



ITT

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Circular Product Selection Guide



A

Circular

Circular			
Series	KJL	KJ	KJA / KJB
Military Spec Market	Mil-DTL 38999 Series I Military/Aerospace	Mil-DTL 38999 Series II Military/Aerospace	Mil-DTL 38999 Series III Military/Aerospace
Coupling System	Bayonet	Bayonet	Threaded
Maximum Temperature Range	200 deg C	200 deg C	200 deg C
Hardware	Aluminum	Aluminum	Aluminum
Finishes	Cadmium/Nickel/Zinc	Cadmium/Nickel/Zinc	Cadmium/Nickel/Zinc
Contact Termination	Crimp	Crimp	Crimp
PCB Termination	Available	Available	Available
Contact Type	Signal/ Coax/ Twinax	Signal/ Coax/ Twinax	Signal/ Coax/ Twinax Twinax/Quadax
Contact Release	Rear Release	Rear Release	Rear Release
Contact Plating	Gold	Gold	Gold
Contact Sizes	Size 8-22	Size 8-22	Size 8-22
Wire Range AWG	Size 8-28	Size 8-28	Size 8-28
Test Current	1.5-23.0 Amps	1.5-23.0 Amps	1.5-23.0 Amps
Dielectric Withstanding Voltage Sea Level	1000-2300 VAC rms	1000-2300 VAC rms	1000-2300 VAC rms
Shell Sizes	9-25	8-24	9-25
Mating Cycles	500	250 with spring fingers	500
RoHS Compliance	Available	Available	Available
Sea Spray Max	500 Hours	500 Hours	500 Hours
Grommet and Seals	Silicone	Silicone	Silicone
Page No.	A-10	A-14	A-20



A

Circular

Circular			
Series	KPT	KPSE	CA-B
Military Spec Market	Mil-DTL 26482 Series I Industrial/Commercial	Mil-DTL 26482 Series I VG95328 Industrial/Commercial	VG95234 Military/ Industrial/Commercial
Coupling System	Bayonet	Bayonet	Bayonet
Maximum Temperature Range	125 deg C	125 deg C	125 deg C
Hardware	Aluminum	Aluminum	Aluminum
Finishes	Cadmium/Zinc/Nickel	Cadmium/Zinc/Nickel	Cadmium/Zinc Cobalt
Contact Termination	Solder	Crimp	Crimp/Solder
PCB Termination	Available	Not Available	Available
Contact Type	Signal	Signal	Power/Signal
Contact Release	Captive	Front Release	Front Release
Contact Plating	Gold	Gold	Silver/Gold
Contact Sizes	Size 12-20	Size 16-20	Size 20-0
Wire Range AWG	Size 12-24	Size 16-24	Size 20-0
Test Current	3.0-23.0 Amps	3.0-13.0 Amps	8-2.45 Amps
Dielectric Withstanding Voltage Sea Level	1500-2300 VAC rms	1500-2300 VAC rms	1050-3000 VAC rms
Shell Sizes	8-24	10-24	10SL-36
Mating Cycles	500	500	500
RoHS Compliance	Available	Available	Available
Sea Spray Max	48 Hours	48 Hours	200 Hours
Grommet and Seals	Neoprene	Neoprene	Neoprene, opt. FKM
Page No.	A-36	A-39	A-130



A

Circular

Circular			
Series	PV	MS E&R	CV
Military Spec Market	Mil-DTL 26482 Series II Military/Aerospace	Mil-DTL 5015 Series I Industrial/Commerical	Mil-DTL 5015 Series III Military Aerospace
Coupling System	Bayonet	Threaded	Threaded
Maximum Temperature Range	200 deg C	125 deg C	200 deg C
Hardware	Aluminum	Aluminum	Aluminum
Finishes	Cadmium/Nickel	Cadmium/Zinc/Nickel	Cadmium/Nickel
Contact Termination	Crimp	Solder	Crimp
PCB Termination	Available	Not Available	Not Available
Contact Type	Signal	Power	Power
Contact Release	Rear Release	Captive	Rear Release
Contact Plating	Gold	Silver	Size 16 Gold, silver others
Contact Sizes	Size 12-20	Size 0-16	Size 0-16
Wire Range AWG	Size 12-24	Size 0-20	Size 0-20
Test Current	3.0-23.0 Amps	13-150 Amps	13-150 Amps
Dielectric Withstanding Voltage Sea Level	1500-2300 VAC rms	1000-7000 VAC rms	1000-7000 VAC rms
Shell Sizes	8-24	8S-48	8S-48
Mating Cycles	500	100	100
RoHS Compliance	Available	Available	Available
Sea Spray Max	48 Hours unmated	48 Hours	48 Hours
Grommet and Seals	Silicone	Neoprene	Silicone
Page No.	A-63	A-83	A-106



A

Circular

Circular				
Series	MS A&B	MS K	CA-KE	FRF/FRA
Military Spec Market	None Industrial/Commercial	Mil-DTL 5015 Aerospace Firewall	None Aerospace Firewall	None Aerospace Firewall
Coupling System	Threaded	Threaded	Threaded	Threaded
Maximum Temperature Range	125 deg C	177 deg C	177 deg C	204 deg C
Hardware	Aluminum	Steel	Steel	Steel/ Aluminum
Finishes	Zinc	Cadmium	Cadmium	Cadmium
Contact Termination	Solder	Crimp	Crimp	Crimp
PCB Termination	Not Available	Not Available	Not Available	Not Available
Contact Type	Power	Power	Power	Power
Contact Release	Captive	Captive	Captive	Front Release
Contact Plating	Silver	Silver	Silver	Gold
Contact Sizes	Size 0-16	Size 0-16	Size 0-16	Size 0-16
Wire Range AWG	Size 0-20	Size 0-20	Size 0-20	Size 0-20
Test Current	13-150 Amps	13-150 Amps	13-150 Amps	13-150 Amps
Dielectric Withstanding Voltage Sea Level	1000-7000 VAC rms	1000-7000 VAC rms	1000-7000 VAC rms	1000-7000 VAC rms
Shell Sizes	10SL-36	8S-36	8S-36	10SL-36
Mating Cycles	100	100	100	100
RoHS Compliance	Available	Available	Available	Available
Sea Spray Max	48 Hours	48 Hours	48 Hours	48 Hours
Grommet and Seals	N/A	N/A	Silicone/FloroSilicone	FloroSilicone
Page No.	A-72	A-114	A-118	A-122



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Circular

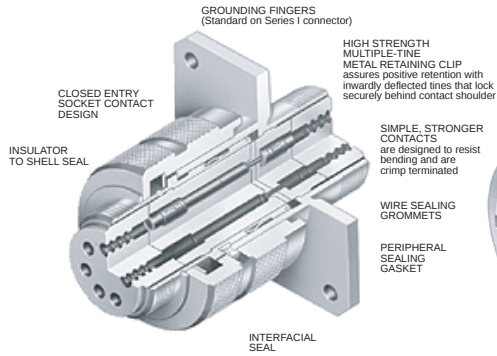
Circular			
Series	DS / DSH	CA-COM	CGE
Military Spec Market	Mil-C-22922 Class L	Industrial version of MIL-C-5015 & VG95234	VG96929 Military
Coupling System	Threaded	Threaded / Bayonet	Bayonet
Maximum Temperature Range	125 deg C	125 deg C	125 deg C
Hardware	Aluminum	Aluminum	Aluminum
Finishes	Cadmium/Nickel	Nickel	Cadmium
Contact Termination	Crimp	Crimp / Solder	Crimp
PCB Termination	Not Available	Available	Not Available
Contact Type	Power	Power / Signal	Power
Contact Release	Rear Release	Rear Release	Mechanical fixing
Contact Plating	Silver	Hard Silver / Gold	Hard Silver
Contact Sizes	Size 1.0-16	Size 8-16S	H2 / H5 / H15 / H24
Wire Range AWG	Size 1.0-20	Size 8-16 AWG (10-1,14mm ²)	25-250mm ²
Test Current	13-300 Amps	13-150 Amps	250-1000 Amps
Dielectric Withstanding Voltage Sea Level	1000-7000 VAC rms	1050-3000 VAC rms	2500 VAC rms
Shell Sizes	18 - 62 (36 excluded)	10SL-28	16-32
Mating Cycles	500	500	500
RoHS Compliance	Not Available	Available	Not Available
Sea Spray Max	500 Hours	48 Hours minimum	200 Hours minimum
Grommet and Seals	Neoprene/Plastic	Polychloroprene	PTFE
Page No.	A-128	A-149	A-157



