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Aero Industrial Products

X-Line Connectors



Military » Aerospace » Geophysical » Industrial » Transportation

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With roots dating back to 1983, Conesys Inc. is focused on the Design and Manufacturing of Quality Interconnect Products. We are an ISO 9001 and AS9100- Certified vertically integrated manufacturer of Circular and Rectangular Connectors for the Military, Industrial, Transportation and Commercial Markets.

Our companies Design, Manufacture and supply High Performance, EMI Filter & Transient Devices, Copper & High Frequency Interconnect Systems, Hermetically Sealed, PCB, RF and Application – Specific Interconnects to a wide range of Military, Aerospace, Commercial Aviation, Heavy Equipment, Rail & Mass Transit, Geophysical and Machine Automation sectors.

We are committed to being a Global Interconnect

Organization. Servicing our Customers throughout the America’s and Asia from our headquarters in Torrance, California, serving the needs of our European, African and Middle East Customers from our Conesys Europe facility in Toulouse, France and serving the local market in China from our Conesys Asia Ltd. facility in Beijing China.

Conesys Inc. combines excellent financial strength with the flexibility and responsiveness of an entrepreneurial firm to supply our valued Customers Quality Products, Cost-efficiency and On-Time Delivery, while meeting a full range of your requirements from Standard Applications to Customized Solutions Engineering.

Our Mission is to be a World-Class supplier of Electronic Connector Products through Customer Satisfaction, Quality, Innovation and Leading-Edge Technology.



**Conesys
World Headquarters**



Aero-Electric Connector
*A High Volume, Mil Spec
Connector Manufacturer*



Aero Industrial Products
*Manufacturer of Connectors
and Cable Assemblies for the
industrial marketplace*



J-Tech & EMP
*Manufacturers of Custom
Connectors, fiber optic
assemblies, and filter connectors*



Conesys Europe
*Sales, Engineering, and
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ATI Interco
*Sales and Engineering for
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Custom Connectors, Backshells
and Cabling Components*

X-Line



AE24 Series - X-Line

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Features and Applications

Conesys AE24 series X-Line connectors are heavy duty, environmentally sealed plugs and receptacles designed to meet or exceed the performance characteristics of MIL-DTL-5015. These connectors are recommended for a wide range of Industrial applications, including power generation, process controls, off-shore petroleum, geophysical equipment and mass transportation systems.

This family of connectors is offered in square flange receptacle (fixed connector), cable connecting receptacle (in-line) and mating plug - available with jack nut (long) or standard (short) coupling nut. All shell types are available with full complement of rear accessories (backend hardware).

Five shell sizes are offered in thirty-eight standard insert arrangements (consult with factory for latest information) utilizing 3 to 68 contacts combining power with signal circuits. Contacts come in sizes 18, 16, 12, 10, 8, 4 AWG.

Machined Shells with Hard Anodic Coating - The shells and backend hardware are machined from 6061T6 aluminum bar and hard anodic coated per MIL-A-8625, Type III.

Double-Lead Acme Thread - Quick and reliable coupling designed to resist cross-threading. Mating requires approximately one full turn of the coupling nut and only moderate torque.

Contact System - Insertable/Removable crimp contact inserts.

Reversible Inserts - Full range of inserts are interchangeable and reversible, suitable for use in all cable-mount, panel-mount and conduit-mount applications.

Contact Material and Plating - Crimp contacts are screw machined from copper alloy and plated with silver (standard); gold contacts optional.

Shell Grounding Clip and Pin - Grounding provides electrical circuit from designated contact to connector shell.

Insert Cavity Identification - Cavities are clearly marked on front and rear insert faces to facilitate assembly, inspection and maintenance.

Insert Materials - The two piece insert design includes a rigid front insulator and a resilient rubber insulator (rear) molded from neoprene. The rear insulators are color coded to indicate pin contacts (red) or socket contacts (green). Socket rigid insulator discs are designed with chamfered lead-ins facilitating easy and positive mating of male contacts.

Environmental Sealing - This series has an IP-68 rating. The rear elastomeric portion of the insert seals around the contacts, prevents leakage through the cavities and seals, against leakage between the insert and shell.

Large Compression Grommet - Neoprene grommet helps support cable and seals adapter from liquid and other contaminants.

Backend Hardware - Extended length, heavy duty cable adapter with internal seal and available basket weave strain relief improves cable protection.

RoHS Compliant Availability - Black nickel finish provides RoHS compliance. Consult factory for latest information.

Intermateability - AE24 connectors are intermateable with all major brands available in the market.

UL & CSA listed: UL2238/CSA C22.2, No. 182.3.



Performance Specifications

Operating Temperature Range

-55°C to +200°C (-40°F to +212°F)

Material and Finish Data

N – Aluminum shell, hard anodic coating, natural finish

6 – Aluminum shell, hard anodic coating, black anodized finish

BN – Aluminum shell, hard anodic coating, black nickel, conductive (RoHS)

Corrosion Resistance

Classes N and 6 withstand minimum of 1,000 hours salt spray.

Class BN withstands minimum of 250 hours salt spray.

Liquid Ingress Protection

IEC60529

IPX8

Solids Ingress Protection

IEC60529

IP6X

Service Voltage Rating

Voltage Rating is a function of dielectric separation between adjacent contacts and between contacts and shell. The voltage rating letter listed below corresponds to the insert configuration listing on the following pages.

Humidity/Moisture Resistance

MIL-STD-202

Method 106

Shock Resistance

EIA-364-27 Test Condition E

Vibration

EIA-364-28

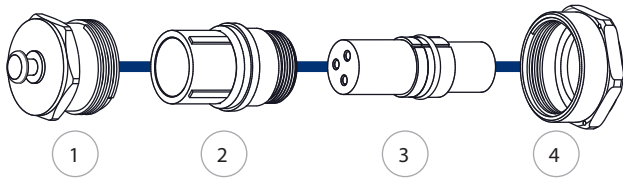
Exceeds Test Condition II

Service Voltage	SAE-AS5015 Spec. Rating		N.E.C. Rating		Over Surface Distance Inches Nominal	Thru-Air Spacing Inches Nominal
	Non-Circuit Breaking		Circuit Breaking	Non-Circuit Breaking		
	D.C. Volts	A.C. Volts (RMS)	D.C.	A.C. RMS		
Instrument	250	200	---	---	1/16	---
A	700	500	250	240	1/8	1/16
D	1250	900	600	600	3/16	1/8
E	1750	1250	600	600	1/4	3/16
B	2450	1750	600	600	5/16	1/4
C	4200	3000	600	600	1	5/16

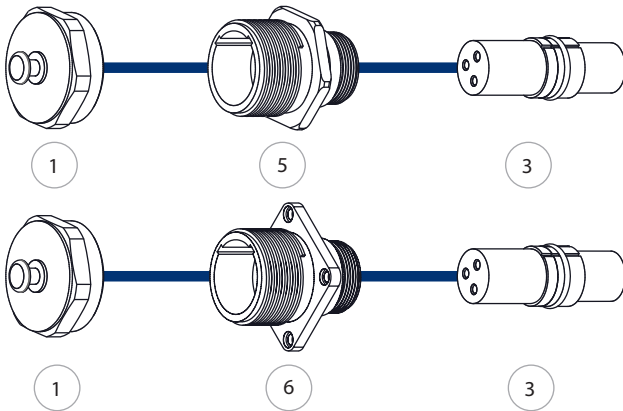
** To be used by designer only as a guide.

Cable Mounted Plug or Receptacle

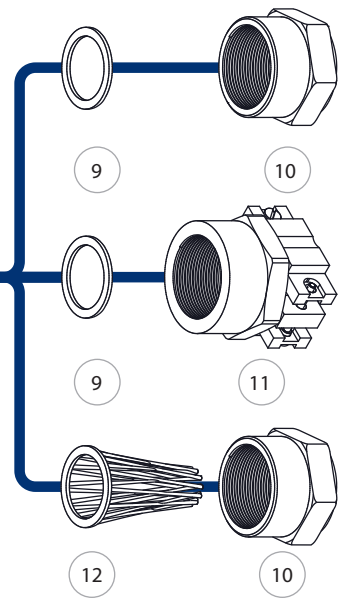
Typical Plug Assembly



Typical Receptacle Assembly



Strain Relief Options



- 1 Environmental Cover
- 2 Plug Skirt
- 3 Insert
- 4 Coupling Nut
- 5 Inline Receptacle
- 6 Square Flange Receptacle

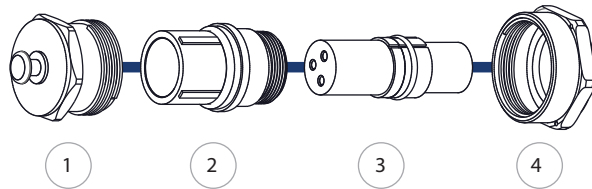
- 7 Cable Adapter
- 8 Grommet
- 9 Washer
- 10 Gland Nut
- 11 Mechanical Clamp Nut
- 12 Basketweave Cable Grip



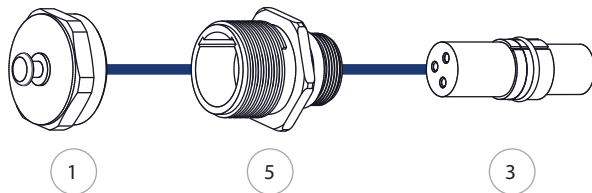
Assembled Connector example: AE24-BPEKL-0616-378PN
 Plug with Environmental Cover and Basket Weave Cable Grip and Gland Nut

Conduit Mounted Plug or Receptacle

Typical Plug Assembly



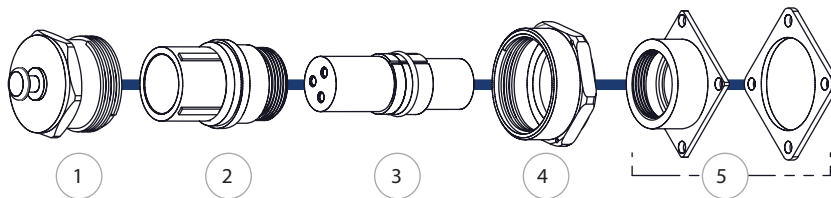
Typical Receptacle Assembly



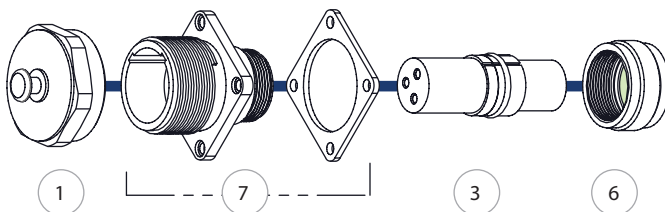
- 1 Environmental Cover
- 2 Plug Skirt
- 3 Insert
- 4 Coupling Nut
- 5 Inline Receptacle
- 6 Conduit Adapter

Panel Mounted Plug or Receptacle with Square Flange

Typical Plug Assembly



Typical Receptacle Assembly

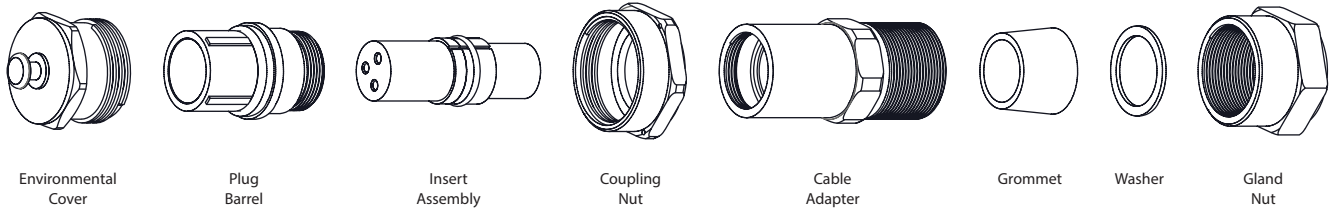


- 1 Environmental Cover
- 2 Plug Skirt
- 3 Insert
- 4 Coupling Nut
- 5 Panel Mount Adapter
- 6 Insert Clamp Nut
- 7 Square Flange Receptacle

X-Line Part Number Development

Aero Prefix	AE24-	N	P	E	K	L	J-	18	20-	354-	P	N	K-	04
Finish														
N = Hard anodize (natural)														
B = Black Nickel														
6 = Hard Anodize (black)														
Device Type														
P = Plug														
R = Receptacle														
S = Square flange receptacle (panel mount)														
Cover														
E = Environmental Cover														
L = No Cover														
Termination Style														
K = Basketweave														
M = Mechanical clamp nut														
D = Gland nut (compression nut or top nut)														
T = Conduit adapter														
P = Panel mount														
Cable Adapter														
Blank = Standard cable adapter														
L = Long														
X = Extra Long														
Coupling Nut														
Blank = Standard coupling nut														
J = Jack coupling nut (for inserts with 37 or more contacts)														
Cable diameter (for cable mounted devices)														
00 = Grommet not included Refer to table on page 29														
Shell Size														
12,16,20,24,28,C20,C24 & C28														
Insert Arrangement														
Refer to pages 25-28 for insert arrangement views														
Contact Type														
P = Pin (male)														
S = Socket (female)														
Contact Termination														
N = Crimp contact														
R = Pressure														
Contact Plating														
Blank = Silver														
K = Gold														
Keying Position														
Blank = Standard														
Code for alternate key position (see page 21, polarization 01 thru 09)														

Straight Plug with Compression Nut



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "♦"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

Shell Size	Standard Cable Adapter		Long Cable Adapter	
	Standard Coupling Nut	Jack Coupling Nut	Standard Coupling Nut	Jack Coupling Nut
12	AE24-XPLD-♦12-*		AE24-XPLDL-♦12-*	
16	AE24-XPLD-♦16-*	AE24-XPLDJ-♦16-*	AE24-XPLDL-♦16-*	AE24-XPLDLJ-♦16-*
20	AE24-XPLD-♦20-*	AE24-XPLDJ-♦20-*	AE24-XPLDL-♦20-*	AE24-XPLDLJ-♦20-*
C20	AE24-XPLD-♦C20-*	AE24-XPLDJ-♦C20-*	AE24-XPLDL-♦C20-*	AE24-XPLDLJ-♦C20-*
24	AE24-XPLD-♦24-*	AE24-XPLDJ-♦24-*	AE24-XPLDL-♦24-*	AE24-XPLDLJ-♦24-*
C24	AE24-XPLD-♦C24-*	AE24-XPLDJ-♦C24-*	AE24-XPLDL-♦C24-*	AE24-XPLDLJ-♦C24-*
28	AE24-XPLD-♦28-*	AE24-XPLDJ-♦28-*	AE24-XPLDL-♦28-*	AE24-XPLDLJ-♦28-*
C28	AE24-XPLD-♦C28-*	AE24-XPLDJ-♦C28-*	AE24-XPLDL-♦C28-*	AE24-XPLDLJ-♦C28-*

