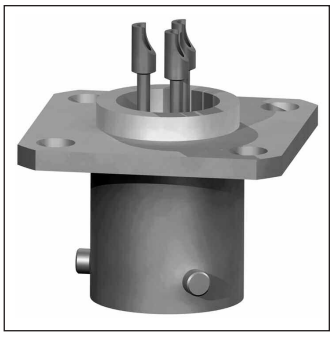
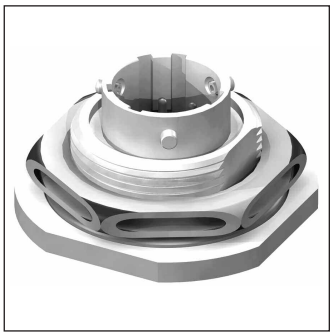
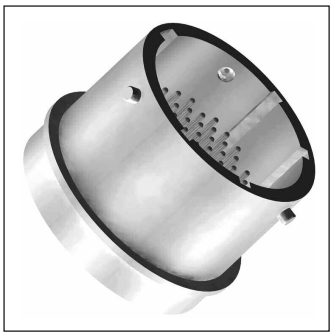
Conesys Europe
Hermetic Connectors

AE2 Series
per MIL-DTL-38999 Series II







Features and Application

AE2 Series hermetic connector receptacles are manufactured to Conesys Europe standards and meet all the requirements of MIL-DTL-38999 Series II.

AE2 Series connectors feature a bayonet coupling mechanism with lower profile design.

These connectors were designed for military and commercial applications where the prime requirements are lower profile and lighter weight.

Reduction of both size and weight were achieved through the use of thinner shell walls and length restrictions. These design restrictions reduce the RFI attenuation characteristics and eliminate the "scoop" protection, while yielding an excellent general-purpose, lightweight connector. Compared with AE1 Series, AE2 Series connectors achieved up to 20% reduction in mated pair length, up to 39% reduction in outside diameter and up to 40% reduction in weight (128-pin mated pair).

This family of connectors is available in 4 receptacle mounting styles. Square flange, box mounting, jam nut, and solder mount.

9 shell sizes and insert arrangements utilizing sizes 22D, 20, 16 and 12 contacts are available.

Customer-specific design can be proposed for special applications – Consult factory for details.

These hermetic connectors are available in passivated stainless steel and mild steel material, tin or nickel plated. Other materials can be proposed for special applications – Please consult factory.

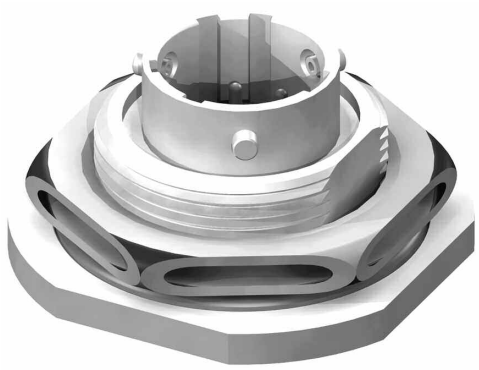
MIL-STD-1560 Insert Arrangement – AE2 Series hermetic connectors use standard insert arrangement.

Customer-Specific Insert Arrangement – AE2 Series hermetic connectors can be proposed with special insert arrangement – Please consult factory.

Interfacial Pin Insert Seal – Raised moisture barriers around each receptacle pin, which mate into lead-in chamfers of the plug hard face socket insert, provide individual contact sealing.

Glass insulator – These hermetic connectors are designed with sintered compression glass as an insulator.

Shell Polarization – Alternate key/keyway positions prevent cross mating of adjacent connectors having identical insert arrangement.



Performance Specifications

Operating Temperature Range
Classes E and N : -65°C to +200°C (-85°F to +392°F)
Class D : -65°C to +150°C (-85°F to +302°F)

Material and Finish Data (Class)
Class E:

RECEPTACLE	material:	stainless steel
	finish:	passivated
CONTACTS	material:	ferrous alloy
	finish:	gold plated

Class N:

RECEPTACLE	material:	stainless steel
	finish:	nickel plated
CONTACTS	material:	ferrous alloy
	finish:	gold plated

Class D:

RECEPTACLE	material:	mild steel
	finish:	tin plated
CONTACTS	material:	ferrous alloy
	finish:	gold plated

Corrosion Resistance
Class E: 500 hours
Classes D and N: 48 hours

Durability
Minimum of 500 mating cycles.

Leakage
$< 1.10^{-7}$ atm.cm^3.s^{-1}.

Shell-to-Shell Conductivity
Maximum potential drop shall not exceed:
Class N: 1 millivolt
Classes D and E: 50 millivolts

Insulation Resistance
>5000 M| under 500 Vdc
(25°C – 65% HR max.)

