

## GENERAL SPECIFICATIONS SERIES I, II, and III

### Insulation Resistance

Greater than 5,000M $\Omega$ , at 500 VDC, per MIL-STD-1344, Method 3003.

### Hermeticity

Less than 0.01 micron/cu.ft./hr., at 15 psi.

### Voltage Ratings

Altitude	Mated Service Ratings		
	M	I	II
Sea Level	1300	1800	2300
50,000 ft.	800	1000	1000
70,000 ft.	800	1000	1000
100,000 ft.	800	1000	1000

### Humidity

Maintains insulation resistance of 100 M $\Omega$ /100 VDC or greater, per MIL-STD-1344, Method 1002.

### Operating Temperature Range

-85°F (-65°C) to 392°F (200°C).

### Shock

Three shock pulses in each of three mutually perpendicular axes of approx. half sine wave of 300 g ( $\pm 15\%$ ) magnitude for 3 ms, with wired, mated connector.

### Thermal Shock

Withstands less than 39°F (4°C) to greater than 201°F (90°C).

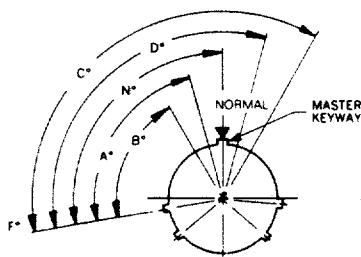
### Corrosion Resistance

Meets salt spray test, per MIL-STD-1344, Method 1001.

### Insert Retention

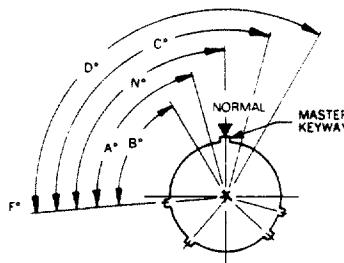
Withstands 100 psi, without damage.

## ALTERNATIVE KEYING POSITIONS SERIES I



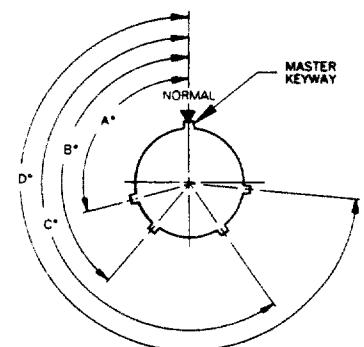
MATING FACE OF RECEPTACLE (PLUG OPPOSITE)

## SERIES II



MATING FACE OF RECEPTACLE (PLUG OPPOSITE)

## SERIES III



MATING FACE OF RECEPTACLE (PLUG OPPOSITE)

Shell Size	Polarizing Positions				
	N°	A°	B°	C°	D°
9	95	77	—	—	113
11	95	81	67	123	109
13	95	75	63	127	115
15	95	74	61	129	116
17	95	77	65	125	113
19	95	77	65	125	113
21	95	77	65	125	113
23	95	80	69	121	110
25	95	80	69	121	110

Shell Size	Polarizing Positions				
	N°	A°	B°	C°	D°
8	100	82	—	—	118
10	100	86	72	128	114
12	100	80	68	132	120
14	100	79	66	134	121
16	100	82	70	130	118
18	100	82	70	130	118
20	100	82	70	130	118
22	100	85	74	126	115
24	100	85	74	126	115

Shell Size	Polarizing Positions	Key Locations			
		A°	B°	C°	D°
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	E	91	131	197	240
	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
15	D	119	146	176	298
	E	51	141	184	242
	N	80	142	196	293
17	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272

## ORDERING INFORMATION

### SERIES I and II

**MS27XXX X X X X X X**

**MS NUMBER** \_\_\_\_\_

**CLASS** \_\_\_\_\_

- E-Environment Resistant (box mount only)\*
- P-Environment Resistant (potted class)\*
- T-Environment Resistant
- Y-Hermetically Sealed

**SHELL SIZE** \_\_\_\_\_

- Series I-Odd Numbers Only (9 thru 25)
- Series II-Even Numbers Only (8 thru 24)

**FINISH** \_\_\_\_\_

- A-Iridescent Cadmium over Nickel\*
- B-Olive Drab Cadmium over Nickel
- C-Anodic (non-conductive)
- D-Fused Tin, Carbon Steel
- E-Corrosion Resistant Steel Pass
- F-Electroless Nickel
- N-Electrodeposited Nickel, Corrosion Resistant Steel

**CLOCKING**

- N-Normal (no letter required)
- A/D-Alternates

**CONTACT STYLE**

- P-Pin
- S-Socket
- X-Pin (hermetic with eyelet)
- Z-Socket (hermetic with eyelet)
- C-Feedthrough
- A-Less Pin Contacts
- B-Less Socket Contacts

**INSERT ARRANGEMENT**

### SERIES III

**D38999/XX X X X X X**

**MS NUMBER** \_\_\_\_\_

**CLASS** \_\_\_\_\_

- C- Environment Resistant (nonconductive plating)
- F-Environment Resistant (conductive plating)
- G-Environment Resistant (conductive plating):  
Space Grade
- H-Hermetically Sealed (corrosion resistant steel pass):  
Space Grade
- J-Environment Resistant: Composite
- K-Environment Resistant/Firewall Barrier (corrosion resistant steel)
- N-Hermetically Sealed (corrosion resistant steel/nickel plate)
- S-Environment Resistant/Firewall Barrier (corrosion resistant steel/nickel plate)
- W-Environment Resistant (corrosion resistant plating)
- Y-Hermetically Sealed (corrosion resistant steel pass)

