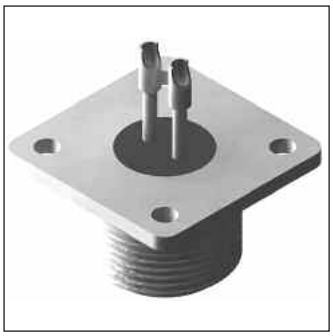
Conesys Europe
Hermetic Connectors

AE5 Series
per MIL-DTL-5015



Features and Application

AE5 Series hermetic connector receptacles are manufactured to Conesys Europe standards and meet all the requirements of MIL-DTL-5015.

AE5 Series hermetic connectors are intermountable and intermateable with MIL-DTL-5015 Series I solder plug, Series II front release plug, MIL-DTL-5015 Series III plug and also MIL-DTL-83723 Series II crimp-type plug connectors.

AE5 Series hermetic connectors are recommended for a wide range of applications, from commercial/industrial and mass-transportation systems to the most stringent high-reliability defense and aerospace requirements.

This family of hermetic connectors is available in three receptacle styles: square-flange wall mounting, and two solder mounting receptacles.

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

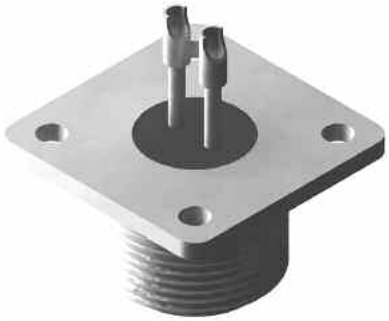
Insert Arrangement – AE5 Series hermetic connectors use MIL-STD 1651 insert arrangements. Contacts are available in sizes 16, 12, 8, 4, and 0.

Insert Polarization – Alternate insert clocking positions prevent cross mating of adjacent connectors having the same insert arrangement.

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.

Special Contacts – AE5 Series hermetic connectors are available with special contact, i.e., thermo couple (chromel, alumel, etc.). Commercial P/N only.



Performance Specifications

Operating Temperature Range
Class HY: -55°C to +200°C (-67°F to +392°F)
Class HT: -55°C to +175°C (-67°F to +347°F)
Class H: -55°C to +125°C (-67°F to +257°F)

Material and Finish Data (Class)
Class H:

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

Class HT:

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

Class HY (Conesys P/N only):

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

Corrosion Resistance
Class H and HT: In accordance with MIL-DTL-5015.
Class HY: 1000 hour salt spray.

Durability
Minimum of 100 mating cycles.

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

Shock and Vibration
In accordance with MIL-DTL-5015 specification.

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

Maximum Current Rating per Contact
Size 16 10 Amp
Size 12 17 Amp
Size 8 40 Amp
Size 4 80 Amp
Size 0 150 Amp

Voltage Rating

Altitude	Inst.	A	D	E	B	C
	V RMS	V RMS	V RMS	V RMS	V RMS	V RMS
Sea Level	1000	2000	2800	3500	4500	7000
15 000 m	400	600	675	750	825	975
21 000 m	260	360	400	440	480	560
33 000 m	200	200	200	200	200	200

Military and Conesys Part Number Development

Mil. Prefix	**MS31**	**42**	**HT**	**14S**	**C**	**5**	**P**	**X**	
Conesys Prefix	**AE7**	**42**	**HT**	**14S**	**C**	**5**	**P**	**X**	**-XXX**

Shell Type (specification sheet number)

41 = Solder mount receptacle – less flange (not QPL)

42 = Wall mount receptacle

43 = Solder mount receptacle

Class (Material and Finish)

HT = Shell – ferrous alloy, tin plated
= Terminals – ferrous alloy, gold plated

H = Shell – ferrous alloy, nickel plated
= Terminals – ferrous alloy, gold plated

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

Shell Size

10SL to 24 (Consult factory for other sizes)

Contact Style (pin only)

C = Pin with solder cup

Y = Pin with eyelet

S = Pin tail for PCB (Conesys P/N only)

Insert Arrangement

See pages 112–116

Contact Style (pin only)

Polarization (keying)

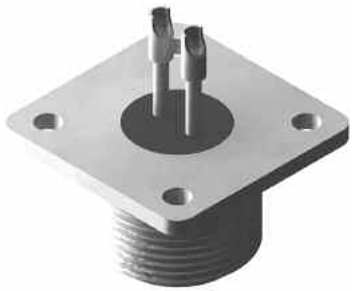
N = Normal (omitted in part number)