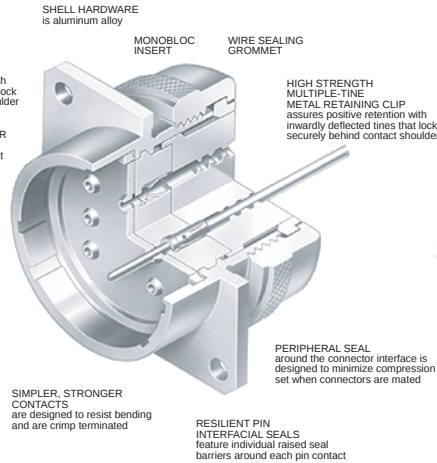
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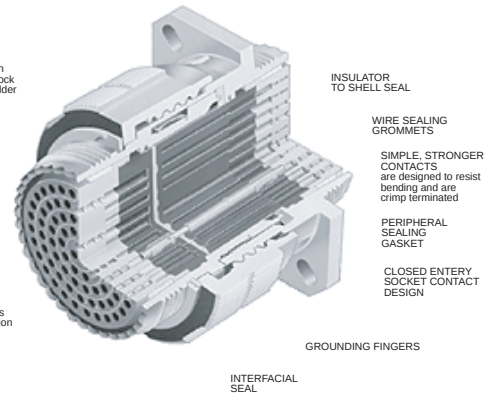
SERIES I



SERIES II



SERIES III



- Corrosion and zinc resistant shells of aluminum alloy with cadmium and zinc over nickel plating withstand a 500 hour salt spray exposure
- Rear release crimp snap-in contacts
- High contact density
- Standard MIL-C-39029 contacts, MIL-I-81969 application tools and MIL-STD 1560 insert arrangements

- Special/custom capabilities
- 100% scoop-proof - Series I and III
- Light weight /Low Profile - Series II
- Operates under severe high temperature vibration testing through 200 C - engineered for high density circuitry - Series III

- Interfacial seal helps prevent electrolytic erosion of contacts - Series III
- Superior EMI shielding provides outstanding protection up to 65dB at 10 GHZ. - Series III

Specification Comparison

Design Criteria	Series I	Series II	Series III
Low Profile/Light Weight	no	yes	no
Scoop Proof	yes	no	yes
Coupling System	Bayonet	Bayonet	Triple Lead Thread
Electrolytic Erosion	no	no	yes
Durability (Cycles)	500	250	500
High Impact Shock	yes	no	yes
External Bending Moment			
Shell Size 25	650 in/lbs	150 in/lbs	1000 in/lbs
Random Vibration "J"	Ambient	Ambient	492 F
Sine Vibration	30G, Ambient		60G, -85 to +392 F
Sand, Dust, Ice	yes		yes
Shell Size	9-25	8-24	9-25

Contact Rating

Contact Size	Test Current DC Test Amperage	Maximum Millivolt Drop*	Crimp Well Data	
			Well Diameter	Well Depth
22D	5	40	.0345 ± .0010	.157/.141
22M**	3	30	.0280 ± .0010	.157/.141
22**	5	40	.0365 ± .0010	.157/.141
20	7.5	35	.0470 ± .0010	.229/.209
16	13	25	.0670 ± .0010	.229/.209
12	23	25	.1000 ± .0020	.229/.209

* Maximum millivolt drop data is determined by measuring resistance of mated contacts from end to end
 ** For reference only



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Circular

Performance and Material Specifications

MATERIALS AND FINISHES

	Receptacle	Grounded Plug
Shell	Aluminum alloy	Aluminum alloy*
Insulator	High grade plastic	High grade plastic
Contacts	Copper alloy, gold plate	Copper alloy, gold plate
Grommet and Seal	Silicone base elastomer	Silicone base elastomer
Jam Nut	Aluminum alloy	-
Grounding Spring	-	Beryllium copper

*Finish as noted in How To Order sections.

ELECTRICAL DATA

Contact Size: 22D, 22M*, 22*, 20, 16 and 12

Contact Rating and Wire Size Accomodation

Wire Size	Contact Size and Test Amps					
	22D	22M*	22*	20	16	12
28	1.5	1.5	-	-	-	-
26	2.0	2.0	2.0	-	-	-
24	3.0	3.0	3.0	3.0	-	-
22	5.0	-	5.0	5.0	-	-
20	-	-	-	7.5	7.5	-
18	-	-	-	-	10.0	-
16	-	-	-	-	13.0	-
14	-	-	-	-	-	17.0
12	-	-	-	-	-	23.0

*For reference only

Service Rating

Altitude	Service Rating M		Service Rating N		Service Rating I		Service Rating II	
	Mated	Unmated	Mated	Unmated	Mated	Unmated	Mated	Unmated
Sea Level	1300	1300	1000	1000	1800	1800	2300	2300
50,000 ft.	800	550	600	400	1000	600	1000	800
70,000 ft.	800	350	600	260	1000	400	1000	500
100,000 ft.	800	200	600	200	1000	200	1000	200

Test voltage, AC (rms)

Test Data

Test Description	Parameters
Durability	500 cycles of mating and unmating, 250 cycles for Series II with spring fingers
Temperature Range	Class F, N; - 65°C (-85°F) to + 200°C (+392°F) Class A; - 65°C (-85°F) to + 150°C (+302°F) Class B,W; - 65°C (-85°F) to + 175°C (+347°F)
Vibration	Mated connectors are vibrated with weights to simulate rear accessory loads to the following levels: Sine Vibration: Up to 60 G's - Series I & III (at rated temperature - Series III) Not applicable for Series II. Random Vibration: 43.7 Grms at rated temperature - Series III 49.5 Grms at Ambient Temperature - Series I & III 43.7 Grms at Ambient Temperature - Series II
EMI Shielding Effectiveness	Class F: EMI leakage attenuation, greater than 90dB at 100Mhz, greater than 65dB at 10 GHz. Shell to shell conductivity, 1.0 millivolt max. resistance. Class W: EMI leakage attenuation, greater than 90dB at 100 MHz, greater than 50dB at 10 GHz. Shell to shell conductivity, 2.5 millivolt max.
Corrosion Resistant	Class B, W, and Z will withstand 500 hours salt spray. Class A, F, N, will withstand 48 hours salt spray.
Fluid Immersion	Connectors are fluid resistant to many fuels, solvents, coolants and oils.
High Impact Shock	Mated connectors terminated with MIL-C-915 cable and environmentally sealed backshells will withstand high impact shock per MIL-S-901. Applicable to Series I & III only.
Altitude	Designed to operate between sea level and 100,000 ft. above sea level.
Other Environments	Mated connectors shall withstand sand and dust per method 110 of MIL-STD-202 and be ice resistant. Applicable to Series I & III only.

NOTE: For hermetic standard or test data please consult ITT.

Insert Availability and Identification



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Circular

Series II	Series I & III	Service Rating	Total Contacts	Contact Size				
				22D	20	16	12	8
8-35	9-35	M	6	6				
8-98	9-98	I	3		3			
	11-4	I	4		4			
10-5	11-5	I	5		5			
10-35	11-35	M	13	13				
10-98	11-98	I	6		6			
10-99	11-99	I	7		7			
12-3		II	3			3		
12-4	13-4	I	4			4		
12-8	13-8	I	8		8			
12-35	13-35	M	22	22				
12-98	13-98	I	10		10			
14-5	15-5	II	5			5		
14-15	15-15	I	15		14	1		
14-18	15-18	I	18		18			
	15-19	I	19		19			
14-35	15-35	M	37	37				
14-97	15-97	I	12		8	4		
16-6	17-6	I	6				6	
16-8	17-8	II	8			8		
16-26	17-26	I	26		26			
16-35	17-35	M	55	55				
16-99	17-99	I	23		21	2		
18-11	19-11	II	11			11		
18-28	19-28	I	28		26	2		
18-30	19-30	I	30		29	1		
18-32	19-32	I	32		32			
18-35	19-35	M	66	66				
	21-11	I	11				11	
20-16	21-16	II	16			16		
20-35	21-35	M	79	79				
20-39	21-39	I	39		37	2		
20-41	21-41	I	41		41			
	21-75	M	4					4***
22-21	23-21	II	21			21		
22-32	23-32	I	32		32			
22-35	23-35	M	100	100				
22-53	23-53	I	53		53			
22-55	23-55	I	55		55			
24-4	25-4	I	56		48	8		
	25-19	I	19				19	
24-24	25-24	I	24			12	12	
24-29	25-29	I	29			29		
24-35	25-35	M	128	128				
	25-37	I	37			37		
	25-43	I	43		23	20		
	25-46	I, Twinax	46		40	4		2***
	25-8	Twinax	8					8***
	25-20	N, Coax, Twinax	30		10	13	4**	3***
	25-42	I, Coax	42		38			4*
24-61	25-61	I	61		61			
	25-64	I	64	40	8	10	6	
	25-66	I	66	53	2	11		