**SHELL SIZE** \_\_\_\_\_

- Series III-A, B, C, D, E, F, G, H or J

**CLOCKING**

- N-Normal
- A/E-Alternates

**CONTACT STYLE**

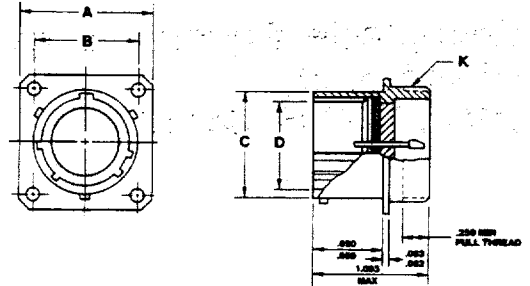
- H-Pin-1500 cycle
- J-Socket-1500 cycle
- P-Pin
- S-Socket
- X-Pin (hermetic with eyelet)
- Z-Socket (hermetic with eyelet)
- C-Feedthrough
- A-Less Pin Contacts
- B-Less Socket Contacts

**INSERT ARRANGEMENT**

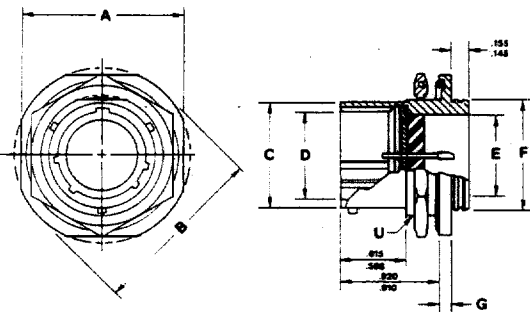
\*Inactive for New Designs

Shell Size	A ±.016	B	C DIA. +.001 -.005	D DIA. +.005 -.001	K THREAD UNEF CLASS 2A
9	.938	.719	.572	.442	.6875-24
11	1.031	.812	.700	.570	.8125-20
13	1.125	.906	.850	.687	.9375-20
15	1.219	.969	.975	.812	1.0625-18
17	1.312	1.062	1.100	.937	1.1875-18
19	1.438	1.156	1.207	1.042	1.3125-18
21	1.562	1.250	1.332	1.167	1.4375-18
23	1.688	1.375	1.457	1.292	1.5625-18
25	1.812	1.500	1.582	1.417	1.6875-18

## Receptacle, Hermetic, Flange Mount (MS 27469 Series I)



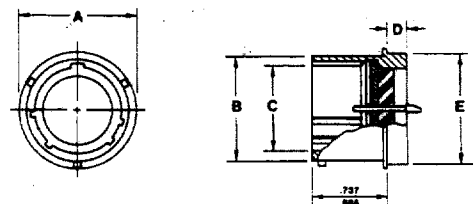
## Receptacle, Hermetic, Jam-Nut Mount (MS 27470 Series I)



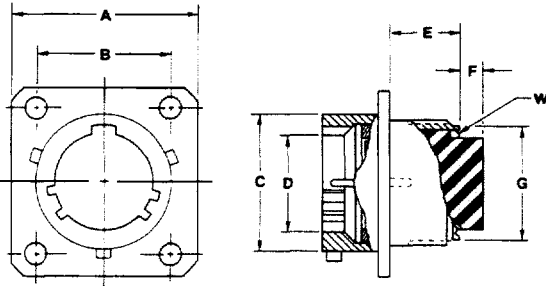
Shell Size	A ±.016	B DIA. ±.016	C DIA. +.001 -.005	D DIA. +.005 -.001	E DIA	F DIA +.011 -.000	G ±.016	U THREAD UNEF CLASS 2A
9	1.062	1.188	.572	.442	.406	.642	.109	.6875-24
11	1.250	1.375	.700	.570	.518	.766	↑	.8125-20
13	1.375	1.500	.850	.687	.632	.892	↓	1.0000-20
15	1.500	1.625	.975	.812	.757	1.018	↓	1.1250-18
17	1.625	1.750	1.100	.937	.882	1.142	.109	1.2500-18
19	1.812	1.938	1.207	1.042	.983	1.268	.140	1.3750-18
21	1.938	2.062	1.332	1.167	1.108	1.392	↑	1.5000-18
23	2.062	2.188	1.457	1.292	1.233	1.518	↓	1.6250-18
25	2.188	2.312	1.582	1.417	1.358	1.642	.140	1.7500-18 UNS

Shell Size	A DIA. ±.016	B DIA. +.001 -.005	C DIA. +.005 -.001	D MAX.	E DIA. +.001 -.005
9	.750	.572	.442	.187	.672
11	.844	.700	.570	↑	.781
13	.969	.850	.687	↑	.906
15	1.094	.975	.812	↑	1.031
17	1.218	1.100	.937	↑	1.156
19	1.312	1.207	1.042	↑	1.250
21	1.438	1.332	1.167	↑	1.375
23	1.563	1.457	1.292	↑	1.500
25	1.688	1.582	1.417	↑	1.625

