

V-line[®]
**Industrial
Interconnect System**



Amphenol
Industrial



Contents

Features / Benefits	2
Key Features	3
Product Ordering Guide	4
Insert Configurations	5/6
Dimensional Information	
- Plug Connectors	7/8
- Receptacle Connectors	9/10
Tools and	
Replacement Contacts	11
Accessories	11
Engineering Data	12
Molded Cable Assemblies	13/14



Low Profile Industrial Interconnect

V-line® multi-pin, metal shell, attachable electrical connectors are environmental grade plugs and receptacles designed for commercial and industrial applications. V-line features a low profile, quick mate, threaded coupling system for control and signal applications. V-line is designed to accommodate commercial wire and cable.

V-line hand tightens to a metal to metal lock-up that incorporates a ratcheted anti-vibration design to prevent loosening under extreme conditions. These mechanical and environmental features accompanied with an electroless nickel finish make V-line an exceptional connector for hostile environments and abusive applications. It is V-line's low profile, compact and rugged design that offers proven performance in the areas of automation, process control, stage lighting, audio reinforcement, robotics, machine tool and material handling that make V-line connectors an asset to the termination requirements of many industrial control products.

Features & Benefits



V-line's design includes a one piece 5 keyed shell, coupling nut, cable adapter and gland nut constructed of high strength machined aluminum and finished in all electroless nickel for superior corrosion resistance and durability.

The V-line plug shell coupling system incorporates a unique design that includes a ratcheted anti-vibration mechanism and a knurled and fluted grip area for easy handling.

The cable adapter and top nut feature large hex machined surfaces for damage free wrench tightening during connector assembling.

A basketweave strain relief controls cable bend radius and pull out. The gland nut compresses a tapered grommet around the jacketed cable to seal out liquids and contaminants.

Other sealing features include a shell interface gasket, an insert cork and bottle seal membrane, insert rear wire seal grommet and a cable adapter o-ring seal. A panel mount gasket is also included.

V-line connector inserts are a multi-wafer design featuring a beryllium copper frustrum retainer bonded and sealed into the connector shells. The pin (male) insert features a cork and bottle interface seal that provides environmental protection around the pin contacts and the face of the mating socket (female) connector insert.

The rear of the pin insert incorporates a rear wire entry sealing grommet with several internal individual seal risers that seal around the insulated conductor. The center rigid dielectric retains and stabilizes the pin contacts.

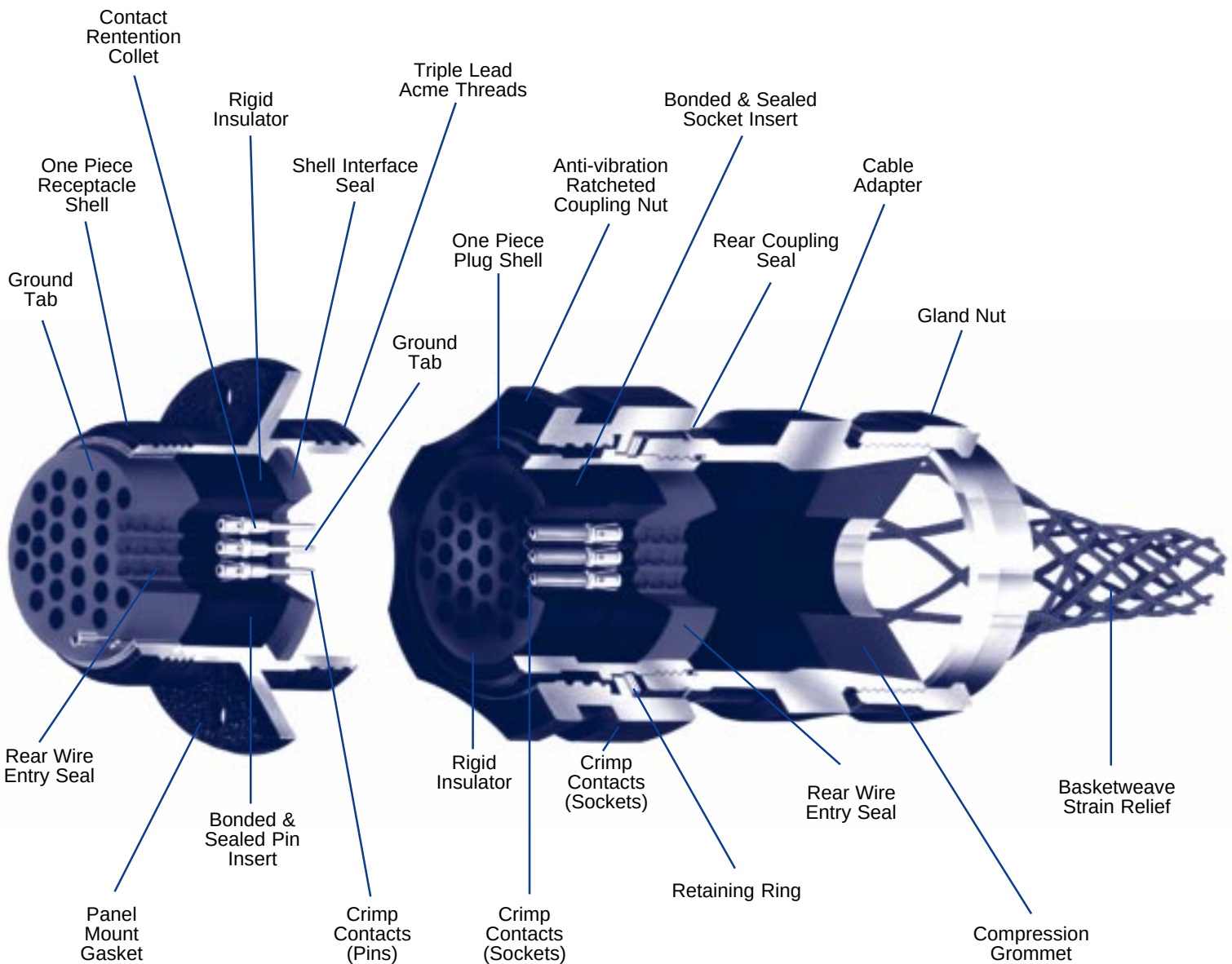
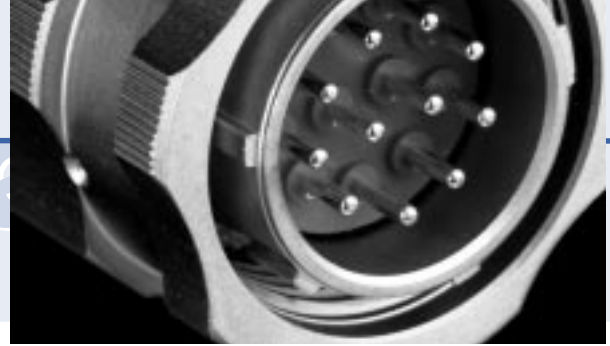
The socket insert design also features a rear wire entry sealing grommet with several internal individual seal risers. The front rigid component holds and stabilizes the socket contacts while the closed entry design of the front insulator piece protects the socket contacts and guides the pin contact into the socket chamber. The contact locations are marked on the front and rear of both pin and socket insert.

Designed for durability and electrical efficiency, V-line contacts are made of a high strength, highly conductive gold plated copper alloy. Socket contacts feature a protective stainless steel hood. This hood is positioned over the socket tines to reduce probe damage.

Contacts are inserted or removed at the rear of the insert. They are locked into the insert by retention collets embedded in the insert rigid insulator. All contacts are crimped with simple hand tools. The crimp is an 8-indent pattern for maximum wire retention. A long ground pin contact and shell ground clip are offered with most insert configurations (for applications requiring a ground circuit from a specified contact to the connector shell).