W, X, Y, or **Z** Alternate insert polarizations (see pages 112–113 for position availability)

Modification or Particularities (applies to Conesys part numbers only)

XXX = Modification

Consult factory for details



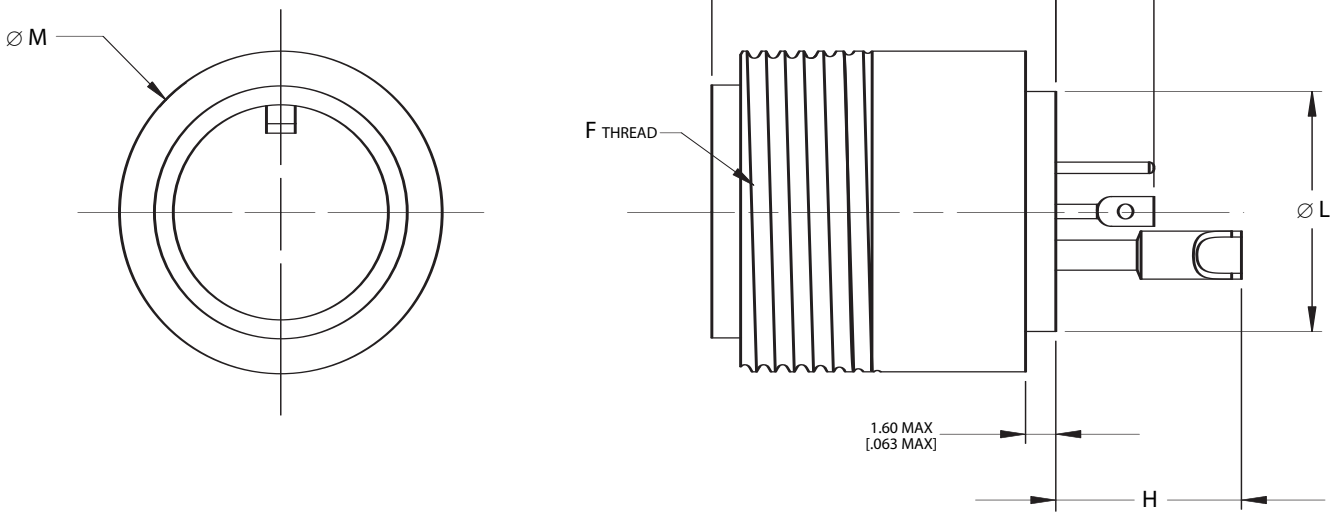
Terminal Configuration

Terminal Style C
Solder cup
Available in sizes 16, 12, 8, 4, and 0
For other sizes, please consult factory.

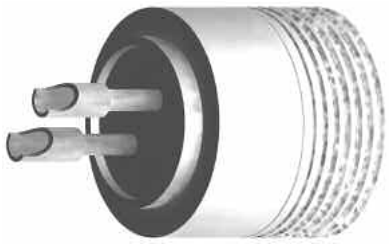
Terminal Style Y
Eyelet
Available in size 16
For other sizes, please consult factory.

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

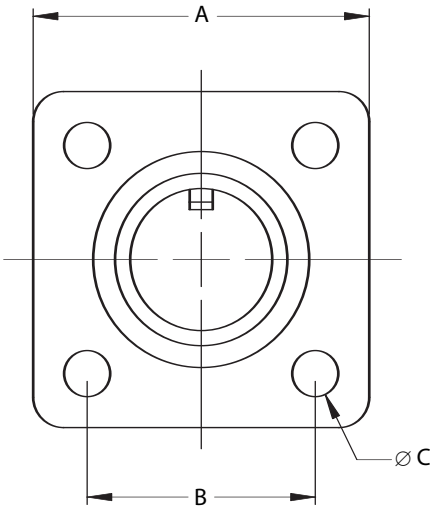
AE541
Solder Mount Receptacle – Less Flange

