMP filters, hermetic sealing and as cable harnesses or equipment panels.

Amphenol Ltd has aligned this selected product offering with Value Added Distribution partners who can deliver small and medium volume connector orders in as little as 48hrs. Distribution partners provide customers with a one-stop source for all needs from concept and prototype phases, through production, to lifetime programme support.

For details of Amphenol Ltd's complete range of MIL-DTL-38999 connectors please see the full catalogue at **www.amphenol.co.uk/38999**

Styles

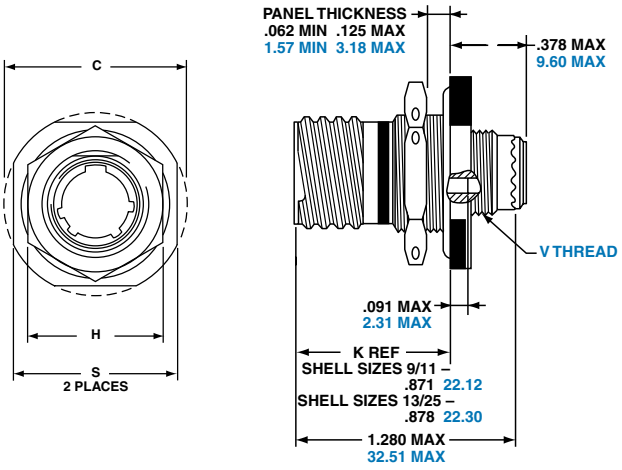
TV06 (D38999/26) - Straight Plug



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, in mm, for reference only.

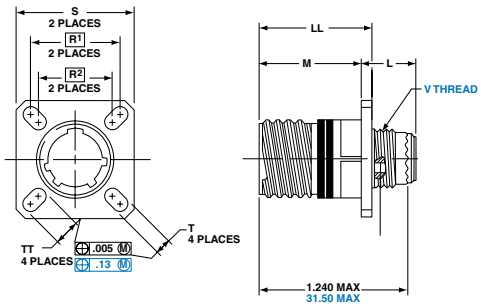
TV07 (D38999/24) - Jam Nut Receptacle



Shell Size	MS Shell Size Code	C Max.	H Hex +.43 –.41	S ±.25	V Thread Metric
9	A	30.45	22.23	26.97	M12X1-6g
11	B	35.20	25.40	31.75	M15X1-6g
13	C	38.38	30.18	34.93	M18X1-6g
15	D	41.55	33.32	38.10	M22X1-6g
17	E	44.73	36.53	41.28	M25X1-6g
19	F	49.50	39.67	46.02	M28X1-6g
21	G	52.65	42.80	49.23	M31X1-6g
23	H	55.85	46.02	52.37	M34X1-6g
25	J	59.00	50.80	55.58	M37X1-6g

Note: Deep reach receptacles are available for panel thicknesses up to .750 max. All dimensions, in mm, for reference only.

TVP00 (D38999/20) - Wall Mounting Receptacle



Shell Size	MS Shell Size Code	L Max.	M +.00 –.13	R¹	R²	S Max.	T ±.20	V Thread Metric	LL +.15 –.00	TT ±.20
9	A	11.91	20.83	18.26	15.09	24.1	3.25	M12X1-6g	22.99	5.49
11	B	11.91	20.83	20.62	18.26	26.5	3.25	M15X1-6g	22.99	4.93
13	C	11.91	20.83	23.01	20.62	28.9	3.25	M18X1-6g	22.99	4.93
15	D	11.91	20.83	24.61	23.01	31.3	3.25	M22X1-6g	22.99	4.39
17	E	11.91	20.83	26.97	24.61	33.7	3.25	M25X1-6g	22.99	4.93
19	F	11.91	20.83	29.36	26.97	36.9	3.25	M28X1-6g	22.99	4.93
21	G	12.70	20.07	31.75	29.36	40.1	3.25	M31X1-6g	22.99	4.93
23	H	12.70	20.07	34.93	31.75	43.3	3.91	M34X1-6g	22.99	6.15
25	J	12.70	20.07	38.10	34.93	46.4	3.91	M37X1-6g	22.99	6.15

☐ Designates true position dimensioning

All dimensions, in mm, for reference only.