Key Features



Product Ordering Guide



Insert Configuration
Selection

Insert Gender /
Hardware Style
Selection

Entry Size
Selection

Connector Kits						
1	2	3	4	5	6	7
V	4	41	3	K	00	A6

(1)
V-Line

(2)
Insert
Type

(3)
Insert
Configuration

(4)
Insert
Gender

(5)
Connector
Backend
Hardware

(6)
Calls Out
Connector Kit
Only

(7)

5=20 AWG
4=16 AWG (GND)
3=16 AWG
2=12 AWG (GND)
1=12 AWG

Consult
Pages 5-6

Panel Mount
Receptacle
(1) Male
(2) Female

Plug
(3) Male
(4) Female

In-line
Flanged
Receptacle
(5) Male
(6) Female

In-line
Receptacle
(7) Male
(8) Female

(D) Straight
Cable Adapter
Plain

(K) Straight
Cable Adapter
w/ Basketweave

(T) Threaded
Conduit Adapter

(X) 75 Cable
Adapter

(Y) 75 Cable
Adapter w/
Basketweave

(P) Panel Mount

MIN.	MAX.	NPT SIZE For Threaded Adapters	ENTRY SIZE
.062	.125	1/8	A1
.125	.250	1/4	A2
.250	.375	3/8	A3
.375	.500	1/2	A4
.500	.625		A5
.625	.750	3/4	A6
.750	.875		A7
.875	1.000	1	A8
1.000	1.125		B1
1.125	1.250	1-1/4	B2
1.250	1.375		B3
1.375	1.500	1-1/2	B4
1.500	1.625		B5
1.625	1.750		B6
1.750	1.875		B7

INCHES

NOTE: Omit the Entry Size selection's last two digits from the part number when ordering a panel mount or dummy adapter.

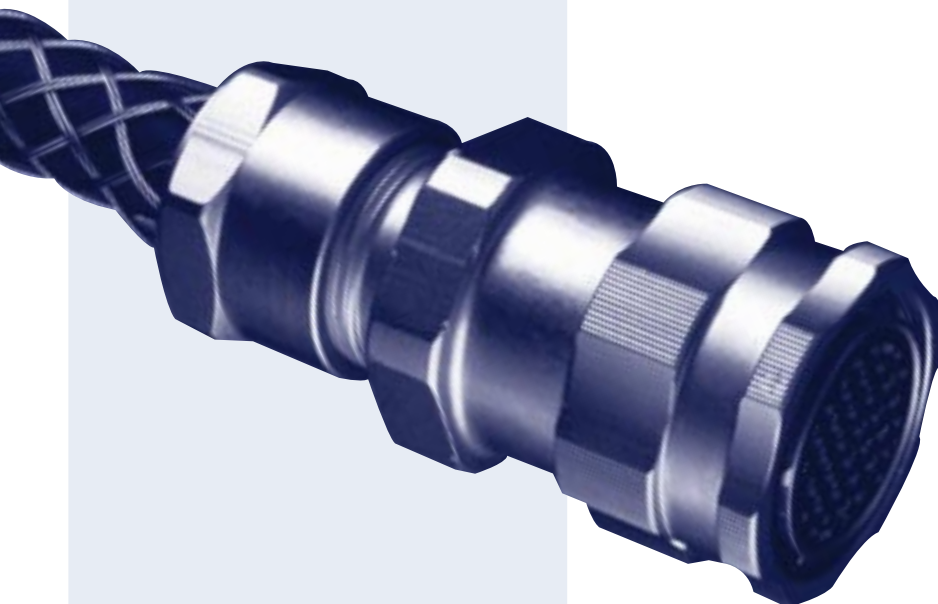


Insert Configurations

***Insert Voltage Ratings** are based upon the dielectric separation of contacts, dielectric strength of the insulating materials used and proven by qualification testing to the applicable requirements of MIL-C-26482.

Insert Current Ratings are developed and based on several factors, such as use of compatible wire gage to contact size, quantity of contacts, wire insulation, temperature rating and operating ambient temperature. The summation of the thermal effects of these variables plus the contact thermal loss shall not exceed the total temperature rating of the connector (200° C, 392° F).

The configurations shown are viewed from the front face of the male pin insert. Female socket inserts are opposite. They are not drawn to actual size. Configurations are shown in their normally keyed insert rotation position. Other alternately keyed insert rotation positions are available for most layouts. Also, other insert configurations are available - please consult factory.



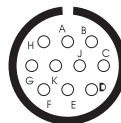
20 AWG

300V-1A AC/DC*



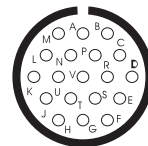
6 Contact
Shell Size 10

UNGND V506



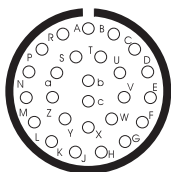
10 Contact
Shell Size 12

UNGND V510



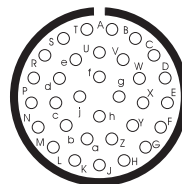
19 Contact
Shell Size 14

UNGND V519



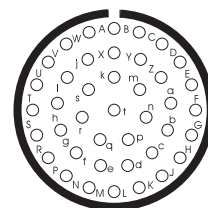
26 Contact
Shell Size 16

UNGND V526



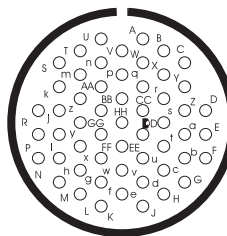
32 Contact
Shell Size 18

UNGND V532



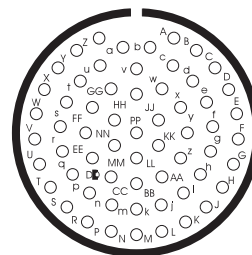
41 Contact
Shell Size 20

UNGND V541



55 Contact
Shell Size 22

UNGND V555

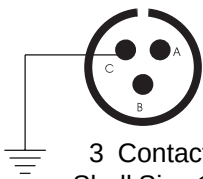


61 Contact
Shell Size 24

UNGND V561

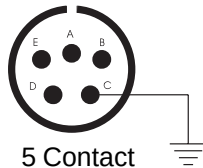
16 AWG

300V-7A AC/DC*



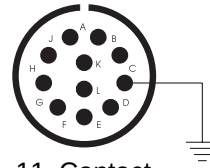
3 Contact
Shell Size 12

UNGND V303
GND V403



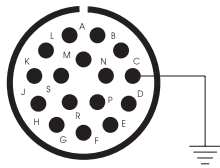
5 Contact
Shell Size 14

UNGND V305
GND V405



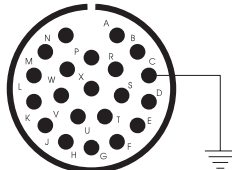
11 Contact
Shell Size 18

UNGND V311
GND V411



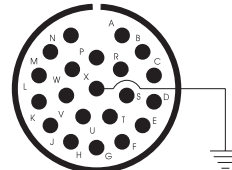
16 Contact
Shell Size 20

UNGND V316
GND V416



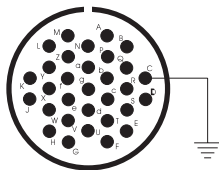
21 Contact
Shell Size 22

UNGND V321
GND V421



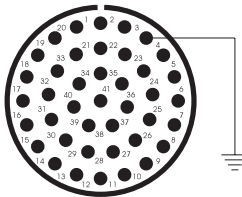
21 Contact
Shell Size 22

GND V4FX
Special Automotive
Specification
(Please consult factory)



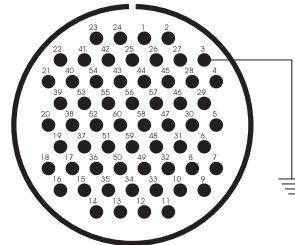
31 Contact
Shell Size 24

UNGND V331
GND V431



41 Contact
Shell Size 28

UNGND V341
GND V441

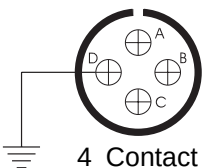


60 Contact
Shell Size 36

UNGND V360
GND V460

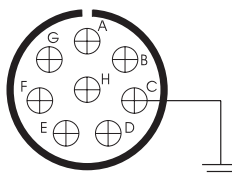
12 AWG

300V-20A AC/DC*



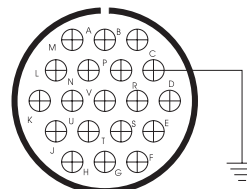
4 Contact
Shell Size 14

UNGND V104
GND V204



8 Contact
Shell Size 18

UNGND V108
GND V208



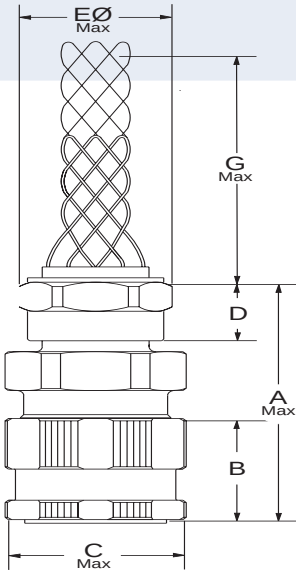
19 Contact
Shell Size 24

UNGND V119
GND V219

Contact Legend 20 ○ 16 ● 12 ⊕

Dimensional Information Plug Connectors

(Overall Clearance Dimensions)



