

Mil-Spec Connectors & Accessories



DEUTSCH ECD

Defense / Aerospace Operations . . .

is the world's premier manufacturer of electrical interconnection devices for use in defense, aerospace, and commercial applications. Whether you need an interconnection device for a commercial or military aircraft, missile, tank, truck transmission or a host of other applications, Deutsch has the solution you're looking for.

Deutsch ECD Defense Aerospace Operations

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MIL-C-38999 Series I

Cylindrical, High Density Bayonet Coupling Connector Qualified to MIL-C-38999 Series I

The Deutsch Series I version is a long shell, scoop-proof, bayonet coupling connector available in both environment resisting resilient and hermetic types. These Series I connectors are intermateable and interchangeable with all other MIL-C-38999 Series I connectors.

Dielectric withstanding voltage:

(Meets MIL-C-38999, paragraph 3.14)
At sea level: 1800 volts AC (RMS)
At 100,000 ft.: 200 volts AC (RMS)

Insulation resistance:

(Meets MIL-C-38999, paragraph 3.13)
5000 megohms min. at 25°

Thermal shock:

(Meets MIL-C-38999, paragraph 3.8)
After cycling the connector between -65° C and +175° C, it will meet all applicable electrical and mechanical requirements.

Current rating:

(Meets MIL-C-39029, paragraph 1.3.1)

| Contact Size | Max. Amps |
|--------------|-----------|
| 22D | 5 |
| 20 | 7.5 |
| 16 | 13 |
| 12 | 23 |

Temperature:

(Meets MIL-C-38999, paragraph 3.11)
Operative at temperatures from -65° C to +175° C.

Durability:

(Meets MIL-C-38999, paragraph 3.11)
No electrical or mechanical defects after 500 cycles of engagement and disengagement.

Physical shock:

(Meets MIL-C-38999, paragraph 3.27)
No loosening of parts, cracking or other deleterious results hindering further part operation after 300 G's in each of 3 mutually perpendicular planes.

Contact millivolt drop:

| | |
|-----|-------------------------------|
| 22D | — 73 millivolts at 5.0 amps |
| 20 | — 55 millivolts at 7.5 amps |
| 16 | — 49 millivolts at 135.0 amps |
| 12 | — 42 millivolts at 23.0 amps |

Corrosion:

(Meets MIL-C-38999, paragraph 3.16)
Meets appropriate electrical and mechanical requirements and shows no exposure of base metal after 500 hours of salt spray.

Vibration:

(Meets MIL-C-38999, paragraph 3.26)

Contact resistance at 25° C:

(Meets MIL-C-39029, paragraph 3.5.4)

| Contact & Wire Size | Test Current (Amps) | Millivolt Drop (*) |
|---------------------|---------------------|--------------------|
| 22D | 5 | 73 |
| 20 | 7.5 | 55 |
| 16 | 13 | 49 |
| 12 | 23 | 42 |

Usable wire size:

(Meets MIL-C-39029, paragraph 3.4.3.1)

| Contact Size | Accepts (AWG) |
|--------------|---------------|
| 22D | 22-28 |
| 20 | 20-24 |
| 16 | 16-20 |
| 12 | 12&14 |

Materials:

Shell — aluminum alloy.
Pin contacts — copper alloy.
Inserts — plastic; silicone.

Finish:

Shell — O.D. cad over nickel.
Contacts — gold over nickel.

Grommet sealing range:

(Meets MIL-C-39029, paragraph 3.4.3.1)

| Contact Size | Max. Wire O.D. | Min. Wire O.D. |
|--------------|----------------|----------------|
| 22D | .054 | .030 |
| 20 | .083 | .040 |
| 16 | .109 | .065 |
| 12 | .142 | .097 |

Fluid compatibility:

(Meets MIL-C-38999, paragraph 3.33)
Designed to function in all fluids encountered in any modern military or aerospace environment.