D38999 Part Numbering

Proprietary

Series Designator:
TV MIL-DTL-38999 Series III
TVS 200° Rated

Alternate Keyway:
N, A, B, C, D, E

Deviation Code:
L/C = Less Contacts
W02 = Drill Tapped Flange
W52 = Zinc Cobalt

TV P00 RW - 11 - 35 P N (W02)

Style
See opposite page

Shell Class:
RW = Olive Drab Cadmium
ZN = Black Zinc Nickel
RB = Nickel-Aluminium Bronze
RF = Electroless Nickel
RK = Fire Wall Stainless Steel
Y = Hermetic Seal

Contact Style:
P = Pin Contact
S = Socket Contact

Insert Arrangement (see below)

Shell Size:
Odd numbers 9 to 25

MIL-DTL-38999

Series Designator

Style
See opposite page

Alternate Keyway:
N, A, B, C, D, E

D38999 / 20 W B 35 P N

Shell Class:
Z = Zinc Nickel
W = Olive Drab
F = Electroless Nickel
K = Fire Wall
Y = Hermetic Seal

Contact Style:
P = Pin Contact
S = Socket Contact
A = Less Pin Contacts
B = Less Socket Contacts

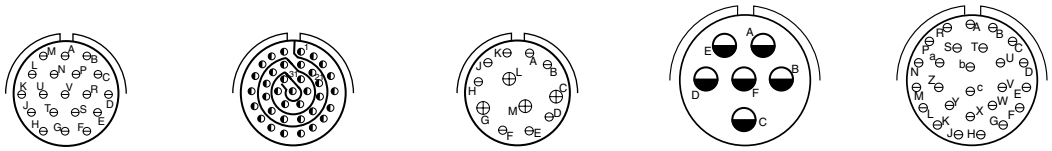
Shell Size:
Letters A to J

Insert Arrangement (see below)

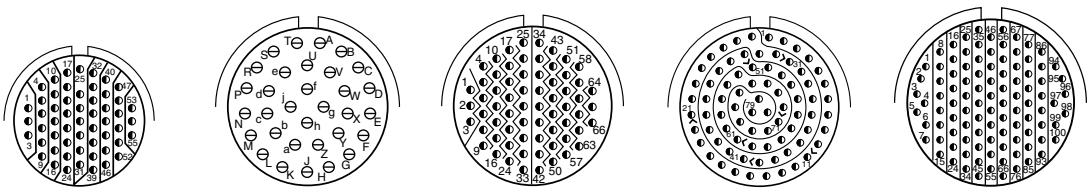
Insert Arrangements

Front face of pin inserts illustrated

	9-35/A35	9-98/A98	11-35/B35	11-98/B98	13-35/C35	13-98/C98
Service Rating	M	I	M	I	M	I
No. of Contacts	6	3	13	6	22	10
Contact Size	22D	20	22D	20	22D	20

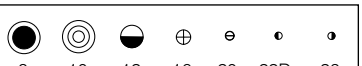


	15-19/D19	15-35/D35	15-97/D97		17-6/E6	17-26/E26
Service Rating	I	M	I		I	I
No. of Contacts	19	37	8	4	6	26
Contact Size	20	22D	20	16	12	20



	17-35/E35	19-32/F32	19-35/F35	21-35/G35	23-35/H35
Service Rating	M	I	M	M	M
No. of Contacts	55	32	66	79	100
Contact Size	22D	20	22D	22D	22D

Contact Legend



Accessories and tooling

Backshells

Family code

Connector Group (Default)

Suitable boot, omit for non:
B1 = Straight boot
B2 = 90° boot

BK4 X X K 99 99 9 X X-B1

Angle / Profile:
S = Straight
A = 90°
B = 45°

Coupling:
S = Self-lock
R = Spin coupling

Shell Size Designator: 8-24

Entry Size:
01
02

Material / Finish:
ZN = Black Zinc Nickel
Z = Black Zinc Cobalt
Y = Olive Drab Zinc Cobalt
W = Cadmium

Contact Style:
B = With band for braid fixing
X = Without band

Length:
9 = Standard size

Cap

Family code

Use for MIL-DTL-38999 Series III TV

418-60 3 1 - 13 R 030 1 - 04

Eyelet:
0 = No eyelet, no lanyard
1 = Lanyard + crimp fearule
2 = Lanyard + large eyelet
3 = Lanyard + small eyelet