* Coax for RG-180 cables

** Coax for RG-174, -179, or -316 cables

*** Twinax for M17/176-00002 cables
(check factory for other cable applications)



Circular

A

How To Order

Military Nomenclature

MS NUMBER SHELL STYLE

- MS27466 - Wall Mounting Receptacle
- MS27468 - Jam Nut Receptacle
- MS27467 - Grounded Plug
- MS27656 - Wall Mounting Receptacle (back panel mounting)
- MS27505 - Box Mounting Receptacle (back panel) (Class E)

CLASS

- E - Inactive for new design. Superseded by Class T.
- G - Environmental resistant Space Grade
- P - Environment - resistant with straight potting cup accessories
- T - Environment - resistant with accessory threads and teeth, except MS27505 (without rear accessory) (Class T not applicable to MS27505)

MS NUMBER SHELL STYLE _____

CLASS _____

SHELL SIZE _____

HARDWARE FINISH _____

CONTACT ARRANGEMENT _____

CONTACT STYLE _____

POLARIZING POSITION _____

SHELL SIZE

9, 11, 13, 15, 17, 19, 21, 23, and 25

HARDWARE FINISH STANDARD

- A - Bright cadmium over electroless nickel plate, -85°F to +302°F (-65°C to +150°C)
- B - Olive drab cadmium over electroless nickel plate, -85°F to +347°F (-65°C to +175°C)
- F - Electroless nickel, -85°F to +392°F (-65°C to +200°C)

CONTACT ARRANGEMENT

See pages A-24 and A-25.

CONTACT STYLE

- P - Pin
- S - Socket
- *A - Less Pin Contact
- *B - Less Socket Contact

*Used only when other than power contacts are to be installed (i.e. shielded, thermocouple, etc.)

POLARIZING POSITION

A, B, C, and D. (No letters required for normal). See page A-23.

Note: To order MS connectors less standard power contacts, purchase order must state "Less Contacts"

MS27467 T 17 B 35 S

Cannon Nomenclature

SERIES PREFIX

- KJL - Series I-Scoop proof

SHELL STYLE

- 0 - Wall mounting receptacle
- 3 - Wall mounting receptacle (back panel mounting)
- 4 - Thru bulkhead receptacle
- 5 - Box mounting receptacle (back panel mounting)
- 6 - Straight plug, grounded
- 7 - Jam nut receptacle

CLASS

- E - Inactive for new design. Superseded by Class T.
- G - Environmental resistant - Space Grade
- F - Environment - resistant with strain relief accessory
- P - Environment - resistant with straight potting cup accessory
- T - Environment - resistant (without rear accessory) (Class T not applicable to KJL5)

SERIES PREFIX _____

SHELL STYLE _____

CLASS _____

SHELL SIZE _____

HARDWARE FINISH _____

CONTACT ARRANGEMENT _____

CONTACT STYLE _____

POLARIZING POSITION _____

MODIFICATION CODE _____

SHELL SIZE

9, 11, 13, 15, 17, 19, 21, 23 and 25

HARDWARE FINISH STANDARD

- A - Bright cadmium over electroless nickel plate, -85°F to +302°F (-65°C to +150°C)
- B - Olive drab cadmium over electroless nickel plate, -85°F to +347°F (-65°C to +175°C)
- N - Electroless nickel, -85°F to +392°F (-65°C to +200°C)
- Z - Zinc Nickel, Black
- - (Dash) When using a finish modification code

CONTACT ARRANGEMENT

See pages A-24 and A-25.

CONTACT STYLE

- P - Pin
- S - Socket
- PS - Pin-Socket (Shell style 4 only)

POLARIZING POSITION

N (normal), A, B, C, D. See page A-23.

MODIFICATION CODE

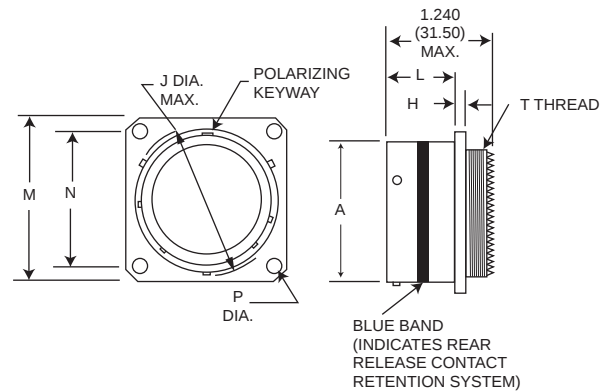
- L - Less contacts, not stamped on connector
- 16 - Outgassed NASA space graded connector
- 27 - Outgassed, standard connector
- T-69 Olive Drab (Green) Zinc Cobalt

KJL 6 T 17 B 35 S N

Wall Mounting Receptacle

MS27466
(MS service class E, P, T)

KJL0



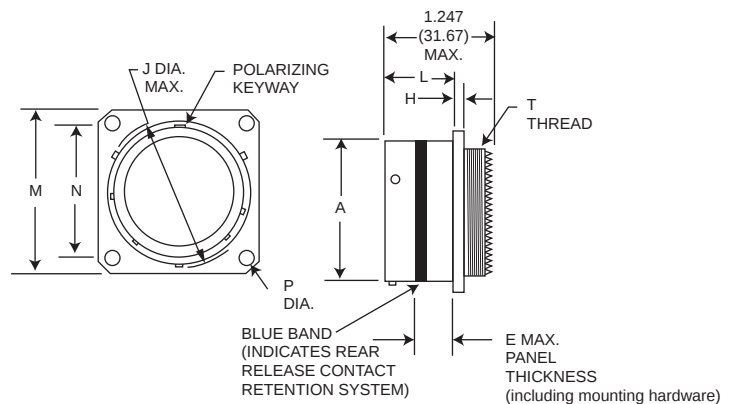
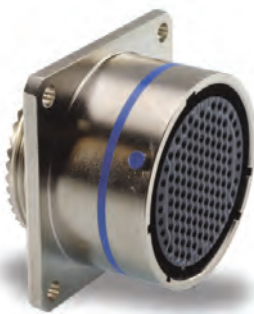
NOTE: For backshell dimensions and configurations, see pages A-30, A-32.

Shell Size	A Dia. Max.	H Max.	J Dia. Max.	L Max.	M Max.	N T.P.	P Dia. Max.	T Thread	Overall Length With Backshells	
									F Cable Clamp	P Potting Max.
9	.573 (14.55)	.100 (2.54)	.662 (16.81)	.632 (16.05)	.958 (24.33)	.719 (18.26)	.138 (3.51)	7/16-28UNEF-2A	1.846 (46.89)	1.451 (36.86)
11	.701 (17.81)	.100 (2.54)	.810 (20.57)	.632 (16.05)	1.051 (26.70)	.812 (20.62)	.138 (3.51)	9/16-24UNEF-2A	1.846 (46.89)	1.451 (36.86)
13	.851 (21.62)	.100 (2.54)	.960 (24.38)	.632 (16.05)	1.145 (29.08)	.906 (23.01)	.138 (3.51)	11/16-24UNEF-2A	1.846 (46.89)	1.451 (36.86)
15	.976 (24.79)	.100 (2.54)	1.085 (27.56)	.632 (16.05)	1.239 (31.47)	.969 (24.61)	.138 (3.51)	13/16-20UNEF-2A	1.846 (46.89)	1.451 (36.86)
17	1.101 (27.97)	.100 (2.54)	1.210 (30.73)	.632 (16.05)	1.332 (33.83)	1.062 (26.97)	.138 (3.51)	15/16-20UNEF-2A	1.966 (49.94)	1.451 (36.86)
19	1.208 (30.68)	.100 (2.54)	1.317 (33.45)	.632 (16.05)	1.458 (37.03)	1.156 (29.36)	.138 (3.51)	1-1/16-18UNEF-2A	1.966 (50.70)	1.451 (36.86)
21	1.333 (33.86)	.130 (3.30)	1.442 (36.63)	.602 (15.29)	1.582 (40.18)	1.250 (31.75)	.138 (3.51)	1-3/16-18UNEF-2A	1.966 (50.70)	1.451 (36.86)
23	1.458 (37.03)	.130 (3.30)	1.567 (39.80)	.602 (15.29)	1.708 (43.38)	1.375 (34.93)	.157 (3.99)	1-5/16-18UNEF-2A	1.966 (50.70)	1.451 (36.86)
25	1.583 (40.21)	.130 (3.30)	1.692 (42.98)	.602 (15.29)	1.832 (46.53)	1.500 (38.10)	.157 (3.99)	1-7/16-18UNEF-2A	1.966 (50.70)	1.451 (36.86)

Wall Mounting Receptacle (Back Panel)

MS27656
(MS service class E, P, T)

KJL3



NOTE: For backshell dimensions and configurations, see pages A-30, A-32.