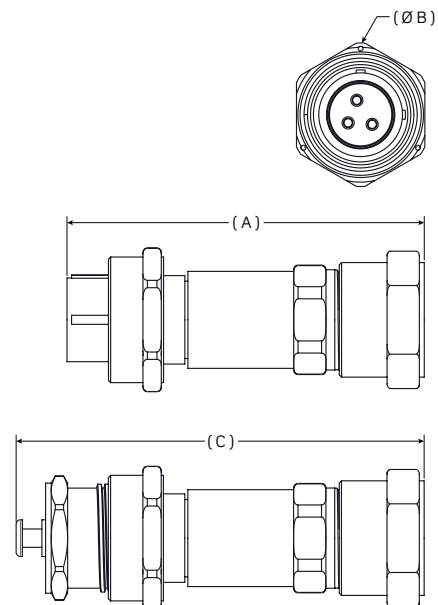
Plug Dimensions

With Standard Cable Adapter

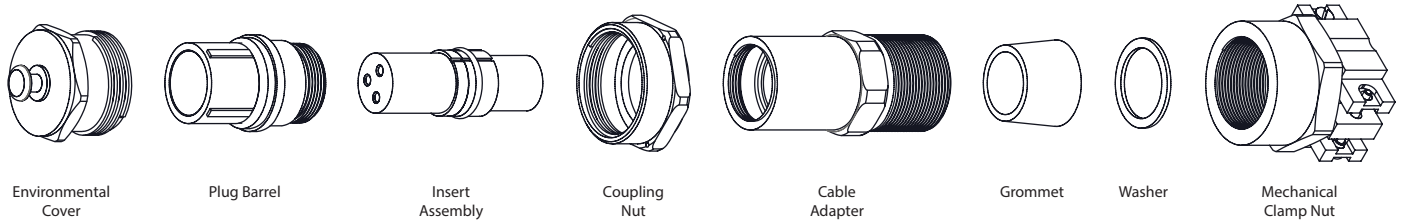
Shell Size	A (in)	B (in)	C (in)
12	5.37	1.95	5.97
16	5.26	2.48	5.22
20	6.12	3.00	6.72
C20	6.12	3.00	7.22
24	6.62	3.50	7.22
C24	7.12	3.50	7.72
28	7.12	4.22	7.72
C28	7.62	4.22	8.22

With Long Cable Adapter

Shell Size	A (in)	B (in)	C (in)
12	7.62	1.95	8.22
16	7.87	2.48	8.47
20	8.37	3.00	8.97
C20	8.87	3.00	9.47
24	8.87	3.50	9.47
C24	9.37	3.50	9.97
28	9.12	4.22	9.97
C28	9.62	4.22	10.22



Straight Plug with Mechanical Clamp Nut



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "◆"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

Shell Size	Standard Cable Adapter		Long Cable Adapter	
	Standard Coupling Nut	Jack Coupling Nut	Standard Coupling Nut	Jack Coupling Nut
12	AE24-XPLM-◆12-*		AE24-XPLML-◆12-*	
16	AE24-XPLM-◆16-*	AE24-XPLMJ-◆16-*	AE24-XPLML-◆16-*	AE24-XPLMLJ-◆16-*
20	AE24-XPLM-◆20-*	AE24-XPLMJ-◆20-*	AE24-XPLML-◆20-*	AE24-XPLMLJ-◆20-*
C20	AE24-XPLM-◆C20-*	AE24-XPLMJ-◆C20-*	AE24-XPLML-◆C20-*	AE24-XPLMLJ-◆C20-*
24	AE24-XPLM-◆24-*	AE24-XPLMJ-◆24-*	AE24-XPLML-◆24-*	AE24-XPLMLJ-◆24-*
C24	AE24-XPLM-◆C24-*	AE24-XPLMJ-◆C24-*	AE24-XPLML-◆C24-*	AE24-XPLMLJ-◆C24-*
28	AE24-XPLM-◆28-*	AE24-XPLMJ-◆28-*	AE24-XPLML-◆28-*	AE24-XPLMLJ-◆28-*
C28	AE24-XPLM-◆C28-*	AE24-XPLMJ-◆C28-*	AE24-XPLML-◆C28-*	AE24-XPLMLJ-◆C28-*

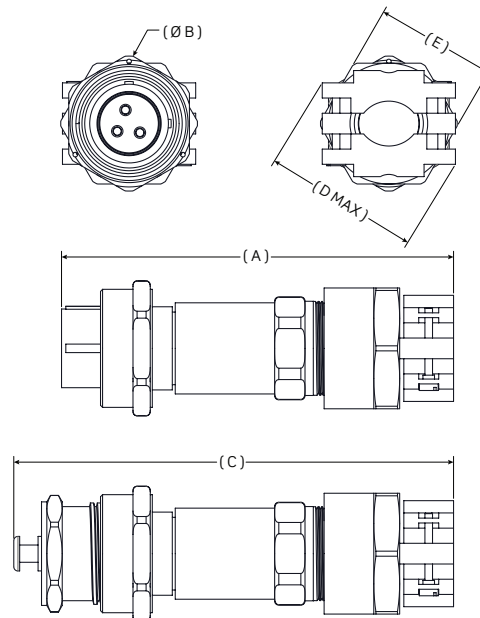
Plug Dimensions

With Standard Cable Adapter

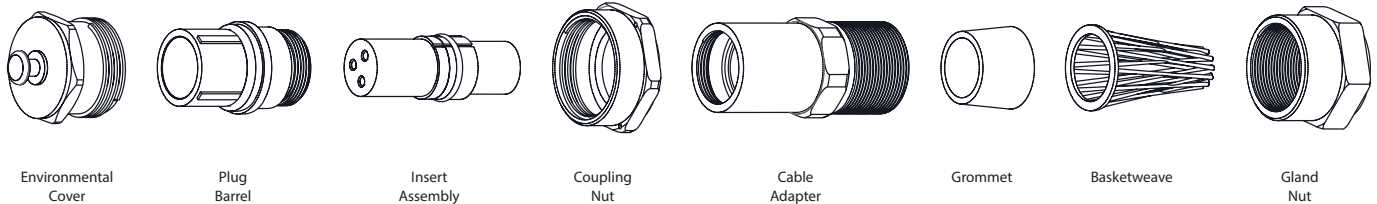
Shell Size	A (in)	B (in)	C (in)	D (in)	E (in)
12	6.12	1.95	6.72	2.37	1.75
16	6.44	2.48	7.03	3.00	2.25
20	7.00	3.00	7.59	3.75	2.75
C20	7.50	3.00	8.09	3.75	2.75
24	7.56	3.50	8.16	4.50	3.25
C24	8.06	3.50	8.66	4.50	3.25
28	8.12	4.22	8.72	5.12	3.75
C28	8.62	4.22	9.22	5.12	3.75

With Long Cable Adapter

Shell Size	A (in)	B (in)	C (in)	D (in)	E (in)
12	8.37	1.95	8.97	2.37	1.75
16	8.69	2.48	9.28	3.00	2.25
20	9.25	3.00	9.84	3.75	2.75
C20	9.75	3.00	10.34	3.75	2.75
24	9.81	3.50	10.41	4.50	3.25
C24	10.31	3.50	10.91	4.50	3.25
28	10.12	4.22	10.72	5.12	3.75
C28	10.62	4.22	11.22	5.12	3.75



Straight Plug with Basketweave Cable Grip



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "♦"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

Shell Size	Standard Cable Adapter		Long Cable Adapter	
	Standard Coupling Nut	Jack Coupling Nut	Standard Coupling Nut	Jack Coupling Nut
12	AE24-XPLK-♦12-*		AE24-XPLKL-♦12-*	
16	AE24-XPLK-♦16-*	AE24-XPLKJ-♦16-*	AE24-XPLKL-♦16-*	AE24-XPLKLJ-♦16-*
20	AE24-XPLK-♦20-*	AE24-XPLKJ-♦20-*	AE24-XPLKL-♦20-*	AE24-XPLKLJ-♦20-*
C20	AE24-XPLK-♦C20-*	AE24-XPLKJ-♦C20-*	AE24-XPLKL-♦C20-*	AE24-XPLKLJ-♦C20-*
24	AE24-XPLK-♦24-*	AE24-XPLKJ-♦24-*	AE24-XPLKL-♦24-*	AE24-XPLKLJ-♦24-*
C24	AE24-XPLK-♦C24-*	AE24-XPLKJ-♦C24-*	AE24-XPLKL-♦C24-*	AE24-XPLKLJ-♦C24-*
28	AE24-XPLK-♦28-*	AE24-XPLKJ-♦28-*	AE24-XPLKL-♦28-*	AE24-XPLKLJ-♦28-*
C28	AE24-XPLK-♦C28-*	AE24-XPLKJ-♦C28-*	AE24-XPLKL-♦C28-*	AE24-XPLKLJ-♦C28-*

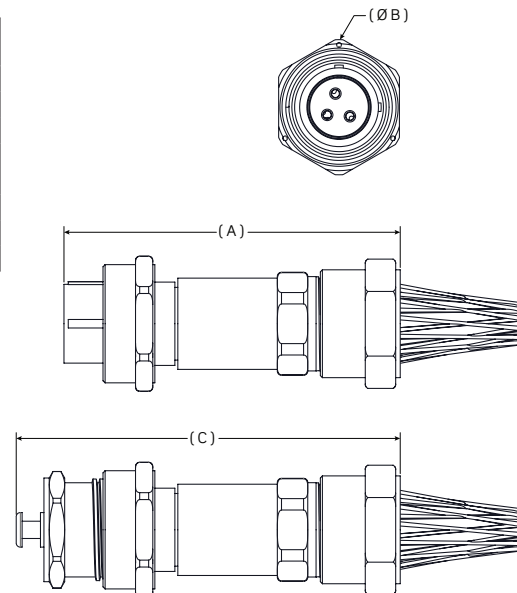
Plug Dimensions

With Standard Cable Adapter

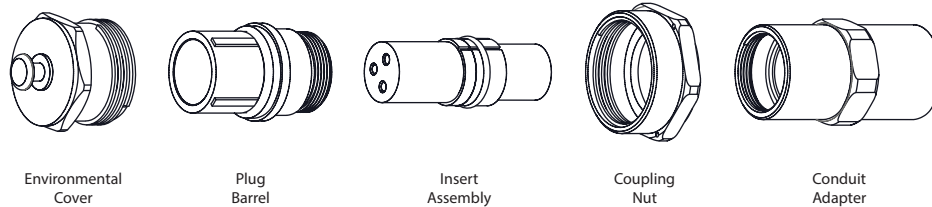
Shell Size	A (in)	B (in)	C (in)
12	5.37	1.95	5.97
16	5.62	2.48	5.22
20	6.12	3.00	6.72
C20	6.12	3.00	7.22
24	6.62	3.50	7.22
C24	7.12	3.50	7.72
28	7.12	4.22	7.72
C28	7.62	4.22	8.22

With Long Cable Adapter

Shell Size	A (in)	B (in)	C (in)
12	7.62	1.95	8.22
16	7.87	2.48	8.47
20	8.37	3.00	8.97
C20	8.87	3.00	9.47
24	8.87	3.50	9.47
C24	9.37	3.50	9.97
28	9.12	4.22	9.72
C28	9.62	4.22	10.22



Straight Plug with Conduit Adapter



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "◆"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

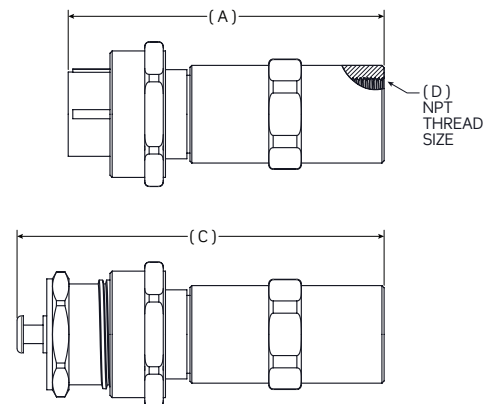
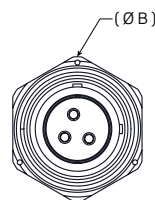
Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

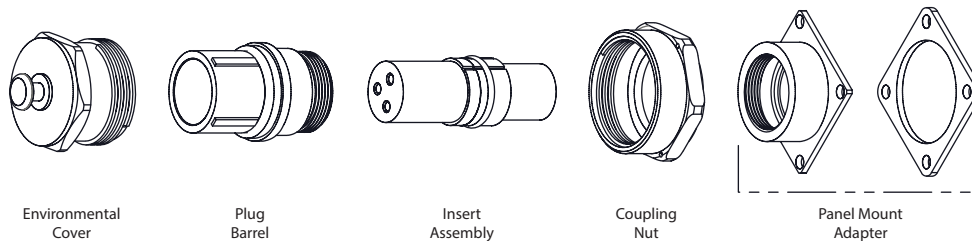
Shell Size	Conduit Size (NPT)	Conduit Code	Standard Coupling Nut	Jack Coupling Nut
12	3/4"	2	AE24-XPLT-2 12-*	
16	1 - 1/4"	4	AE24-XPLT-4 16-*	AE24-XPLTJ-4 16-*
20	1 - 1/2"	5	AE24-XPLT-5 20-*	AE24-XPLTJ-5 20-*
C20	1 - 1/2"	5	AE24-XPLT-5 C20-*	AE24-XPLTJ-5 C20-*
24	2"	6	AE24-XPLT-6 24-*	AE24-XPLTJ-6 24-*
C24	2"	6	AE24-XPLT-6 C24-*	AE24-XPLTJ-6 C24-*
28	2 - 1/2"	7	AE24-XPLT-7 28-*	AE24-XPLTJ-7 28-*
C28	2 - 1/2"	7	AE24-XPLT-7 C28-*	AE24-XPLTJ-7 C28-*

Plug Dimensions

Shell Size	A (in)	B (in)	C (in)	D (in)
12	4.25	1.95	4.84	3/4
16	4.37	2.48	4.97	1-1/4
20	4.50	3.00	5.09	1-1/2
C20	5.00	3.00	5.59	1-1/2
24	4.62	3.50	5.22	2
C24	5.12	3.50	5.72	2
28	5.09	4.22	5.69	2-1/2
C28	5.09	4.22	6.19	2-1/2



Panel Mount Plug



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "♦"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

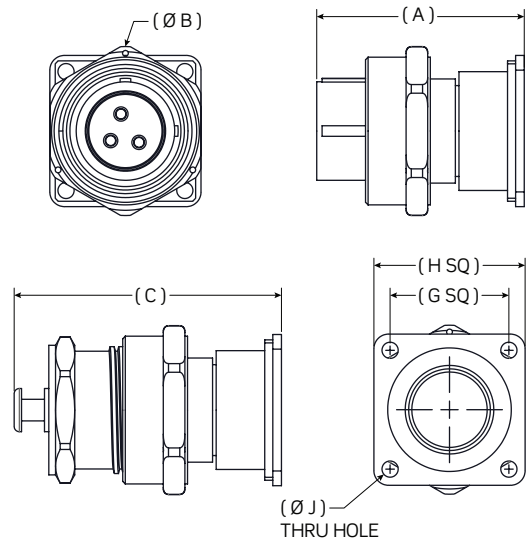
Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

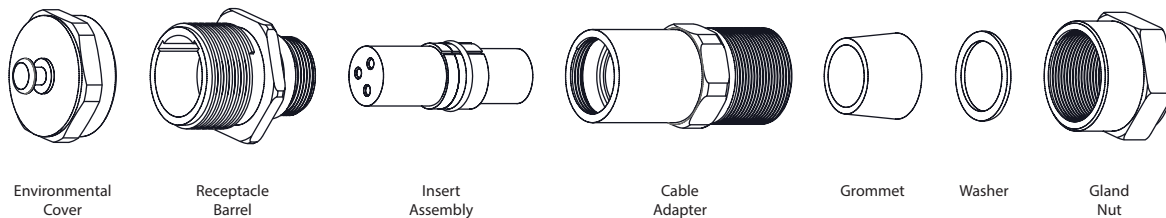
Shell Size	Standard Coupling Nut	Jack Coupling Nut
12	AE24-XPLP-♦12-*	
16	AE24-XPLP-♦16-*	AE24-XPLPJ-♦16-*
20	AE24-XPLP-♦20-*	AE24-XPLPJ-♦20-*
C20	AE24-XPLP-♦C20-*	AE24-XPLPJ-♦C20-*
24	AE24-XPLP-♦24-*	AE24-XPLPJ-♦24-*
C24	AE24-XPLP-♦C24-*	AE24-XPLPJ-♦C24-*
28	AE24-XPLP-♦28-*	AE24-XPLPJ-♦28-*
C28	AE24-XPLP-♦C28-*	AE24-XPLPJ-♦C28-*