Shell size:
Series III (09 to 25)

Style:
P = Plug
R = Receptacle
F = Heavy Duty Plug
G = Heavy Duty Receptacle

Finish
See table below

Lanyard Type:
0 = No lanyard
1 = Black terylene cord
2 = Stainless steel chain
3 = Plastic covered wire rope

Lanyard Length
See table below

Lanyard Length (all +/- 0.25 inches)		Finish	
030	3 inches (75mm)	-01	Unplated
035	3.5 inches (90mm)	-02	Electroless Nickel plate
040	4 inches (100mm)	-03	Olive Drab Cadmium
050	5 inches (125mm)	-04	Olive Drab Zinc Cobalt
060	6 inches (150mm)	-08	Stainless Steel
090	9 inches (230mm)	-09	Nickel Aluminium Bronze
120	12 inches (300mm)	-10	Black Zinc Nickel

Crimping Tools

Contact Size/Type	Crimping Tool	Turret Die or Positioner
12 Pin and Socket	M22520/1-01	M22520/1-04
16 Pin and Socket	M22520/1-01 M22520/7-01	M22520/1-04 M22520/7-04
20 Pin and Socket	M22520/1-01 M22520/2-01 M22520/7-01	M22520/1-04 M22520/2-10 M22520/7-08
22D Pin	M22520/2-01 M22520/7-01	M22520/2-09 M22520/7-07
22D Socket Series I, III	M22520/2-01 M22520/7-01	M22520/2-07 M22520/7-05
22D Socket Series II	M22520/2-01 M22520/7-01	M22520/2-06 M22520/7-06
8 Twinax Center Pin and Socket	M22520/2-01	M22520/2-37
8 Twinax Intermediate Outer Pin & Socket	M22520/5-01	M22520/5-200

Contact Size/Type	Crimping Tool	Turret Die or Positioner
8 Coaxial Inner Pin and Socket	M22520/2-01	M22520/2-31
8 Coaxial Outer Pin and Socket	M22520/5-01	M22520/5-05 Die Closure B
	M22520/5-01	M22520/5-41 Die Closure B
	M22520/10-01	M22520/10-07 Die Closure B
16 Coaxial Inner Pin and Socket	M22520/2-01	M22520/2-35
16 Coaxial Outer Pin and Socket	M22520/4-01	M22520/4-02
12 Coaxial Inner Pin and Socket	M22520/2-01	M22520/2-34
12 Coaxial Outer Pin and Socket	M22520/31-01	M22520/31-02
10 (Power)	TP-201423	

Where 2 or 3 tools are listed for a contact size, only one tool and its die or positioner, adjacent within the table, are required to crimp the contact.
The above crimping tools and positioners are available from a QPL approved tool manufacturer.

Standard Contacts

Contact Size	Pins	Socket	Seal Plug
4	Contact Factory	Contact Factory	N/A
8 (Coax)	M39029/60-367	M39029/59-366	MS27488-8-3
8 (Power)	Contact Factory	Contact Factory	MS27488-8-3
8 (Twinax)	M39029/90-529	M39029/91-350	MS27488-8-3
12	M39029/58-365	M39029/56-353	MS27488-12-2
12 (Coax)	418-840-12001-02	418-841-12001-02	MS27488-12-2
16	M39029/58-364	M39029/56-352	MS27488-16-2
16 (Coax)	418-840-16001-02	418-841-16001-02	MS27488-16-2
20	M39029/58-363	M39029/56-351	MS27488-20-2
22D	M39029/58-360	M39029/56-348	MS27488-22-2

Value Add Distributors

ACAL BFi
3 The Business Centre,
Molly Millars Lane, Wokingham,
Berkshire, RG41 2EY, UK

T: +44 (0)1189 788878
F: +44 (0)1189 776095

www.acalbfi.com

MPS Electronic Vertriebs GmbH
Pfarrer-Huber-Ring 8, 83620
Feldkirchen-Westerham, Germany