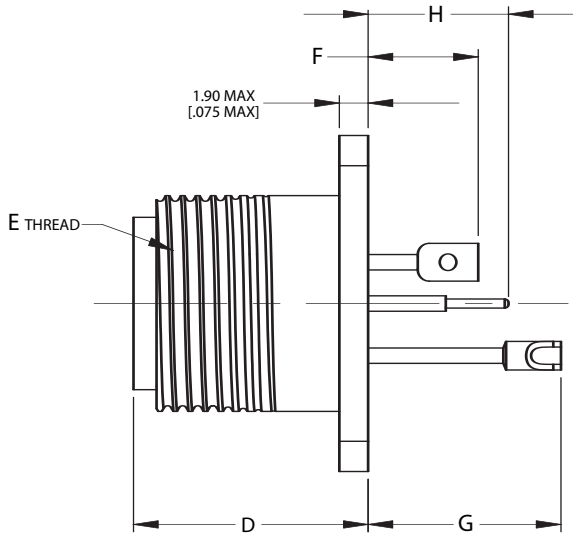


Contact Size	G		H	
	Maximum		Maximum	
	mm	inch	mm	inch
16	5.56	.219	9.50	.374
12	7.10	.280	13.10	.516
8	/	/	18.25	.719
4	/	/	24.90	.980
0	/	/	24.90	.980



Shell Size	E				⌀ L		F	⌀ M	
	#16, #12, and #8 Maximum		#4 and #0 Maximum		Maximum		Thread	Maximum	
	mm	inch	mm	inch	mm	inch	Class 2A	mm	inch
10 SL	18.54	.730	/	/	12.70	.500	.625-24 UNEF	15.90	.626
12 S	18.54	.730	/	/	16.70	.657	.750-20 UNEF	19.10	.752
14 S	18.54	.730	/	/	18.30	.720	.875-20 UNEF	22.20	.874
16 S	18.54	.730	26.41	1.040	21.50	.846	1.000-20 UNEF	25.40	1.000
12	23.24	.915	/	/	16.70	.657	.750-20 UNEF	19.10	.752
14	23.24	.915	/	/	18.30	.720	.875-20 UNEF	22.20	.874
16	23.24	.915	26.41	1.040	21.50	.846	1.000-20 UNEF	25.40	1.000
18	23.24	.915	26.41	1.040	24.60	.969	1.125-18 UNEF	28.60	1.126
20	23.24	.915	26.41	1.040	29.40	1.157	1.250-18 UNEF	31.80	1.252
22	23.24	.915	26.41	1.040	31.90	1.256	1.375-18 UNEF	35.00	1.378
24	23.24	.915	26.41	1.040	34.90	1.374	1.500-18 UNEF	38.10	1.500

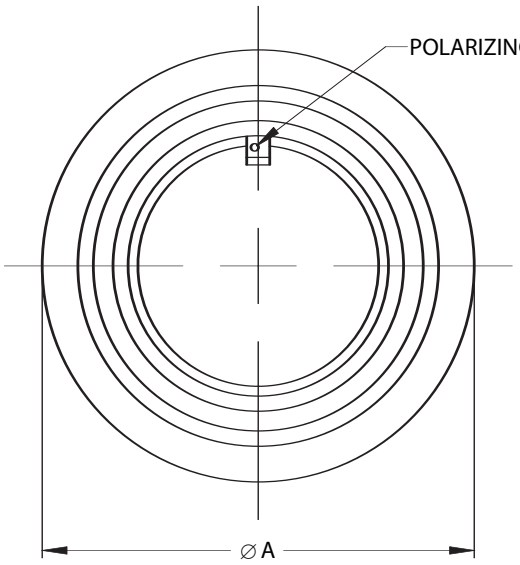


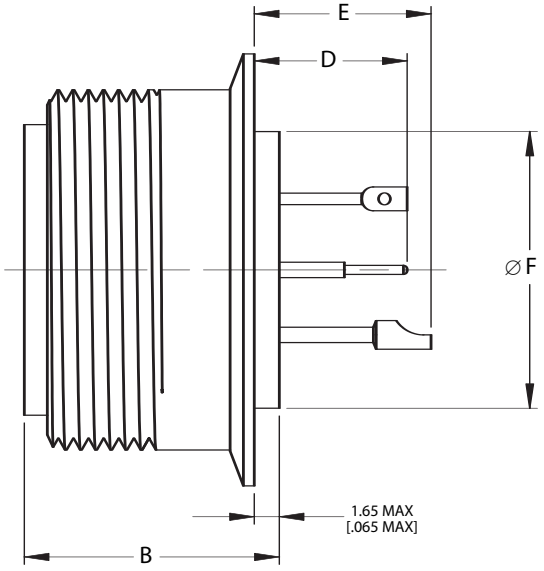


Contact Size	F		G		H	
	Maximum		Maximum		Maximum	
	mm	inch	mm	inch	mm	inch
16	5.56	.219	9.50	.374	5.56	.219
12	7.10	.280	13.10	.516	7.10	.280
8	/	/	18.25	.719	/	/
4	/	/	24.90	.980	/	/
0	/	/	24.90	.980	/	/