Straight w/o Basketweave

(Note 1) Shell Size	A	B	C	D	E	F	G
10	3.19 (81.03)	1.35 (34.29)	1.25 (31.75)	0.82 (20.83)	1.26 (32.00)	N/A	7.25 (184.15)
12	3.19 (81.03)	1.35 (34.29)	1.36 (34.54)	0.82 (20.83)	1.26 (32.00)	N/A	7.25 (184.15)
14	3.19 (81.03)	1.35 (34.29)	1.50 (38.10)	0.82 (20.83)	1.40 (35.56)	N/A	9.50 (241.30)
16	3.19 (81.03)	1.35 (34.29)	1.61 (40.89)	0.82 (20.83)	1.40 (35.56)	N/A	9.50 (241.30)
18	3.19 (81.03)	1.35 (34.29)	1.66 (42.16)	0.82 (20.83)	1.40 (35.56)	N/A	9.50 (241.30)
20	3.88 (98.55)	1.35 (34.29)	1.79 (45.47)	1.17 (29.72)	1.83 (46.48)	N/A	9.75 (247.65)
22	3.88 (98.55)	1.35 (34.29)	1.92 (48.77)	1.17 (29.72)	1.83 (46.48)	N/A	9.75 (247.65)
24	4.09 (103.89)	1.35 (34.29)	2.05 (52.07)	1.17 (29.72)	1.83 (46.48)	N/A	9.75 (247.65)
28	4.66 (118.36)	1.35 (34.29)	2.38 (60.45)	1.17 (29.72)	2.23 (56.64)	N/A	11.75 (298.45)
36	5.09 (129.29)	1.35 (34.29)	2.92 (74.17)	1.17 (29.72)	2.81 (71.37)	N/A	14.75 (374.65)

Insert Gender	Straight Adapter	Straight w/Basketweave
Pin	3D00	3K00
Socket	4D00	4K00

75° w/o Basketweave

(Note 1) Shell Size	A	B	C	D	E	F	G
10	3.19 (81.13)	1.35 (34.29)	1.25 (31.75)	0.82 (20.83)	1.26 (32.00)	2.92 (74.20)	7.25 (184.15)
12	3.21 (81.50)	1.35 (34.29)	1.36 (34.54)	0.82 (20.83)	1.26 (32.00)	2.98 (75.59)	7.25 (184.15)
14	3.35 (85.13)	1.35 (34.29)	1.50 (38.10)	0.82 (20.83)	1.40 (35.05)	3.03 (76.85)	9.50 (241.30)
16	3.59 (91.31)	1.35 (34.29)	1.61 (40.89)	0.82 (20.83)	1.40 (35.56)	4.16 (105.65)	9.50 (241.30)
18	3.60 (91.48)	1.35 (34.29)	1.66 (42.16)	0.82 (20.83)	1.41 (35.56)	4.18 (106.29)	9.50 (241.30)
20	3.66 (92.88)	1.35 (34.29)	1.79 (45.47)	1.17 (29.72)	1.83 (35.79)	4.26 (108.20)	9.75 (247.65)
22	4.12 (104.61)	1.35 (34.29)	1.92 (48.77)	1.17 (29.72)	1.83 (46.48)	4.77 (121.21)	9.75 (247.65)
24	4.11 (104.29)	1.35 (34.29)	2.05 (52.07)	1.17 (29.72)	1.83 (46.48)	4.83 (122.65)	9.75 (247.65)
28	4.54 (115.38)	1.35 (34.29)	2.38 (60.45)	1.17 (29.72)	2.23 (56.64)	5.64 (143.36)	11.75 (298.45)
36	5.48 (139.31)	1.35 (34.29)	2.92 (74.17)	1.17 (29.72)	2.81 (71.37)	6.76 (171.66)	14.75 (374.65)

Insert Gender	75° Adapter	75° w/Basketweave
Pin	3X00	3Y00
Socket	4X00	4Y00

Dummy Adapter

(Note 1) Shell Size	A	B	C	D	E	F	G
10	3.35 (85.09)	1.35 (34.29)	1.25 (31.75)	1.64 (41.66)	1.25 (31.75)	N/A	N/A
12	3.35 (85.09)	1.35 (34.29)	1.36 (34.54)	1.64 (41.66)	1.36 (34.54)	N/A	N/A
14	3.35 (85.09)	1.35 (34.29)	1.50 (38.10)	1.64 (41.66)	1.50 (38.10)	N/A	N/A
16	3.35 (85.09)	1.35 (34.29)	1.61 (40.89)	1.64 (41.66)	1.61 (40.89)	N/A	N/A
18	3.35 (85.09)	1.35 (34.29)	1.66 (42.16)	1.64 (41.66)	1.66 (42.16)	N/A	N/A
20	3.85 (97.79)	1.35 (34.29)	1.79 (45.47)	2.14 (54.36)	1.79 (45.47)	N/A	N/A
22	3.85 (97.79)	1.35 (34.29)	1.92 (48.77)	2.14 (54.36)	1.92 (48.77)	N/A	N/A
24	4.15 (105.41)	1.35 (34.29)	2.05 (52.07)	2.44 (61.98)	2.05 (52.07)	N/A	N/A
28	4.65 (118.11)	1.35 (34.29)	2.38 (60.45)	2.94 (74.68)	2.38 (60.45)	N/A	N/A
36	5.10 (129.54)	1.35 (34.29)	2.92 (74.17)	3.39 (86.11)	2.92 (74.17)	N/A	N/A

Insert Gender	Dummy Adapter
Pin	3S00
Socket	4S00

NOTE 1: Insert configuration determines connector shell size. Refer to pages 5-6.

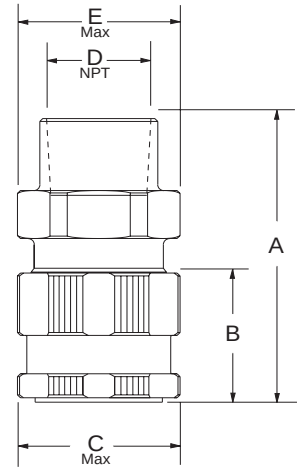
NOTE 2: All dimensions shown are for overall clearance purposes. They are not necessarily true component dimensions. All metric dimension conversions are rounded.