Withstanding Voltage
At sea level:
Service M: 1300 V RMS
Service I: 1800 V RMS
Service II: 2300 V RMS

At 21 000 m altitude:
Service M: 800 V RMS
Service I: 1000 V RMS
Service II: 1000 V RMS

Maximum Current Rating per Contact

Size 22D	3 Amp
Size 20	5 Amp
Size 16	10 Amp
Size 12	17 Amp
Size 8	40 Amp

Military and Conesys Part Number Development

Mil. Prefix	MS274	76Y	14	D	18	P	A	
Conesys Prefix	AE2	76Y	14	D	18	P	A	-XXX

Shell Type (specification sheet number)

76Y = Wall mount receptacle

77Y = Jam nut receptacle

78Y = Solder mount receptacle

Shell Size

Y **8, 10, 12, 14, 16, 18, 20, 22,** and **24**

Material and Finish

D = Shell – mild steel, tin plated
= Terminals – ferrous alloy, gold plated

E = Shell – stainless steel, passivated
= Terminals – ferrous alloy, gold plated

N = Shell – stainless steel, nickel plated
= Terminals – ferrous alloy, gold plated

Insert Arrangement

See pages 47–50

Contact Style (pin only)

P = Pin with solder cup

X = Pin with eyelet

C = Pin tail (for PCB)

Polarization (keying)

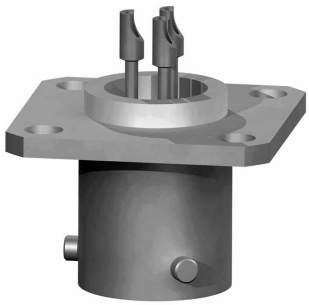
N = Normal (omitted in part number)

A, B, C, or **D** for alternatives (B and C keyways are not available in SS 8)

Modification or Particularities (applies to Conesys part numbers only)

XXX = Modification

Consult factory for details



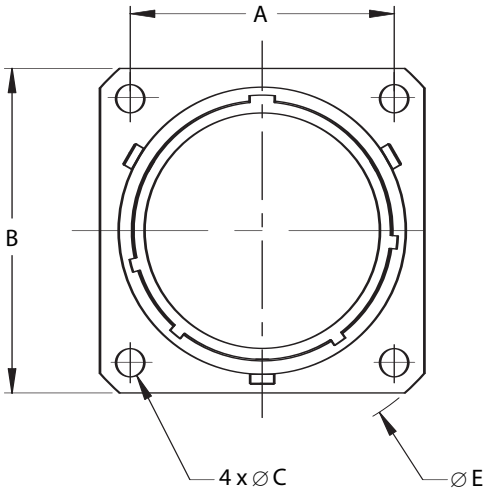
Terminal Configuration

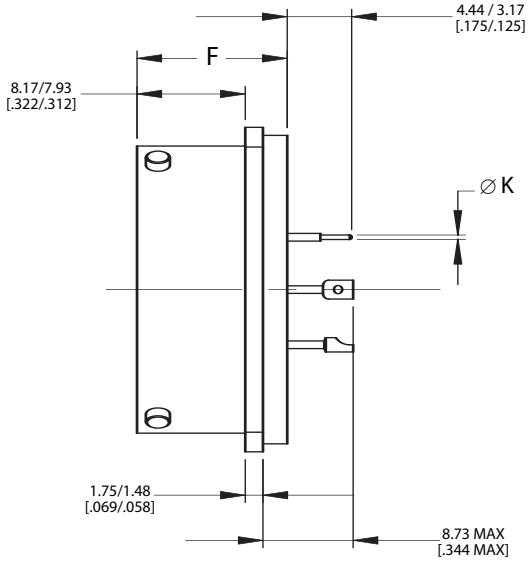
Terminal Style P
Solder cup
Available in size 22, 20, 16, 12, and 8
For other sizes, please consult factory.

Terminal Style X
Eyelet
Available in size 22, 20, and 16
For other sizes, please consult factory.

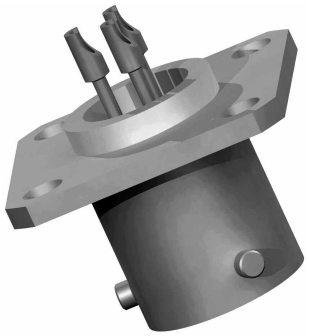
Terminal Style C
Pin tail for PCB
Available in size 22, 20, and 16
For other sizes or lengths, please consult factory.