Shell Size	A		B		∅ C		D				E
	± 0.79	±.031	(TP)		± 0.40	±.016	#16, #12, and #8 Maximum		#4 and #0 Maximum		Thread
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	Class 2A
10 SL	25.40	1.000	18.26	.719	3.05	.120	18.54	.730	/	/	.625-24 UNEF
12 S	27.79	1.094	20.62	.812	3.05	.120	18.54	.730	/	/	.750-20 UNEF
14 S	30.18	1.188	23.01	.906	3.05	.120	18.54	.730	/	/	.875-20 UNEF
16 S	32.54	1.281	24.61	.969	3.05	.120	18.54	.730	26.41	1.040	1.000-20 UNEF
12	27.79	1.094	20.62	.812	3.05	.120	23.24	.915	/	/	.750-20 UNEF
14	30.18	1.188	23.01	.906	3.05	.120	23.24	.915	/	/	.875-20 UNEF
16	32.54	1.281	24.61	.969	3.05	.120	23.24	.915	26.41	1.040	1.000-20 UNEF
18	34.93	1.375	26.97	1.062	3.05	.120	23.24	.915	26.41	1.040	1.125-18 UNEF
20	38.10	1.500	29.36	1.152	3.05	.120	23.24	.915	26.41	1.040	1.250-18 UNEF
22	41.28	1.625	31.75	1.250	3.05	.120	23.24	.915	26.41	1.040	1.375-18 UNEF
24	44.45	1.750	34.93	1.375	3.73	.147	23.24	.915	26.41	1.040	1.500-18 UNEF

AE543
Solder Mount Receptacle
MS3143



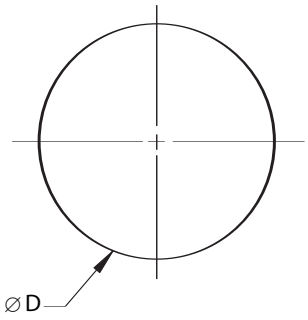


Contact Size	D Maximum mm	D Maximum inch	E Maximum mm	E Maximum inch
16	5.56	.219	9.50	.374
12	7.10	.280	13.10	.516
8	/	/	18.25	.719
4	/	/	24.90	.980
0	/	/	24.90	.980

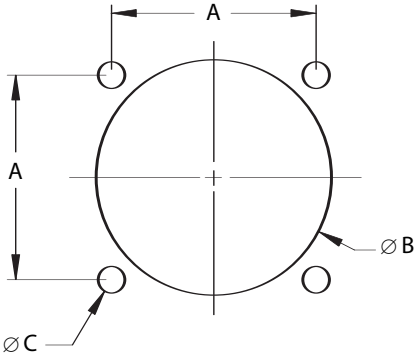
Shell Size	B #16, #12, and #8 Maximum mm	B #16, #12, and #8 Maximum inch	B #4 and #0 Maximum mm	B #4 and #0 Maximum inch	∅F Maximum mm	∅F Maximum inch	∅A ± 0.25 mm	∅A ±.010 inch
10 SL	18.54	.730	/	/	12.70	.500	22.23	.875
12 S	18.54	.730	/	/	16.70	.657	25.40	1.000
14 S	18.54	.730	/	/	18.30	.720	28.58	1.125
16 S	18.54	.730	26.41	1.040	21.50	.846	31.75	1.250
12	23.24	.915	/	/	16.70	.657	25.40	1.000
14	23.24	.915	/	/	18.30	.720	28.58	1.125
16	23.24	.915	26.41	1.040	21.50	.846	31.75	1.250
18	23.24	.915	26.41	1.040	24.60	.969	34.93	1.375
20	23.24	.915	26.41	1.040	29.40	1.157	38.10	1.500
22	23.24	.915	26.41	1.040	31.90	1.256	41.28	1.625
24	23.24	.915	26.41	1.040	34.90	1.374	44.45	1.750