Conduit Adapter

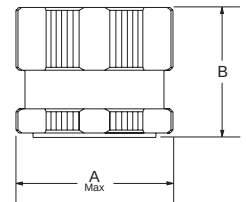
	(Note 1) Shell Size	A	B	C	D	E
	10	2.72 (69.09)	1.35 (34.29)	1.25 (31.75)	1/2 NPT	1.25 (31.62)
	12	3.10 (78.74)	1.35 (34.29)	1.36 (34.54)	1/2 NPT	1.36 (34.42)
	14	2.97 (75.44)	1.35 (34.29)	1.50 (38.10)	3/4 NPT	1.50 (37.97)
	16	2.97 (75.44)	1.35 (34.29)	1.61 (40.89)	3/4 NPT	1.61 (40.77)
	18	2.97 (75.44)	1.35 (34.29)	1.66 (42.16)	3/4 NPT	1.66 (42.04)
	20	3.35 (85.09)	1.35 (34.29)	1.79 (45.47)	1 NPT	1.79 (45.34)
	22	3.35 (85.09)	1.35 (34.29)	1.92 (48.77)	1 NPT	1.92 (48.64)
	24	3.78 (96.01)	1.35 (34.29)	2.05 (52.07)	1 NPT	2.05 (51.94)
	28	4.53 (115.06)	1.35 (34.29)	2.38 (60.45)	1 1/4 NPT	2.38 (60.33)
	36	5.23 (132.84)	1.35 (34.29)	2.92 (74.17)	1 1/4 NPT	2.92 (74.04)

Insert Gender	Conduit Adapter
Pin	3T00
Socket	4T00



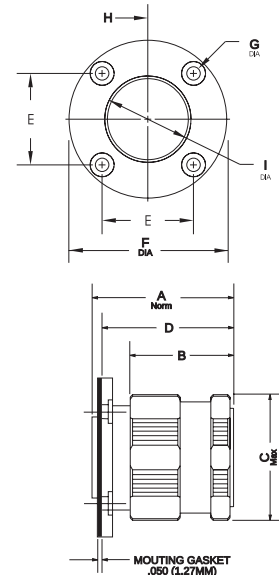
Plug Connector

	(Note 1) Shell Size	A	B	C
	10	1.25 (31.75)	1.35 (34.29)	N/A
	12	1.36 (34.54)	1.35 (34.29)	N/A
	14	1.50 (38.10)	1.35 (34.29)	N/A
	16	1.61 (40.89)	1.35 (34.29)	N/A
	18	1.66 (42.16)	1.35 (34.29)	N/A
	20	1.79 (45.47)	1.35 (34.29)	N/A
	22	1.92 (48.77)	1.35 (34.29)	N/A
	24	2.05 (52.07)	1.35 (34.29)	N/A
	28	2.38 (60.45)	1.35 (34.29)	N/A
	36	2.92 (74.17)	1.35 (34.29)	N/A



Panel Mount Plug

(Note 1) Shell Size	A	B	C	D	E	F	G	H	I
10	1.85 (46.99)	1.35 (34.29)	1.25 (31.75)	1.73 (43.94)	0.800 (20.32)	1.50 (38.10)	0.18 (4.57)	2.80 (71.12)	0.688 (17.48)
12	1.85 (46.99)	1.35 (34.29)	1.36 (34.54)	1.73 (43.94)	0.924 (23.47)	1.68 (42.67)	0.18 (4.57)	3.00 (76.20)	0.813 (20.65)
14	1.85 (46.99)	1.35 (34.29)	1.50 (38.10)	1.73 (43.94)	1.020 (25.91)	1.81 (45.97)	0.18 (4.57)	3.10 (78.74)	0.938 (23.83)
16	1.85 (46.99)	1.35 (34.29)	1.61 (40.89)	1.73 (43.94)	1.114 (28.30)	1.95 (49.53)	0.18 (4.57)	3.20 (81.28)	1.063 (27.00)
18	1.85 (46.99)	1.35 (34.29)	1.66 (42.16)	1.73 (43.94)	1.191 (30.25)	2.06 (52.32)	0.18 (4.57)	3.40 (86.36)	1.125 (28.58)
20	1.85 (46.99)	1.35 (34.29)	1.79 (45.47)	1.73 (43.94)	1.286 (32.66)	2.19 (55.62)	0.18 (4.57)	3.50 (88.90)	1.250 (31.75)
22	1.85 (46.99)	1.35 (34.29)	1.92 (48.77)	1.73 (43.94)	1.362 (34.59)	2.30 (58.42)	0.18 (4.57)	3.60 (91.44)	1.375 (34.93)
24	1.85 (46.99)	1.35 (34.29)	2.05 (52.07)	1.73 (43.94)	1.424 (36.17)	2.39 (60.71)	0.18 (4.57)	3.70 (93.98)	1.500 (38.10)
28	1.85 (46.99)	1.35 (34.29)	2.38 (60.45)	1.73 (43.94)	1.750 (44.45)	2.91 (73.91)	0.20 (5.08)	4.00 (101.60)	1.813 (46.05)
36	1.93 (49.02)	1.35 (34.29)	2.92 (74.17)	1.81 (45.97)	2.094 (53.19)	3.46 (87.88)	0.26 (6.60)	4.80 (121.92)	2.312 (58.72)

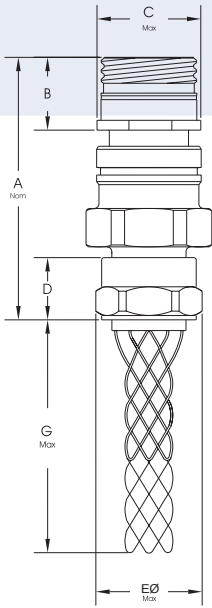


Insert Gender	Panel Mount Plug
Pin	3P00
Socket	4P00

H = Minimum clearance dimension between panel mount centers. For mixed shell sizes, add clearance dimension for each, and divide by two.

Dimensional Information Receptacle Connectors

(Overall Clearance Dimensions)



Straight w/o Basketweave

(Note 1) Shell Size	A	B	C	D	E	F	G
10	3.44 (87.38)	0.97 (24.64)	0.81 (20.52)	0.81 (20.57)	1.26 (32.00)	N/A	7.25 (184.15)
12	3.44 (87.38)	0.97 (24.64)	0.98 (24.89)	0.81 (20.57)	1.26 (32.00)	N/A	7.25 (184.15)
14	3.44 (87.38)	0.97 (24.64)	1.12 (28.45)	0.81 (20.57)	1.40 (35.56)	N/A	9.50 (241.30)
16	3.44 (87.38)	0.97 (24.64)	1.25 (31.75)	0.81 (20.57)	1.40 (35.56)	N/A	9.50 (241.30)
18	3.44 (87.38)	0.97 (24.64)	1.36 (34.54)	0.81 (20.57)	1.41 (35.56)	N/A	9.50 (241.30)
20	4.10 (104.14)	0.97 (24.64)	1.50 (38.00)	1.19 (30.23)	1.83 (46.48)	N/A	9.75 (247.65)
22	4.10 (104.14)	0.97 (24.64)	1.60 (40.64)	1.19 (30.23)	1.83 (46.48)	N/A	9.75 (247.65)
24	4.40 (111.76)	0.97 (24.64)	1.69 (42.93)	1.19 (30.23)	1.83 (46.48)	N/A	9.75 (247.65)
28	4.90 (124.46)	0.97 (24.64)	2.09 (53.09)	1.16 (29.46)	2.23 (56.64)	N/A	11.75 (298.45)
36	5.35 (135.89)	0.97 (24.64)	2.51 (63.75)	1.16 (29.46)	2.81 (71.37)	N/A	14.75 (374.65)

Insert Gender	Straight Adapter	Straight w/Basketweave
Pin	7D00	7K00
Socket	8D00	8K00

75° w/o Basketweave

(Note 1) Shell Size	A	B	C	D	E	F	G
10	2.41 (61.25)	0.97 (24.64)	0.81 (20.52)	0.82 (20.83)	1.26 (32.00)	2.98 (75.62)	7.25 (184.15)
12	2.43 (61.83)	0.97 (24.64)	0.98 (24.89)	0.82 (20.83)	1.26 (32.00)	3.07 (78.04)	7.25 (184.15)
14	2.58 (65.49)	0.97 (24.64)	1.12 (28.45)	0.82 (20.83)	1.40 (35.56)	3.13 (79.42)	9.50 (241.30)
16	2.83 (71.77)	0.97 (24.64)	1.25 (31.75)	0.82 (20.83)	1.40 (35.56)	4.28 (108.60)	9.50 (241.30)
18	2.84 (72.18)	0.97 (24.64)	1.36 (34.54)	0.82 (20.83)	1.41 (35.56)	4.34 (110.13)	9.50 (241.30)
20	2.90 (73.65)	0.97 (24.64)	1.50 (38.00)	1.17 (29.72)	1.83 (46.48)	4.42 (112.29)	9.75 (247.65)
22	3.36 (85.31)	0.97 (24.64)	1.60 (40.64)	1.17 (29.72)	1.83 (46.48)	4.92 (125.05)	9.75 (247.65)
24	3.34 (84.89)	0.97 (24.64)	1.69 (42.93)	1.17 (29.72)	1.83 (46.48)	4.97 (126.11)	9.75 (247.65)
28	3.79 (96.32)	0.97 (24.64)	2.09 (53.09)	1.17 (29.72)	2.23 (56.64)	5.83 (148.09)	11.75 (298.45)
36	4.72 (119.98)	0.97 (24.64)	2.51 (63.75)	1.17 (29.72)	2.81 (71.37)	6.90 (175.37)	14.75 (374.65)