AE276
Box Mount Receptacle
MS27476

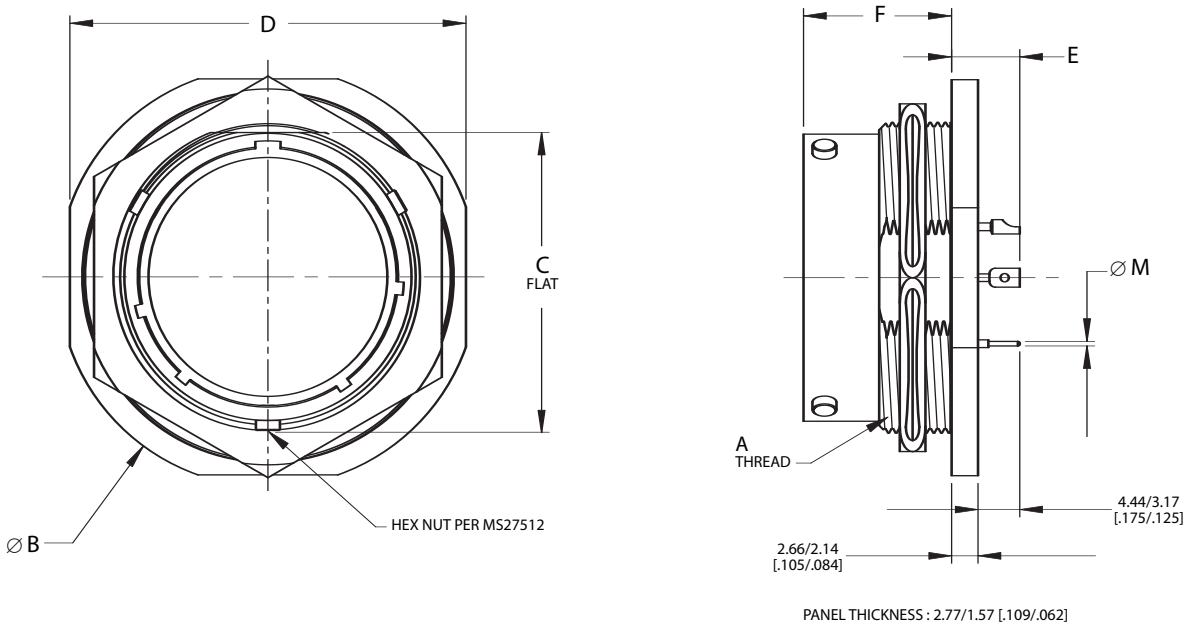




Contact Size	∅K	
	mm	inch
22D	0.28 0.38	.011 .015
20	0.60 0.70	.024 .028
16	1.56 1.61	.061 .063
12	2.36 2.41	.093 .095



Shell Size	A		B		∅C		∅E		F	
			Maximum		+0.25 -0.13	+.010 -.005	Maximum		Maximum	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
8	15.09	.594	21.03	.828	3.05	.120	27.38	1.078	11.51	.453
10	18.26	.719	24.23	.954	3.05	.120	32.16	1.266	11.51	.453
12	20.62	.812	26.59	1.047	3.05	.120	35.33	1.391	11.51	.453
14	23.01	.906	28.98	1.141	3.05	.120	38.51	1.516	11.51	.453
16	24.61	.969	31.34	1.234	3.05	.120	41.68	1.641	11.51	.453
18	26.97	1.062	33.73	1.328	3.05	.120	44.86	1.766	11.51	.453
20	29.36	1.156	36.91	1.453	3.05	.120	48.03	1.891	11.51	.453
22	31.75	1.250	40.08	1.578	3.05	.120	51.21	2.016	11.51	.453
24	34.93	1.375	43.26	1.703	3.73	.147	55.98	2.204	12.29	.484