EMI shielding:

(Meets MIL-C-38999, paragraph 3.31)
Effective over a range of 100 MHz to 10 GHz with a minimum 50 dB effectiveness at 10 GHz.

| Frequency MHz | Leakage attenuation minimum (dB) |
|---------------|----------------------------------|
| 100 | 90 |
| 200 | 88 |
| 300 | 87 |
| 400 | 85 |
| 800 | 85 |
| 1,000 | 85 |
| 1,500 | 69 |
| 2,000 | 65 |
| 3,000 | 61 |
| 4,000 | 58 |
| 6,000 | 55 |
| 10,000 | 50 |

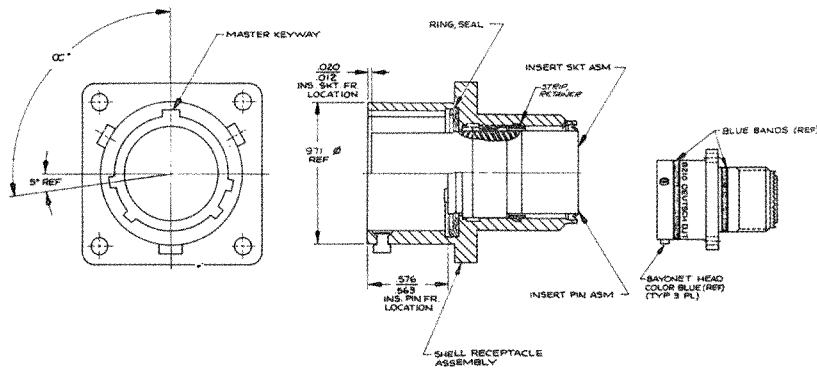
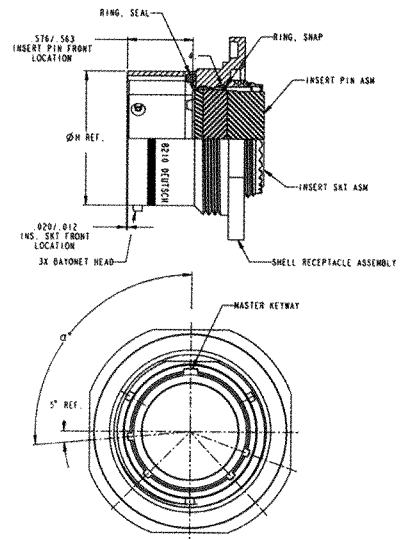
Fluid immersion:

Fluid resistant to many fuels, coolants and solvents per MIL-C-38999.



MIL-C-38999 Series I

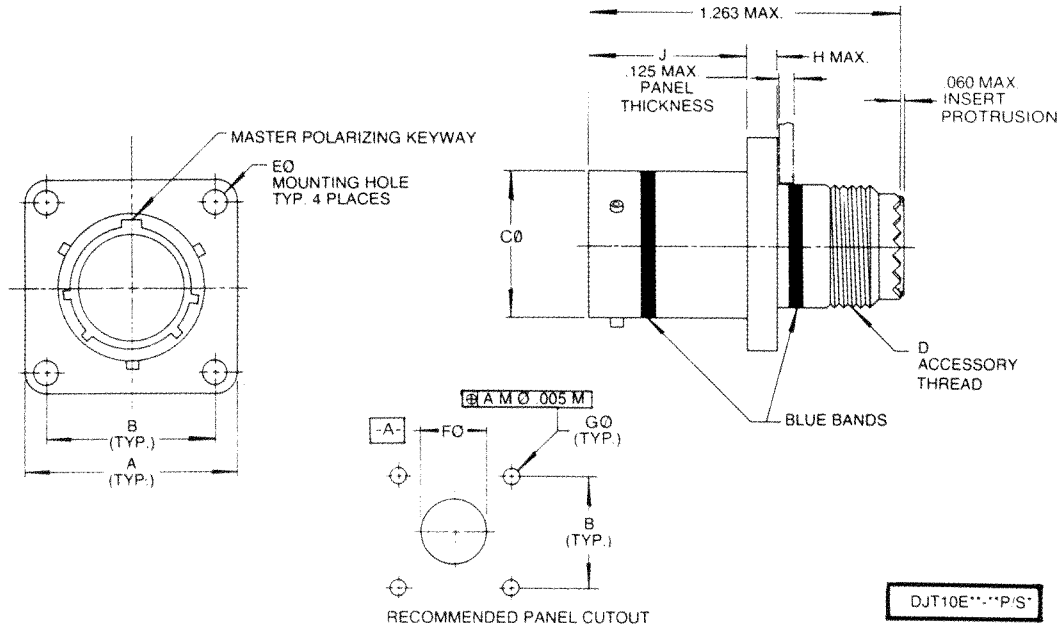
| SHELL SIZE | H DIA. REF. | SHELL SIZE | KEY POSITION α | | | | |
|------------|-------------|------------|-----------------------|-----|-----|------|------|
| | | | H | A | B | C | D |
| 09 | .568 | 09 | 95° | 77° | --- | --- | 113° |
| 11 | .696 | 11 | 95° | 81° | 67° | 123° | 109° |
| 13 | .846 | 13 | 95° | 75° | 63° | 127° | 115° |
| 15 | .971 | 15 | 95° | 74° | 61° | 129° | 116° |
| 17 | 1.096 | 17 | 95° | 77° | 65° | 125° | 113° |
| 19 | 1.203 | 19 | 95° | 77° | 65° | 125° | 113° |
| 21 | 1.328 | 21 | 95° | 77° | 65° | 125° | 113° |
| 23 | 1.453 | 23 | 95° | 80° | 69° | 121° | 110° |
| 25 | 1.578 | 25 | 95° | 80° | 69° | 121° | 110° |