## Receptacle, Hermetic, Solder Mount (MS 27471 Series I)



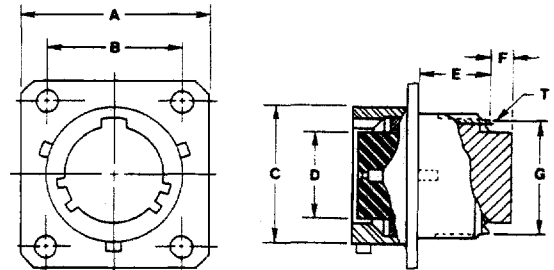
## Receptacle, Square Flange (Wall Mount) (MS 27472 Series II)



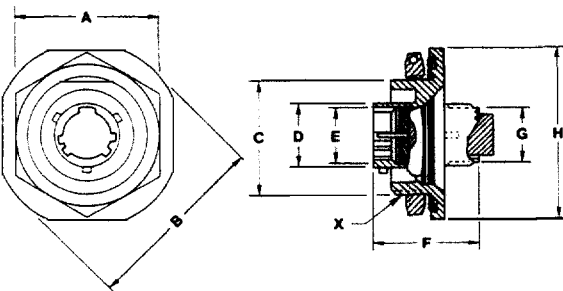
Shell Size	A MAX.	B	C DIA. +.001 -.005	D DIA. +.005 -.001	E MAX.	F MAX.	G +.001 -.005	W THREAD CLASS 2A
8	.828	.594	.473	.362	.391	.150	.387	.438-28 UNEF
10	.954	.719	.590	.490	↑	↑	.515	.563-24 UNEF
12	1.047	.812	.750	.607	↑	↑	.628	.688-24 UNEF
14	1.141	.906	.875	.732	↑	↑	.754	.813-20 UNEF
16	1.234	.969	1.000	.857	↑	↑	.879	.938-20 UNEF
18	1.328	1.062	1.125	.962	↑	↑	.985	1.063-18 UNEF
20	1.453	1.156	1.250	1.087	↓	↓	1.110	1.888-18 UNEF
22	1.578	1.250	1.375	1.212	.391	.150	1.235	1.313-18 UNEF
24	1.703	1.375	1.500	1.337	.469	.140	1.360	1.438-18 UNEF

Shell Size	A MAX.	B	C DIA. +.001 -.005	D DIA. +.005 -.001	E MAX.	F MAX.	G +.001 -.005	T THREAD CLASS 2A
8	.828	.594	.473	.285	.391	.150	.387	.438-28 UNEF
10	.954	.719	.590	.413	↑	↑	.515	.563-24 UNEF
12	1.047	.812	.750	.527	↑	↑	.628	.688-24 UNEF
14	1.141	.906	.875	.652	↑	↑	.754	.813-20 UNEF
16	1.234	.969	1.000	.777	↑	↑	.879	.938-20 UNEF
18	1.328	1.062	1.125	.866	↑	↑	.985	1.063-18 UNEF
20	1.453	1.156	1.250	.991	↓	↓	1.110	1.888-18 UNEF
22	1.578	1.250	1.375	1.116	.391	.150	1.235	1.313-18 UNEF
24	1.703	1.375	1.500	1.241	.469	.140	1.360	1.438-18 UNEF

## Socket for MS 27472 Receptacle (Series II)



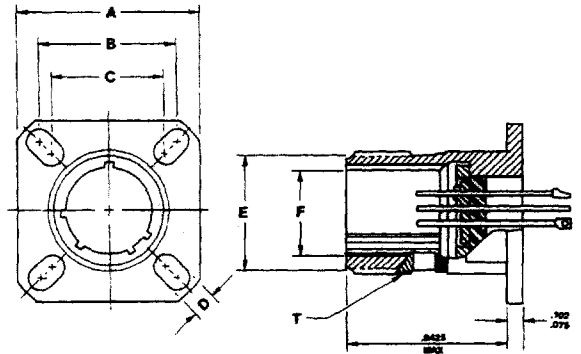
## Receptacle, Jam-Nut Mount (MS 27474 Series II)



Shell Size	A +.017 -.016	B DIA. +.006 -.002	C +.001 -.006	D DIA. +.001 -.005	E DIA. +.005 -.006	F MAX.	G DIA. +.001 -.005	H DIA. ±.016	X THREAD CLASS 2A
8	1.062	1.375	.817	.473	.412	.782	.387	1.250	.875-20 UNEF
10	1.188	1.500	.941	.590	.540	↑	.515	1.375	1.000-20 UNEF
12	1.312	1.625	1.065	.750	.689	↑	.628	1.500	1.125-18 UNEF
14	1.438	1.750	1.190	.875	.814	↑	.754	1.625	1.250-18 UNEF
16	1.562	1.938	1.320	1.000	.939	↓	.879	1.781	1.375-18 UNEF
18	1.688	2.016	1.440	1.125	1.039	.782	.985	1.890	1.500-18 UNEF
20	1.812	2.141	1.565	1.250	1.164	.776	1.110	2.016	1.625-18 UNEF
22	2.000	2.265	1.690	1.375	1.289	.776	1.235	2.140	1.750-18 UNS
24	2.125	2.390	1.815	1.500	1.414	.839	1.360	2.265	1.875-16 UN