Shell Size	A Dia. Max.	E Max.	H Max.	J Dia. Max.	L Max.	M Max.	N T.P.	P Dia. Max.	T Thread	Overall Length With Backshells	
										F Cable Clamp	P Potting Max.
9	.573 (14.55)	.234 (5.94)	.100 (2.54)	.662 (16.81)	.820 (20.83)	.958 (24.33)	.719 (18.26)	.138 (3.51)	7/16-28UNEF-2A	1.805 (45.85)	1.410 (35.81)
11	.701 (17.81)	.234 (5.94)	.100 (2.54)	.810 (20.57)	.820 (20.83)	1.051 (26.70)	.812 (20.62)	.138 (3.51)	9/16-24UNEF-2A	1.805 (45.85)	1.410 (35.81)
13	.851 (21.62)	.234 (5.94)	.100 (2.54)	.960 (24.38)	.820 (20.83)	1.145 (29.08)	.906 (23.01)	.138 (3.51)	11/16-24UNEF-2A	1.805 (45.85)	1.410 (35.81)
15	.976 (24.79)	.234 (5.94)	.100 (2.54)	1.085 (27.56)	.820 (20.83)	1.239 (31.47)	.969 (24.61)	.138 (3.51)	13/16-20UNEF-2A	1.805 (45.85)	1.410 (35.81)
17	1.101 (27.97)	.234 (5.94)	.100 (2.54)	1.210 (30.73)	.820 (20.83)	1.332 (33.83)	1.062 (26.97)	.138 (3.51)	15/16-20UNEF-2A	1.935 (48.90)	1.410 (35.81)
19	1.208 (30.68)	.234 (5.94)	.100 (2.54)	1.317 (33.45)	.820 (20.83)	1.458 (37.03)	1.156 (29.36)	.138 (3.51)	1-1/16-18UNEF-2A	1.955 (49.66)	1.410 (35.81)
21	1.333 (33.86)	.204 (5.18)	.130 (3.30)	1.442 (36.63)	.790 (20.07)	1.582 (40.18)	1.250 (31.75)	.138 (3.51)	1-3/16-18UNEF-2A	1.955 (49.66)	1.410 (35.81)
23	1.458 (37.03)	.204 (5.18)	.130 (3.30)	1.567 (39.80)	.790 (20.07)	1.708 (43.38)	1.375 (34.93)	.157 (3.99)	1-5/16-18UNEF-2A	1.955 (49.66)	1.410 (35.81)
25	1.583 (40.21)	.193 (4.90)	.130 (3.30)	1.692 (42.98)	.790 (20.07)	1.832 (46.53)	1.500 (38.10)	.157 (3.99)	1-7/16-18UNEF-2A	1.955 (49.66)	1.410 (35.81)

Performance Specifications-Pages A-7, A-8. Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33. Contact Arrangements - Pages A-24, A-32.

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Cannon KJL MIL-DTL-38999 Series I Connectors



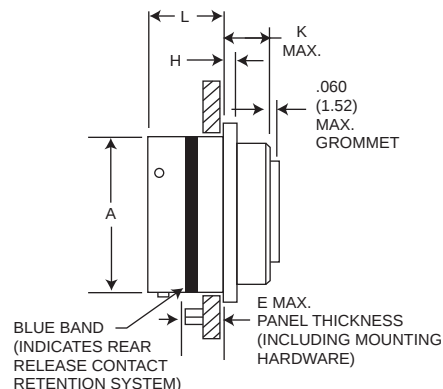
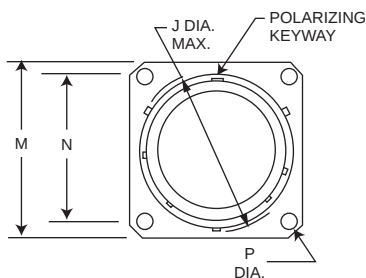
A

Circular

Box Mounting Receptacle (Back Panel)

MS27505E
(MS service class E)

KJL5E



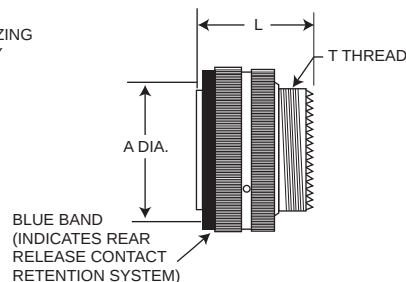
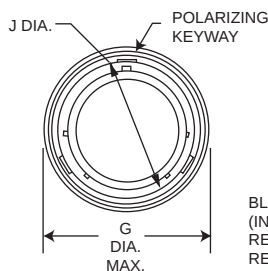
NOTE: This connector does not accommodate backshells.

Shell Size	A Dia. Max.	E Max.	H Max.	J Dia. Max.	K Max.	L Max.	M Max.	N T.P.	P Dia. Max.
9	.573 (14.55)	.234 (5.94)	.100 (2.54)	.662 (16.81)	.219 (5.56)	.820 (20.83)	.958 (24.33)	.719 (18.26)	.138 (3.51)
11	.701 (17.81)	.234 (5.94)	.100 (2.54)	.810 (20.57)	.219 (5.56)	.820 (20.83)	1.051 (26.70)	.812 (20.62)	.138 (3.51)
13	.851 (21.62)	.234 (5.94)	.100 (2.54)	.960 (24.38)	.219 (5.56)	.820 (20.83)	1.145 (29.08)	.906 (23.01)	.138 (3.51)
15	.976 (24.79)	.234 (5.94)	.100 (2.54)	1.085 (27.56)	.219 (5.56)	.820 (20.83)	1.239 (31.47)	.969 (24.61)	.138 (3.51)
17	1.101 (27.97)	.234 (5.94)	.100 (2.54)	1.210 (30.73)	.219 (5.56)	.820 (20.83)	1.332 (33.83)	1.062 (26.97)	.138 (3.51)
19	1.208 (30.68)	.234 (5.94)	.100 (2.54)	1.317 (33.45)	.219 (5.56)	.820 (20.83)	1.458 (37.03)	1.156 (29.36)	.138 (3.51)
21	1.333 (33.86)	.204 (5.18)	.130 (3.30)	1.442 (36.63)	.250 (6.35)	.790 (20.07)	1.582 (40.18)	1.250 (31.75)	.138 (3.51)
23	1.458 (37.03)	.204 (5.18)	.130 (3.30)	1.567 (39.80)	.250 (6.35)	.790 (20.07)	1.708 (43.38)	1.375 (34.93)	.157 (3.99)
25	1.583 (40.21)	.193 (4.90)	.130 (3.30)	1.692 (42.98)	.250 (6.35)	.790 (20.07)	1.832 (46.53)	1.500 (38.10)	.157 (3.99)

Straight Plug Grounded

MS27467
(MS service class E, P, T)

KJL6



NOTE: For backshell dimensions and configurations, see pages A-30, A-32.