Plug Dimensions

Shell Size	A (in)	B (in)	C (in)	G (in)	H (in)	J (in)
12	2.37	1.95	2.97	1.37	1.62	.19
16	2.41	2.48	3.00	1.69	2.12	.22
20	2.44	3.00	3.03	2.09	2.62	.28
C20	2.94	3.00	3.53	2.09	2.62	.28
24	2.94	3.50	3.06	2.53	3.12	.34
C24	2.97	3.50	3.31	2.53	3.12	.34
28	2.47	4.22	3.06	3.03	3.75	.34
C28	2.97	4.22	3.56	3.03	3.75	.34



Inline Receptacle with Compression Nut



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "◆"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

Shell Size	Standard Cable Adapter	Long Cable Adapter
12	AE24-XRLD-◆12-*	AE24-XRLDL-◆12-*
16	AE24-XRLD-◆16-*	AE24-XRLDL-◆16-*
20	AE24-XRLD-◆20-*	AE24-XRLDL-◆20-*
C20	AE24-XRLD-◆C20-*	AE24-XRLDL-◆C20-*
24	AE24-XRLD-◆24-*	AE24-XRLDL-◆24-*
C24	AE24-XRLD-◆C24-*	AE24-XRLDL-◆C24-*
28	AE24-XRLD-◆28-*	AE24-XRLDL-◆28-*
C28	AE24-XRLD-◆C28-*	AE24-XRLDL-◆C28-*

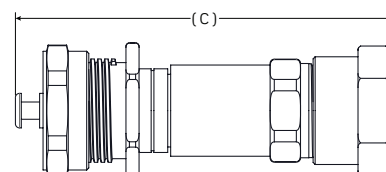
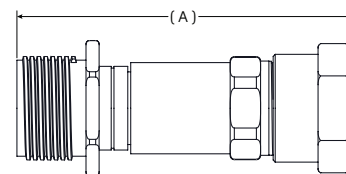
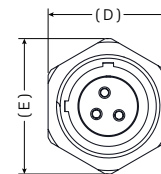
Receptacle Dimensions

With Standard Cable Adapter

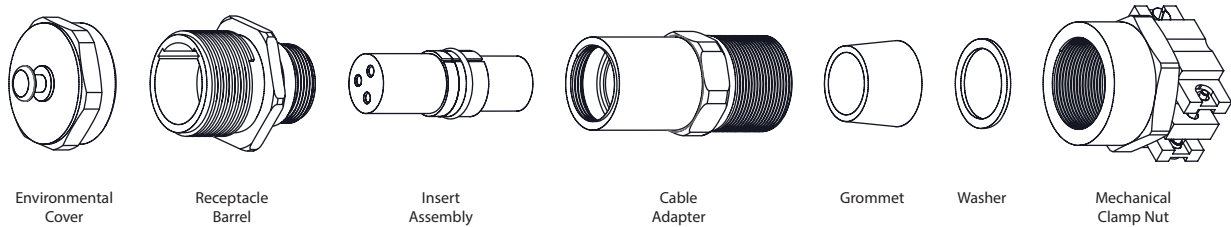
Shell Size	A (in)	C (in)	D (in)	E (in)
12	5.37	6.00	1.75	1.95
16	5.62	6.25	2.25	2.48
20	6.12	6.75	2.75	3.03
C20	6.12	7.25	2.75	3.03
24	6.62	7.25	3.25	3.56
C24	7.12	7.75	3.25	3.56
28	7.12	7.75	3.75	4.06
C28	7.62	8.25	3.75	4.06

With Long Cable Adapter

Shell Size	A (in)	C (in)	D (in)	E (in)
12	7.62	8.25	1.75	1.95
16	7.87	8.50	2.25	2.48
20	8.37	9.00	2.75	3.03
C20	8.87	9.50	2.75	3.03
24	8.87	9.50	3.25	3.56
C24	9.37	10.00	3.25	3.56
28	9.12	9.75	3.75	4.06
C28	9.62	10.25	3.75	4.06



Inline Receptacle with Mechanical Clamp Nut



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "◆"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

Shell Size	Standard Cable Adapter	Long Cable Adapter
12	AE24-XRLM-◆12-*	AE24-XRLML-◆12-*
16	AE24-XRLM-◆16-*	AE24-XRLML-◆16-*
20	AE24-XRLM-◆20-*	AE24-XRLML-◆20-*
C20	AE24-XRLM-◆C20-*	AE24-XRLML-◆C20-*
24	AE24-XRLM-◆24-*	AE24-XRLML-◆24-*
C24	AE24-XRLM-◆C24-*	AE24-XRLML-◆C24-*
28	AE24-XRLM-◆28-*	AE24-XRLML-◆28-*
C28	AE24-XRLM-◆C28-*	AE24-XRLML-◆C28-*

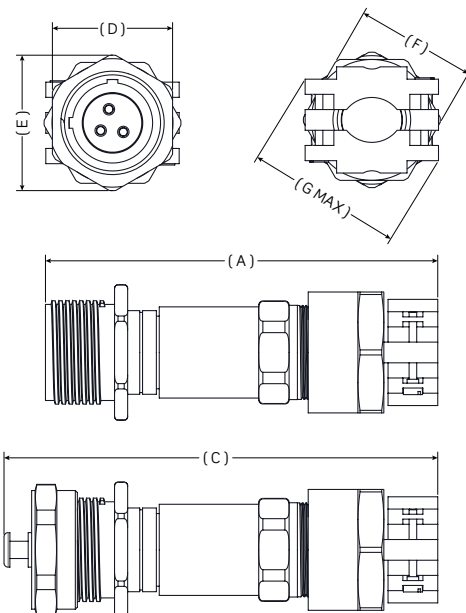
Receptacle Dimensions

With Standard Cable Adapter

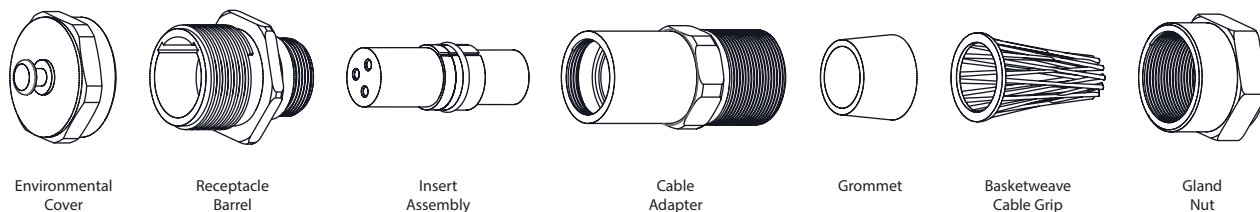
Shell Size	A (in)	C (in)	D (in)	E (in)	F (in)	G (in)
12	6.12	6.75	1.75	1.95	1.75	2.37
16	6.44	7.06	2.25	2.48	2.25	3.00
20	7.00	7.62	2.75	3.03	2.75	3.75
C20	7.50	8.12	2.75	3.03	2.75	3.75
24	7.56	8.19	3.25	3.56	3.25	4.50
C24	8.06	8.69	3.25	3.56	3.25	4.50
28	8.12	8.75	3.75	4.06	3.75	5.12
C28	8.62	9.25	3.75	4.06	3.75	5.12

With Long Cable Adapter

Shell Size	A (in)	C (in)	D (in)	E (in)	F (in)	G (in)
12	8.37	9.00	1.75	1.95	1.75	2.37
16	8.69	9.31	2.25	2.48	2.25	3.00
20	9.25	9.87	2.75	3.03	2.75	3.75
C20	9.75	10.37	2.75	3.03	2.75	3.75
24	9.81	10.44	3.25	3.56	3.25	4.50
C24	10.31	10.69	3.25	3.56	3.25	4.50
28	10.12	10.75	3.75	4.06	3.75	5.12
C28	10.62	11.25	3.75	4.06	3.75	5.12



Inline Receptacle with Basketweave Cable Grip



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "♦"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

Shell Size	Standard Cable Adapter	Long Cable Adapter
12	AE24-XRLK-♦12-*	AE24-XRLKL-♦12-*
16	AE24-XRLK-♦16-*	AE24-XRLKL-♦16-*
20	AE24-XRLK-♦20-*	AE24-XRLKL-♦20-*
C20	AE24-XRLK-♦C20-*	AE24-XRLKL-♦C20-*
24	AE24-XRLK-♦24-*	AE24-XRLKL-♦24-*
C24	AE24-XRLK-♦C24-*	AE24-XRLKL-♦C24-*
28	AE24-XRLK-♦28-*	AE24-XRLKL-♦28-*
C28	AE24-XRLK-♦C28-*	AE24-XRLKL-♦C28-*

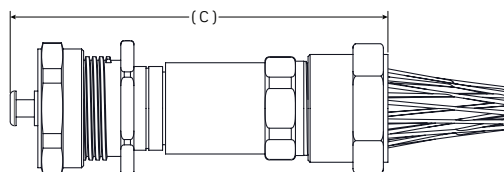
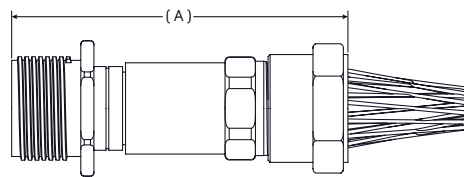
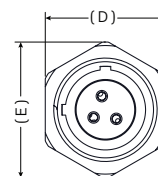
Receptacle Dimensions

With Standard Cable Adapter

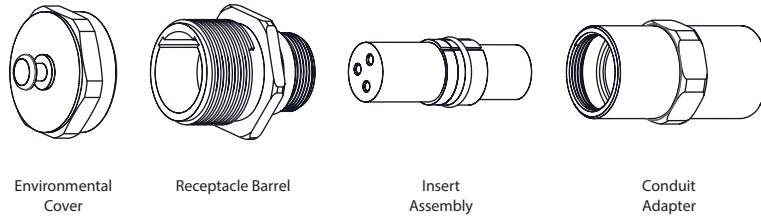
Shell Size	A (in)	C (in)	D (in)	E (in)
12	5.37	6.00	1.75	1.95
16	5.62	6.25	2.25	2.48
20	6.12	7.75	2.75	3.03
C20	6.62	7.25	2.75	3.03
24	6.62	7.25	3.25	3.56
C24	7.12	7.75	3.25	3.56
28	7.12	7.75	3.75	4.06
C28	7.62	8.25	3.75	4.06

With Long Cable Adapter

Shell Size	A (in)	C (in)	D (in)	E (in)
12	7.62	8.25	1.75	1.95
16	7.87	8.50	2.25	2.48
20	8.37	9.00	2.75	3.03
C20	8.87	9.50	2.75	3.03
24	8.87	9.50	3.25	3.56
C24	9.37	10.00	3.25	3.56
28	9.12	9.75	3.75	4.06
C28	9.62	10.25	3.75	4.06



Inline Receptacle with Conduit Adapter



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "♦"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

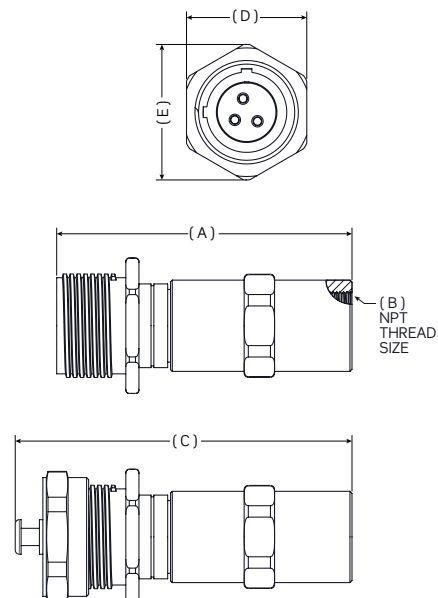
Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

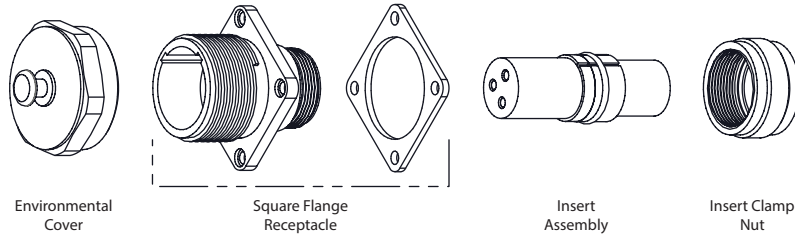
Shell Size	Conduit Size (NPT)	Conduit Code	Inline Receptacle with Conduit Adapter
12	3/4"	2	AE24-XRLT-2 12-*
16	1 - 1/4"	4	AE24-XRLT-4 16-*
20	1 - 1/2"	5	AE24-XRLT-5 20-*
C20	1 - 1/2"	5	AE24-XRLT-5 C20-*
24	2"	6	AE24-XRLT-6 24-*
C24	2"	6	AE24-XRLT-6 C24-*
28	2 - 1/2"	7	AE24-XRLT-7 28-*
C28	2 - 1/2"	7	AE24-XRLT-7 C28-*

Receptacle Dimensions

Shell Size	A (in)	B (in)		C (in)	D (in)	E (in)
		Pipe Size				
12	4.25	3/4		4.87	1.75	1.95
16	4.37	1-1/4		5.00	2.25	2.48
20	4.50	1-1/2		5.12	2.75	3.03
C20	5.50	1-1/2		5.62	2.75	3.03
24	4.62	2		5.25	3.25	3.56
C24	5.12	2		5.75	3.25	3.56
28	5.09	2-1/2		5.72	3.75	4.06
C28	5.59	2-1/2		6.22	3.75	4.06



Panel Mount (Square Flange) Receptacle



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "♦"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

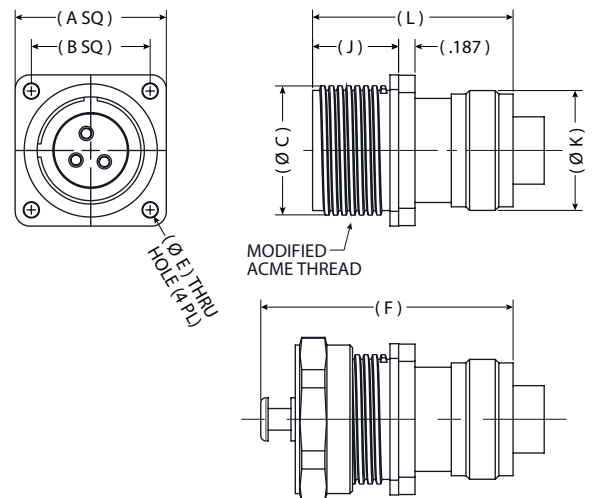
Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

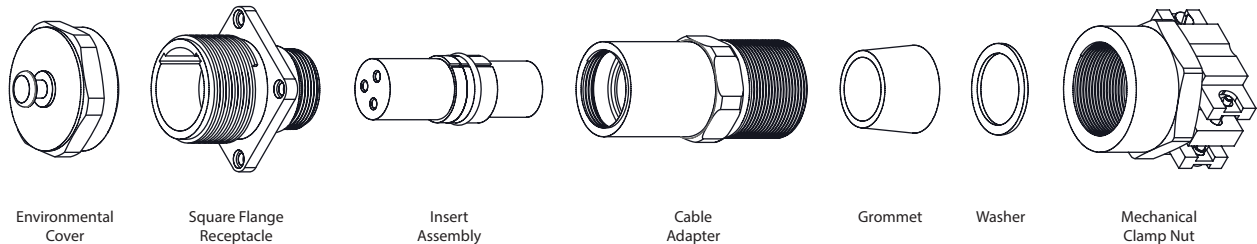
Shell Size	Panel Mount Receptacle
12	AE24-XRLP-♦12-*
16	AE24-XRLP-♦16-*
20	AE24-XRLP-♦20-*
C20	AE24-XRLP-♦C20-*
24	AE24-XRLP-♦24-*
C24	AE24-XRLP-♦C24-*
28	AE24-XRLP-♦28-*
C28	AE24-XRLP-♦C28-*