Panel Cutouts

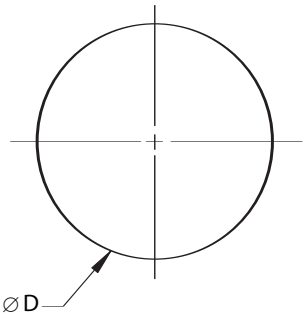
AE541
Solder Mount Receptacle



AE542
Wall Mount Receptacle



AE543
Solder Mount Receptacle

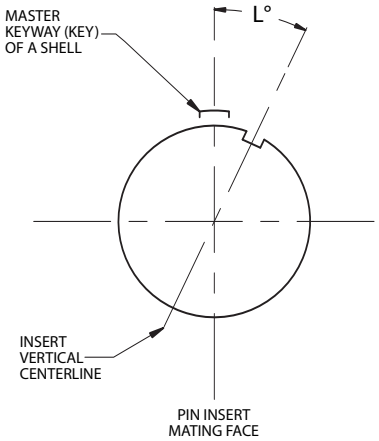


Shell Size	A (TP) mm	A (TP) inch	⌀B ± 0.40 mm	⌀B ±.016 inch	⌀C +0.25 -0.13 mm	⌀C +.010 -.005 inch	⌀D ± 0.05 mm	⌀D ±.002 inch
10 SL	18.26	.719	15.90	.626	3.05	.120	12.80	.504
12 S	20.62	.812	19.10	.752	3.05	.120	16.80	.661
14 S	23.01	.906	22.20	.874	3.05	.120	18.40	.724
16 S	24.61	.969	25.40	1.000	3.05	.120	21.60	.850
12	20.62	.812	19.10	.752	3.05	.120	16.80	.661
14	23.01	.906	22.20	.874	3.05	.120	18.40	.724
16	24.61	.969	25.40	1.000	3.05	.120	21.60	.850
18	26.97	1.062	28.60	1.126	3.05	.120	24.70	.972
20	29.36	1.152	31.80	1.252	3.05	.120	29.50	1.161
22	31.75	1.250	35.00	1.378	3.05	.120	32.00	1.260
24	34.93	1.375	38.10	1.500	3.73	.147	35.00	1.378

Polarization (Insert Clocking)

Notes:

- In the normal insert clocking position (position N), the insert centerline coincides with the centerline of the master keyway (key) of the shell: L = 0°.
- In the alternate clocking positions (W, X, Y and Z), the pin insert (viewing from mating side) is rotated clockwise relative to the centerline of the master keyway (key) of the shell.
- Be careful with alternate positions. See table below for position availability on layouts of interest.



Insert Arrangement	Total No. of Contacts	Service Rating	Quantity of Contacts by Size			Alternate Positions ** Insert Rotation in Degrees				
			16	12	8	N	W	X	Y	Z
10S-2	1	A	1			0	—	—	—	—
10SL-3	3	A	3			0	—	—	—	—
10SL-4	2	A	2			0	—	—	—	—
12S-3	2	A	2			0	70	145	215	290
12S-4	1	D	1			0	—	—	—	—
14S-1*	3	A	3			0	—	—	—	—
14S-2	4	Inst.	4			0	—	120	240	—
14S-5	5	Inst.	5			0	—	110	—	—
14S-6	6	Inst.	6			0	—	—	—	—
14S-7	3	A	3			0	90	180	270	—
14S-9*	2	A	2			0	70	145	215	290
16S-1	7	A	7			0	80	—	—	—
16S-4	2	D	2			0	35	110	250	325
16S-5*	3	A	3			0	70	145	215	290
16S-6*	3	A	3			0	90	180	270	—
16S-8	5	A	5			0	—	170	265	—
16-9	4	A	2	2		0	35	110	250	325
16-10	3	A		3		0	90	180	270	—
16-11	2	A		2		0	35	110	250	325
18-1	10	A/Inst.	10			0	70	145	215	290
18-4	4	D		4		0	35	110	250	325
18-8	8	A	7	1		0	70	—	—	290
18-9	7	Inst.	5	2		0	80	110	250	280
18-10*	4	A		4		0	—	120	240	—
18-11	5	A		5		0	—	170	265	—
18-12	6	A	6			0	80	—	—	280

* Inactive for new design

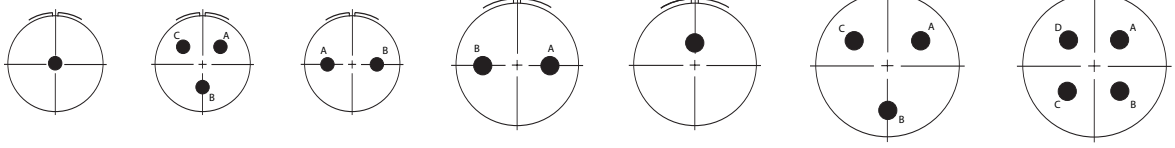
Polarization (Insert Clocking)