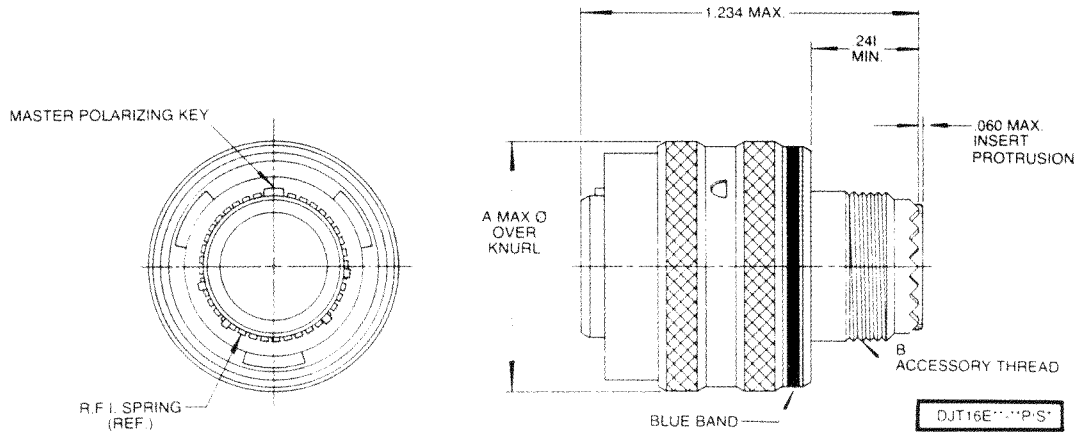
- DJT 1 M E XX - XX P H - XXXX
- MODIFICATIONS
 - KEYING POSITIONS
N, A, B, C, D (POSITION N = NORMAL)
 - CONTACT
P = PIN
S = SOCKET
 - CONTACT ARRANGEMENT
 - SHELL SIZE
9, 11, 13, 15, 17, 19, 21, 23 AND 25
 - FINISH
E = OLIVE DRAB CADMIUM (STANDARD)
F = NICKEL (RESERVED)
 - SHELL STYLE
0 = RECEPTACLE SQUARE FLANGE
4 = RECEPTACLE JAM NUT
5 = PLUG STRAIGHT (REVERSE CAVITY IDENTIFICATION)
6 = PLUG STRAIGHT
 - COUPLING SYSTEM
BAYONET
 - BASIC IDENTIFIER
DEUTSCH MIL-C-38999 SERIES I (SCOOP PROOF)