Shell Size	A Max.	G Dia. Max.	J Dia. Max.	(Class T)		Overall Length With Backshells	
				L Max.	T Thread	F Cable Clamp	P Potting Max.
9	.585 (14.86)	.859 (21.82)	.483 (12.27)	1.234 (31.34)	7/16-28UNEF-2A	1.793 (45.54)	1.671 (42.44)
11	.717 (18.21)	.984 (24.99)	.611 (15.52)	1.234 (31.34)	9/16-24UNEF-2A	1.793 (45.54)	1.671 (42.44)
13	.866 (22.00)	1.156 (29.36)	.760 (19.30)	1.234 (31.34)	11/16-24UNEF-2A	1.793 (45.54)	1.671 (42.44)
15	.990 (25.15)	1.281 (32.54)	.885 (22.48)	1.234 (31.34)	13/16-20UNEF-2A	1.793 (45.54)	1.671 (42.44)
17	1.115 (28.32)	1.406 (35.71)	1.010 (25.65)	1.234 (31.34)	15/16-20UNEF-2A	1.913 (48.59)	1.671 (42.44)
19	1.222 (31.04)	1.516 (38.51)	1.115 (28.32)	1.234 (31.34)	1-1/16-18UNEF-2A	1.943 (49.35)	1.671 (42.44)
21	1.347 (34.21)	1.641 (41.68)	1.240 (31.50)	1.234 (31.34)	1-3/16-18UNEF-2A	1.943 (49.35)	1.766 (44.86)
23	1.472 (37.39)	1.766 (44.86)	1.365 (34.67)	1.234 (31.34)	1-5/16-18UNEF-2A	1.943 (49.35)	1.766 (44.86)
25	1.597 (40.56)	1.891 (48.03)	1.490 (37.85)	1.234 (31.34)	1-7/16-18UNEF-2A	1.943 (49.35)	1.766 (44.86)

Performance Specifications-Pages A-7, A-8.

Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33.

Contact Arrangements - Pages A-24, A-25.



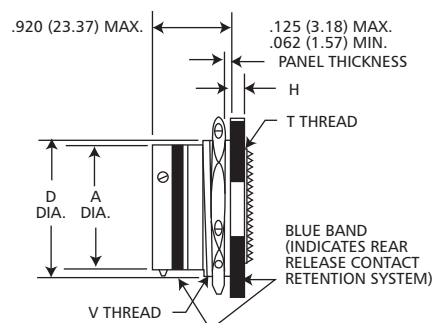
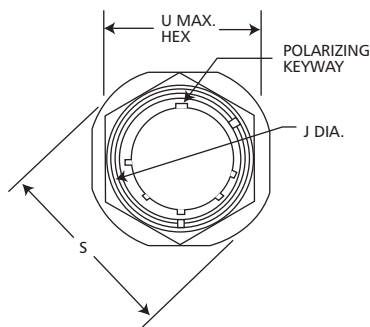
Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Jam Nut Receptacle

MS27468
(MS service class E,P,T)

KJL7



NOTE: For backshell dimensions and configurations, see pages A-30, A-32.

Shell Size	A Dia. Max.	D Max.	H Max.	J Dia. Max.	S Dia. Max.	T Thread	U Max. Hex.	V Thread Class 2A	Overall Length With Backshells	
									F Cable Clamp	P Potting Max.
9	.573 (14.55)	.655 (16.64)	.120 (3.05)	.662 (16.81)	1.204 (30.58)	7/16-28UNEF-2A	.892 (22.66)	11/16-24UNEF	1.846 (46.89)	1.451 (36.86)
11	.701 (17.81)	.755 (19.18)	.120 (3.05)	.810 (20.57)	1.391 (35.33)	9/16-24UNEF-2A	1.017 (25.83)	13/16-24UNEF	1.846 (46.89)	1.451 (36.86)
13	.851 (21.62)	.942 (23.93)	.120 (3.05)	.960 (24.38)	1.516 (35.51)	11/16-24UNEF-2A	1.205 (30.61)	1-20UNEF	1.846 (46.89)	1.451 (36.86)
15	.976 (24.79)	1.066 (27.08)	.120 (3.05)	1.085 (27.56)	1.641 (41.68)	13/16-20UNEF-2A	1.329 (33.76)	1-1/8-18UNEF	1.846 (46.89)	1.451 (36.86)
17	1.101 (27.97)	1.191 (30.25)	.120 (3.05)	1.210 (30.73)	1.766 (44.86)	15/16-20UNEF-2A	1.455 (36.96)	1-1/4-18UNEF	1.966 (49.94)	1.451 (36.86)
19	1.208 (30.68)	1.316 (33.43)	.151 (3.84)	1.317 (33.45)	1.954 (49.63)	1-1/16-18UNEF-2A	1.579 (40.11)	1-3/8-18UNEF	1.996 (50.70)	1.451 (36.86)
21	1.333 (33.86)	1.441 (36.60)	.151 (3.84)	1.442 (36.63)	2.078 (52.78)	1-3/16-18UNEF-2A	1.705 (43.31)	1-1/2-18UNEF	1.996 (50.70)	1.451 (36.86)
23	1.458 (37.03)	1.566 (39.78)	.151 (3.84)	1.567 (39.80)	2.204 (55.98)	1-5/16-18UNEF-2A	1.829 (46.46)	1-5/8-18UNEF	1.996 (50.70)	1.451 (36.86)
25	1.583 (40.21)	1.691 (42.95)	.151 (3.84)	1.692 (42.98)	2.328 (59.13)	1-7/16-18UNEF-2A	20.17 (51.23)	1-3/4-18UNS	1.996 (50.70)	1.451 (36.86)

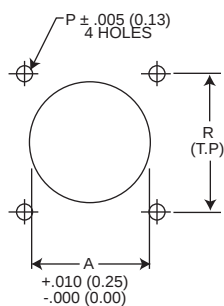
Performance Specifications-Pages A-7, A-8.

Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33.

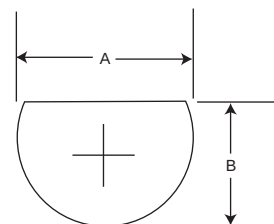
Contact Arrangements - Pages A-24, A-25.

Panel Cutouts

Flange Mounted Receptacles



Jam Nut Receptacles



Shell Size	A Dia.	P Dia.	R (Class T)	Mtg. Screw	Shell Size	A +.010 (.25) -.000 (.00)	B +.000 (.00) -.010 (.25)
9	.665 (16.89)	.128 (3.25)	.719 (18.26)	#4	9	.700 (17.78)	.670 (17.02)
11	.812 (20.62)	.128 (3.25)	.812 (20.62)	#4	11	.825 (20.96)	.771 (19.58)
13	.965 (24.51)	.128 (3.25)	.906 (23.01)	#4	13	1.010 (25.65)	.955 (24.26)
15	1.085 (27.55)	.128 (3.25)	.969 (24.61)	#4	15	1.135 (28.83)	1.085 (27.56)
17	1.250 (31.75)	.128 (3.25)	1.062 (26.97)	#4	17	1.260 (32.00)	1.210 (30.73)
19	1.322 (33.57)	.128 (3.25)	1.156 (29.36)	#4	19	1.385 (35.18)	1.335 (33.91)
21	1.447 (36.75)	.128 (3.25)	1.250 (31.75)	#4	21	1.510 (38.35)	1.460 (37.08)
23	1.569 (39.85)	.154 (3.91)	1.375 (34.93)	#6	23	1.635 (41.53)	1.585 (40.26)
25	1.703 (43.25)	.150 (3.81)	1.500 (38.10)	#6	25	1.760 (44.70)	1.710 (43.43)

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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A

Circular



A

Circular

How To Order

Military Nomenclature

MS NUMBER SHELL STYLE

- MS27472 - Wall Mounting Receptacle
- MS27473 - Straight Plug
- MS27474 - Jam Nut Receptacle
- MS27484 - Grounded Plug
- MS27497 - Wall Mounting Receptacle (back panel mounting)
- MS27513 - Box Mounting Receptacle
- MS27499 - Box Mounting Receptacle (Class E)
- MS27508 - Box Mounting (back panel mounting) (Class E)

CLASS

- E - Environment - resistant with rear accessory (without strain relief)
- G - Environmental - resistant wall mount and jam nut receptacle and plug types. Space Grade.
- P - Environment - resistant with straight potting cup accessories
- T - Environment - resistant (without rear accessory). (Class T not applicable to MS27499, MS27513, and MS27508.)

MS NUMBER SHELL STYLE _____

CLASS _____

SHELL SIZE _____

HARDWARE FINISH _____

CONTACT ARRANGEMENT _____

CONTACT STYLE _____

POLARIZING POSITION _____

SHELL SIZE

8, 10, 12, 14, 16, 18, 20, 22, 24.

HARDWARE FINISH STANDARD

- A - Bright cadmium over electroless nickel plate, - 85°F to + 302°F (- 65°C to + 150°C)
- B - Olive drab cadmium over electroless nickel plate, - 85°F to + 347°F (- 65°C to + 175°C)
- F - Electroless nickel, - 85°F to + 392°F (-65°C to + 200°C)

CONTACT ARRANGEMENT

See pages A-24 and A-25.