Insert Gender	Straight Adapter	Straight w/Basketweave
Pin	7X00	7Y00
Socket	8X00	8Y00

Dummy Adapter

(Note 1) Shell Size	A	B	C	D	E	F	G
10	3.60 (91.44)	0.97 (24.64)	0.81 (20.57)	2.27 (57.66)	1.25 (31.75)	N/A	N/A
12	3.60 (91.44)	0.97 (24.64)	0.98 (24.89)	2.27 (57.66)	1.36 (34.54)	N/A	N/A
14	3.60 (91.44)	0.97 (24.64)	1.12 (28.45)	2.27 (57.66)	1.50 (38.10)	N/A	N/A
16	3.60 (91.44)	0.97 (24.64)	1.25 (31.75)	2.27 (57.66)	1.61 (40.89)	N/A	N/A
18	3.60 (91.44)	0.97 (24.64)	1.36 (34.54)	2.27 (57.66)	1.66 (42.16)	N/A	N/A
20	4.10 (104.14)	0.97 (24.64)	1.50 (38.00)	2.77 (70.36)	1.79 (45.47)	N/A	N/A
22	4.10 (104.14)	0.97 (24.64)	1.60 (40.64)	2.77 (70.36)	1.92 (48.77)	N/A	N/A
24	4.40 (111.76)	0.97 (24.64)	1.69 (42.93)	3.07 (77.98)	2.05 (52.07)	N/A	N/A
28	4.90 (124.46)	0.97 (24.64)	2.09 (53.09)	3.57 (90.68)	2.38 (60.45)	N/A	N/A
36	5.35 (135.89)	0.97 (24.64)	2.51 (63.75)	4.02 (101.98)	2.92 (74.17)	N/A	N/A

Insert Gender	Dummy Adapter
Pin	7S00
Socket	8S00

NOTE 1: Insert configuration determines connector shell size. Refer to pages 5-6.

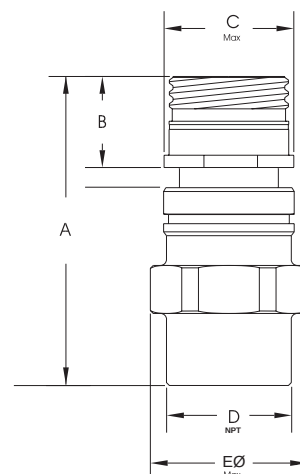
NOTE 2: All dimensions shown are for overall clearance purposes. They are not necessarily true component dimensions. All metric dimension conversions are rounded.

NOTE 3: Dimensions: Inches (mm)



Conduit Adapter

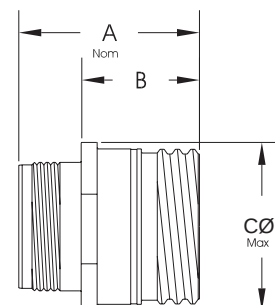
(Note 1) Shell Size	A	B	C	D	E
10	2.97 (75.44)	0.97 (24.64)	0.81 (20.57)	1/2 NPT	1.25 (31.62)
12	3.35 (85.09)	0.97 (24.64)	0.98 (24.89)	1/2 NPT	1.36 (34.42)
14	3.22 (81.79)	0.97 (24.64)	1.12 (28.45)	3/4 NPT	1.50 (37.97)
16	3.22 (81.79)	0.97 (24.64)	1.25 (31.75)	3/4 NPT	1.61 (40.77)
18	3.22 (81.79)	0.97 (24.64)	1.36 (34.54)	3/4 NPT	1.66 (42.04)
20	3.60 (91.44)	0.97 (24.64)	1.50 (38.00)	1 NPT	1.79 (45.34)
22	3.60 (91.44)	0.97 (24.64)	1.60 (40.64)	1 NPT	1.92 (48.64)
24	4.02 (102.11)	0.97 (24.64)	1.69 (42.93)	1 NPT	2.05 (51.94)
28	4.77 (121.16)	0.97 (24.64)	2.09 (53.09)	1 1/4 NPT	2.38 (60.33)
36	5.47 (138.94)	0.97 (24.64)	2.51 (63.75)	1 1/4 NPT	2.92 (74.04)



Insert Gender	Conduit Adapter
Pin	7T00
Socket	8T00

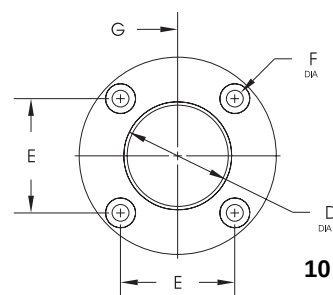
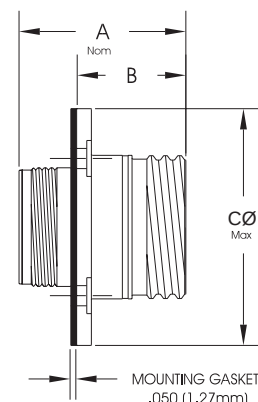
Inline Receptacle Connector

(Note 1) Shell Size	A	B	C
10	1.46 (37.08)	0.97 (24.64)	0.81 (20.57)
12	1.46 (37.08)	0.97 (24.64)	0.98 (24.89)
14	1.46 (37.08)	0.97 (24.64)	1.12 (28.45)
16	1.46 (37.08)	0.97 (24.64)	1.25 (31.75)
18	1.46 (37.08)	0.97 (24.64)	1.36 (34.54)
20	1.46 (37.08)	0.97 (24.64)	1.50 (38.00)
22	1.46 (37.08)	0.97 (24.64)	1.60 (40.64)
24	1.46 (37.08)	0.97 (24.64)	1.69 (42.93)
28	1.46 (37.08)	0.97 (24.64)	2.09 (53.09)
36	1.46 (37.08)	0.97 (24.64)	2.51 (63.75)



Panel Mount Receptacle

(Note 1) Shell Size	A	B	C	D	E	F	G
10	1.46 (37.08)	0.97 (24.64)	1.51 (38.35)	.0688 (17.48)	0.800 (20.32)	0.18 (4.57)	2.80 (71.12)
12	1.46 (37.08)	0.97 (24.64)	1.69 (42.93)	.0813 (20.65)	0.924 (23.47)	0.18 (4.57)	3.00 (76.20)
14	1.46 (37.08)	0.97 (24.64)	1.82 (46.23)	.9380 (23.83)	1.020 (25.91)	0.18 (4.57)	3.10 (78.74)
16	1.46 (37.08)	0.97 (24.64)	1.96 (49.78)	1.063 (27.00)	1.114 (28.30)	0.18 (4.57)	3.20 (81.28)
18	1.46 (37.08)	0.97 (24.64)	2.06 (52.32)	1.125 (28.58)	1.191 (30.25)	0.18 (4.57)	3.40 (86.36)
20	1.46 (37.08)	0.97 (24.64)	2.20 (55.88)	1.250 (31.75)	1.286 (32.66)	0.18 (4.57)	3.50 (88.90)
22	1.46 (37.08)	0.97 (24.64)	2.31 (58.67)	1.375 (34.93)	1.362 (34.59)	0.18 (4.57)	3.60 (91.44)
24	1.46 (37.08)	0.97 (24.64)	2.39 (60.71)	1.500 (38.10)	1.424 (36.17)	0.18 (4.57)	3.70 (93.98)
28	1.46 (37.08)	0.97 (24.64)	2.92 (74.17)	1.813 (46.05)	1.750 (44.45)	0.20 (5.08)	4.00 (101.60)
36	1.46 (37.08)	0.97 (24.64)	3.56 (90.42)	2.312 (58.72)	2.094 (53.19)	0.26 (6.60)	4.80 (121.92)



G = Minimum clearance dimension between panel mount centers. For mixed shell sizes, add clearance dimension for each, and divide by two.