Receptacle Dimensions

Shell Size	A (in)	B (in)	C (in)	E (in)	F (in)	J (in)	K (in)	L (in)
12	1.75	1.37	1.50	.17	2.94	1.00	1.34	2.33
16	2.25	1.69	2.00	.20	2.94	1.00	1.84	2.33
20	2.75	2.09	2.50	.22	2.94	1.00	2.34	2.33
C20	2.75	2.09	2.50	.22	3.44	1.50	2.34	2.83
24	3.25	2.53	3.00	.28	2.94	1.00	2.84	2.33
C24	3.25	2.53	3.00	.28	3.44	1.50	2.84	2.83
28	3.75	3.03	3.50	.34	2.94	1.00	3.34	2.33
C28	3.75	3.03	3.50	.34	3.44	1.50	3.34	2.83



Square Flange Receptacle With Mechanical Clamp Nut



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "♦"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

Shell Size	Standard Cable Adapter	Long Cable Adapter
12	AE24-XSLM-♦12-*	AE24-XSLML-♦12-*
16	AE24-XSLM-♦16-*	AE24-XSLML-♦16-*
20	AE24-XSLM-♦20-*	AE24-XSLML-♦20-*
C20	AE24-XSLM-♦C20-*	AE24-XSLML-♦C20-*
24	AE24-XSLM-♦24-*	AE24-XSLML-♦24-*
C24	AE24-XSLM-♦C24-*	AE24-XSLML-♦C24-*
28	AE24-XSLM-♦28-*	AE24-XSLML-♦28-*
C28	AE24-XSLM-♦C28-*	AE24-XSLML-♦C28-*

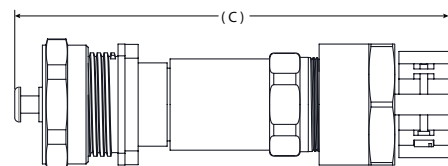
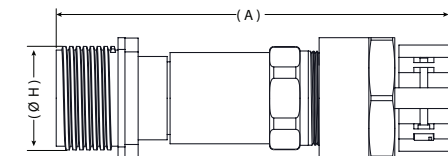
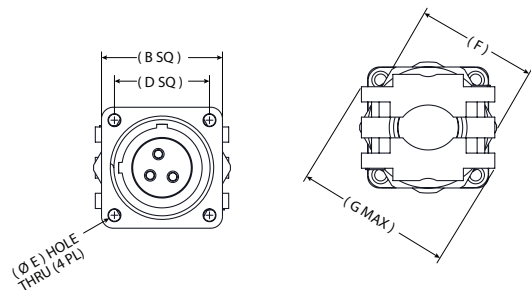
Receptacle Dimensions

With Standard Cable Adapter

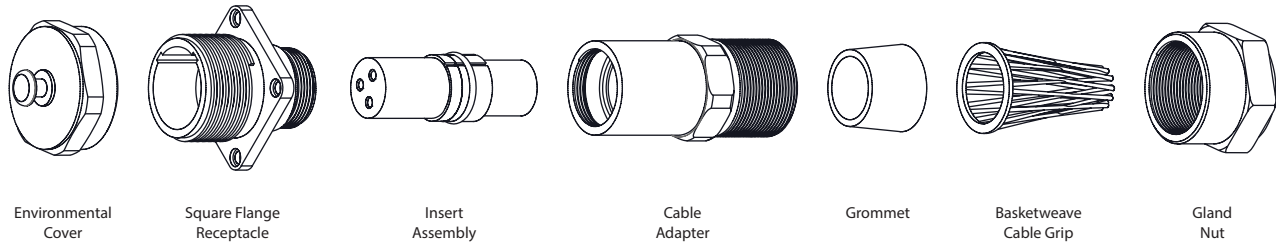
Shell Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)
12	6.12	1.75	6.75	1.37	.17	1.75	2.37	1.50
16	6.44	2.25	7.06	1.69	.20	2.25	3.00	2.00
20	7.00	2.75	7.62	2.97	.22	2.75	3.75	2.50
C20	7.50	2.75	8.12	2.97	.22	2.75	3.75	2.50
24	7.56	3.25	8.19	2.53	.28	3.25	4.50	3.00
C24	8.06	3.25	8.69	2.53	.28	3.25	4.50	3.00
28	8.12	3.75	8.75	3.03	.34	3.75	5.12	3.50
C28	8.62	3.75	9.25	3.03	.34	3.75	5.12	3.50

With Long Cable Adapter

Shell Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)
12	8.37	1.75	9.00	1.37	.17	1.75	2.37	1.50
16	8.69	2.25	9.31	1.69	.20	2.25	3.00	2.00
20	9.25	2.75	9.87	2.09	.22	2.75	3.75	2.50
C20	9.75	2.75	10.37	2.09	.22	2.75	3.75	2.50
24	9.81	3.25	10.44	2.53	.28	3.25	4.50	3.00
C24	10.31	3.25	10.94	2.53	.28	3.25	4.50	3.00
28	10.12	3.75	10.75	3.03	.34	3.75	5.12	3.50
C28	10.62	3.75	11.25	3.03	.34	3.75	5.12	3.50



Square Flange Receptacle With Basketweave Cable Grip



To specify a complete catalog part number, select the plating finish code on p. 7 and replace for "X"; select the grommet code from the table on p. 29 and replace for "◆"; then substitute the dash number of the contact insert (see pages 25-28) for the asterisk (*) in the catalog number listed below.

Jack coupling nuts should be used with inserts possessing more than 37 contacts.

If environmental cover is required, replace "L" with "E" in part number. Example: AE24-XPLD, changes to AE24-XPED.

Shell Size	Standard Cable Adapter	Long Cable Adapter
12	AE24-XSLK-◆12-*	AE24-XSLKL-◆12-*
16	AE24-XSLK-◆16-*	AE24-XSLKL-◆16-*
20	AE24-XSLK-◆20-*	AE24-XSLKL-◆20-*
C20	AE24-XSLK-◆C20-*	AE24-XSLKL-◆C20-*
24	AE24-XSLK-◆24-*	AE24-XSLKL-◆24-*
C24	AE24-XSLK-◆C24-*	AE24-XSLKL-◆C24-*
28	AE24-XSLK-◆28-*	AE24-XSLKL-◆28-*
C28	AE24-XSLK-◆C28-*	AE24-XSLKL-◆C28-*

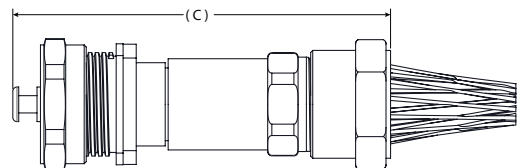
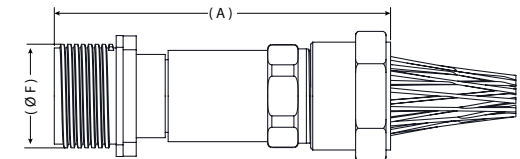
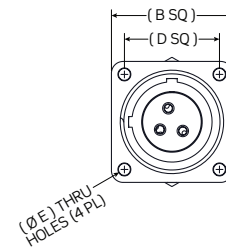
Receptacle Dimensions

With Standard Cable Adapter

Shell Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)
12	5.37	1.75	6.00	1.37	.17	1.50
16	5.62	2.25	6.25	1.69	.20	2.00
20	6.12	2.75	6.75	2.97	.22	2.50
C20	6.62	2.75	7.25	2.97	.22	2.50
24	6.62	3.25	7.25	2.53	.28	3.00
C24	7.12	3.25	7.75	2.53	.28	3.00
28	7.12	3.75	7.75	3.03	.34	3.50
C28	7.62	3.75	8.75	3.03	.34	3.50

With Long Cable Adapter

Shell Size	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)
12	7.62	1.75	8.25	1.37	.17	1.50
16	7.87	2.25	8.50	1.69	.20	2.00
20	8.37	2.75	9.00	2.97	.22	2.50
C20	8.87	2.75	9.50	2.97	.22	2.50
24	8.87	3.25	9.50	2.53	.28	3.00
C24	9.37	3.25	10.00	2.53	.28	3.00
28	9.12	3.75	9.75	3.03	.34	3.50
C28	9.62	3.75	10.25	3.03	.34	3.50



Current Rating and Contact Data

Ampacity Rating is the amount of current an individual contact may carry as a function of contact material and design efficiency, as well as the ability of the conductor insulation to withstand the associated temperature rise caused by increase in current.

The ampere rating based on SAE AS39029: the total current carrying capacity is a function of the insert temperature which is rated at 225°F (107°C) for continuous operation. The total operating temperature is the summation of heat dissipated by each contact and the ambient temperature.

The NEC non-circuit-breaking current ratings are based on the temperature of the contacts being within the range specified by Underwriters Laboratories, Inc. when wire sizes are selected in accordance with the National Electrical Code (NEC). When multiple conductors are used, the load factor and temperature increase based on ambient and total insert.

Ampacity Rating

Contact Size	Non-Circuit Breaking Ampere Rating	
	MS	NEC
AWG		
#18	-	9
#16	13	16
#12	23	30
#10	33	40
#8	46	50

Insertion of Contacts

The contacts are crimp terminated outside the insert - utilizing the correct wire size - and are ready for insertion into the contact cavity. The insert should be positioned into the shell hardware prior to contact insertion. When the insert is positioned into the shell hardware, each individual contact can then be easily inserted into each cavity using the proper insertion tool*. Contact cavities are clearly numbered on the front and rear insert face to facilitate identification during assembly.

When all contacts are assembled into the insert, each contact shoulder is securely positioned into the front rigid insulator body providing a stabilized and positive alignment of the contacts. The inserts are locked or pressurized into place when the clamp nut (receptacle) or cable adapter (plug/in-line receptacle) is threaded and tightened against the plastic pressure seal shoulder.

Extraction of Contacts (Rework)

The crimp inserts allow each contact to be individually serviced/repaired by removal from the insert. In order to relieve the locked or pressured contacts, the rear retaining nut (receptacle) or the cable adapter (plug/in-line receptacle) must be backed off the rear of the shell hardware. Once removed each contact can be easily removed by use of the proper sized removal tool*. Contacts will be released at the rear of the connector.

Spare / Replacement Contacts for Inserts

Crimp contacts are screw-machined from copper alloy ranging in size (AWG) from #18 to #4. Additional sizes for custom configurations are available from factory upon request. Standard contacts are silver plated (L), but can also be provided with gold (K).

*Consult factory for Insertion/Removal tool information.

Spare / Replacement Contacts

Contact Size AWG	Standard Length	Standard Ground pin
18 Pin	5224-005-183x	
18 Socket	5024-006-183x	
16 Pin	5224-005-162x	5224-011-162x
16 Socket	5024-006-162x	
12 Pin	5224-005-121x	5224-011-121x
12 Socket	5024-006-121x	
10 Pin	5224-005-10Ax	
10 Socket	5024-006-10Ax	
8 Pin	5224-005-086x	
8 Socket	5024-006-086x	

Introduction

The Insert Configuration table is used primarily to identify various contact insert arrangements, which are presented by shell size and number of contacts in each insert. The table also identifies contact/wire size and service voltage rating. The insert “polarizing” table identifies the normal and alternate key positions. Alternate keying or insert polarization is intended to resist improper intermating of plugs and receptacles of like shell sizes and insert arrangements.

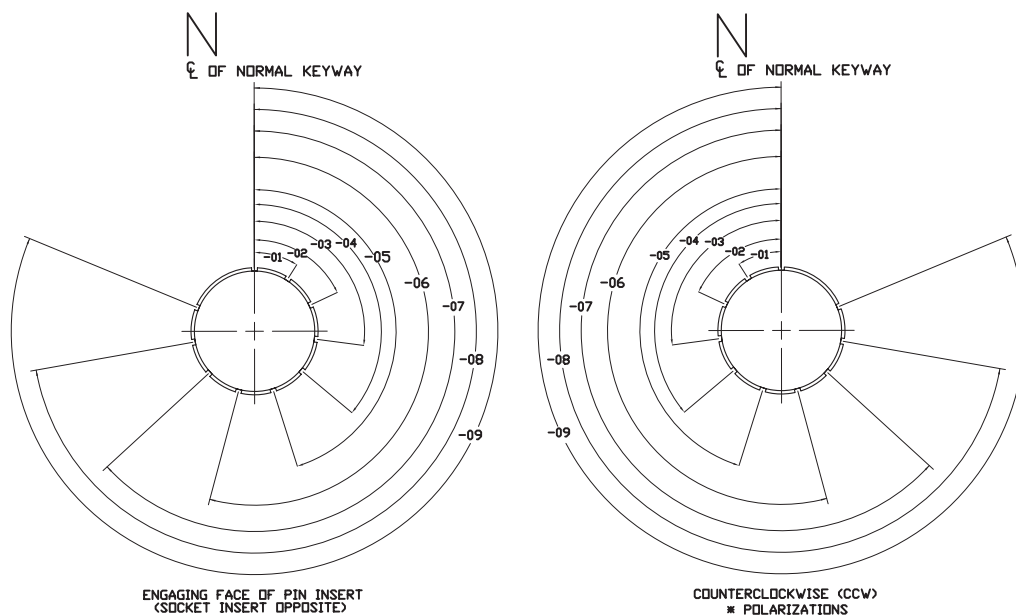
Inserts may be purchased separately for assembly into the basic barrel. Pin or socket inserts are interchangeable in male and female barrels. The crimp insert arrangements allow the contacts to be inserted or removed from the rear through use of insertion/extraction tools without removing the insert from the connector body.

The male insert illustrations on the following pages are shown as appears when viewed from the front. Contacts are shown by both physical position within the configuration and by contact number. The contact number corresponds to the contact position shown on the rear face of the insert illustrated, as well as the front and rear faces of the mating insert. The symbol used to show contact location is indicative of contact size. An explanation of contact symbols is presented on each page of the listing.

Note: Each connector is furnished with contacts unless ordered less contacts (LC).

Polarization

1. In the normal insert clocking position(N) the insert centerline coincides with the center of the master keyway(key).
2. The socket insert is rotated counter clock wise.
3. Plugs have keys, receptacles have keyways.



Note: Be careful with alternate positions. See polarization table for position availability on layouts of interest.