Receptacle Outline Dimensions



Plug Outline Dimensions

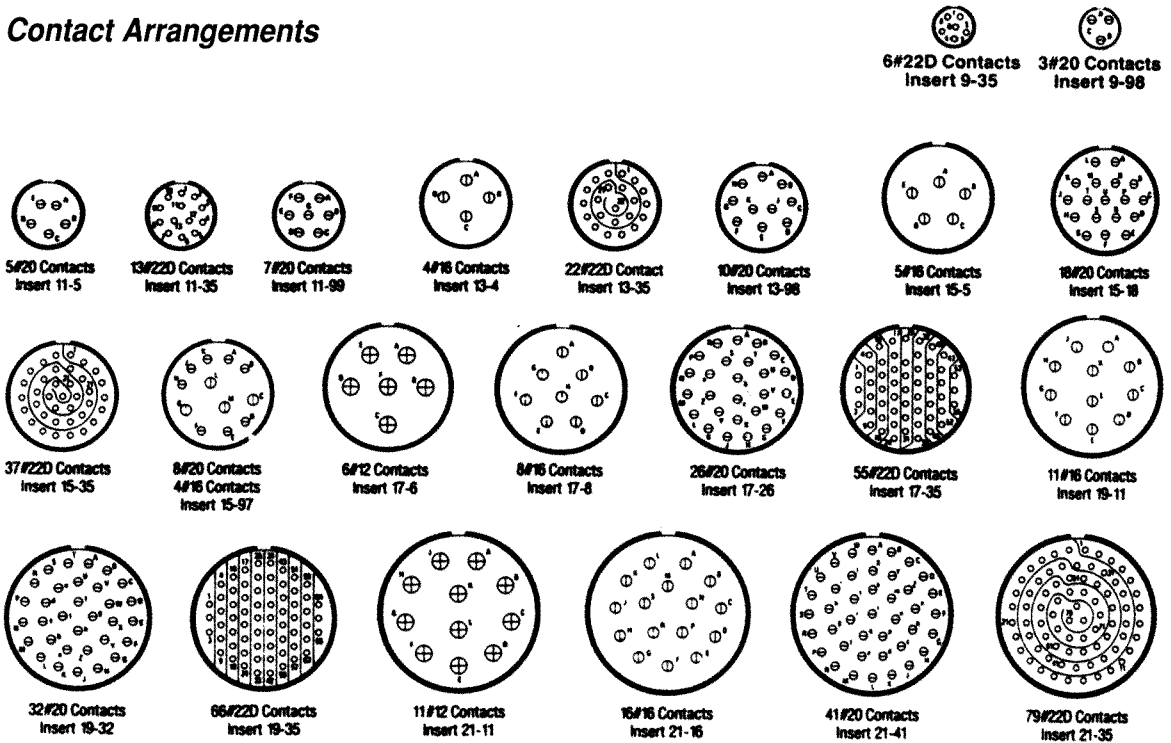


| SHELL SIZE | A ± .020 | B ± .005 | C0 ± .003 | D THREAD UNEF-2A | E0 + .010 - .005 | F0 MIN. | G0 ± .005 | H MAX. | J + .000 - .005 | A0 MAX | B THREAD UNEF-2A |
|------------|----------|----------|-----------|------------------|------------------|---------|-----------|--------|-----------------|--------|------------------|
| 9 | .938 | .719 | .570 | .4375-28 | .128 | .516 | .128 | .100 | .632 | .859 | .4375-28 |
| 11 | 1.031 | .812 | .698 | .5625-24 | .128 | .664 | .128 | .100 | .632 | .984 | .5625-24 |
| 13 | 1.125 | .906 | .848 | .6875-24 | .128 | .750 | .128 | .100 | .632 | 1.156 | .6875-24 |
| 15 | 1.219 | .969 | .973 | .8125-20 | .128 | .906 | .128 | .100 | .632 | 1.281 | .8125-20 |
| 17 | 1.312 | 1.062 | 1.098 | .9375-20 | .128 | 1.016 | .128 | .100 | .632 | 1.406 | .9375-20 |
| 19 | 1.438 | 1.156 | 1.205 | 1.0625-18 | .128 | 1.141 | .128 | .100 | .632 | 1.516 | 1.0625-18 |
| 21 | 1.562 | 1.250 | 1.330 | 1.1875-18 | .128 | 1.266 | .128 | .130 | .602 | 1.641 | 1.1875-18 |
| 23 | 1.688 | 1.375 | 1.455 | 1.3125-18 | .147 | 1.377 | .154 | .130 | .602 | 1.766 | 1.3125-18 |
| 25 | 1.812 | 1.500 | 1.580 | 1.4375-18 | .147 | 1.484 | .154 | .130 | .602 | 1.891 | 1.4375-18 |