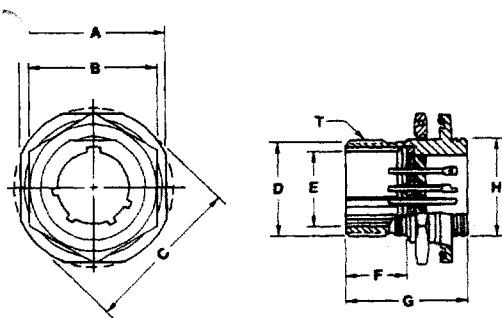
**Receptacle, Hermetic,  
Square Flange  
(D38999/21 Series III)**

Shell Size	A ±.012	B	C	D ±.008	E DIA. MAX.	F DIA. MAX.	T THREAD CLASS 2A
9	.937	.719	.594	.128	.573	.447	.625-1P-3L-TS-2A
11	1.031	.812	.719	↑	.698	.575	.750 ↑ ↑ ↑ ↑
13	1.126	.906	.812	↑	.823	.687	.875 ↑ ↑ ↑ ↑
15	1.220	.969	.906	↓	.948	.812	1.000 ↓ ↓ ↓ ↓
17	1.311	1.062	.969	↓	1.123	.937	1.1875 ↓ ↓ ↓ ↓
19	1.437	1.156	1.062	↓	1.186	1.042	1.250 ↓ ↓ ↓ ↓
21	1.563	1.250	1.156	.128	1.311	1.167	1.375 ↓ ↓ ↓ ↓
23	1.689	1.375	1.250	.154	1.436	1.292	1.500 ↓ ↓ ↓ ↓
25	1.811	1.500	1.375	.154	1.561	1.417	1.625-1P-3L-TS-2A



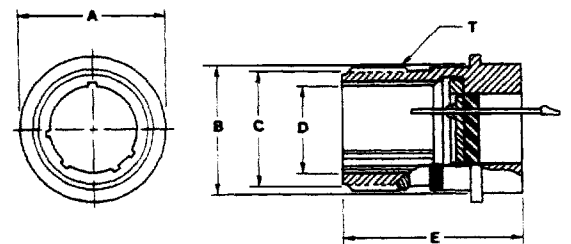
**Receptacle, Hermetic,  
Jam-Nut Mount  
(D38999/23 Series III)**

Shell Size	A ±.016	B MAX.	C DIA. ±.012	D DIA. MAX.	E DIA. MAX.	F DIA. MAX.	G MAX.	H DIA. +.012 -.000	T THREAD CLASS 2A
9	1.063	.859	1.189	.625	.447	.573	1.150	.642	.642-1P-3L-TS-2A
11	1.252	.984	1.374	.750	.575	.698	1.150	.764	.750 ↑ ↑ ↑ ↑
13	1.374	1.172	1.500	.875	.687	.823	1.154	.894	.875 ↑ ↑ ↑ ↑
15	1.500	1.295	1.626	1.000	.812	.948	1.154	1.020	1.000 ↓ ↓ ↓ ↓
17	1.626	1.422	1.752	1.187	.937	1.123	1.154	1.142	1.1875 ↓ ↓ ↓ ↓
19	1.811	1.545	1.937	1.250	1.042	1.186	1.185	1.268	1.250 ↓ ↓ ↓ ↓
21	1.937	1.672	2.063	1.367	1.167	1.311	1.185	1.394	1.375 ↓ ↓ ↓ ↓
23	2.063	1.795	2.189	1.500	1.292	1.436	1.185	1.520	1.500 ↓ ↓ ↓ ↓
25	2.189	1.939	2.311	1.625	1.417	1.561	1.185	1.642	1.625-1P-3L-TS-2A

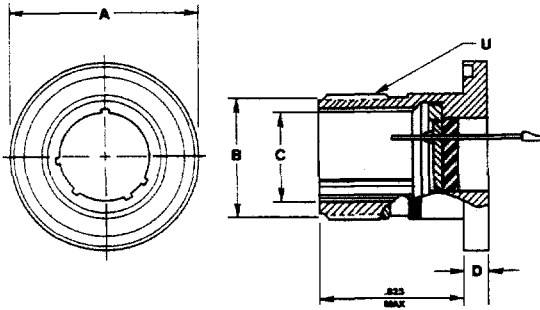


**Receptacle, Hermetic,  
Solder Mount  
(D38999/25 Series III)**

Shell Size	A DIA. MAX.	B DIA. MAX.	C DIA. MAX.	D DIA. MAX.	E MAX.	T THREAD CLASS 2A
9	.764	.673	.573	.447	.937	.625-1P-3L-TS-2A
11	.858	.783	.698	.575	↑	.750 ↑ ↑ ↑ ↑
13	.980	.909	.823	.687	↑	.875 ↑ ↑ ↑ ↑
15	1.106	1.031	.948	.812	↓	1.000 ↓ ↓ ↓ ↓
17	1.232	1.157	1.123	.937	↓	1.1875 ↓ ↓ ↓ ↓
19	1.323	1.252	1.186	1.042	↓	1.250 ↓ ↓ ↓ ↓
21	1.449	1.378	1.311	1.167	.937	1.375 ↓ ↓ ↓ ↓
23	1.575	1.504	1.436	1.292	.968	1.500 ↓ ↓ ↓ ↓
25	1.701	1.626	1.561	1.417	.968	1.625-1P-3L-TS-2A