Insert Arrangements

Conesys Insert Arrangement PN	Crimp Contacts	Total Contacts	Contact Size								Service Voltage Rating
			18	16	12	10	8	4	1/0	4/0	
AE24-12-327PN	X	3			3						D
AE24-12-327SN	X	3			3						D
AE24-12-330PN	X(G)	3			3						D
AE24-12-330SN	X(G)	3			3						D
AE24-12-314PN	X	4				4					D
AE24-12-314SN	X	4				4					D
AE24-12-316PN	X	4				4					D
AE24-12-316SN	X	4				4					D
AE24-12-333PN	X	4		4							D
AE24-12-333SN	X	4		4							D
AE24-12-324PN	X	5			5						D
AE24-12-324SN	X	5			5						D
AE24-12-310PN	X(G)	7			7						A
AE24-12-310SN	X(G)	7			7						A
AE24-12-348PN	X	7		7							A
AE24-12-348SN	X	7		7							A
AE24-12-354PN	X	7			7						A
AE24-12-354SN	X	7			7						A
AE24-12-334PN	X(G)	10		10							A
AE24-12-334SN	X(G)	10		10							A
AE24-12-355PN	X	10		10							A
AE24-12-355SN	X	10		10							A
AE24-16-328PN	X	4					4				D
AE24-16-328SN	X	4					4				D
AE24-16-316PN	X	5					5				D
AE24-16-316SN	X	5					5				D
AE24-16-378PN	X(G)	7			7						D
AE24-16-378SN	X(G)	7			7						D
AE24-16-381PN	X	10			6	4					D
AE24-16-381SN	X	10			6	4					D
AE24-16-325PN	X	16		16							D
AE24-16-325SN	X	16		16							D
AE24-16-312PN	X(G)	19			19						A
AE24-16-312SN	X(G)	19			19						A
AE24-16-355PN	X	19		19							A
AE24-16-355SN	X	19		19							A
AE24-16-377PN	X	19			19						A
AE24-16-377SN	X	19			19						A
AE24-16-335PN	X	27		24	3						A
AE24-16-335SN	X	27		24	3						A

(G)- insert arrangement with grounded contact

Insert Arrangements

Conesys Insert Arrangement PN	Crimp Contacts	Total Contacts	Contact Size								Service Voltage Rating
			18	16	12	10	8	4	1/0	4/0	
AE24-16-321PN	X	37		37							A
AE24-16-321SN	X	37		37							A
AE24-16-333PN	X	61	61								INST
AE24-16-333SN	X	61	61								INST
AE24-20-359PN	X	7					7				E
AE24-20-359SN	X	7					7				E
AE24-20-375PN	X	12				12					D
AE24-20-375SN	X	12				12					D
AE24-20-376PN	X	19			19						D
AE24-20-376SN	X	19			19						D
AE24-20-332PN	X	20			20						B/A
AE24-20-332SN	X	20			20						B/A
AE24-20-334PN	X	20		16			4				D
AE24-20-334SN	X	20		16			4				D
AE24-20-387PN	X(G)	20			20						B/A
AE24-20-387SN	X(G)	20			20						B/A
AE24-20-331PN	X	22		20			2				E/D
AE24-20-331SN	X	22		20			2				E/D
AE24-20-350PN	X(G)	37			37						A
AE24-20-350SN	X(G)	37			37						A
AE24-20-386PN	X	37			37						A
AE24-20-386SN	X	37			37						A
AE24-20-354PN	X	47		45			2				D/A
AE24-20-354SN	X	47		45			2				D/A
AE24-20-329PN	X	64		62		2					A
AE24-20-329SN	X	64		62		2					A
AE24-20-313PN	X	68		68							A
AE24-20-313SN	X	68		68							A
AE24-24-371PN	X	37		37							D
AE24-24-371SN	X	37		37							D
AE24-24-352PN	X(G)	58			58						A
AE24-24-352SN	X(G)	58			58						A
AE24-24-384PN	X	58			58						A
AE24-24-384SN	X	58			58						A
AE24-28-339PN	X	42			42						D
AE24-28-339SN	X	42			42						D

(G)- insert arrangement with grounded contact

Insert Arrangements Polarizations

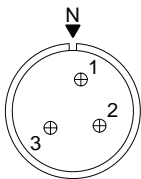
Insert Assy Part No.	N	01	02	03	04	05	06	07	08	09
AE24-12-310P N-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-12-314PN-xx	Yes	27°	207°	-	243°	-	-	-	-	-
AE24-12-316PN-xx	Yes	36°	108°	252°	324°	-	-	-	-	-
AE24-12-324PN-xx	Yes	48°	97.3°	-	-	-	-	-	-	-
AE24-12-327PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-12-330PN-xx	Yes	36°	72°	108°	144°	-	-	-	-	-
AE24-12-333PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-12-334PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-12-348PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-12-354PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-12-355PN-xx	Yes	75°	-	-	-	-	-	-	-	-
AE24-16-312PN-xx	Yes	-	-	-	-	-	-	-	-	-
* AE24-16-316PN-xx	Yes	80°	125°	180°	228°	-	-	-	-	-
AE24-16-321PN-xx	Yes	32.5°	65°	97.5°	130°	162.5°	195°	227.5°	260°	292.5°
AE24-16-325PN-xx	Yes	90°	180°	243°	-	-	-	-	-	-
* AE24-16-328PN-xx	Yes	80°	125°	180°	228°	-	-	-	-	-
AE24-16-333PN-xx	Yes	75°	105°	150°	232.30°	-	-	-	-	-
* AE24-16-335PN-xx	Yes	80°	125°	180°	228°	-	-	-	-	-
AE24-16-355PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-16-377PN-xx	Yes	24°	-	-	-	-	-	-	-	-
* AE24-16-378PN-xx	Yes	80°	125°	180°	228°	-	-	-	-	-
AE24-16-381PN-xx	Yes	30°	45°	90°	125°	-	-	-	-	-
AE24-20-313PN-xx	Yes	-	45°	157.30°	228°	292.30°	315°	-	-	-
AE24-20-329PN-xx	Yes	90°	135°	202.30°	-	-	-	-	-	-
AE24-20-331PN-xx	Yes	45°	90°	191.15°	-	-	-	-	-	-
AE24-20-332PN-xx	(-5°)	-	-	-	-	-	-	-	-	-
AE24-20-334PN-xx	Yes	60°	120°	180°	-	-	-	-	-	-
AE24-20-350PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-20-354PN-xx	Yes	30°	60°	90°	120°	150°	180°	-	-	-
AE24-20-359PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-20-375PN-xx	Yes	27°	67°	107°	133°	173°	214°	-	-	-
AE24-20-376PN-xx	(+15°)	52°	99°	150°	180°	250°	-	-	-	-
AE24-20-386PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-20-387PN-xx	Yes	56°	-	-	-	-	-	-	-	-
AE24-24-352PN-xx	Yes	-	-	-	-	-	-	-	-	-
AE24-24-371PN-xx	Yes	15°	45°	90°	-	-	-	-	-	-
AE24-24-384PN-xx	Yes	165°	-	-	-	-	-	-	-	-
AE24-28-339PN-xx	Yes	30°	60°	90°	120°	150°	180°	-	-	-

*Polarizations for these are in Counter Clock Wise (CCW) positions; See illustration.

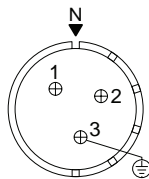
Note: Polarizations for socket insert assembly (SN) are opposite.

Insert Arrangement Views

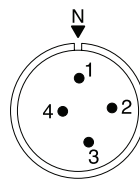
(Additional insert configurations available upon request.)



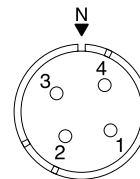
12-327
3#12
D



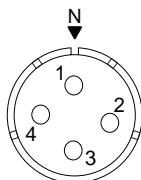
12-330
3#12
D



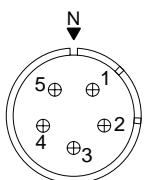
12-333
4#16
D



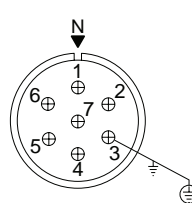
12-314
4#10
D



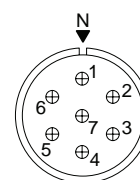
12-316
4#10
D



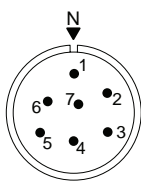
12-324
5#12
D



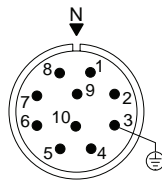
12-310
7#12
A



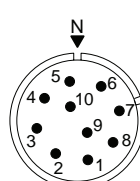
12-354
7#12
A



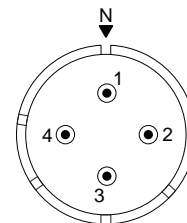
12-348
7#16
A










12-334
10#16
A



12-355
10#16
A

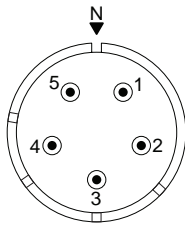


16-328
4#8
D

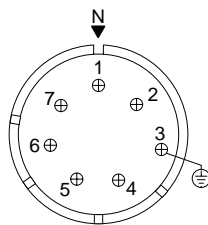
 Crimp	Grounding Contact Termination Symbol	Contact Symbols						
		Wire Size AWG	18	16	12	10	8	4

X-Line

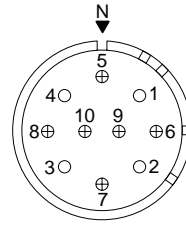
Insert Arrangement Views



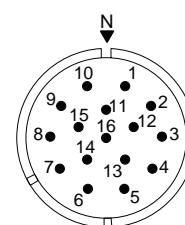
16-316
5#8
D



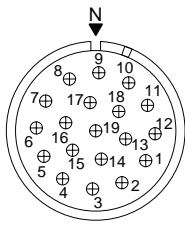
16-378
7#12
D



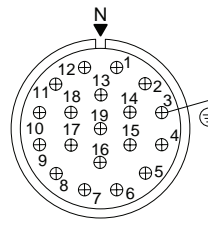
16-381
6#12, 4#10
D



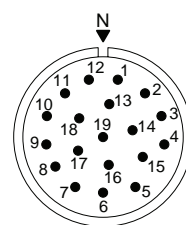
16-325
16#16
D



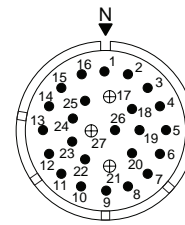
16-377
19#12
A



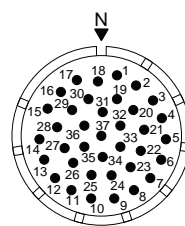
16-312
19#12
A



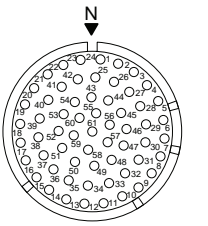
16-355
19#16
A



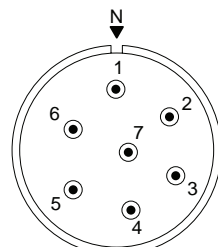
16-335
24#16, 3#12
A



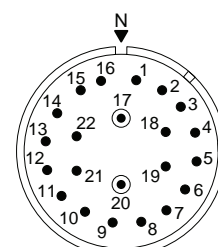
16-321
37#16
A



16-333
61#18
INST.



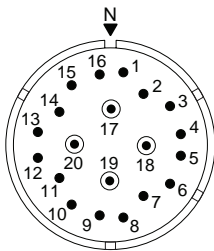
20-359
7#8
E



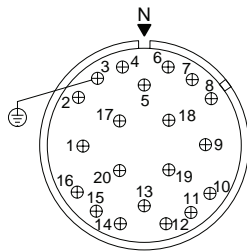
20-331
20#16, 2#8
D, E

Crimp Grounding Contact Termination Symbol						
	Wire Size AWG	18	16	12	10	8

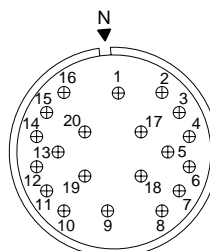
Insert Arrangement Views



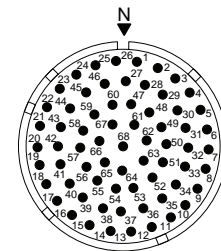
20-334
16#16, 4#8
D



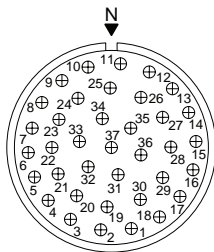
20-387
20#12
B (outer), A (center)



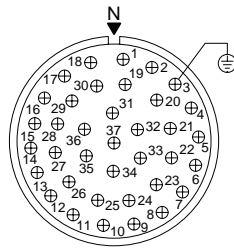
20-332
20#12
B (outer), A (center)



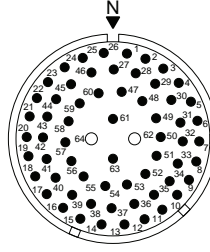
20-313
68#16
A



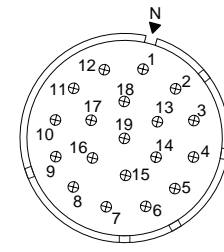
20-386
37#12
A



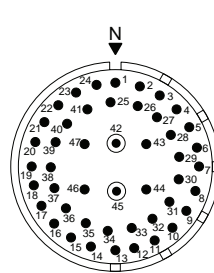
20-350
37#12
A



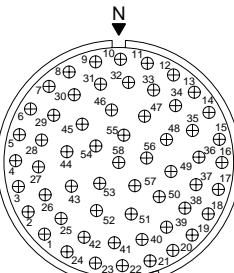
20-329
62#16, 2#10
A



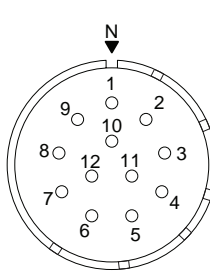
20-376
19#12
D



20-354
45#16, 2#8
A, D



20-384
58#12
A

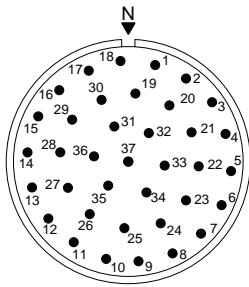


20-375
12#10
D

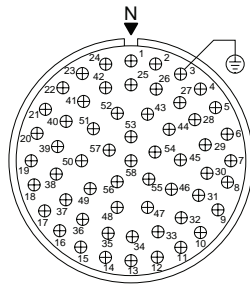
Crimp Grounding Contact Termination Symbol	Contact Symbols
	Wire Size AWG 18 16 12 10 8 4

X-Line

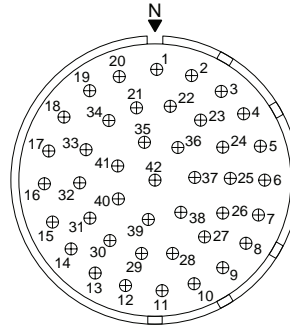
Insert Arrangement Views



24-371
37#16
D



24-352
58#12
A



28-339
42#12
D

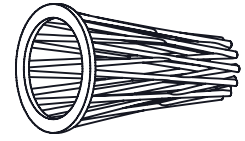


Crimp Grounding Contact Termination Symbol	Contact Symbols
	Wire Size AWG 18 16 12 10 8 4

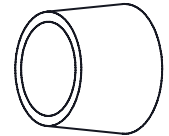
X-Line
Cable Grip Components
AE24 Series