CONTACT STYLE

- P - Pin
- S - Socket
- *A - Less Pin Contact
- *B - Less Socket Contact

*Used only when other than power contacts are to be installed (i.e. shielded, thermocouple, etc.)

POLARIZING POSITION

A, B, C, and D (no letter required for normal).
See page A-23.

Note: To order MS connectors less standard power contacts, purchase order must state "Less Contacts".

ITT Nomenclature

SERIES PREFIX

- KJ - Series II - Low Profile

SHELL STYLE

- 0 - Wall mounting receptacle
- 2 - Box mounting receptacle
- 3 - Wall mounting receptacle (back panel mounting)
- 5 - Box mounting receptacle (back panel mounting)
- 6 - Straight plug
- G6 - Straight plug, grounded
- 7 - Jam nut receptacle

CLASS

- E - Environment - resistant with rear accessory (without strain relief)
- F - Environment - resistant with strain relief accessory
- G - Environmental - resistant wall mount and jam nut receptacle and plug type. Space Grade.
- P - Environment - resistant with straight potting cup accessory
- R - Environment - resistant with full grommet seal without rear accessory; shell styles 2 and 5 only
- T - Environment - resistant (without rear accessory). (Class T not applicable to KJ2E, KJ2R, KJ5E and KJ5R.)

SERIES PREFIX _____

SHELL STYLE _____

CLASS _____

SHELL SIZE _____

HARDWARE FINISH _____

CONTACT ARRANGEMENT _____

CONTACT STYLE _____

POLARIZING POSITION _____

MODIFICATION CODE _____

Note KJ supplied with exact complement of contacts.

SHELL SIZE

8, 10, 12, 14, 16, 18, 20, 22, and 24.

HARDWARE FINISH STANDARD

- A - Bright cadmium over electroless nickel plate, - 85°F to + 302°F (- 65°C to + 150°C)
- B - Olive drab cadmium over electroless nickel plate, - 85°F to + 347°F (- 65°C to + 175°C)
- N - Electroless nickel, - 85°F to + 392°F (-65°C to + 200°C)
- Z - Zinc Nickel, Black
- - (Dash) When using a finish modification code

CONTACT ARRANGEMENT

See pages A-24 and A-25.

CONTACT STYLE

- P - Pin
- S - Socket

POLARIZING POSITION

N(normal), A, B, C, D, see page A-23.

MODIFICATION CODE

- L - Less contacts, not stamped on connector
- 16 - Outgassed
NASA space graded connector
- 27 - Outgassed, standard connector
- T-69 Olive Drab (Green) Zinc Cobalt





A

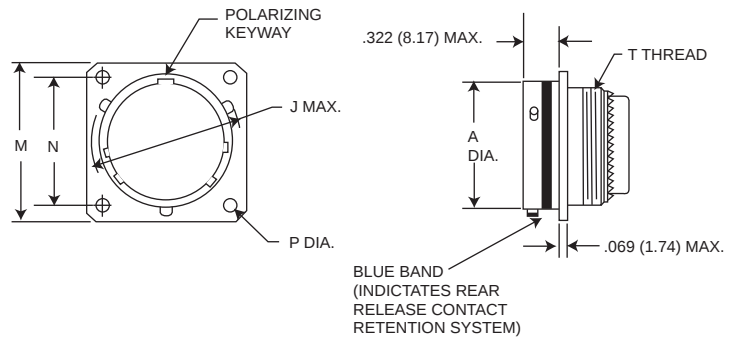
Circular

Wall Mounting Receptacle

MS27472

(MS service class E, P, T)

KJ0



NOTE: For backshell dimensions and configurations, see pages A-30, A-32.

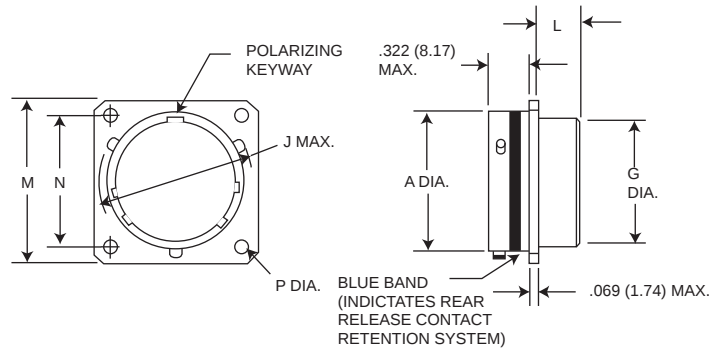
Shell Size	A Dia. Max.	J Dia. Max.	M Max.	N T.P.	P +.005 (0.13) - .010 (0.25)	T Thread	Overall length With Backshells		
							E Straight	F Cable Clamp	P Potting Max.
8	.474 (12.04)	.563 (14.30)	.828 (21.03)	.594 (15.09)	.125 (3.18)	7/16-28UNEF-2A	.850 (21.59)	1.555 (39.50)	1.020 (25.91)
10	.591 (15.01)	.680 (17.27)	.954 (24.23)	.719 (18.26)	.125 (3.18)	9/16-24UNEF-2A	.850 (21.59)	1.555 (39.50)	1.020 (25.91)
12	.751 (19.08)	.859 (21.82)	1.047 (26.59)	.812 (20.62)	.125 (3.18)	11/16-24UNEF-2A	.850 (21.59)	1.555 (39.50)	1.020 (25.91)
14	.876 (22.25)	.984 (24.99)	1.141 (28.98)	.906 (23.01)	.125 (3.18)	13/16-20UNEF-2A	.850 (21.59)	1.790 (45.47)	1.020 (25.91)
16	1.001 (25.43)	1.108 (28.14)	1.234 (31.34)	.969 (24.61)	.125 (3.18)	15/16-20UNEF-2A	.850 (21.59)	1.790 (45.47)	1.020 (25.91)
18	1.126 (28.60)	1.233 (31.32)	1.328 (33.73)	1.062 (26.97)	.125 (3.18)	1-1/16-18UNEF-2A	.850 (21.59)	1.790 (45.47)	1.020 (25.91)
20	1.251 (31.78)	1.358 (34.49)	1.453 (36.91)	1.156 (27.36)	.125 (3.18)	1-3/16-18UNEF-2A	.850 (21.59)	1.790 (45.47)	1.020 (25.91)
22	1.376 (34.95)	1.483 (37.67)	1.578 (39.08)	1.250 (31.76)	.125 (3.18)	1-5/16-18UNEF-2A	.850 (21.59)	1.930 (49.02)	1.020 (25.91)
24	1.501 (38.13)	1.610 (40.89)	1.703 (43.26)	1.375 (34.92)	.152 (3.86)	1-7/16-18UNEF-2A	.850 (21.59)	1.900 (48.26)	1.080 (27.43)

Box Mounting Receptacle

MS27499E

(MS service class E)

KJ2E



NOTE: This connector does not accommodate backshells

Shell Size	A Dia. Max.	G Dia. Max.	J Dia. Max.	L Max.	M Max.	N T.P.	P +.005 (0.13) - .010 (0.25)
8	.474 (12.04)	.421 (10.69)	.563 (14.30)	.312 (7.92)	.828 (21.03)	.594 (15.09)	.125 (3.18)
10	.591 (15.01)	.542 (13.77)	.680 (17.27)	.312 (7.92)	.954 (24.23)	.719 (18.26)	.125 (3.18)
12	.751 (19.08)	.667 (16.94)	.859 (21.82)	.312 (7.92)	1.047 (26.59)	.812 (20.62)	.125 (3.18)
14	.876 (22.25)	.791 (20.09)	.984 (24.99)	.312 (7.92)	1.141 (28.98)	.906 (23.01)	.125 (3.18)
16	1.001 (25.43)	.916 (23.27)	1.108 (28.14)	.312 (7.92)	1.234 (31.34)	.969 (24.61)	.125 (3.18)
18	1.126 (28.60)	1.034 (26.26)	1.233 (31.32)	.312 (7.92)	1.328 (33.73)	1.062 (26.97)	.125 (3.18)
20	1.251 (31.78)	1.158 (29.41)	1.358 (34.49)	.312 (7.92)	1.453 (36.81)	1.156 (27.36)	.125 (3.18)
22	1.376 (33.95)	1.283 (32.59)	1.483 (37.67)	.312 (7.92)	1.578 (40.08)	1.250 (31.75)	.125 (3.18)
24	1.501 (38.13)	1.408 (35.76)	1.610 (40.89)	.312 (7.92)	1.703 (43.26)	1.375 (34.93)	.152 (3.86)

Performance Specifications-Pages A-7, A-8.

Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33.

Contact Arrangements - Pages A-24, A-25.

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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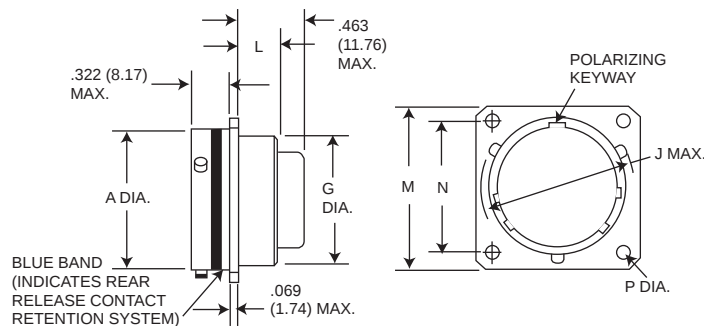
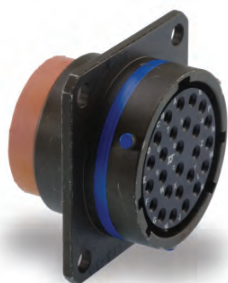
A

Circular

Box Mounting Receptacle

MS27513E
(MS service class E)

KJ2R



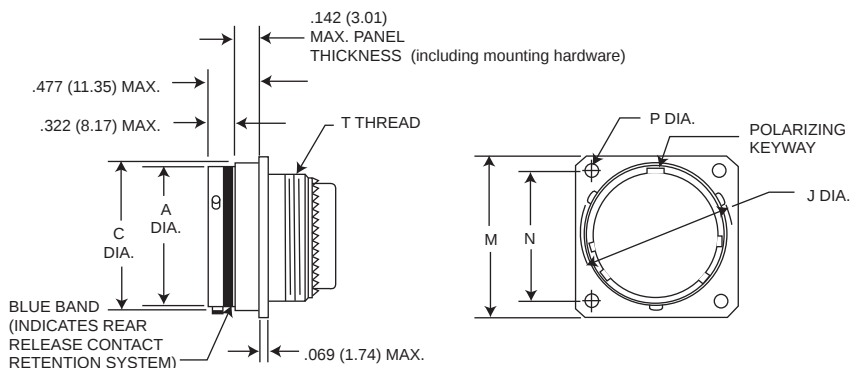
NOTE: This connector does not accommodate backshells

Shell Size	A Dia. Max.	G Dia. Max.	J Dia. Max.	L Max.	M Max.	N T.P.	P +.005 (0.13) -.010 (0.25)
8	.474 (12.04)	.421 (10.69)	.563 (14.30)	.312 (7.92)	.828 (21.03)	.594 (15.09)	.125 (3.18)
10	.591 (15.01)	.542 (13.77)	.680 (17.27)	.312 (7.92)	.954 (24.23)	.719 (18.26)	.125 (3.18)
12	.751 (19.08)	.667 (16.94)	.859 (21.82)	.312 (7.92)	1.047 (26.59)	.812 (20.62)	.125 (3.18)
14	.876 (22.25)	.791 (20.09)	.984 (24.99)	.312 (7.92)	1.141 (28.98)	.906 (23.01)	.125 (3.18)
16	1.001 (25.43)	.916 (23.27)	1.108 (28.14)	.312 (7.92)	1.234 (31.34)	.969 (24.61)	.125 (3.18)
18	1.126 (28.60)	1.034 (26.26)	1.233 (31.32)	.312 (7.92)	1.328 (33.73)	1.062 (26.97)	.125 (3.18)
20	1.251 (31.78)	1.158 (29.41)	1.358 (34.49)	.312 (7.92)	1.453 (36.81)	1.156 (27.36)	.125 (3.18)
22	1.376 (33.95)	1.283 (32.59)	1.483 (37.67)	.312 (7.92)	1.578 (40.08)	1.250 (31.75)	.125 (3.18)
24	1.501 (38.13)	1.408 (35.76)	1.610 (40.89)	.312 (7.92)	1.703 (43.26)	1.375 (34.93)	.152 (3.85)

Wall Mounting Receptacle

MS27497
(MS service class E, P, T)

KJ3



NOTE: For backshell dimensions and configurations, see pages A-30, A-32.

Shell Size	A Dia. Max.	C Dia. Max.	J Dia. Max.	M Max.	N T.P.	P +.005 (0.13) -.010 (0.25)	T Thread	Overall Length With Backshells		
								E Straight	F Cable Clamp	P Potting Max.
8	.474 (12.04)	.522 (13.26)	.563 (14.30)	.828 (21.03)	.594 (15.09)	.125 (3.18)	7/16-28UNEF-2A	.855 (21.72)	1.570 (39.88)	1.020 (25.91)
10	.591 (15.01)	.639 (16.23)	.680 (17.27)	.954 (24.23)	.719 (18.26)	.125 (3.18)	9/16-24UNEF-2A	.855 (21.72)	1.570 (39.88)	1.020 (25.91)
12	.751 (19.08)	.808 (20.52)	.859 (21.82)	1.047 (26.59)	.812 (20.62)	.125 (3.18)	11/16-24UNEF-2A	.855 (21.72)	1.570 (39.88)	1.020 (25.91)
14	.876 (22.25)	.935 (23.75)	.984 (24.99)	1.141 (28.98)	.906 (23.01)	.125 (3.18)	13/16-20UNEF-2A	.855 (21.72)	1.780 (45.21)	1.020 (25.91)
16	1.001 (25.43)	1.058 (26.87)	1.108 (28.14)	1.234 (31.34)	.969 (24.61)	.125 (3.18)	15/16-20UNEF-2A	.855 (21.72)	1.780 (45.21)	1.020 (25.91)
18	1.126 (28.60)	1.183 (30.05)	1.233 (31.32)	1.328 (33.73)	1.062 (26.97)	.125 (3.18)	1-1/16-18UNEF-2A	.855 (21.72)	1.780 (45.21)	1.020 (25.91)
20	1.251 (31.78)	1.308 (33.22)	1.358 (34.49)	1.453 (36.91)	1.156 (29.36)	.125 (3.18)	1-3/16-18UNEF-2A	.855 (21.72)	1.780 (45.21)	1.020 (25.91)
22	1.376 (34.95)	1.433 (36.40)	1.483 (37.67)	1.578 (40.08)	1.250 (31.75)	.125 (3.18)	1-5/16-18UNEF-2A	.855 (21.72)	1.960 (49.78)	1.020 (25.91)
24	1.501 (38.13)	1.568 (39.83)	1.610 (40.89)	1.703 (43.26)	1.375 (34.93)	.152 (3.86)	1-7/16-18UNEF-2A	.855 (21.72)	1.960 (49.78)	1.080 (27.43)

Performance Specifications-Pages A-7, A-8.

Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33.

Contact Arrangements - Pages A-24, A-25.



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

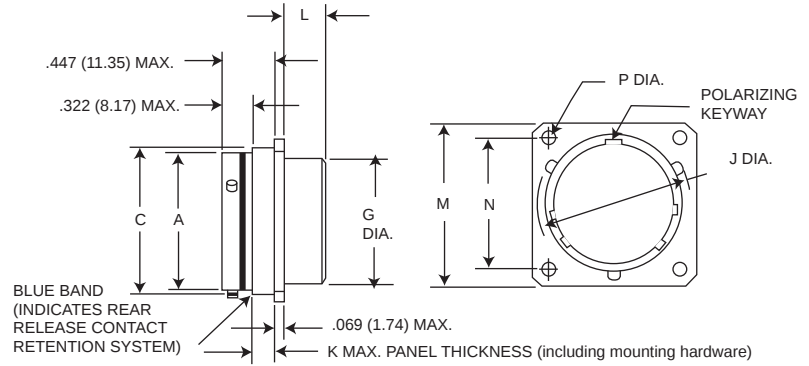
www.ittcannon.com

Box Mounting Receptacle (Back Panel)

MS27508E
(MS service class E)