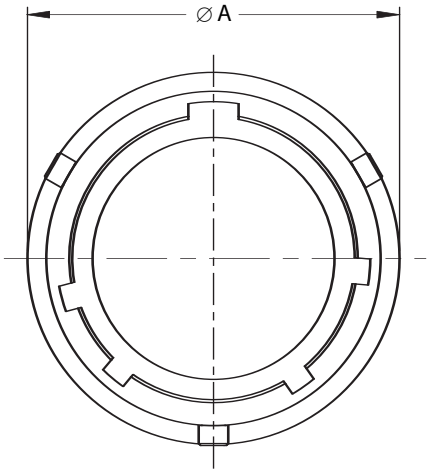


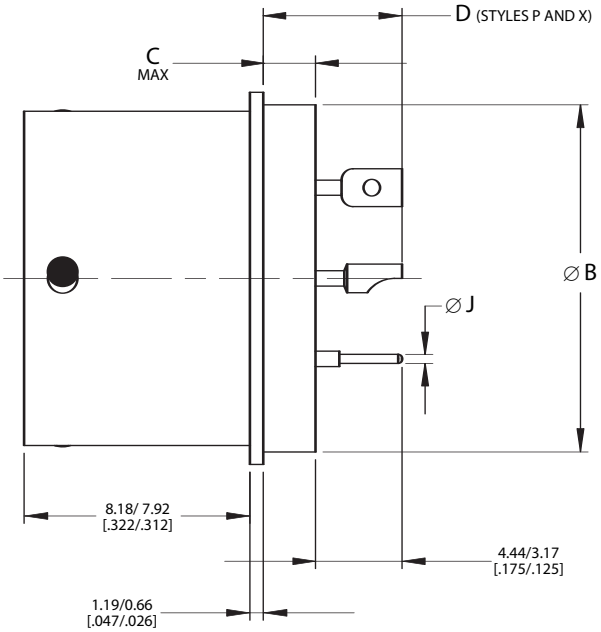
Contact Size	∅ M	
	mm	inch
22D	0.28 0.38	.011 .015
20	0.60 0.70	.024 .028
16	1.56 1.61	.061 .063
12	2.36 2.41	.093 .095

Note: Jam nut connectors are delivered with hex nut MS27512 and O-ring seal.

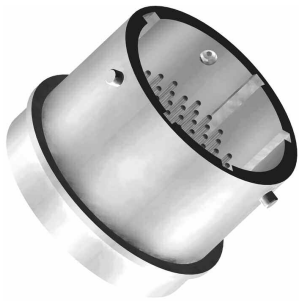
Shell Size	A	∅ B		C		D		E		F	
	Thread Class 2A	±0.41	±.015	Flat +0.03 -0.15	+.001 -.006	±0.41	±.015	Maximum		±0.13	±.005
		mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
8	.8750-20 UNEF	34.92	1.375	20.75	.817	31.75	1.250	7.14	.281	11.13	.438
10	1.000-20 UNEF	38.10	1.500	23.90	.941	34.93	1.375	7.14	.281	11.13	.438
12	1.125-18 UNEF	41.27	1.625	27.05	1.065	38.10	1.500	7.14	.281	11.13	.438
14	1.250-18 UNEF	44.45	1.750	30.23	1.190	41.28	1.625	7.14	.281	11.13	.438
16	1.375-18 UNEF	49.23	1.938	33.53	1.320	45.24	1.781	7.14	.281	11.13	.438
18	1.500-18 UNEF	51.21	2.016	36.58	1.440	48.01	1.890	7.14	.281	11.13	.438
20	1.625-18 UNEF	54.38	2.141	39.75	1.565	51.21	2.016	6.35	.250	11.79	.441
22	1.750-18 UNS	57.53	2.265	42.93	1.690	54.36	2.140	6.35	.250	11.79	.441
24	1.8750-16 UN	60.71	2.390	46.10	1.815	57.53	2.265	6.35	.250	11.79	.441

AE278
Solder Mount Receptacle
MS27478



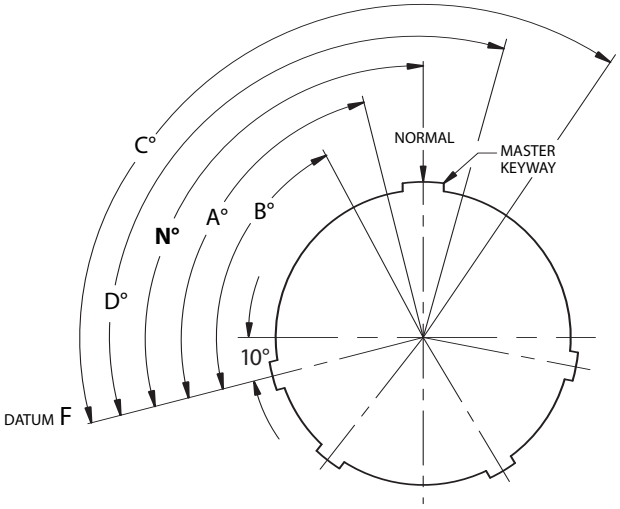


Contact Size	∅ J	
	mm	inch
22D	0.28 0.38	.011 .015
20	0.60 0.70	.024 .028
16	1.56 1.61	.061 .063
12	2.36 2.41	.093 .095



Shell Size	∅ A		∅ B		C		D	
	+0.28 -0.25	+.011 -.010	+0.03 -0.13	+.001 -.005	Maximum		Maximum	
	mm	inch	mm	inch	mm	inch	mm	inch
8	17.45	.687	14.27	.562	3.17	.125	9.52	.375
10	20.24	.797	17.07	.672	3.17	.125	9.52	.375
12	23.01	.906	19.84	.781	3.17	.125	9.52	.375
14	26.19	1.031	23.01	.906	3.17	.125	9.52	.375
16	29.36	1.156	26.19	1.031	3.17	.125	9.52	.375
18	32.54	1.281	29.36	1.156	3.17	.125	9.52	.375
20	34.92	1.375	31.75	1.250	3.17	.125	9.52	.375
22	38.10	1.500	34.92	1.375	3.96	.156	9.52	.375
24	41.27	1.625	38.10	1.500	3.96	.156	9.52	.375