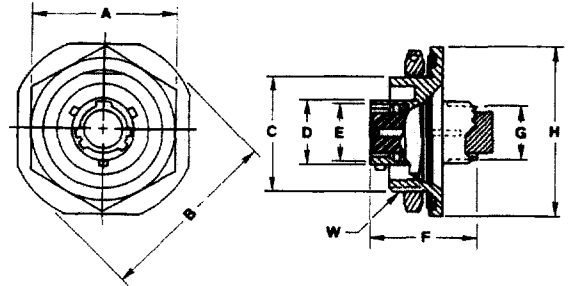
## Receptacle, Hermetic, Weld Mount (D38999/27 Series III)



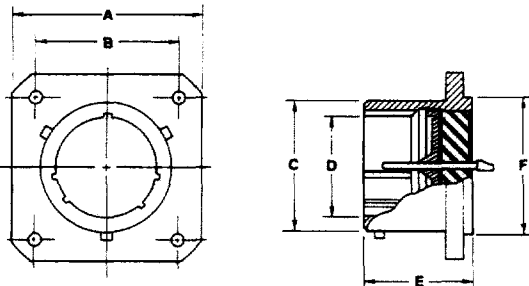
Shell Size	A DIA. +.012 -.000	B DIA. MAX.	C DIA. MAX.	D ±.008	U THREAD CLASS 2A
9	.972	.573	.447	.126	.625-1P-3L-TS-2A
11	1.094	.698	.575	↑	.750 ↑ ↑ ↑ ↑
13	1.220	.823	.687		.875
15	1.346	.948	.812		1.000
17	1.433	1.123	.937	↓	1.1875
19	1.579	1.186	1.042		1.250
21	1.720	1.311	1.167	.126	1.375 ↓ ↓ ↓ ↓
23	1.886	1.436	1.292	.157	1.500
25	1.972	1.561	1.417	.157	1.625-P-3L-TS-2A

Shell Size	A +.017 -.016	B DIA. +.006 -.002	C +.001 -.006	D DIA. +.001 -.005	E DIA. +.005 -.006	F MAX.	G DIA. +.001 -.005	H DIA. ±.016	W THREAD CLASS 2A
8	1.062	1.375	.817	.473	.412	.782	.387	1.250	.875-20 UNEF
10	1.188	1.500	.941	.590	.540	↑	.515	1.375	1.000-20 UNEF
12	1.312	1.625	1.065	.750	.689	↑	.628	1.500	1.125-18 UNEF
14	1.438	1.750	1.190	.875	.814	↓	.754	1.625	1.250-18 UNEF
16	1.562	1.938	1.320	1.000	.939	↓	.879	1.781	1.375-18 UNEF
18	1.688	2.016	1.440	1.125	1.039	.782	.985	1.890	1.500-18 UNEF
20	1.812	2.141	1.565	1.250	1.164	.776	1.110	2.016	1.625-18 UNEF
22	2.000	2.265	1.690	1.375	1.289	.776	1.235	2.140	1.750-18 UNS
24	2.125	2.390	1.815	1.500	1.414	.839	1.360	2.265	1.875-16 UN

## Socket for MS 27474 Receptacle (Series II)



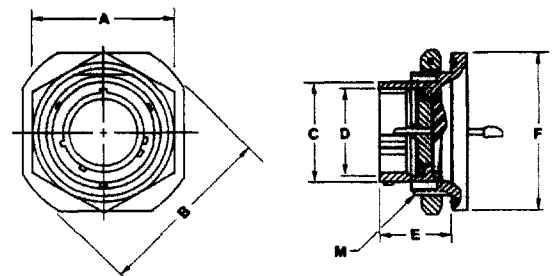
## Receptacle, Hermetic, Flange Mount (MS 27476 Series II)



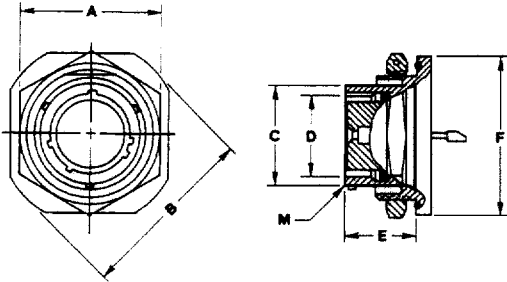
Shell Size	A MAX.	B	C DIA. +.001 -.005	D DIA. +.005 -.001	E MAX.	F DIA. +.001 -.005
8	.828	.594	.473	.362	.453	.563
10	.954	.719	.590	.490	↑	.672
12	1.047	.812	.750	.607	↑	.781
14	1.141	.906	.875	.732	↑	.906
16	1.234	.969	1.000	.857	↑	1.031
18	1.328	1.062	1.125	.962	↑	1.156
20	1.453	1.156	1.250	1.087	↓	1.250
22	1.578	1.250	1.375	1.212	↓	1.375
24	1.703	1.375	1.500	1.337	↓	1.500