Shell Size	Cable Diameter Dimensions		Cable Dia. Code No.	Grommets Oil Resistant Rubber Cat. No	Gland Washer Steel Cat. No.	Basket Weave Grips	
	Min	Max				Stainless Steel Cat. No.	Nominal Lenth Inches
12	0.062	0.125	02	AE24-6312-2C	AE24-8012-4E	AE24-5012-4E	3
	0.125	0.250	04	AE24-6312-4C		AE24-5012-6E	4
	0.250	0.375	06	AE24-6312-6C	AE24-8012-8E	AE24-5012-8E	5
	0.375	0.500	08	AE24-6312-8C		AE24-5012-10E	6
	0.500	0.625	10	AE24-6312-10C	AE24-8012-12E	AE24-5012-12E	7
	0.621	0.750	12	AE24-6312-12C		AE24-5012-14E	7-1/2
	0.750	0.875	14	AE24-6312-14C	AE24-8012-15E	AE24-5012-15E	8
	0.875	0.937	15	AE24-6312-15C		AE24-5016-6E	4
16	0.250	0.375	06	AE24-6316-6C	AE24-8016-8E	AE24-5016-8E	5
	0.375	0.500	08	AE24-6316-8C		AE24-5016-10E	6
	0.500	0.625	10	AE24-6316-10C	AE24-8016-12E	AE24-5016-12E	7
	0.625	0.750	12	AE24-6316-12C		AE24-5016-14E	7-1/2
	0.750	0.875	14	AE24-6316-14C	AE24-8016-16E	AE24-5016-16E	8-1/2
	0.875	1.000	16	AE24-6316-16C		AE24-5016-18E	9
	1.000	1.125	18	AE24-6316-18C	AE24-8016-20E	AE24-5016-18E	9
	1.125	1.250	20	AE24-6316-20C		AE24-5016-20E	10
	1.250	1.375	22	AE24-6316-22C	AE24-8016-23E	AE24-5016-23E	10-1/2
	1.375	1.437	23	AE24-6316-23C		AE24-5020-10E	6
20/C20	0.500	0.625	10	AE24-6320-10C	AE24-8020-12E	AE24-5020-12E	7-1/2
	0.625	0.750	12	AE24-6320-12C		AE24-5020-14E	7-1/2
	0.750	0.875	14	AE24-6320-14C	AE24-8020-16E	AE24-5020-14E	7-1/2
	0.875	1.000	16	AE24-6320-16C		AE24-5020-16E	9
	1.000	1.125	18	AE24-6320-18C	AE24-8020-20E	AE24-5020-18E	9
	1.125	1.250	20	AE24-6320-20C		AE24-5020-20E	10
	1.250	1.375	22	AE24-6320-22C	AE24-8020-24E	AE24-5020-24E	11
	1.375	1.500	24	AE24-6320-24C		AE24-5020-28E	13
	1.500	1.625	26	AE24-6320-26C	AE24-8020-28E	AE24-5020-28E	13
	1.625	1.750	28	AE24-6320-28C		AE24-5020-31E	14-1/2
	1.750	1.875	30	AE24-6320-30C	AE24-8020-31E	AE24-5024-16E	8-1/2
	1.875	1.937	31	AE24-6320-31C		AE24-5024-20E	10
24/C24	0.875	1.000	16	AE24-6324-16C	AE24-8024-16E	AE24-5024-16E	8-1/2
	1.000	1.125	18	AE24-6324-18C		AE24-5024-20E	10
	1.125	1.250	20	AE24-6324-20C	AE24-8024-24E	AE24-5024-20E	10
	1.250	1.375	22	AE24-6324-22C		AE24-5024-24E	11
	1.375	1.500	24	AE24-6324-24C	AE24-8024-28E	AE24-5024-24E	11
	1.500	1.625	26	AE24-6324-26C		AE24-5024-28E	13
	1.625	1.750	28	AE24-6324-28C	AE24-8024-32E	AE24-5024-28E	13
	1.750	1.875	30	AE24-6324-30C		AE24-5024-32E	15
	1.875	2.000	32	AE24-6324-32C	AE24-8024-36E	AE24-5024-32E	15
	2.000	2.125	34	AE24-6324-34C		AE24-5024-36E	16
	2.125	2.250	36	AE24-6324-36C	AE24-8024-39E	AE24-5024-36E	16
	2.250	2.375	38	AE24-6324-38C		AE24-5024-39E	17-1/2
2.375	2.437	39	AE24-6324-39C	AE24-8028-24E	AE24-5028-28E	13	
28/C28	1.375	1.500	24	AE24-6328-24C	AE24-8028-24E	AE24-5028-28E	13
	1.500	1.625	26	AE24-6328-26C		AE24-5028-28E	13
	1.625	1.750	28	AE24-6328-28C	AE24-8028-28E	AE24-5028-28E	13
	1.750	1.875	30	AE24-6328-30C		AE24-5028-32E	15
	1.875	2.000	32	AE24-6328-32C	AE24-8028-32E	AE24-5028-32E	15
	2.000	2.125	34	AE24-6328-34C		AE24-5028-36E	16
	2.125	2.250	36	AE24-6328-36C	AE24-8028-36E	AE24-5028-36E	16
	2.250	2.375	38	AE24-6328-38C		AE24-5028-40E	17-1/2
	2.375	2.500	40	AE24-6328-40C	AE24-8028-40E	AE24-5028-40E	17-1/2
	2.500	2.625	42	AE24-6328-42C		AE24-8028-44E	AE24-5028-46E
2.625	2.750	44	AE24-6328-44C	AE24-8028-44E	AE24-5028-46E	19	
2.750	2.875	46	AE24-6328-46C		AE24-8028-46E	AE24-5028-46E	19



Basketweave



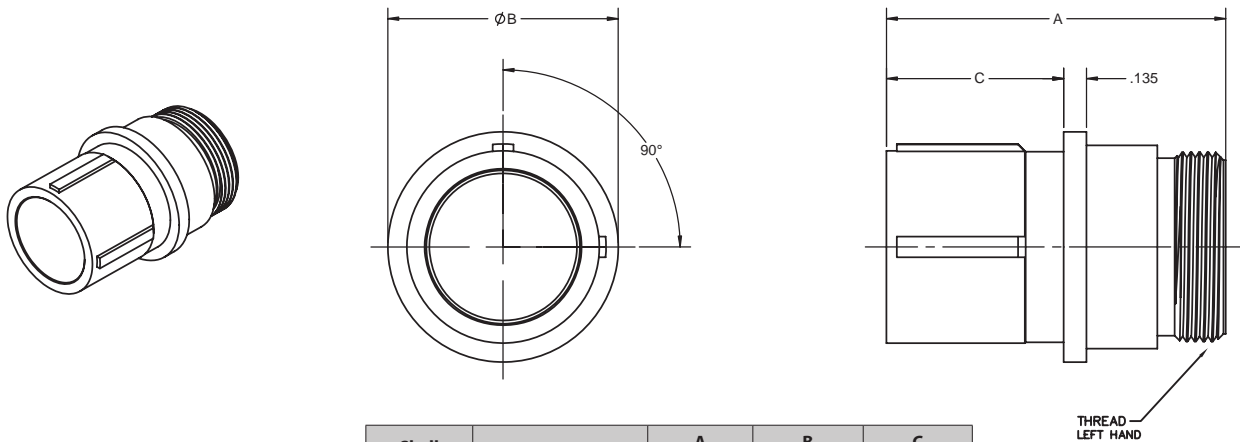
Grommet



Washer

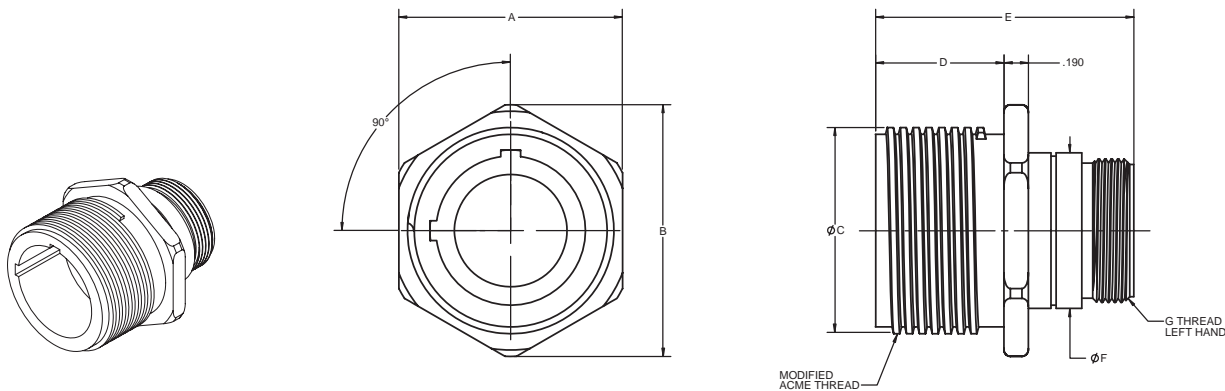
X-Line

Straight Plug Shell



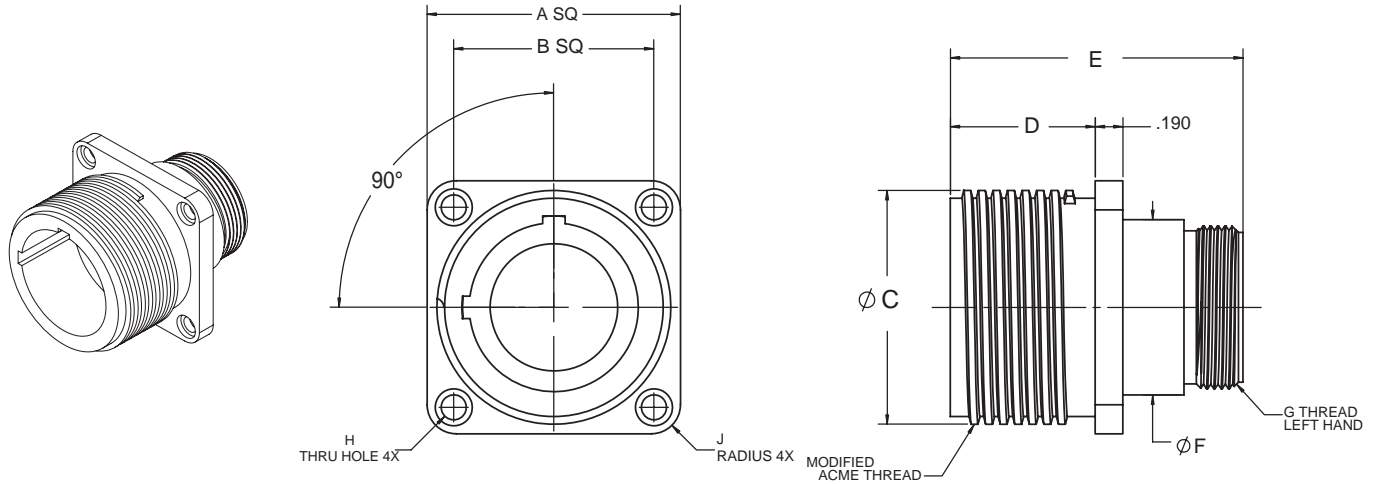
Shell Size	Part Number	A	B	C
		$\pm.010$	$\pm.010$	$\pm.010$
12	1224-017-120X	2.010	1.365	1.050
16	1224-017-160X	2.010	1.865	1.050
20	1224-017-200X	2.010	2.368	1.050
C20	1224-235-200X	2.510	2.368	1.550
24	1224-017-240X	2.010	2.865	1.050
C24	1224-235-240X	2.510	2.865	1.550
28	1224-017-280X	2.010	3.365	1.050
C28	1224-235-280X	2.510	3.365	1.550

In-line Receptacle Shell



Shell Size	Part Number	A	B	C	D	E	F	G
		$\pm.010$	$\pm.010$	$\pm.010$	$\pm.010$	$\pm.015$	$\pm.010$	Thread
12	1124-040-120X	1.740	1.960	1.500	1.000	2.010	1.205	1.125-18 UNEF
16	1124-040-160X	2.240	2.480	2.000	1.000	2.010	1.710	1.625-18 UNEF
20	1124-040-200X	2.740	3.000	2.500	1.000	2.010	2.205	2.125-18 UNEF
C20	1124-237-200X	2.740	3.000	2.500	1.500	2.510	2.205	2.125-18 UNEF
24	1124-040-240X	3.240	3.500	3.000	1.000	2.010	2.710	2.625-18 UNEF
C24	1124-237-240X	3.240	3.500	3.000	1.500	2.510	2.710	2.625-18 UNEF
28	1124-040-280X	3.375	4.060	3.500	1.000	2.010	3.255	3.125-18 UNEF
C28	1124-237-280X	3.375	4.060	3.500	1.500	2.510	3.255	3.125-18 UNEF

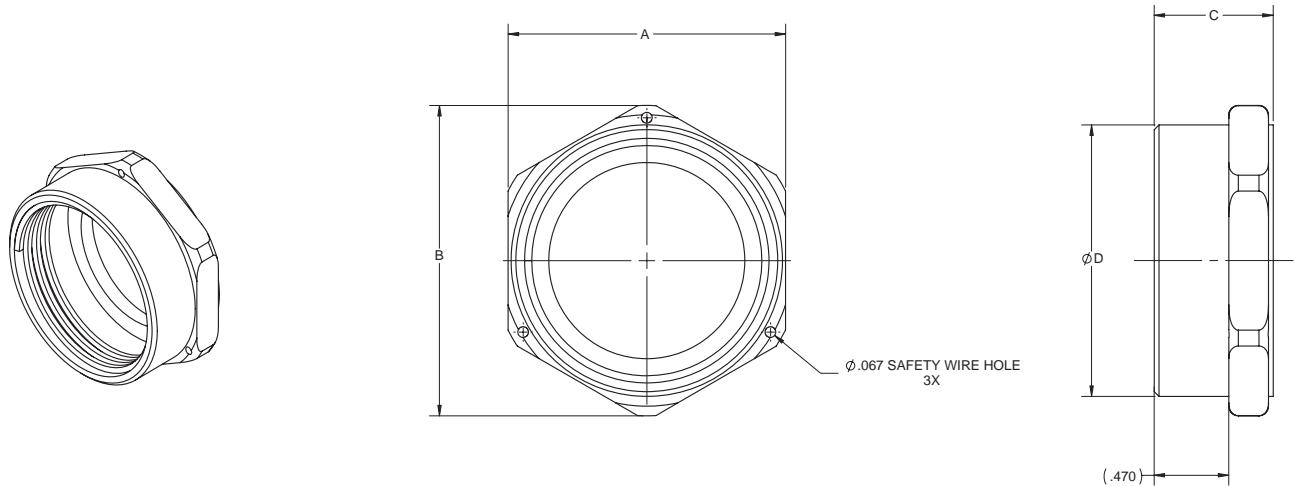
Square Flange Receptacle Shell, Panel Mount



Shell Size	Part Number	A	B	C	D	E	F	G	H	J
		±.010	±.010	±.010	±.010	±.015	±.010	Thread	±.010	±.010
12	1324-012-120X	1.740	1.375	1.500	1.000	2.010	1.205	1.125-18 UNEF	.172	.170
16	1324-012-160X	2.240	1.688	2.000	1.000	2.010	1.710	1.625-18 UNEF	.203	.220
20	1324-012-200X	2.740	2.093	2.500	1.000	2.010	2.205	2.125-18 UNEF	.219	.270
C20	1324-236-200X	2.740	2.093	2.500	1.500	2.516	2.205	2.125-18 UNEF	.219	.270
24	1324-012-240X	3.240	2.531	3.000	1.000	2.010	2.710	2.625-18 UNEF	.281	.300
C24	1324-236-240X	3.240	2.531	3.000	1.500	2.516	2.710	2.625-18 UNEF	.281	.300
28	1324-012-280X	3.375	3.030	3.500	1.000	2.010	3.255	3.125-18 UNEF	.341	.355
C28	1324-236-280X	3.375	3.030	3.500	1.500	2.516	3.255	3.125-18 UNEF	.341	.355

*Recommended for use with inserts with 37 or more contacts

Coupling Nut



Standard Nut

Shell Size	Part Number	A	B	C	D
		±.015	±.015	±.010	±.015
12	2024-031-120X	1.748	1.955	.750	1.710
16	2024-031-160X	2.248	2.485	.750	2.210
20	2024-031-200X	2.748	3.000	.750	2.710
24	2024-031-240X	3.216	3.500	.750	3.200
28	2024-031-280X	3.750	4.225	.750	3.720