T: +49 (0)8063 81010
F: +49 (0)8063 8686

www.mps-electronic.com

PEI-Genesis UK Ltd
George Curl Way,
Southampton,
Hampshire, SR18 2RZ, UK

T: +44 (0)844 871 6060
F: +44 (0)844 871 6020

www.peigenesis.com

Quittner & Schimek
s.r.o. Komenského 304,
509 01 Nová Paka,
Czech Republic

T: +420 493 766311
F: +420 493 721107

www.qscomp.cz

Worldwide sales contacts

Europe

Amphenol Ltd, UK
Thanet Way, Whitstable
Kent, CT5 3JF
United Kingdom
T: +44 1227 773 200

Amphenol Socapex, France
948, promenade de l'Arve BP29
74311 Thyez Cedex
France
T: +33 4 50 89 28 00

Amphenol Air LB, France
10 rue champ Raymond
08110 Carignan
France
T: +33 3 24 22 32 70

Amphenol AIR LB GmbH, Germany
Am Kleinbahnhof 4
66740 Saarlouis
Germany
T: +49 6831 981 00

Amphenol Nordic
T: +46 702 129 200

Amphenol Switzerland and South Centre
Switzerland, Slovenia, Serbia, Montenegro, Yugoslavia, Greece, Bulgaria
948, promenade de l'Arve BP29
74311 Thyez Cedex
France
T: +33 4 50 89 28 00

Amphenol Italy
Via Barbaiana n.5
20020 Lainate, Milano
Italy
T: +39 293 254 214

Amphenol Benelux
Zadelmaker 121 NL
2401 PD Alphen aan den Rijn
The Netherlands
T: +31 172 444 903

Amphenol Iberica
Edificio Burgosol, Oficina nr 55
Comunidad de Madrid, 35 bis Las Rozas (Madrid)
Spain
T: +34 91 640 73 06

Amphenol Poland and Central East Europe
Austria, Poland, Czech Republic, Slovakia, Romania
Wiener gasse 68
2380 Perchtoldsdorf
Austria
T: +43 699 10396 071

North America

Amphenol PCD USA
72 Cherry Hill Drive
Beverly, MA. 01915-1065
USA
T: +1 978 624 3400

Amphenol Canada Corporation
605 Milner Avenue
Toronto, Ontario
Canada
M1B 5X6
T: +1 416 291 4401

Asia

Amphenol Daeshin, Korea
558 SongNae-2 Dong, SoSa-Gu,
Bucheon City, Gyeonggi-do
422-040, Korea
T: +82 32 610 3800

Amphenol Interconnect India Private Limited
105 Bhosari Industrial Area
Pune 411 026
India
T: +91 203 068 8304

Amphenol Japan
471-1 Deba, Ritto-City
Shiga 520-3041
Japan
T: +81 77 553 8501

Amphenol PCD CO Ltd, China
Building 21, 1st Liao Keng Industrial Zone, Shi Yan Street
Bao An District, Shenzhen 518108
China
T: +86 755 8173 8000

Other areas

Amphenol Argentina
Av. Callao 930 2do piso Oficina B
"Plaza" C1023 – AAP, Buenos Aires
Argentina
T: +54 11 4815 6886

Amphenol Australia Pty Limited
2 Fiveways Blvd, Keysborough,
Melbourne, Victoria 3173
Australia
T: +61 3 8796 8888

Amphenol Do Brazil
Rua Diogo Moreira
132, 20 andar, rooms 2001-2-3
CEP: 05423 010 Sao Paulo SP
Brazil
T: +55 11 3815 1003

Bar-Tec Ltd, Israel
3 Hagavish Street, K fir-Barkan Bldg
East Industrial Zone
Kfar-Sava, 44102
Israel
T: +972 9 764 4100

Amphenol Mexico
Prolongacion Reforma 61-6 B2
Col Passo de las Lomas CP.013130
Mexico
T: +52 55 5258 9984

Amphenol Russia
Yaroslavskaja Street 8
129164 Moscow
Russia
T: +7 495 937 6341

Amphenol South Africa
30 Impala Road
2196 Chislehurston
Sandton
South Africa
T: +27 11 783 9517

Amphenol Turkey
Sun Plaza 15 Kat:
15 Maslak Hah. Bilim
Sok. No.5
Sisli/Istanbul, 34398
Turkey
T: +90 212 367 92 19

Amphenol®

Printed and distributed by Amphenol Ltd Thanet Way Whitstable Kent CT5 3JF
T: +44 (0) 1227 773200 | E: info@amphenol.co.uk | www.amphenol.co.uk

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