Keying Positions



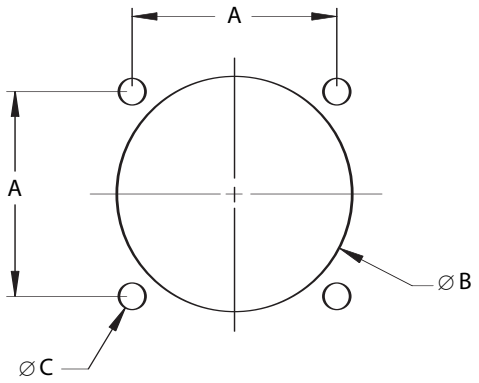
Notes:

1. Mating face of receptacle shown.
2. The master keyway (key) has various positions relative to DATUM **F**; the minor keyways (keys) remain fixed as shown. In the Normal position, the master keyway (key) is at 100° from DATUM **F**.
3. The insert arrangement does not rotate relative to master keyway (key).

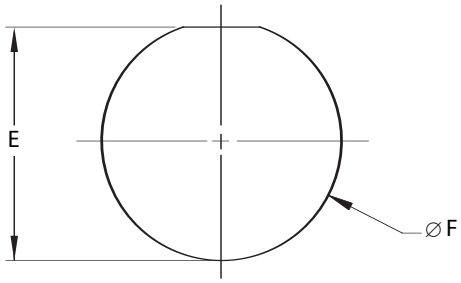
	Keying Positions				
	BSC				
ShellSize	N°	A°	B°	C°	D°
8	100	82	–	–	118
10	100	86	72	128	114
12	100	80	68	132	120
14	100	79	66	134	121
16	100	82	70	130	118
18	100	82	70	130	118
20	100	82	70	130	118
22	100	85	74	126	115
24	100	85	74	126	115

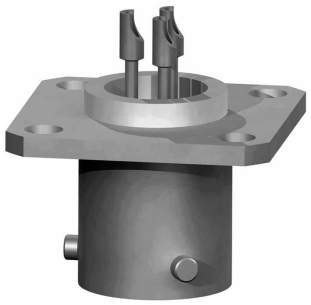
Panel Cutouts

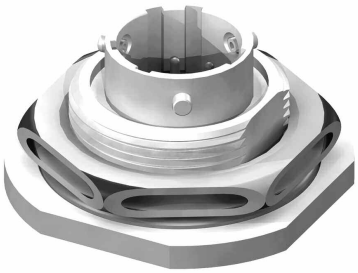
AE276
Wall Mount Receptacle



AE277
Jam Nut Receptacle







Shell Size	A (TP) mm	A (TP) inch	⌀B Minimum mm	⌀B Minimum inch	⌀C ±0.13 mm	⌀C ±.005 inch	E 0.00 -0.25 mm	E .000 -.010 inch	⌀F +0.25 0.00 mm	⌀F +.010 .000 inch
8	15.09	.594	14.15	.557	3.25	.128	21.08	.830	22.48	.885
10	18.26	.719	17.32	.682	3.25	.128	24.26	.955	25.65	1.010
12	20.62	.812	21.69	.854	3.25	.128	27.56	1.085	28.83	1.135
14	23.01	.906	24.87	.979	3.25	.128	30.73	1.210	32.01	1.260
16	24.61	.969	28.04	1.104	3.25	.128	33.91	1.335	35.18	1.385
18	26.97	1.062	31.22	1.229	3.25	.128	37.08	1.460	38.35	1.510
20	29.36	1.156	34.39	1.354	3.25	.128	40.26	1.585	41.53	1.635
22	31.75	1.250	37.57	1.479	3.25	.128	43.42	1.709	44.70	1.760
24	34.93	1.375	40.74	1.604	3.91	.154	46.61	1.835	47.88	1.885