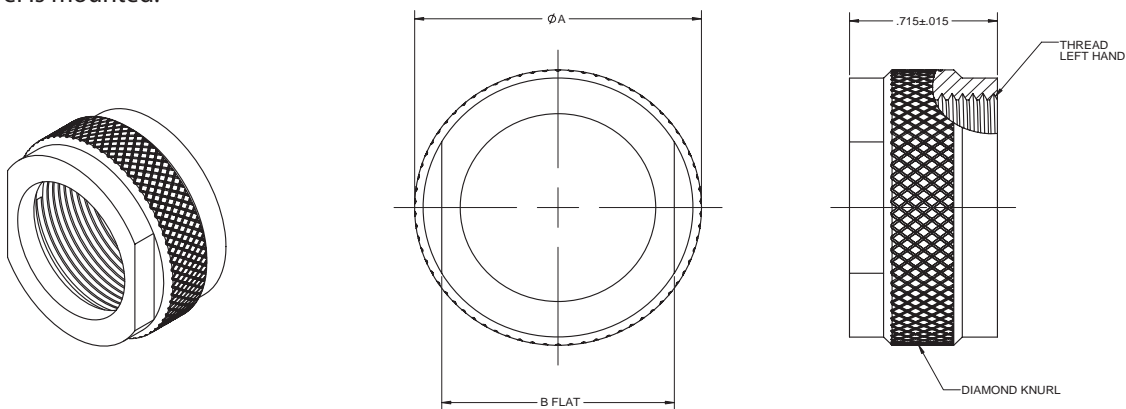
Jacking Nut*

Shell Size	Part Number	A	B	C	D
		±.015	±.015	±.010	±.015
12	2024-018-120X	1.748	1.955	1.030	1.710
16	2024-018-160X	2.248	2.485	1.030	2.210
20	2024-018-200X	2.748	3.000	1.030	2.710
24	2024-018-240X	3.216	3.500	1.030	3.200
28	2024-018-280X	3.750	4.225	1.030	3.720

*Recommended for use with inserts with 37 or more contacts

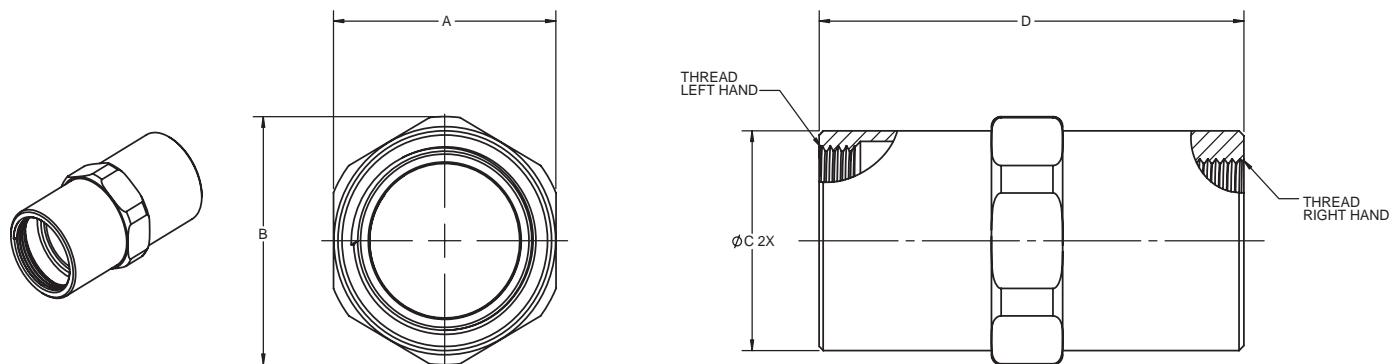
Insert Clamp Nut

Used when open-back wiring is utilized behind panel boards or within large junction boxes on which the basic barrel is mounted.



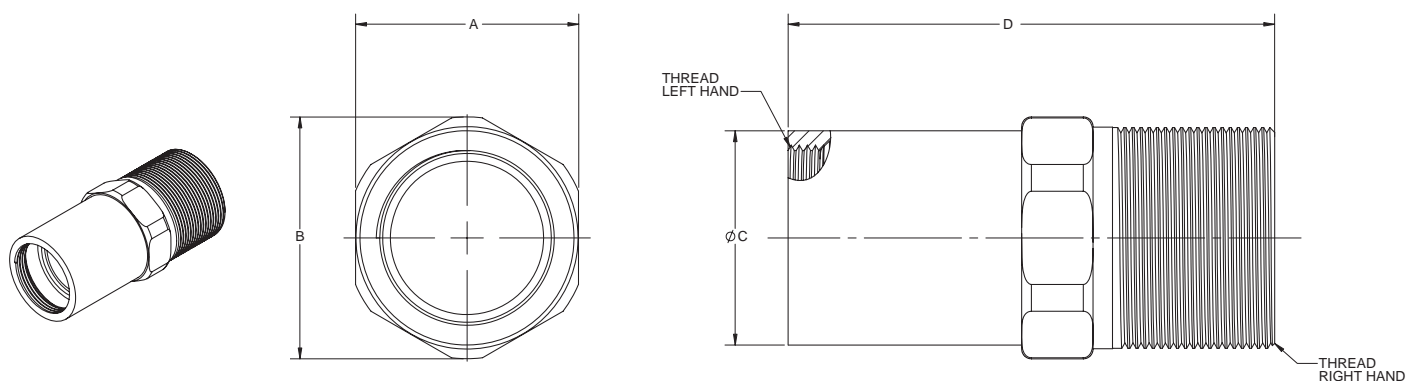
Shell Size	Part Number	A	B
		±.020	±.015
12	2524-049-120X	1.305	1.125
16	2524-049-160X	1.800	1.625
20	2524-049-200X	2.300	2.125
24	2524-049-240X	2.800	2.620
28	2524-049-280X	3.315	3.125

Conduit Adapter - Tapped



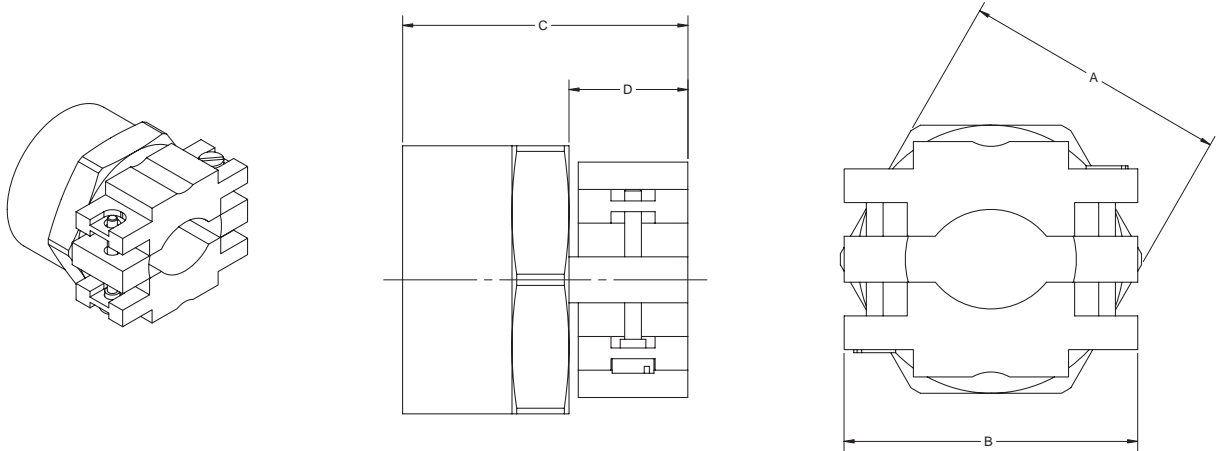
Shell Size	Part Number	A	B	C	D	Conduit Tap Size
		±.010	±.010	±.010	±.010	
12	2524-412-120X	1.375	1.470	1.320	2.625	3/4-14
16	2524-412-160X	1.875	2.050	1.820	2.750	1 1/4-11.5
20	2524-412-200X	2.375	2.595	2.350	2.875	1 1/2-11.5
24	2524-412-240X	2.875	3.165	2.880	3.000	2-11.5
28	2524-412-280X	3.375	3.770	3.375	3.488	2 1/2-8

Cable Adapter



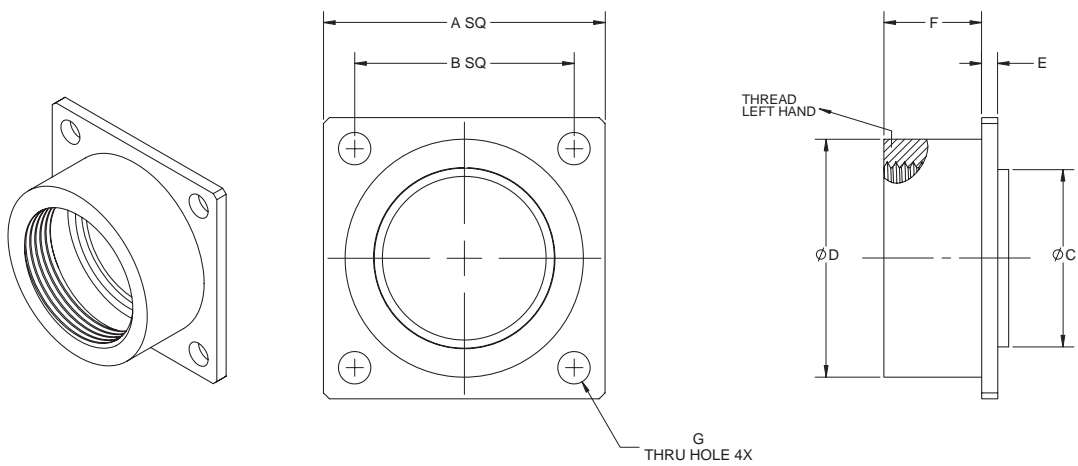
Shell Size	Standard Part Number	Long Part Number	Extra Long Part Number	A	B	C	D Standard	D Long	D Extra Long
				±.010	±.010	±.010	±.010	±.015	±.015
12	2524-035-121X	2524-035-122X	2524-035-123X	1.375	1.510	1.320	3.000	5.250	6.500
16	2524-035-161X	2524-035-162X	2524-035-163X	1.875	2.052	1.820	3.000	5.250	6.500
20	2524-035-201X	2524-035-202X	2524-035-203X	2.375	2.587	2.350	3.750	6.000	7.250
24	2524-035-241X	2524-035-242X	2524-035-243X	3.000	3.220	2.880	4.250	6.500	7.750
28	2524-035-281X	2524-035-282X	2524-035-283X	3.385	3.845	3.375	4.750	6.750	8.000

Mechanical Clamp Nut



Shell Size	Part Number	A	B	C	D
		±.015	±.015	±.015	±.015
12	9624-325-120X	1.750	1.930	1.875	.781
16	9624-325-160X	2.250	2.304	1.937	.843
20	9624-325-200X	2.750	3.032	2.000	.906
24	9624-325-240X	3.250	3.520	2.062	.968
28	9624-325-280X	3.750	4.135	2.125	1.031

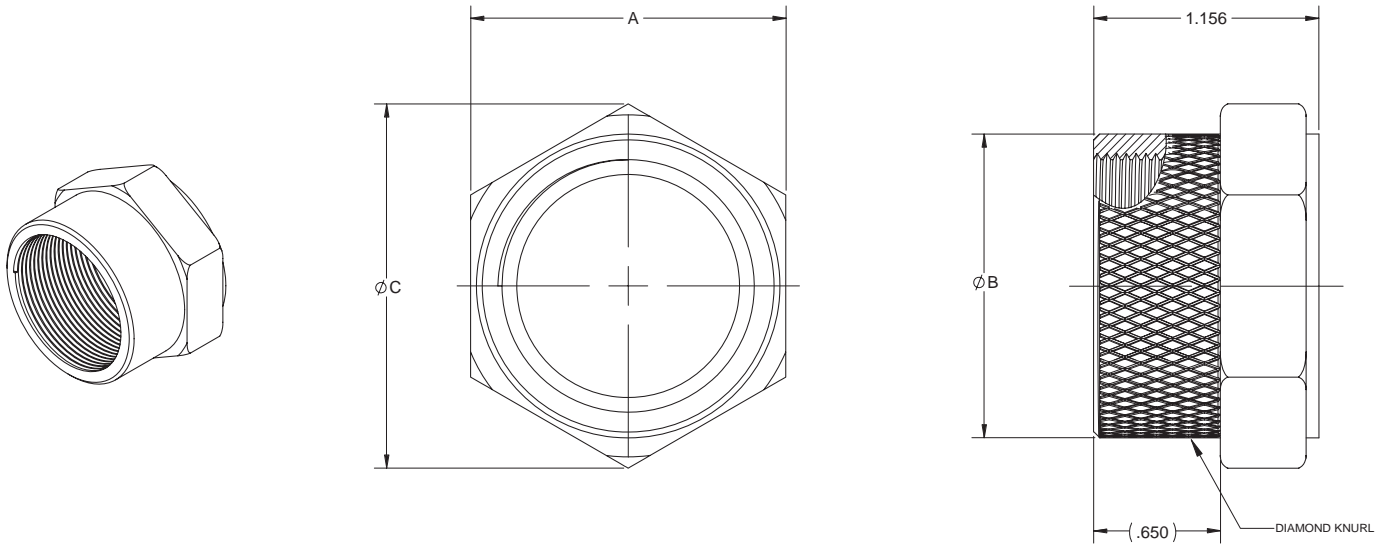
Panel Mount Receptacle Adapter*



Shell Size	Part Number	A	B	C	D	E	F	G
		±.010	±.010	±.010	±.010	±.010	±.010	±.010
12	1324-509-120X	1.745	1.375	1.125	1.375	.093	.562	.187
16	1324-509-160X	2.125	1.688	1.625	1.875	.125	.562	.219
20	1324-509-200X	2.625	2.093	2.125	2.375	.156	.562	.281
24	1324-509-240X	3.125	2.531	2.625	2.875	.187	.562	.344
28	1324-509-280X	3.750	3.031	3.125	3.375	.281	.453	.344

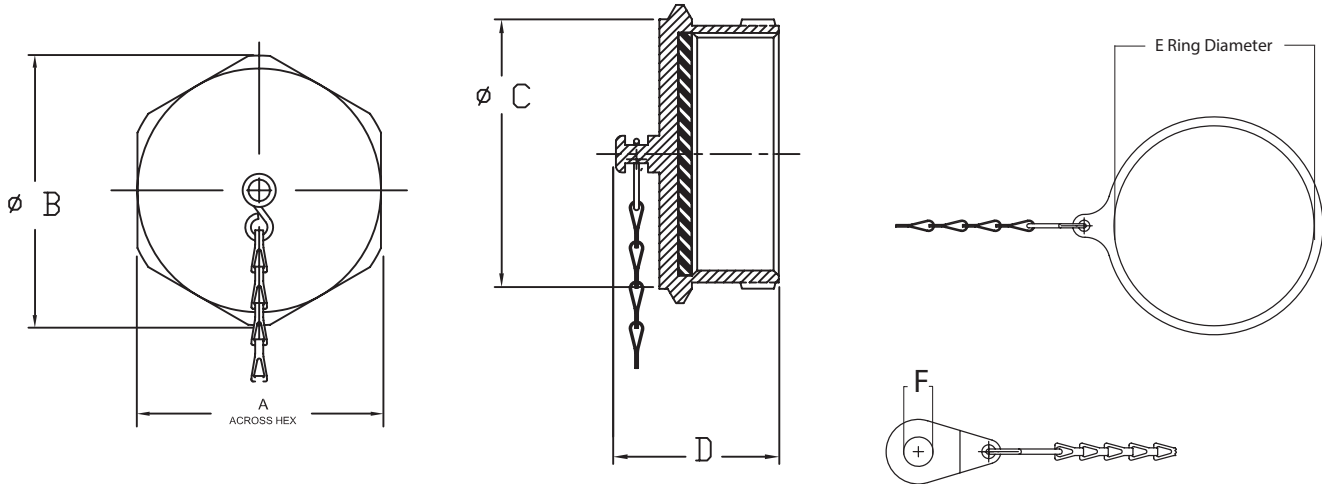
* For basic barrels. Used when an external mounting is required. Gasket furnished used for front panel mounting only.