Shell Size	A +.017 -.016	B DIA. ±.016	C DIA. +.001 -.005	D DIA. +.005 -.006	E ±.005	F ±.016	M THREAD UNEF CLASS 2B
8	1.062	1.375	.473	.412	.438	1.250	.875-20
10	1.188	1.500	.590	.540	↑	1.375	1.000-20
12	1.312	1.625	.750	.689	↑	1.500	1.125-18
14	1.438	1.750	.875	.814	↓	1.625	1.250-18
16	1.562	1.938	1.000	.939	↓	1.781	1.375-18
18	1.688	2.016	1.125	1.039	.438	1.890	1.500-18
20	1.812	2.141	1.250	1.164	.464	2.016	1.625-18
22	2.000	2.265	1.375	1.289	.464	2.140	1.750-18 UNS
24	2.125	2.390	1.500	1.414	.464	2.265	1.875-16 UN

## Receptacle, Hermetic, Jam-Nut Mount (MS 27477 Series II)



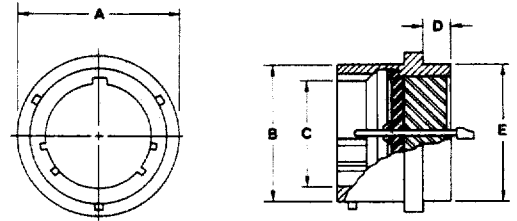
## Socket for MS 27477 Receptacle (Series II)



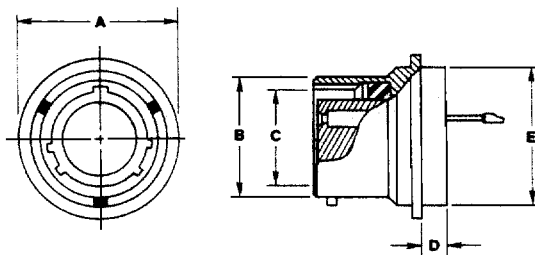
Shell Size	A +.017 -.016	B DIA. ±.016	C DIA. +.001 -.005	D DIA. +.005 -.006	E ±.005	F ±.016	M THREAD UNEF CLASS 28
8	1.062	1.375	.473	.362	.438	1.250	.875-20
10	1.188	1.500	.590	.490	↕	1.375	1.000-20
12	1.312	1.625	.750	.607		1.500	1.125-18
14	1.438	1.750	.875	.732	↕	1.625	1.250-18
16	1.562	1.938	1.000	.857		1.781	1.375-18
18	1.688	2.016	1.125	.962	.438	1.890	1.500-18
20	1.812	2.141	1.250	1.087	.464	2.016	1.625-18
22	2.000	2.265	1.375	1.212	.464	2.140	1.750-18UNS
24	2.125	2.390	1.500	1.337	.464	2.265	1.875-16UN

Shell Size	A DIA. +.011 -.010	B DIA. +.001 -.005	C DIA. +.005 -.001	D MAX.	E DIA. +.001 -.005
8	.687	.473	.362	.125	.562
10	.797	.590	.490	↕	.672
12	.906	.750	.607		.781
14	1.031	.875	.732	↕	.906
16	1.156	1.000	.857		1.031
18	1.281	1.125	.962	.125	1.156
20	1.375	1.250	1.087	.156	1.250
22	1.500	1.375	1.212	.156	1.375
24	1.625	1.500	1.337	.156	1.500