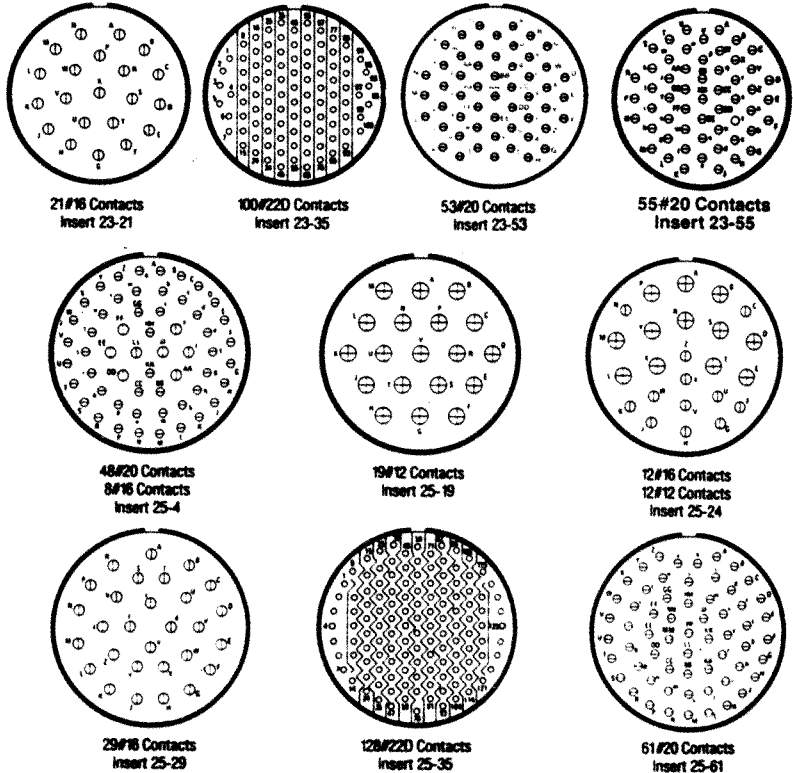
DJT Series Insert Arrangements

Contact Arrangements

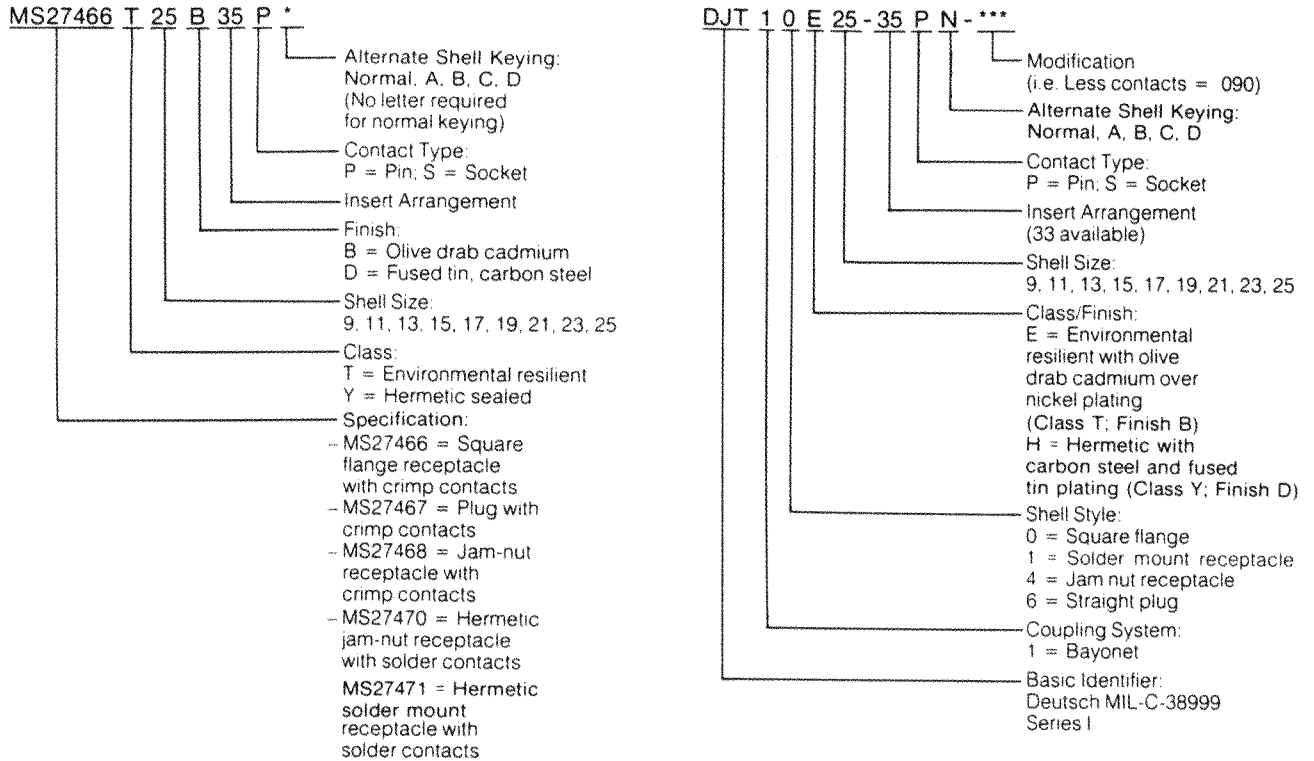


Deutsch Shell Sizes

| DJT | Service Rating | Total Contacts | Contact Size | | | |
|-------|----------------|----------------|--------------|----|----|----|
| | | | 22D | 20 | 16 | 12 |
| 9-35 | M | 6 | 6 | | | |
| 9-98 | I | 3 | | 3 | | |
| 11-5 | I | 5 | | 5 | | |
| 11-35 | M | 13 | 13 | | | |
| 11-99 | I | 7 | | 7 | | |
| 13-4 | I | 4 | | | 4 | |
| 13-35 | M | 22 | 22 | | | |
| 13-98 | I | 10 | | 10 | | |
| 15-5 | II | 5 | | | 5 | |
| 15-18 | I | 18 | | 18 | | |
| 15-35 | M | 37 | 37 | | | |
| 15-97 | I | 12 | | 8 | 4 | |
| 17-6 | I | 6 | | | | 6 |
| 17-8 | II | 8 | | | 8 | |
| 17-26 | I | 26 | | 26 | | |
| 17-35 | M | 55 | 55 | | | |
| 19-11 | II | 11 | | | 11 | |
| 19-32 | I | 32 | | 32 | | |
| 19-35 | M | 66 | 66 | | | |
| 21-11 | I | 11 | | | | 11 |
| 21-16 | II | 16 | | | 16 | |
| 21-41 | I | 41 | | 41 | | |
| 21-35 | M | 79 | 79 | | | |
| 23-21 | II | 21 | | | 21 | |