Insert Gender	Panel Mount Plug
Pin	3P00
Socket	4P00

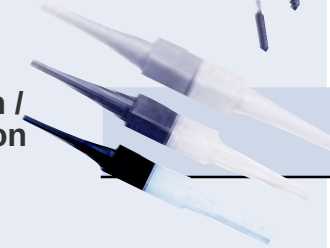
Tools & Replacement Contacts

Insertion / Extraction Tools (Metal)



Contact Size	Tool Number
12	CA-5K12
16	CA-5K16
20	CA-5K20

Insertion / Extraction Tools (Plastic)



Contact Size	Tool Number
12	CA-5H12
16	CA-5H16
20	CA-5H20

Pneumatic Crimp Tool



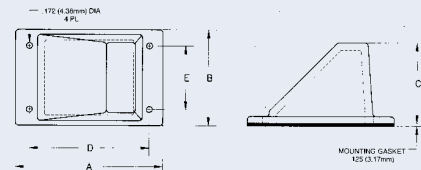
Contact Size	Tool Number
12, 16, 20	CA-5E12

Accessories

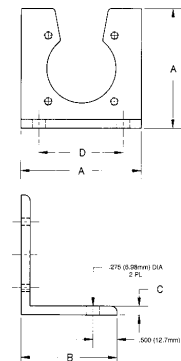


Shell Size	45 Degree Angle Adapter	86 Degree Angle Adapter	"L" Bracket
10	CA-2510-10	CA-2515-10	CA-2517-10-T
12	CA-2510-12	CA-2515-12	CA-2517-12-T
14	CA-2510-14	CA-2515-14	CA-2517-14-T
16	CA-2510-16	CA-2515-16	CA-2517-16-T
18	CA-2510-18	CA-2515-18	CA-2517-18-T
20	CA-2510-20	CA-2515-20	CA-2517-20-T
22	CA-2510-22	CA-2515-22	CA-2517-22-T
24	CA-2510-24	CA-2515-24	CA-2517-24-T
28	CV-2510-28	CV-2515-28	CV-2517-28-T

Shell Size	A	B	C	D	E	Panel Cut-Out
10-22	4.30 (109.22)	2.82 (71.63)	2.38 (60.45)	3.25 (82.55)	1.88 (47.75)	2.00 x 2.50 (50.80 x 63.50)
24 (45)	4.30 (109.22)	2.82 (71.63)	2.38 (60.45)	3.25 (82.55)	1.88 (47.75)	2.00 x 2.50 (50.80 x 63.50)
24 (86)	6.44 (163.58)	4.56 (115.82)	3.63 (92.20)	5.44 (138.18)	3.25 (82.55)	3.75 x 4.25 (95.25 x 107.95)
28	6.44 (163.58)	4.56 (115.82)	3.63 (92.20)	5.44 (138.18)	3.25 (82.55)	3.75 x 4.25 (95.25 x 107.95)
36	6.44 (163.58)	4.56 (115.82)	3.63 (92.20)	5.44 (138.18)	3.25 (82.55)	3.75 x 4.25 (95.25 x 107.95)



Shell Size	A	B	C	D
10-24	2.50 (63.50)	2.00 (50.80)	0.19 (4.83)	1.75 (44.45)
28-36	3.50 (88.90)	2.50 (63.50)	0.25 (6.35)	1.75 (44.45)



Contact Size	Tool Number
12, 16, 20	CA-5D12

Crimp Tool Inspection Gauge

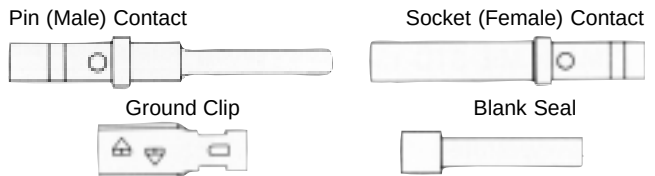
Contact Size	Tool Number
12	CA-5G12
16	CA-5G16
20	CA-5G20

Hand Crimp Tool

Contact Size	Tool Number
12, 16	CA-5J16

Ground Clip Crimping Tool

Contact Size	Pin Number	Socket Number	Ground* Pin Number	Ground* Clip Number (New Style)	Blank Seal Number
12	CA-4012-1K	CA-4112-1K	CA-4012-2N	CA-4212-2T	CA-4012-59
16	CA-4016-1K	CA-4116-1K	CA-4016-2N	CA-4216-2T	CA-4016-59
20	CA-4020-1K	CA-4120-1K			CA-4020-59



* Ground pin is silver plated and ground clip is tin plated.

Engineering Data

Performance Specifications



Contact Data

Maximum current ratings of contacts and maximum allowable voltage drop under test conditions when assembled as in service are shown below. Maximum total current to be carried per connector is the same as that which is allowable in wire bundles as specified by the NEC (National Electric Code), MIL-W-5088, wire and cable specification and other engineering data. For application assistance please call one of our customer service representatives.

Contact Size AWG	Contact (Only) Amps	M.V. Drop	Max. Wire AWG Dia. Inches (mm)*	Max. Ins. Wire Dia. Depth Inches (mm)*	Crimp Wire Barrel Range Inches (mm)*	Wire AWG Crimp
Notes -	1	2	3	4	5	6
20	7.5	35	.048 (1.21)	.083 (2.10)	.160 (4.06)	20, 22, 24
16	13	25	.066 (1.67)	.103 (2.61)	.246 (6.24)	16, 18, 20
12	23	25	.098 (2.48)	.158 (4.01)	.246 (6.24)	12, 14, 16

* All metric dimension conversions are rounded.

Performance Data

1. Contact (only) - Non-interrupting maximum continuous rating amperes.
2. Millivolt drop measurement made at opposite ends of mated contacts - pin and socket.
3. Based on crimp contact wire barrel dimensions.
4. Maximum insulated wire overall diameter - based upon insert rear wire entry.
5. Contact wire barrel depth defines insulated wire strip length.
6. Range of wire AWG that can be crimped to given contact size.

Operating Temperature Rating	-85° F (-65° C) to 392° F (200° C). The combination of ambient temperatures and current loading of contacts must not produce an insert temperature in excess of 392° F (200° C).
Durability	Exceeds standard of connector halves mated and unmated 500 times under normal operative service.
Fluid Resistance	Resistant to most oils, acids and alkalis (other fluids can be tested on request).
Humidity & Moisture Resistance	Exceeds specification requirements as defined in method 1002 of MIL-STD-1344.
Air Leakage	Exceeds specification requirement of .1 micron per cubic foot per hour maximum, where subjected to differential pressure of 14.7 lbs. per square inch.
Shock	Meets MIL-STD-1344, method 2004 (300g duration of 3 milliseconds).
Vibration	Meets MIL-STD-1344, method 2005 (49.5g RMS at ambient temperature).
Approvals	U.L. recognized, CSA approved. Consult factory for specific insert configurations.