Insert Arrangement and Contact Information

Insert Arrangement				Service	Total	Quantity of Contacts				
					No. of	by Size				
Series I	Series II	Series III	Series IV	Rating	Contacts	22D	20	16	12	8
9-35	8-35	A-35	—	M	6	6				
9-98	8-98	A-98	—	I	3		3			
11-2	—	B-2	B-2	I	2			2		
11-4	—	B-4	B-4	I	4		4			
11-5	10-5	B-5	B-5	I	5		5			
11-35	10-35	B-35	B-35	M	13	13				
11-98	10-98	B-98	B-98	I	6		6			
11-99	10-99	B-99	B-99	I	7		7			
13-4	12-4	C-4	C-4	I	4			4		
13-8	12-8	C-8	C-8	I	8		8			
13-35	12-35	C-35	C-35	M	22	22				
13-98	12-98	C-98	C-98	I	10		10			
15-5	14-5	D-5	D-5	II	5			5		
15-15	14-15	D-15	D-15	I	15		14	1		
15-18	14-18	D-18	D-18	I	18		18			
15-19	—	D-19	D-19	I	19		19			
15-35	14-35	D-35	D-35	M	37	37				
15-97	14-97	D-97	D-97	I	12		8	4		
17-6	16-6	E-6	E-6	I	6				6	
17-8	16-8	E-8	E-8	II	8			8		
17-26	16-26	E-26	E-26	I	26		26			
17-35	16-35	E-35	E-35	M	55	55				
17-99	16-99	E-99	E-99	I	23		21	2		

Insert Arrangement and Contact Information

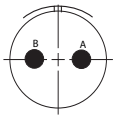
Insert Arrangement				Service	Total	Quantity of Contacts				
					No. of	by Size				
Series I	Series II	Series III	Series IV	Rating	Contacts	22D	20	16	12	8
19-11	18-11	F-11	F-11	II	11			11		
19-28	18-28	F-28	F-28	I	28		26	2		
19-30	18-30	F-30	F-30	I	30		29	1		
19-32	18-32	F-32	F-32	I	32		32			
19-35	18-35	F-35	F-35	M	66	66				
21-11	—	G-11	G-11	I	11				11	
21-16	20-16	G-16	G-16	II	16			16		
21-35	20-35	G-35	G-35	M	79	79				
21-39	20-39	G-39	G-39	I	39		37	2		
21-41	20-41	G-41	G-41	I	41		41			
21-48 *	—	G-48 *	G-48 *	I	4					4
23-21	22-21	H-21	H-21	II	21			21		
23-32	22-32	H-32	H-32	I	32		32			
23-35	22-35	H-35	H-35	M	100	100				
23-53	22-53	H-53	H-53	I	53		53			
23-55	22-55	H-55	H-55	I	55		55			
25-4	24-4	J-4	J-4	I	56		48	8		
25-19	24-19	J-19	J-19	I	19				19	
25-24	24-24	J-24	J-24	I	24			12	12	
25-29	24-29	J-29	J-29	I	29			29		
25-35	24-35	J-35	J-35	M	128	128				
25-43	—	J-43	J-43	I	43		23	20		
25-61	24-61	J-61	J-61	I	61		61			