| 23-53 | I | 53 | | 53 | | |
| 23-55 | I | 55 | | 55 | | |
| 25-4 | I | 56 | | 48 | 8 | |
| 25-19 | I | 19 | | | | 19 |
| 25-24 | I | 24 | | | 12 | 12 |
| 25-29 | I | 29 | | | 29 | |
| 25-35 | M | 128 | 128 | | | |
| 25-61 | I | 61 | | 61 | | |



Part Number Cross Reference



Assembly Tools

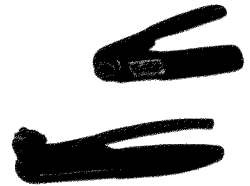
Wire/contact assembly tools are standard military type insertion/removal tools found in most assembly areas.

Yellow  Size 22D

Red  Size 20

Blue  Size 16

Yellow  Size 12



| Contact Size | Insertion/removal tool | Crimp tool | Crimp tool positioner | Sealing plug (Military P/N) |
|--------------|---------------------------|-------------|----------------------------|-----------------------------|
| 22D | M81969 14-01 MS3160-23 | M22520/7-01 | M22520/7-07 M22520-7/05 | MS27488-22 |
| 20 | M81969 14-02 | M22520/1-01 | M22520/1-04 | MS27488-20 |
| 16 | M81969 14-03 | M22520/1-01 | M22520/1-04 | MS27488-15 |
| 12 | M81969 14-04 | M22520/1-01 | M22520/1-04 | MS27488-12 |