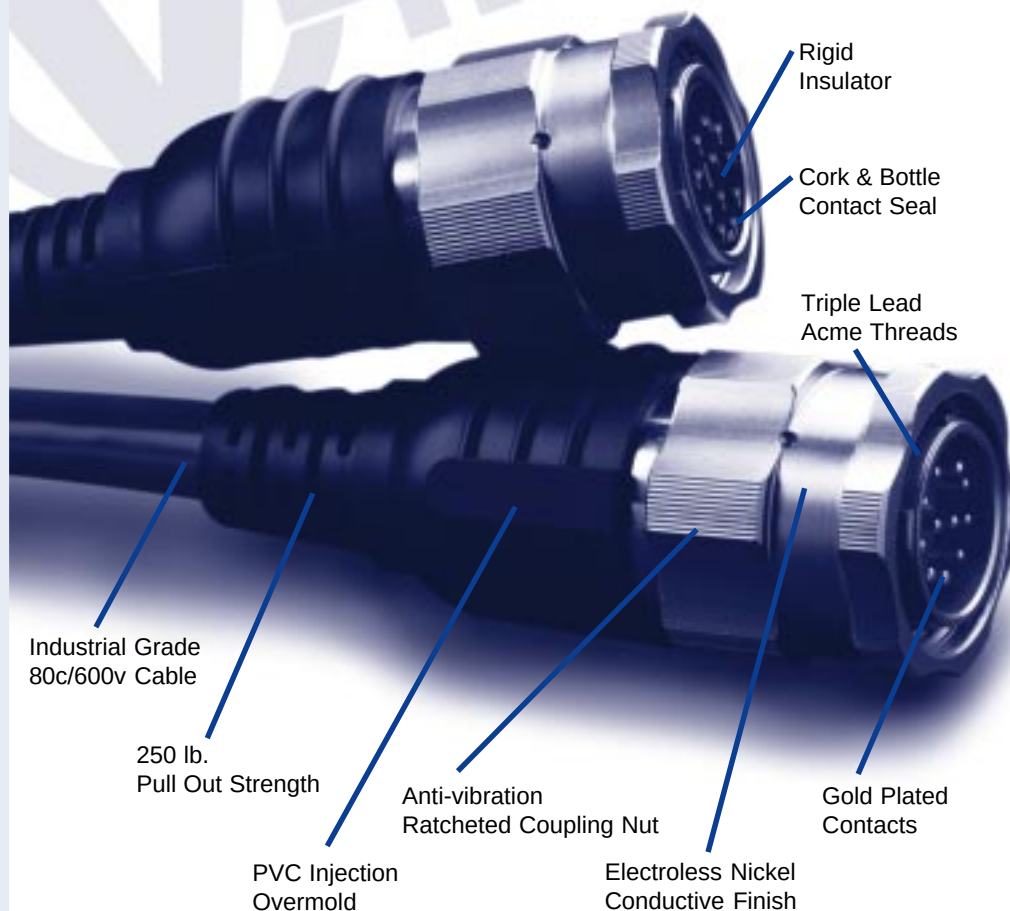
- Recognized under the Component Program of Underwriters Laboratories, Inc. for 250 volts.
File No. E109316



- Certified by Canadian Standards Association.
File No. LR83458



- Simplifying the planning or forecasting your cable assembly needs
- Up to 30% economical advantage over custom cable assemblies
- Simplified Sourcing
- Industrial compliant designs
- Environmental, IP65
- Low profile, High density
- Vibration resistant coupling system
- 16 awg or 18 awg versions
- Grounded Shell
- Manufactured to ISO9001 standards



Industria-link™

Cable Management Systems

Amphenol Sine Systems * Pyle Connectors Corporation is pleased to introduce the new V-line Industria-link™, multi-conductor cable assemblies. These assemblies are manufactured in standard insert configurations, from 11 to 31 contacts, and lengths of 25 to 100 feet.

The V-line connector features a triple lead ratcheted threaded coupling system that creates a metal to metal lock up between the plug and receptacle. V-line is resistant to vibration, it is environmentally sealed and ideal for many industrial applications including automation, robotics, machine tool and harsh environments.

These connectors are manufactured

from high strength aluminum with an electroless nickel plating for superior corrosion resistance and aesthetics.

We use only premium cable, offered in 16 AWG or 18 AWG.

An injection molded strain relief is used to control bend radii, cable pull out and provide environmental sealing for the rear of the connector.

These cable assemblies are complemented by 8 different panel mount receptacles that come complete with mounting gasket, insertion / extraction tool and mounting hardware. Also offered are the "50 plus 5 pack" of TFFN wire assembled with gold plated

contacts. These packs allow for rapid wiring of panel receptacles. Simply insert the contact into the receptacle using the insertion / extraction tool, run your wire, trim to length and terminate. Panel wiring has never been easier.

This systems approach to industrial interconnect products allows the application engineer to specify off the shelf cable assembly products that will meet industrial requirements, while reducing costs, lead-time, inventory requirements and unnecessary manufacturing resources.

Product Information



Double Ended Cable Assemblies

Part No. 16 AWG	Part No. 18 AWG	Description	Length in Feet	Length in Meters
V4113C4C16E25	V4113C4C18E25	11 Position male/female plug	25 ft.	7.62 m
V4113C4C16E50	V4113C4C18E50	11 Position male/female plug	50 ft.	15.24 m
V4113C4C16E75	V4113C4C18E75	11 Position male/female plug	75 ft.	22.86 m
V4113C4C16E100	V4113C4C18E100	11 Position male/female plug	100 ft.	30.48 m
V4163C4C16E25	V4163C4C18E25	16 Position male/female plug	25 ft.	7.62 m
V4163C4C16E50	V4163C4C18E50	16 Position male/female plug	50 ft.	15.24 m
V4163C4C16E75	V4163C4C18E75	16 Position male/female plug	75 ft.	22.86 m
V4163C4C16E100	V4163C4C18E100	16 Position male/female plug	100 ft.	30.48 m
V4213C4C16E25	V4213C4C18E25	21 Position male/female plug	25 ft.	7.62 m
V4213C4C16E50	V4213C4C18E50	21 Position male/female plug	50 ft.	15.24 m
V4213C4C16E75	V4213C4C18E75	21 Position male/female plug	75 ft.	22.86 m
V4213C4C16E100	V4213C4C18E100	21 Position male/female plug	100 ft.	30.48 m
V4313C4C16E25	V4313C4C18E25	31 Position male/female plug	25 ft.	7.62 m
V4313C4C16E50	V4313C4C18E50	31 Position male/female plug	50 ft.	15.24 m
V4313C4C16E75	V4313C4C18E75	31 Position male/female plug	75 ft.	22.86 m
V4313C4C16E100	V4313C4C18E100	31 Position male/female plug	100 ft.	30.48 m

Power Loss (W) per 100 Ft. Cable

AWG	Voltage	DCR (Ohms/Cft)	1 Amp	Current 3 Amps	5 Amps
18	24/115	.6625	.66	5.96	16.56
16	24/115	.4154	.42	3.74	10.39

Power Loss in Watts = Current in Amperes Squared x Resistance in Ohms

Voltage Drop (V) per 100 Ft. Cable

AWG	Voltage	DCR (Ohms/Cft)	1 Amp	Current 3 Amps	5 Amps
18	24/115	.6625	.66	1.99	3.31
16	24/115	.4154	.42	1.25	2.08

Voltage Drop = Resistance x Amperes

Receptacles

Contact Position	Male	Female
11	V411-1P00-LC	V411-2P00-LC
16	V416-1P00-LC	V416-2P00-LC
21	V421-1P00-LC	V421-2P00-LC
31	V431-1P00-LC	V431-2P00-LC

NOTE: Includes Recep Connector, Gasket, Scr Kit and Insertion/Extraction Tool only.



50 + 5 pack Wire Kit for Receptacles

Each kit includes:

50 - 25' (7.62 m) TFFN Teflon wire leads pre-assembled with V-line gold plated contacts

5 - 25' (7.62 m) Green/Yellow TFFN wire leads pre-assembled with V-line silver plated ground contact



16 AWG	Wire Color	Male Contact	Female Contact
	Red	WY-1816- REDG- 25M	WY-1816- REDG- 25F
	Blue	WY-1816- BLUG- 25M	WY-1816- BLUG- 25F
	Yellow	WY-1816- YELG- 25M	WY-1816- YELG- 25F
	Orange	WY-1816- ORGG- 25M	WY-1816- ORGG- 25F
	Black	WY-1816- BLKG- 25M	WY-1816- BLKG- 25F
	White	WY-1816- WHTG- 25M	WY-1816- WHTG- 25F
18 AWG	Wire Color	Male Contact	Female Contact
	Red	WY-1818- REDG- 25M	WY-1818- REDG- 25F
	Blue	WY-1818- BLUG- 25M	WY-1818- BLUG- 25F
	Yellow	WY-1818- YELG- 25M	WY-1818- YELG- 25F
	Orange	WY-1818- ORGG- 25M	WY-1818- ORGG- 25F
	Black	WY-1818- BLKG- 25M	WY-1818- BLKG- 25F
	White	WY-1818- WHTG- 25M	WY-1818- WHTG- 25F

NOTE: For custom 50 + 5 pack consult factory

Amphenol Industrial

NORTH AMERICA

Amphenol Corporation
World Headquarters
358 Hall Avenue
Wallingford, CT 06492-3555
Tel: 203.265.8900 / Fax: 203.265.8628
www.amphenol.com