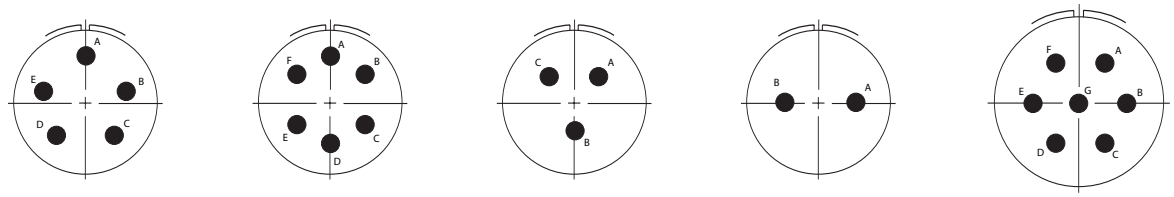
Insert Arrangement	Total No. of Contacts	Service Rating	Quantity of Contacts by Size			Alternate Positions ** Insert Rotation in Degrees				
			16	12	8	N	W	X	Y	Z
20-4	4	D		4		0	45	110	250	—
20-7	8	A / D	8			0	80	110	250	280
20-8	4	Inst.	4			0	80	110	250	280
20-14	3	A		3		0	80	110	250	280
20-15	7	A		7		0	80	—	—	280
20-16	9	A	7	2		0	80	110	250	280
20-17	6	A	1	5		0	90	180	270	—
20-18	9	A	6	3		0	35	110	250	325
20-22	6	A	3		3	0	80	110	250	280
20-24*	4	A	2		2	0	35	110	250	325
20-27	14	A	14			0	35	110	250	325
20-29	17	A	17			0	80	—	—	280
20-33	11	A	11			0	—	—	—	—
22-2	3	D			3	0	70	145	215	290
22-9	3	E		3		0	70	145	215	290
22-14**	19	A	19			0	80	110	250	280
22-18	8	A / D	8			0	80	110	250	280
22-19	14	A	14			0	80	110	250	280
22-20*	9	A	9			0	35	110	250	325
22-22	4	A			4	0	—	110	250	—
22-23	8	A / D		8		0	35	—	250	—
24-2	7	D		7		0	80	—	—	280
24-7	16	A	14	2		0	80	110	250	280
24-10	7	A			7	0	80	—	—	280
24-11	9	A		6	3	0	35	110	250	325
24-20	11	D	9	2		0	80	110	250	280
24-27	7	E	7			0	80	—	—	280
24-28	24	Inst.	24			0	80	110	250	280

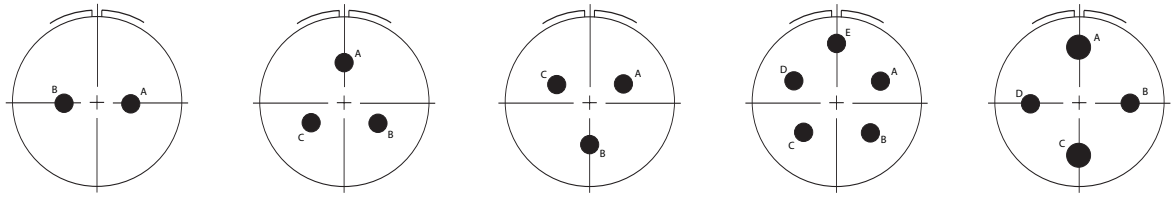
* Inactive for new design

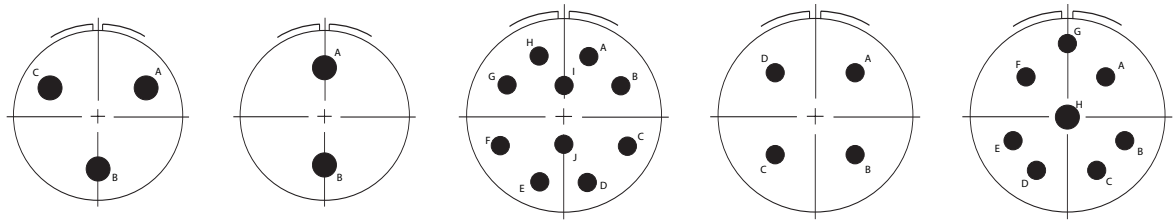
** Alternate positions X, Y are cancelled after June 26, 1968.