## Receptacle, Hermetic, Solder Mount MS 27478 Series II)



## Socket for MS 27478 Receptacle (Series II)

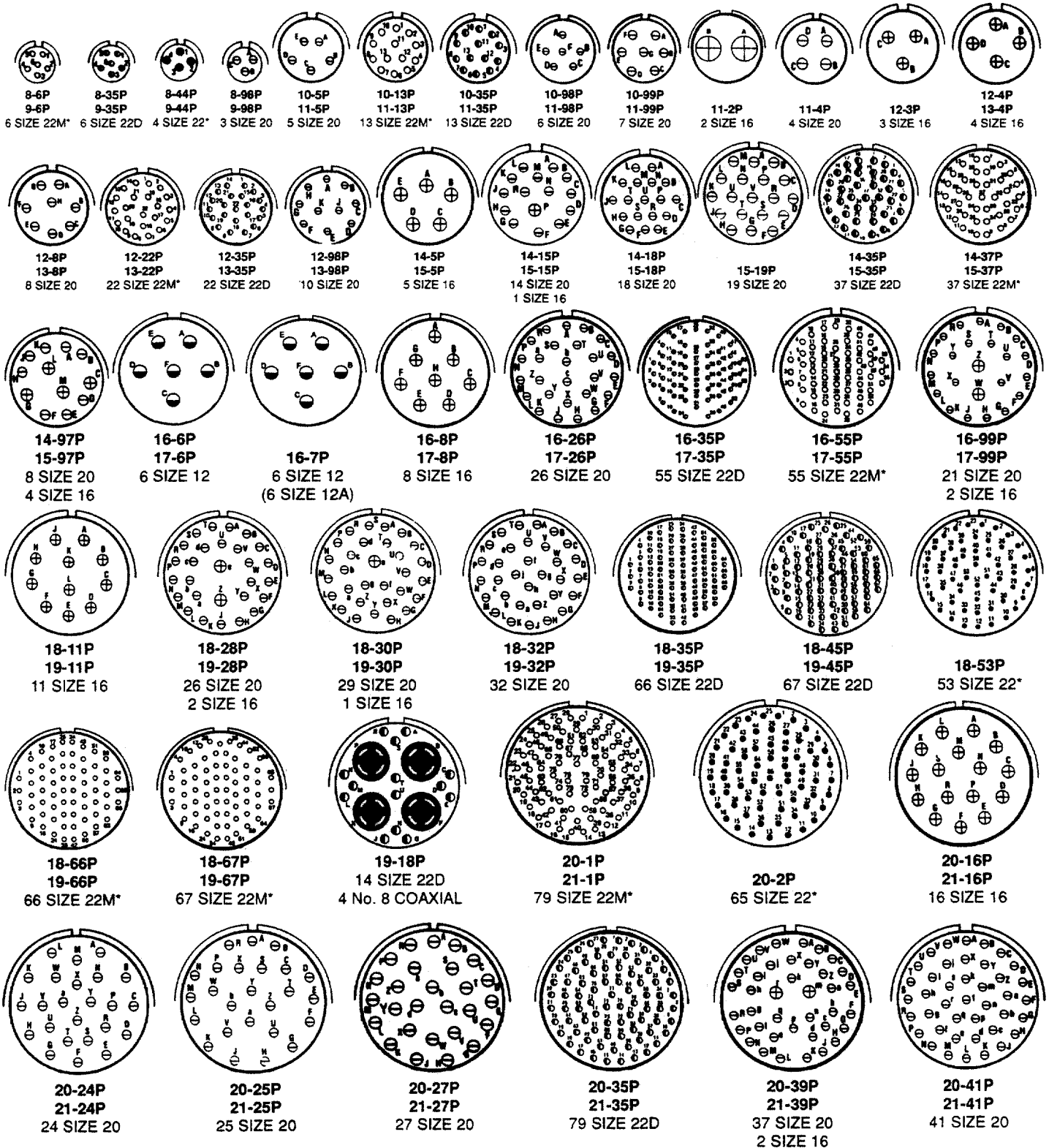


Shell Size	A DIA. +.011 -.010	B DIA. +.001 -.005	C DIA. +.005 -.001	D MAX.	E DIA. +.001 -.005
8	.687	.473	.362	.125	.562
10	.797	.590	.490	↕	.672
12	.906	.750	.607		.781
14	1.031	.875	.732	↕	.906
16	1.156	1.000	.857		1.031
18	1.281	1.125	.962	.125	1.156
20	1.375	1.250	1.087	.156	1.250
22	1.500	1.375	1.212	.156	1.375
24	1.625	1.500	1.337	.156	1.500



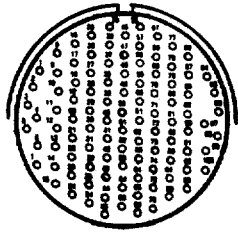
## INSERT ARRANGEMENTS SERIES I, II, III

(Front Face of Pin Insert Shown; Socket Opposite)

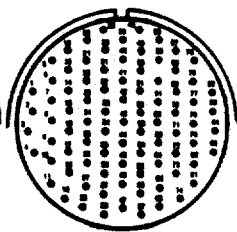


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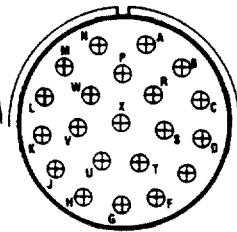
(Front Face of Pin Insert Shown; Socket Opposite)