* Not MIL-STD-1560 layout

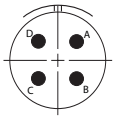
Insert Arrangement Views

9-35/8-35
A35,
6 # 22D, M

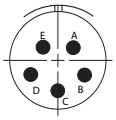
9-98/8-98
A98,
3 # 20, I



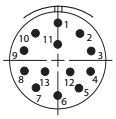
11-2
B2,
2 # 16, I



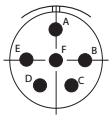
11-4
B4,
4 # 20, I



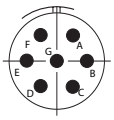
11-5/10-5
B5,
5 # 20, I



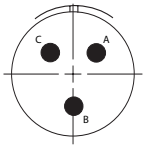
11-35/10-35
B35,
13 # 22D, M



11-98/10-98
B98,
6 # 20, I

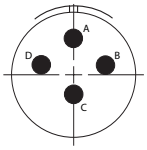


11-99/10-99
B99,
7 # 20, I

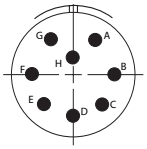


12-3

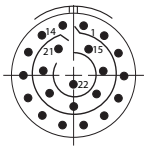
3 # 16, II



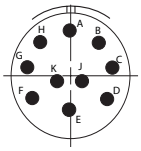
13-4/12-4
C4,
4 # 16, I



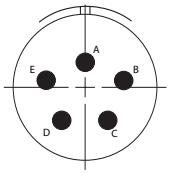
13-8/12-8
C8,
8 # 20, I



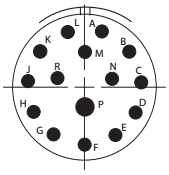
13-35/12-35
C35,
22 # 22D, M



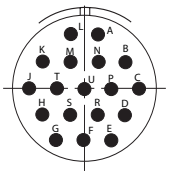
13-98/12-98
C98,
10 # 20, I



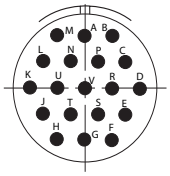
15-5/14-5
D5,
5 # 16, II



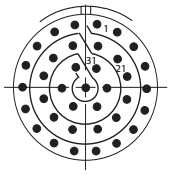
15-15/14-15
D15,
1 # 16, 14 # 20, I



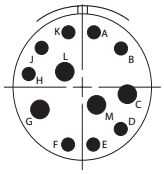
15-18/14-18
D18,
18 # 20, I



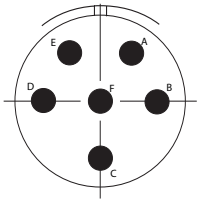
15-19
D19,
19 # 20, I



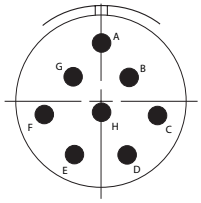
15-35/14-35
D35,
37 # 22D, M



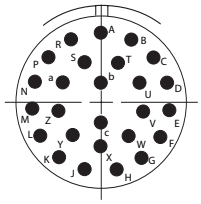
15-97/14-97
D97,
4 # 16, 8 # 20, I



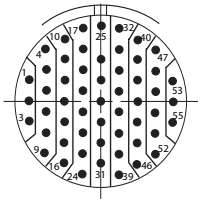
17-6/16-6
E6,
6 # 12, I



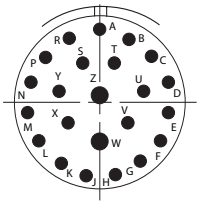
17-8/16-8
E8,
8 # 16, II



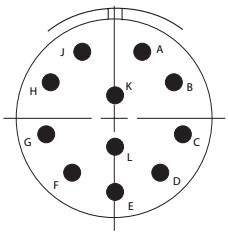
17-26/16-26
E26,
26 # 20, I



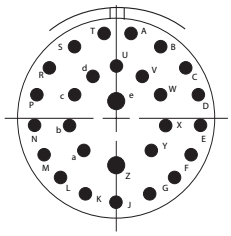
17-35/16-35
E35,
55 # 22D, M



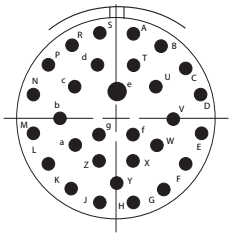
17-99/16-99
E99,
2 # 16, 21 # 20, I



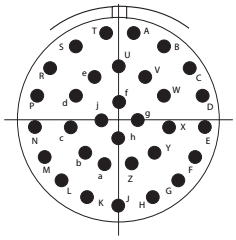
19-11/18-11
F11,
11 # 16, II



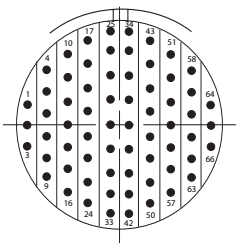
19-28/18-28
F28,
2 # 16, 26 # 20, I



19-30/18-30
F30,
1 # 16, 29 # 20, I



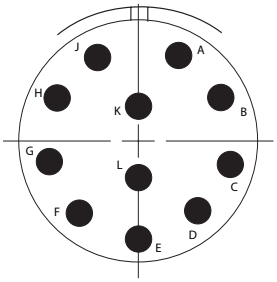
19-32/18-32
F32,
32 # 20, I



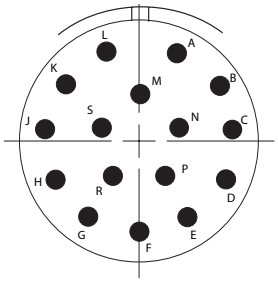
19-35/18-35
F35,
66 #22D, M

AE1, AE2, AE3, and AE4 Series
Insert Arrangement (Pin Front View)
per MIL-STD-1560