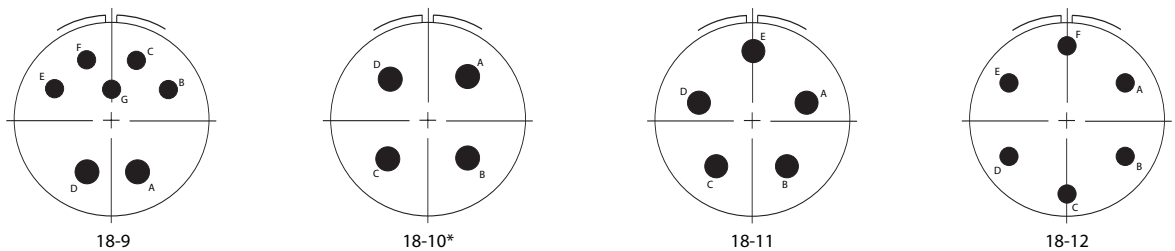
Insert Arrangement Views





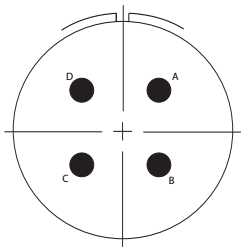




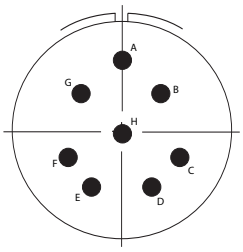


*Inactive for new design.

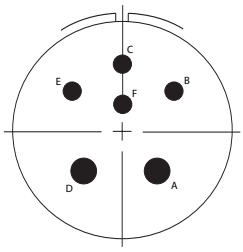
Insert Arrangement Views



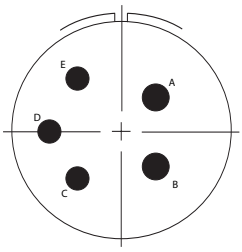
20-4
4 # 12



20-7
8 # 16



20-8
4 # 16, 2 # 8



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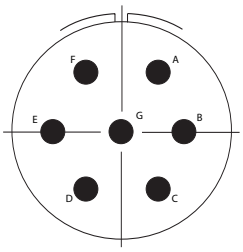

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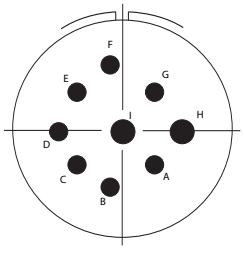

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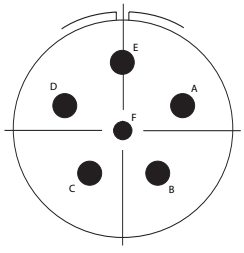

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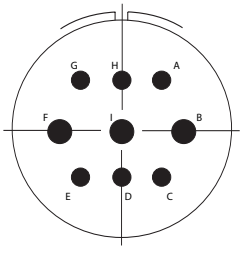
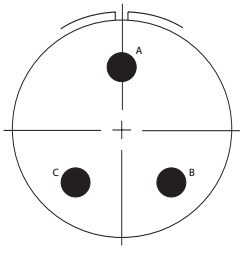


20-18
6 # 16, 3 # 12



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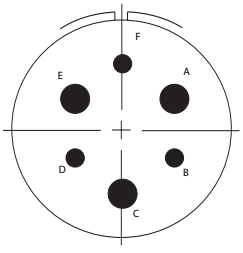
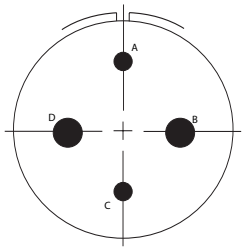


20-22
3 # 16, 3 # 8



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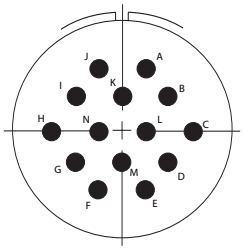
2 # 16, 2 # 8



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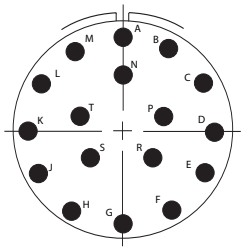

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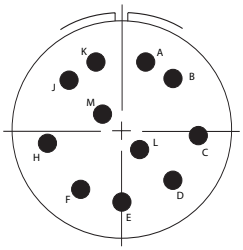
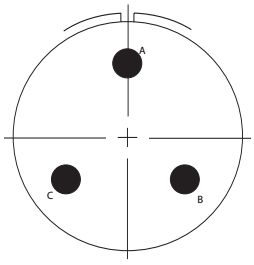