Gland (clamp) Nut, Cable Adapter



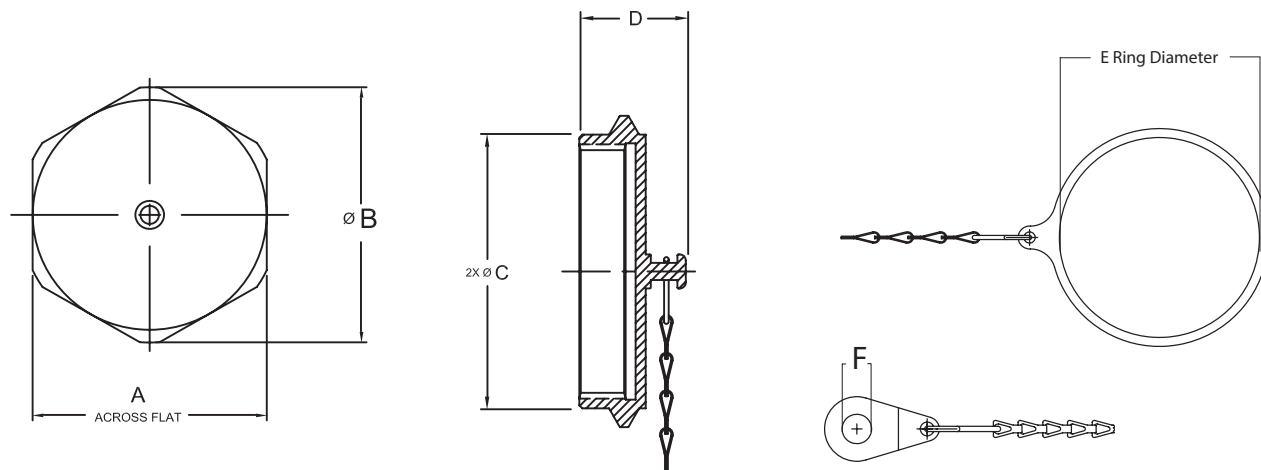
Shell Size	Part Number	ØA	B	C
		±.030	±.015	±.015
12	2624-025-120X	1.620	1.560	1.880
16	2624-025-160X	2.030	1.985	2.250
20	2624-025-200X	2.530	2.460	2.750
24	2624-025-240X	3.030	2.985	3.250
28	2624-025-280X	3.750	3.685	4.250

Environmental Protection Cover with chain - Plugs



Shell Size	Cover with Ring and Chain P/N	Cover with Eyelet and Chain P/N	A	B	C	D	E	F
12	9624-406-120X	9624-314-120X	1.500	1.688	1.500	1.500	1.250	.172
16	9624-406-160X	9624-314-160X	2.000	2.234	2.000	1.500	1.750	.203
20	9624-406-200X	9624-314-200X	2.500	2.766	2.500	1.500	2.250	.219
C20	9624-406-20CX	9624-314-20CX	2.500	2.766	2.500	2.000	2.250	.219
24	9624-406-240X	9624-314-240X	3.000	3.281	3.000	1.500	2.750	.281
C24	9624-406-24CX	9624-314-24CX	3.000	3.281	3.000	2.000	2.750	.281
28	9624-406-280X	9624-314-280X	3.500	3.800	3.500	1.500	3.250	.344
C28	9624-406-28CX	9624-314-28CX	3.500	3.800	3.500	2.000	3.250	.344

Environmental Protection Cover with chain - Receptacles

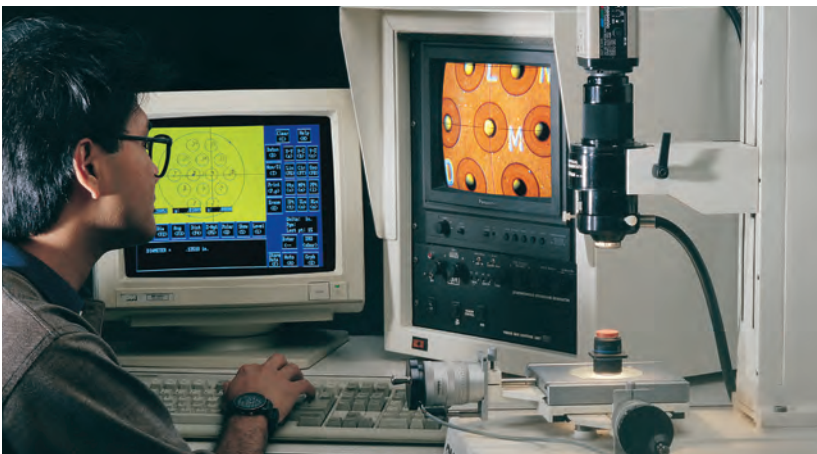
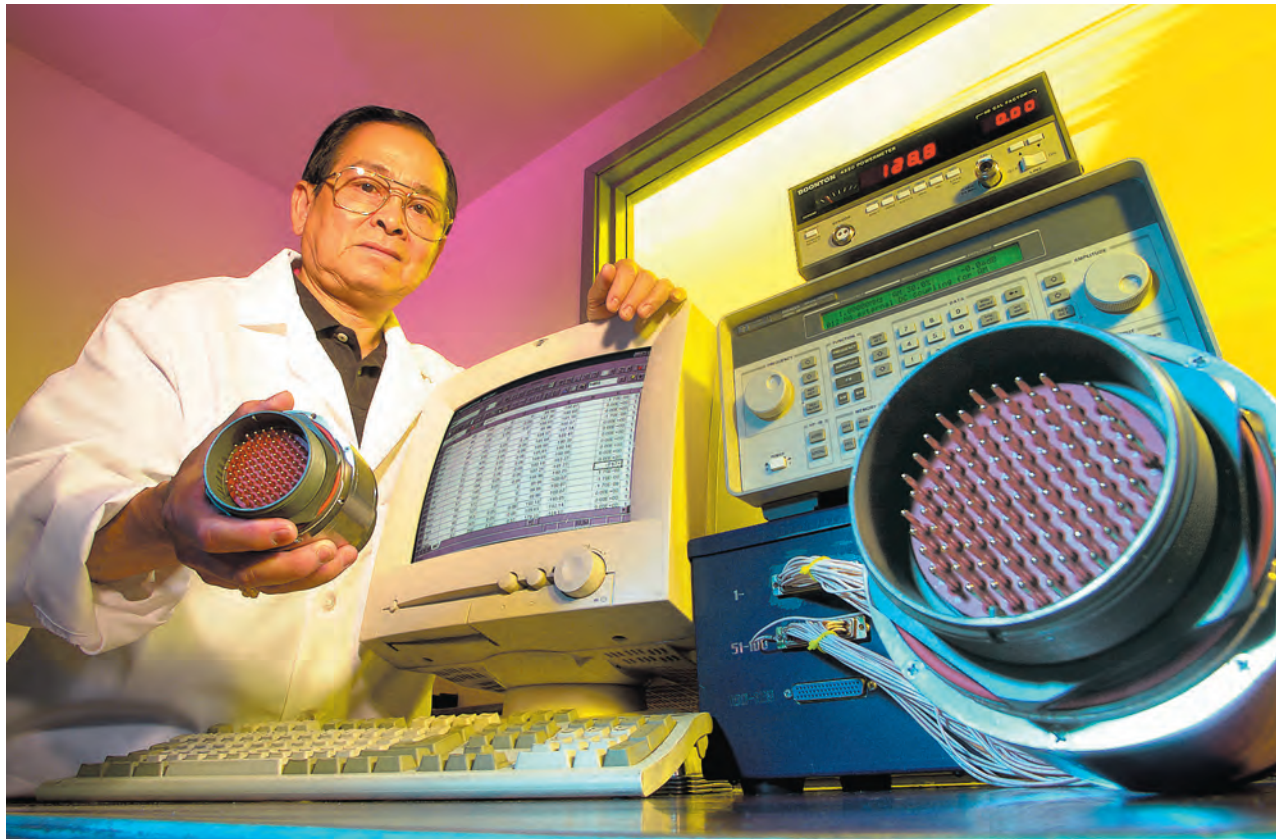


Shell Size	Cover with Ring and Chain P/N	Cover with Eyelet and Chain P/N	A	B	C	D	E	F
12	9624-315-120X	9624-443-120X	1.750	1.896	1.718	1.062	1.250	.172
16	9624-315-160X	9624-443-160X	2.250	2.474	2.218	1.062	1.750	.203
20	9624-315-200X	9624-443-200X	2.750	3.051	2.718	1.062	2.250	.219
24	9624-315-240X	9624-443-240X	3.250	3.629	3.218	1.062	2.750	.281
28	9624-315-280X	9624-443-280X	3.750	4.206	3.718	1.062	3.250	.344

Ring & Chain: for use with plugs and in-line receptacles

Eyelet & Chain: for use with flange mount plugs and flange mount receptacles

e x a c t i n g q u a l i t y



At Conesys, quality is a state of mind that permeates our entire organization, from the newest employee to the CEO. Our philosophy is based on prevention rather than detection. We endeavor to make decisions as early as possible, based on sound statistical principles and design, building quality into our processes from the start.

ISO 9001, AS9100, Six Sigma Tools – including statistical process controls (SPC), root cause and control charting – as well as training, audits and team activity are among the tools we use to validate the quality of our products and ensure our high levels of customer satisfaction. Everyone in the company is responsible for identifying and reporting quality issues and encouraged to initiate quality improvement ideas.

s t a n d a r d s



Design verification

Design verification, the first level of testing, is a critical component of the product development process. The Conesys Design for Quality goes through detailed checks and modeling prior to product tooling or production. After the product is tooled, we perform extensive first article inspections on the parts before they are assembled and go into the Product Verification Testing phase. Conesys products are designed and manufactured to pass the rigorous requirements for military QPL designation, UL, CSA and the specifications of our major customers.



Product verification

Product verification testing, performed in Conesys' well equipped environmental laboratory, ensures that the product is impervious to harsh environments, such as salt fog and humidity, thermal cycling and accelerated temperature life.



Supplier re-qualification

Our supplier performance index consists of quality product and on-time delivery, the same standards that our customers expect of us. Conesys continually re-qualifies suppliers, both internal and external, to ensure that they are delivering product with the integrity our customers require.



Testing

Testing and measurement are tools for product and performance validation, and are continuous processes at Conesys. In process testing, we perform 100% testing for dielectric withstanding voltage (DWV) and insulation resistance (IR) on the insert assemblies. Periodically, Conesys retests our products to re-certify them to the appropriate specification.



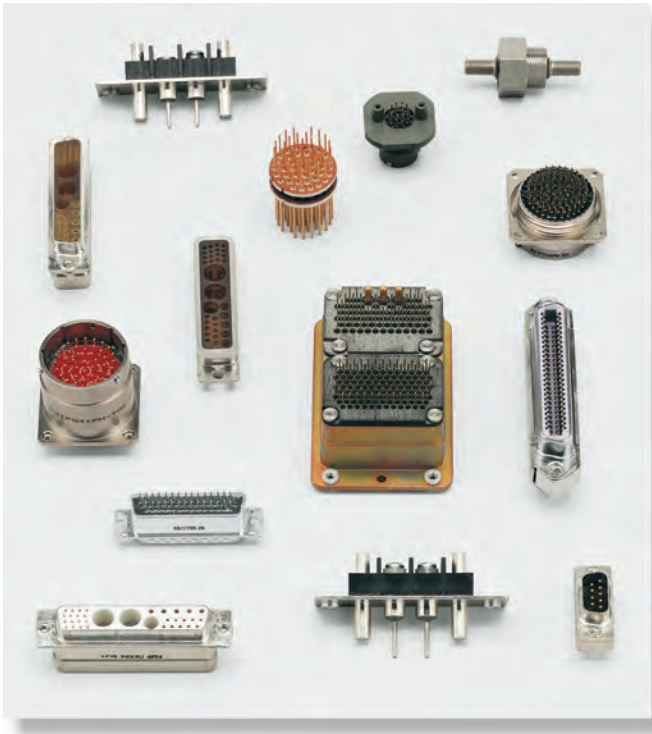
Performance measurement

Conesys uses measurements derived from SPC and other Six Sigma tools to monitor the quality of the product, to correct deficiencies in process or improve the existing process and reduce the cost of quality.





Conesys Specialty Products



Filter and Transient Suppression Connectors

Filter and transient suppression (lightning strike protected) devices are integrated into the connector to eliminate bulky exterior filtering systems and reduce weight, space and end-user testing while providing system protection from EMI and EMP. Please request Conesys/EMP Connectors publication *Filter and Transient Suppression Connectors*.

5015 Front Release, Reverse Bayonet, Custom Designs and Fiber Optic Products

For information on MIL-DTL-5015 Front Release connectors for shipboard application, Reverse Bayonet connectors for rail/mass transit application, Fiber Optic assemblies and customized, high reliability, severe environment products for Military, Aerospace, Transportation, Telecom and Industrial applications, please request various brochures from Conesys/J-Tech.



Standard Product Families

MIL-DTL-38999 Series I

MS27466	Aero
MS27467	Aero
MS27468	Aero
MS27496	Aero
MS27505	Aero
MS27656	Aero

MIL-DTL-38999 Series II

MS27472	Aero
MS27473	Aero
MS27474	Aero
MS27484	Aero
MS27497	Aero
MS27499	Aero
MS27500	Aero
MS27508	Aero
MS27513	Aero

MIL-DTL-38999 Series III

D38999/20	Aero
D38999/24	Aero
D38999/26	Aero

MIL-DTL-5015 Rear Release

MS3450	Aero, J-Tech
MS3451	Aero, J-Tech
MS3452	Aero, J-Tech
MS3454	Aero, J-Tech
MS3456	Aero, J-Tech
MS3459	Aero, J-Tech

MIL-DTL-5015 Front Release

MS3400	J-Tech
MS3401	J-Tech
MS3402	J-Tech
MS3404	J-Tech
MS3406	J-Tech
MS3408	J-Tech
MS3409	J-Tech
JT3496	J-Tech

MIL-DTL-28748 Rectangular

M28748/9	J-Tech
M28748/10	J-Tech

MIL-DTL-26500 (Threaded/Bayonet)

MS24264	Aero
MS24265	Aero
MS24266	Aero

EMI and EMP Protected Products

Filtered	EMP
Transient Suppressed	EMP

MIL-DTL-26482 Series 2

MS3470	Aero
MS3471	Aero
MS3472	Aero
MS3474	Aero
MS3475	Aero
MS3476	Aero

Military & Douglas (DC**) Contacts

M39029/29	J-Tech
M39029/30	J-Tech
M39029/36, 37	J-Tech
M39029/44	J-Tech
M39029/45	J-Tech
DC38	J-Tech
DC39	J-Tech
DC64	J-Tech
DC65	J-Tech

Douglas BAN 7025 Connectors (DC**)

DC30 thru DC37	Aero
DC50 thru DC57	Aero, J-Tech
DC60 thru DC63	Aero, J-Tech

Specialty Connector Lines

Reverse Bayonet	J-Tech
ESC004 (Rolls Royce)	J-Tech
A-Type	AIP
V-Type	AIP
X-Type	AIP
Rapid Change	AIP

MIL-DTL-83723 Series III

M83723/66, 67	J-Tech
M83723/68, 69	Aero, J-Tech
M83723/70	Aero
M83723/71, 72	Aero, J-Tech
M83723/73, 74	Aero, J-Tech
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