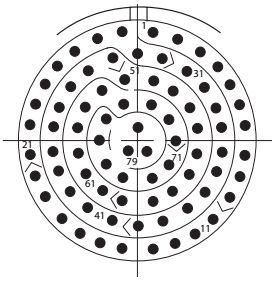
Insert Arrangement Views



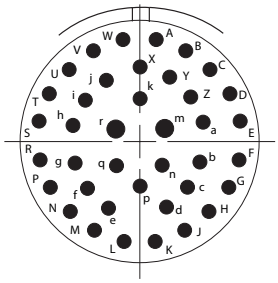
21-11
G11,
11 # 12, I



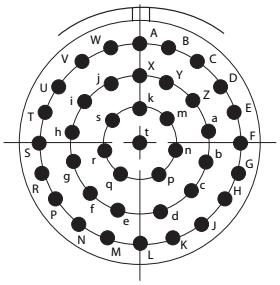
21-16/20-16
G16,
16 # 16, II



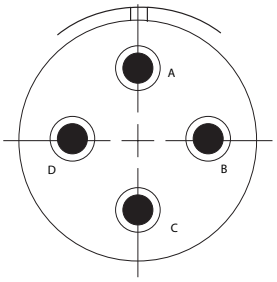
21-35/20-35
G35,
79 # 22D, M



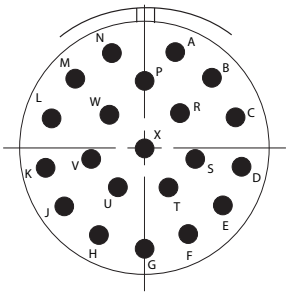
21-39/20-39
G39,
2 # 16, 37 # 20, I



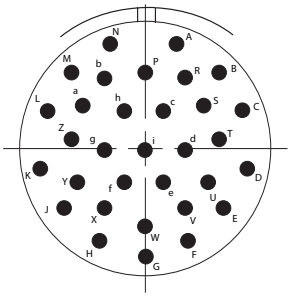
21-41/20-41
G41,
41 # 20, I



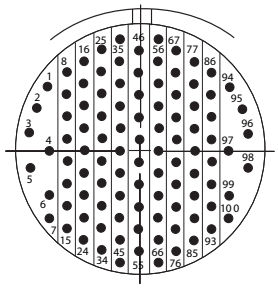
21-48*
G48*,
4 # 8 Power, I



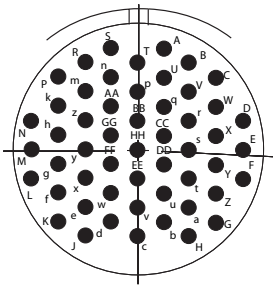
23-21/22-21
H21,
21 # 16, II



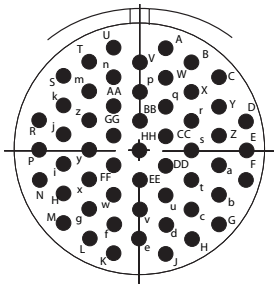
23-32/22-32
H32,
32 # 20, I



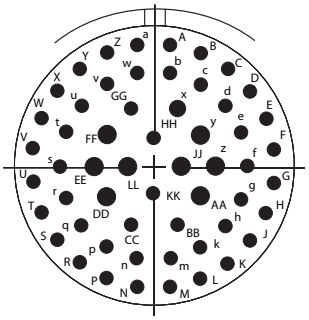
23-35/22-35
H35,
100 # 22D, M



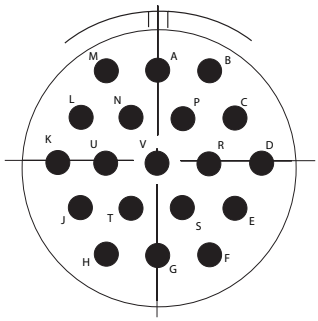
23-53/22-53
H53,
53 # 20, I



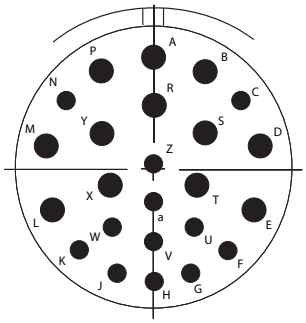
23-55/22-55
H55,
55 # 20, I



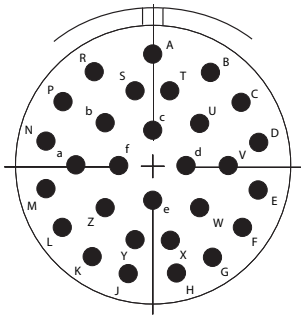
25-4/24-4
J4,
8 # 16, 48 # 20, I



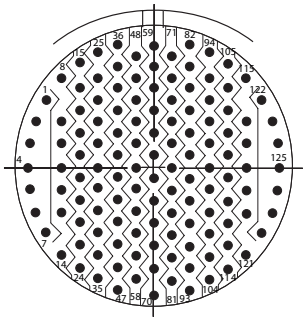
25-19/24-19
J19,
19 # 12, I



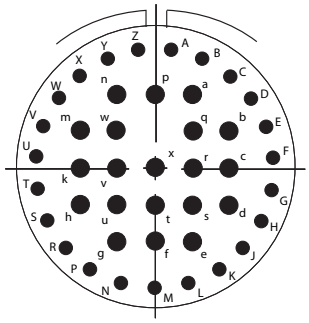
25-24/24-24
J24,
12 # 12, 12 # 16, I



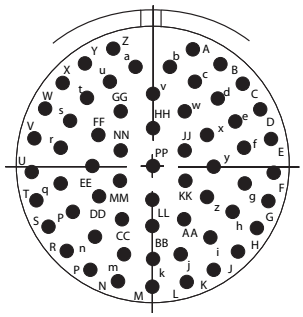
25-29/24-29
J29,
29# 16, I



25-35/24-35
J35,
128 # 22D, M



25-43
J43,
20 # 16, 23 # 20, I



25-61/24-61
J61,
61 # 20, I

* Not MIL-STD-1560 layout