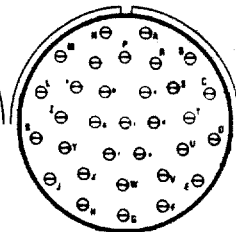
**22-1P**  
**23-1P**  
100 SIZE 22M\*



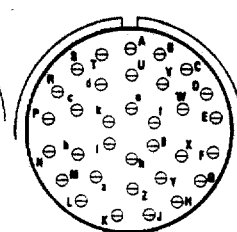
**22-2P**  
**23-2P**  
85 SIZE 22\*



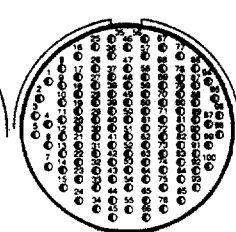
**22-21P**  
**23-21P**  
21 SIZE 16



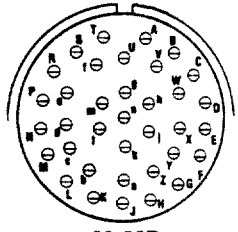
**22-32P**  
**23-32P**  
32 SIZE 20



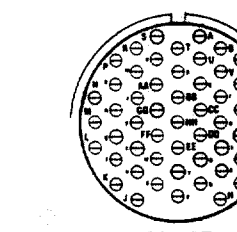
**22-34P**  
**23-34P**  
34 SIZE 20



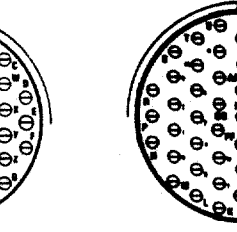
**22-35P**  
**23-35P**  
100 SIZE 22D



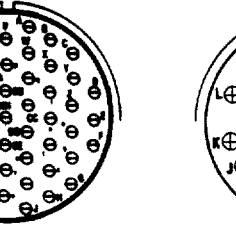
**22-36P**  
**23-36P**  
36 SIZE 20



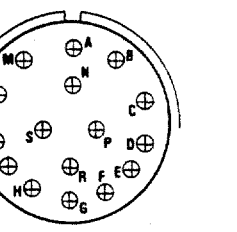
**22-53P**  
**23-53P**  
53 SIZE 20



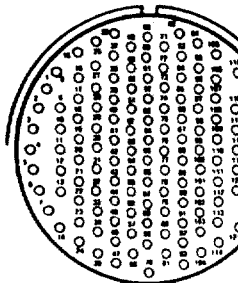
**22-55P**  
**23-55P**  
55 SIZE 20



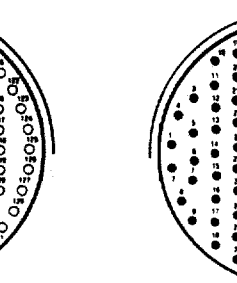
**22-97P**  
**23-97P**  
16 SIZE 16



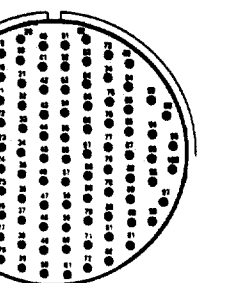
**22-99P**  
**23-99P**  
11 SIZE 16



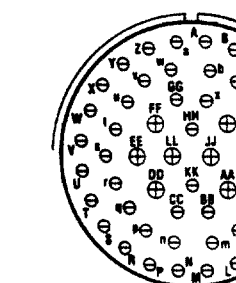
**24-1P**  
**25-1P**  
128 SIZE 22M\*



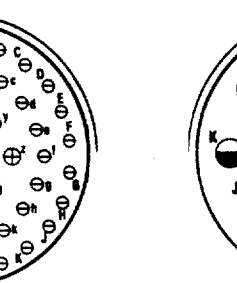
**24-2P**  
**25-2P**  
100 SIZE 22\*



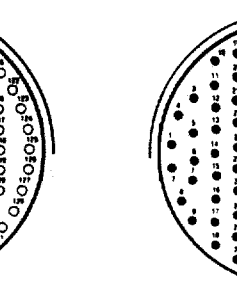
**24-4P**  
**25-4P**  
48 SIZE 20  
8 SIZE 16



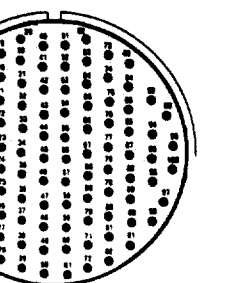
**24-19P**  
**25-19P**  
19 SIZE 12



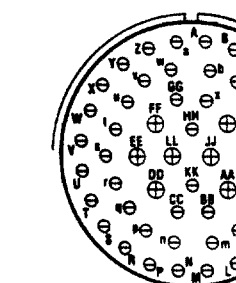
**24-24P**  
**25-24P**  
12 SIZE 16  
12 SIZE 12



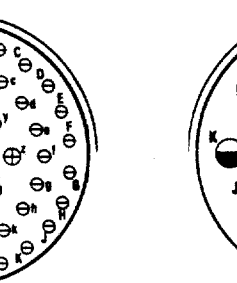
**24-29P**  
**25-29P**  
29 SIZE 16



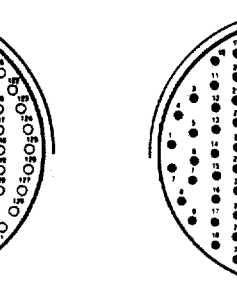
**24-35P**  
**25-35P**  
128 SIZE 22D



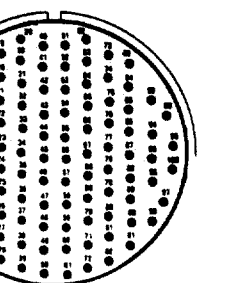
**24-61P**  
**25-61P**  
61 SIZE 20



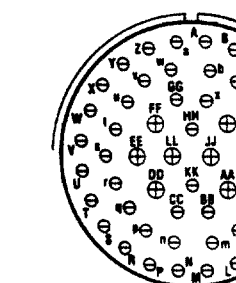
**25-11P**  
9 SIZE 10  
2 SIZE 20



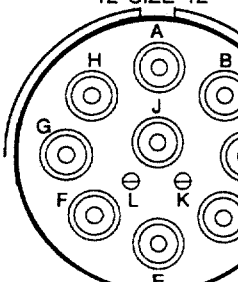
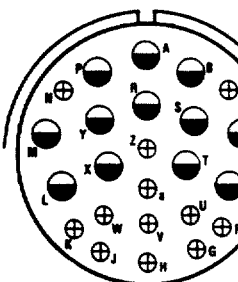
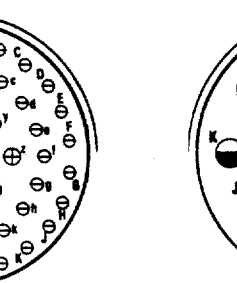
**25-20P**  
3 SIZE 8  
4 SIZE 12  
13 SIZE 16  
10 SIZE 20



**25-43P**  
23 SIZE 20  
20 SIZE 16



**25-46P**  
40 SIZE 20  
4 SIZE 16  
2 No. 8 COAXIAL



\*Inactive for New Designs