Amphenol
Sine Systems * Pyle Connectors Corporation
25325 Joy Boulevard
Mt. Clemens, Michigan 48046-2336
Tel: 810.465.3131 / Fax: 810.465.1216
www.sineco.com

Amphenol
Sine Systems * Pyle Connectors Corporation
650 Grand Avenue/ Suite 304
Elmhurst, Illinois 60126
Tel: 630.832.4600 / Fax: 630.782.0700

Amphenol Aerospace Operations
40-60 Delaware Street
Sidney, New York 13838-1395
Tel: 607.563.5011 / Fax: 607.563.5157

Amphenol-Tuchel Electronics
6900 Haggerty Road / Suite 180 & 200
Canton, MI 48187
Tel: 734.451.6400 / Fax: 734.451.7197

Amphenol Corporation -
Fiber Optic Products
1925A Ohio Street
Lisle, IL 60532
Tel: 630.960.1010 / Fax: 630.810.5640

Amphenol Corporation -
Spectra-Strip
720 Sherman Avenue
Hamden, CT 06514
Tel: 203.281.3200 / Fax: 203.281.5872
www.spectrastrip.amphenol.com

Amphenol Interconnect
Products Corporation
20 Valley Street
Endicott, NY 13760
Tel: 607.754.4444 / Fax: 607.786.4311
www.amphenol-alpc.com

Amphenol Corporation -
Communication and
Network Products Division
One Kennedy Avenue
Danbury, CT 06810
Tel: 203.743.9272 / Fax: 203.796.2004

Amphenol Corporation -
Severna Operations
3 Eastmans Road
Parsippany, NJ 07054
Tel: 973.503.1600 / Fax: 973.503.1704

Times Fiber Communications, Inc.
358 Hall Avenue
Wallingford, CT 06492
Tel: 203.265.8500 / Fax: 203.265.8422
www.timesfiber.com/tfctchm.html

TFC P & L Center
550 Research Parkway
Meriden, CT 06450
Tel: 203.634.4730 / Fax: 203.237.1380

Amphenol Canada Corporation
20 Melford Drive
Scarborough, Ontario
M1B 2X6
CANADA
Tel: 416.291.4401 / Fax: 416.292.0647

Times Fiber Communications, Inc.
The Edward Building
3400 East Prentice Ave., Suite 550
Englewood, Colorado 80111
Tel: 303.793.3500 / Fax: 303.793.3016

Times Fiber Communications, Inc.
380 Tightsqueeze Ind. Road
Chatham VA 24531
Tel: 804.432.1800 / Fax: 804.432.1836

Times Fiber Canada, Limited
O'Brian Road
P.O. Box 430
Renfrew, Ontario
Canada K7V 4A6
Tel: 613.432.8566 / Fax: 613.432.9373

Technical Products International Ltd.
2110 Notre Dame Avenue
Winnipeg, MB
R3H 0K1 Canada
Tel: 204.697.2222 / Fax: 204.694.6164

SOUTH AMERICA

Amphenol do Brasil LTDA
Morumbi Tower
Avenida Roque Petroni Junior 999 - 13th Floor
CEP 04707-910 Sao Paulo - SP
Brazil
Tel: 55 11 5185 2881 / Fax: 55 11 5185 2812

MEXICO

Mexico Sales Office
HQ Business center
Presidente Masaryk 61, Piso 2
CP 11560 Mexico D.F.,
Mexico
Tel: 525.254.7283 / Fax: 525.531.9659

EUROPE

Amphenol Benelux BV
Central Office:
Hooftveste 19
3992 DH Houten
The Neatherlands
Tel: 31.30.6358015 / Fax: 31.30.6377899
e-mail: s.verwijns@amphenol-nl.com

Amphenol Poland
18 Niedumego Street
41-600 Swietochlowice
Katowice, Poland
Tel: 48.322.453634 / Fax: 48.322.421364
e-mail: info@amphenol-at.com

Amphenol Scandinavia
Box 2047 S-194 02 Upplands Väsby
Johanneslundsvägen 2
19461 Upplands Väsby
Sweden
Tel: +46 (0) 8 594 104 40 / Fax: +46 (0) 8 590 33 8 00
e-mail: info@amphenol-se.com

Amphenol Gesellschaft mbH
Swiss Office
Route du Route 41
CH-1723 Marly, Switzerland
Tel: +41 26 4363818 / Fax: +41 26 4300177
e-mail: info@amphenol-nl.com

Amphenol Gesellschaft mbH
Johnstrasse 42, 2.Stock, Top 3A
1150 Wien
Austria
Tel: 43.1.985.15 11 / Fax: 43.1.982.61 01
e-mail: info@amphenol-at.com

Amphenol Italia S.p.A.
Galleria Gandhi, 2-27
20017 Mazza di Rho
Milano, Italy
Tel: +39 2 939 04192 / Fax: +39 2 939 01030
e-mail: f.tognoli@amphenol-it.com

Amphenol Socapex S.A.S.
Promenade de l'Arve
BP 29
Thyez 74301 Cluses Cedex
France
Tel: 33 4 5089 2800 / Fax: 33 4 5096 2975

Amphenol Tuchel Electronics GmbH
August-Haesser-Strasse 10
74080 Heilbronn
Germany
Tel: 49.7131.929.0 / Fax: 49.7131.929.414

AUSTRALIA

Amphenol Australia Ltd.
248 Wickham Road, Moorabbin
Victoria 3189, Melbourne
Australia
Tel: 61.3.9555.1566 / Fax: 61.3.9553.3801

HONG KONG

Amphenol East Asia Limited
Units 3-12, 10/F & the 11/F
Wah Luen Industrial Centre
15-21 Wong Chuk Yeung Street
Fotan, Shatin, N.T., Hong Kong
Tel: 852.2699.2663
Fax: 852.2691.1774 (General)
852.2688.0974 (Sales)

KOREA

Amphenol East Asia Limited
13 Floor 1310
Samho Mulsan Bldg., B-dong
Yang Jae-dong 275-6
Seo Cho-ku
Seoul, Korea
Tel: 82.2.785.1588
Fax: 82.2.785.1589

INDIA

Amphetronix Limited
Plot No. 105
Bhosari Industrial Area
Post Box No. 1
Pune 411 026
India
Tel: 91.212.790363 / Fax: 91.212.790581
Telex: 953.0146.237
AMFETRONIX

GREAT BRITAIN

Amphenol Limited
Thanet Way, Whitstable
Kent CT5 3JF
Great Britain
Tel: 44.1227.773.200 / Fax: 44.1227.276.571

Amphenol Limited
Romsey Industrial Estate
Greatbridge Road
Romsey, Hampshire SO5 0HR
Great Britain
Tel: 44.1794.517.575 / Fax: 44.1794.516.246

Pyle-National Limited
100 Sherbrook Road
Daybrook Nottingham
Great Britain NG5 6AT
Tel: 44.1159.208.116 / Fax: 44.1159.208.896

Times Fiber Communications, Inc.
Gainsborough house
Sheering Lower Road
Sawbridgeworth
Hertfordshire CM21 9RG
Great Britain
Tel: 44.1279.600.676 / Fax: 44.1279.600.677

SCOTLAND

Amphenol Limited
Unit 29, Lynedoch St. Industrial Estate
Greenock
Scotland PA15 4AY
Tel: 44.1475.888.898 / Fax: 44.1475.729.109

JAPAN

Amphenol Japan, K.K.
2-3-27, Kudan Minami
Chiyoda-ku, Tokyo 102
Japan
Tel: 81 3 3263 5611 / Fax: 81 3 5276 7059

Amphenol

Sine System * Pyle Connectors Corporation

25325 Joy Boulevard - Mt. Clemens, Michigan 48046-2336
Tel: 810.465.3131 / Fax: 810.465.1216

650 Grand Avenue / Suite 304 & 305 - Elmhurst, Illinois 60126
Tel: 630.832.4600 / Fax: 630.782.0700

www.sineco.com / e-mail: info@sineco.com



This publication must not be used in any form or manner without prior approval in writing (copyright law, fair trading law, civil code). We reserve the right to modify designs in order to improve quality, keep pace with technological advancement or to meet particular requirements in production. Specifications subject to change.

FSMP0324/3.99