20-33
11 # 16



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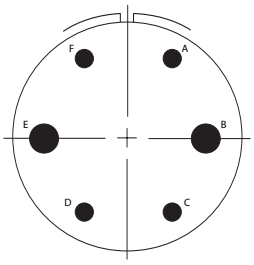
3 # 8



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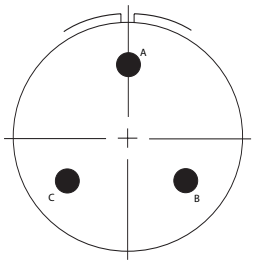

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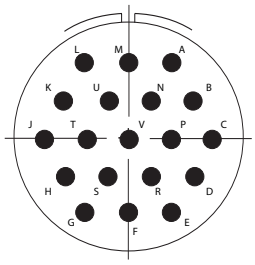
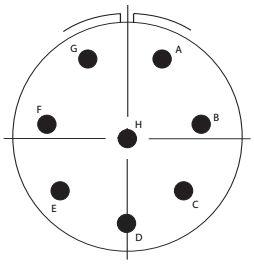


22-14**
19 # 16

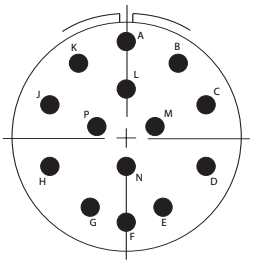
*Inactive for new design.

** Alternate positions X, Y are cancelled after June 26, 1968.

Insert Arrangement Views



22-18
8 # 16



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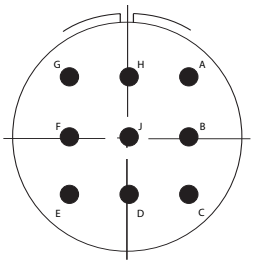
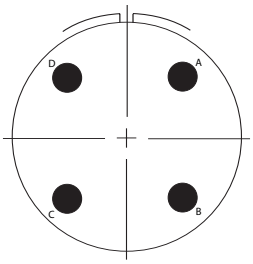
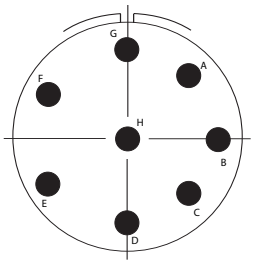


22-20*
9 # 16



22-22
4 # 8



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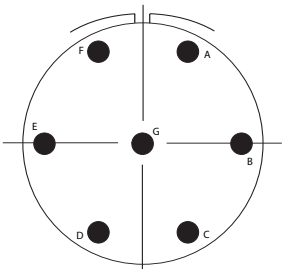

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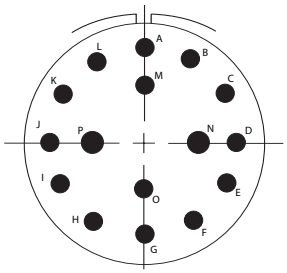
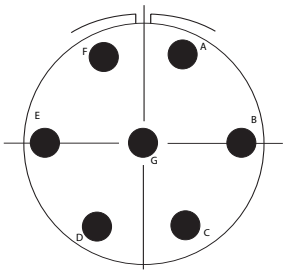
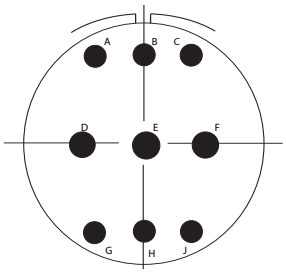
7 # 12



24-7
14 # 16, 2 # 12



24-10
7 # 8



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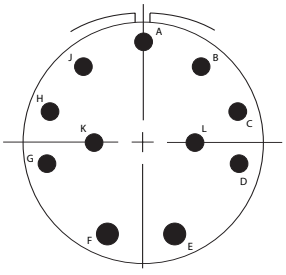

24-20
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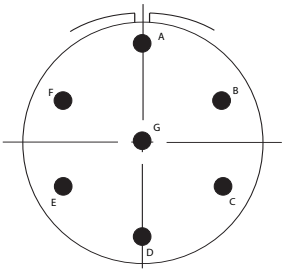

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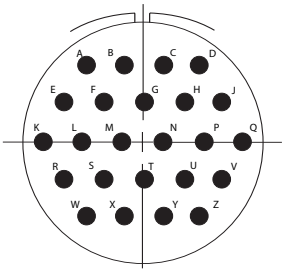

24-28
24 # 16

*Inactive for new design.