KJ5E



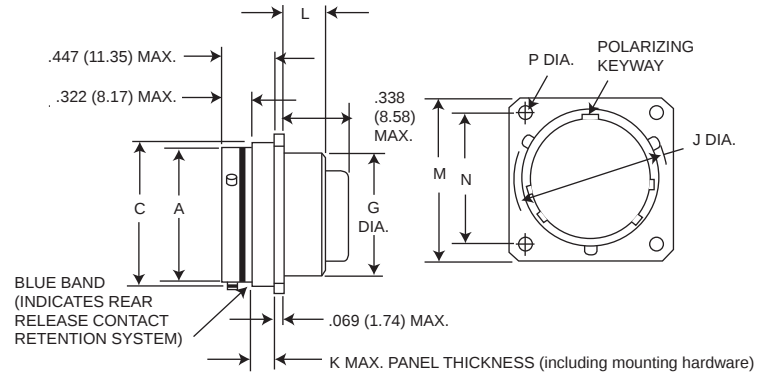
NOTE: This connector does not accommodate backshells

Shell Size	A Dia. Max.	C Dia. Max.	G Dia. Max.	J Dia. Max.	K Max.	L Max.	M Max.	N T.P.	P +.005 (0.13) - .010 (0.25)
8	.474 (12.04)	.522 (13.26)	.421 (10.69)	.563 (14.30)	.147 (3.73)	.185 (4.70)	.828 (21.03)	.594 (15.09)	.125 (3.18)
10	.591 (15.01)	.639 (16.23)	.542 (13.77)	.680 (17.27)	.152 (3.86)	.185 (4.70)	.954 (24.23)	.719 (18.26)	.125 (3.18)
12	.751 (19.08)	.808 (20.52)	.667 (16.94)	.859 (21.82)	.152 (3.86)	.185 (4.70)	1.047 (26.59)	.812 (20.62)	.125 (3.18)
14	.876 (22.25)	.935 (23.75)	.791 (20.09)	.984 (24.99)	.152 (3.86)	.185 (4.70)	1.141 (28.98)	.906 (23.01)	.125 (3.18)
16	1.001 (25.42)	1.058 (26.87)	.916 (23.27)	1.108 (28.14)	.152 (3.86)	.185 (4.70)	1.234 (31.24)	.969 (24.61)	.125 (3.18)
18	1.126 (28.60)	1.183 (30.05)	1.034 (31.34)	1.233 (31.32)	.152 (3.86)	.185 (4.70)	1.328 (33.73)	1.062 (26.97)	.125 (3.18)
20	1.251 (31.77)	1.308 (33.22)	1.158 (34.52)	1.358 (34.49)	.179 (4.55)	.185 (4.70)	1.453 (36.91)	1.156 (29.36)	.125 (3.18)
22	1.376 (34.95)	1.433 (36.40)	1.283 (32.59)	1.483 (37.67)	.179 (4.55)	.185 (4.70)	1.578 (40.08)	1.250 (31.75)	.125 (3.18)
24	1.501 (38.13)	1.568 (39.83)	1.408 (35.76)	1.610 (40.89)	.169 (4.29)	.185 (4.70)	1.703 (43.66)	1.375 (34.92)	.152 (3.86)

Box Mounting Receptacle (Back Panel)

No MS part number

KJ5R



NOTE: This connector does not accommodate backshells

Shell Size	A Dia. Max.	C Dia. Max.	G Dia. Max.	J Dia. Max.	K Max.	L Max.	M Max.	N T.P.	P +.005 (0.13) - .010 (0.25)
8	.474 (12.04)	.522 (13.26)	.421 (10.69)	.563 (14.30)	.147 (3.73)	.185 (4.70)	.828 (21.03)	.594 (15.09)	.125 (3.18)
10	.591 (15.01)	.639 (16.23)	.542 (13.77)	.680 (17.27)	.152 (3.86)	.185 (4.70)	.954 (24.23)	.719 (18.26)	.125 (3.18)
12	.751 (19.08)	.808 (20.52)	.667 (16.94)	.859 (21.82)	.152 (3.86)	.185 (4.70)	1.047 (26.59)	.812 (20.62)	.125 (3.18)
14	.876 (22.25)	.935 (23.75)	.791 (20.09)	.984 (24.99)	.152 (3.86)	.185 (4.70)	1.141 (28.98)	.906 (23.01)	.125 (3.18)
16	1.001 (25.42)	1.058 (26.87)	.916 (23.27)	1.108 (28.14)	.152 (3.86)	.185 (4.70)	1.234 (31.24)	.969 (24.61)	.125 (3.18)
18	1.126 (28.60)	1.183 (30.05)	1.034 (31.34)	1.233 (31.32)	.152 (3.86)	.185 (4.70)	1.328 (33.73)	1.062 (26.97)	.125 (3.18)
20	1.251 (31.77)	1.308 (33.22)	1.158 (34.52)	1.358 (34.49)	.179 (4.55)	.185 (4.70)	1.453 (36.91)	1.156 (29.36)	.125 (3.18)
22	1.376 (34.95)	1.433 (36.40)	1.283 (32.59)	1.483 (37.67)	.179 (4.55)	.185 (4.70)	1.578 (40.08)	1.250 (31.75)	.125 (3.18)
24	1.501 (38.13)	1.568 (39.83)	1.408 (35.76)	1.610 (40.89)	.169 (4.29)	.185 (4.70)	1.703 (43.66)	1.375 (34.92)	.152 (3.86)

Performance Specifications-Pages A-7, A-8.

Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33.

Contact Arrangements - Pages A-24, A-25.

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Cannon KJ MIL-DTL-38999 Series II Connectors



A

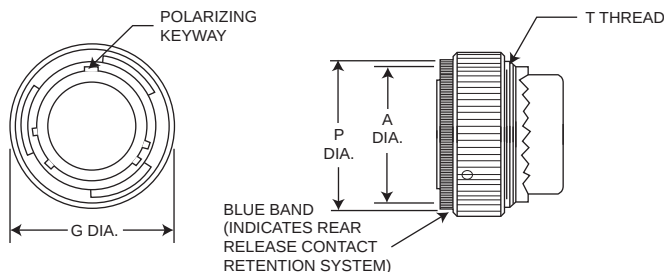
Circular

Straight Plug

MS27473

(MS service class E, P, T)

KJ6



NOTE: For backshell dimensions and configurations, see pages A-30, A-32.

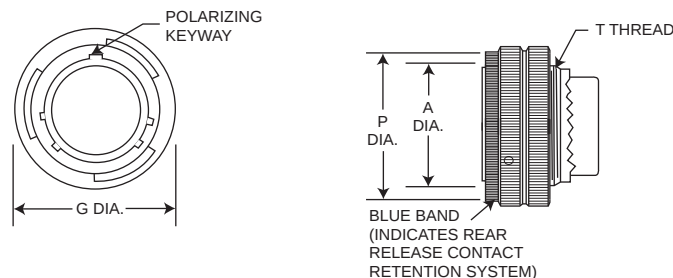
Shell Size	A Dia. Max.	G Dia. Max.	P Dia. Max.	T Thread	Overall Length With Backshells		
					E Straight	F Cable Clamp	P Potting Max.
8	.485 (12.32)	.749 (19.02)	.630 (16.00)	7/16-28UNEF-2A	1.026 (26.06)	1.555 (39.50)	1.020 (25.91)
10	.606 (15.39)	.858 (21.79)	.752 (19.10)	9/16-24UNEF-2A	1.026 (26.06)	1.555 (39.50)	1.020 (25.91)
12	.765 (19.43)	1.030 (26.16)	.925 (23.50)	11/16-24UNEF-2A	1.026 (26.06)	1.555 (39.50)	1.020 (25.91)
14	.890 (22.61)	1.155 (29.34)	1.050 (26.67)	13/16-20UNEF-2A	1.026 (26.06)	1.790 (45.47)	1.020 (25.91)
16	1.014 (25.76)	1.280 (32.51)	1.172 (29.77)	15/16-20UNEF-2A	1.026 (26.06)	1.790 (45.47)	1.020 (25.91)
18	1.140 (28.96)	1.405 (35.69)	1.304 (33.12)	1-1/16-18UNEF-2A	1.026 (26.06)	1.790 (45.47)	1.020 (25.91)
20	1.264 (32.11)	1.530 (38.86)	1.435 (36.45)	1-3/16-18UNEF-2A	1.026 (26.06)	1.790 (45.47)	1.020 (25.91)
22	1.389 (35.28)	1.640 (40.66)	1.560 (39.62)	1-5/16-18UNEF-2A	1.026 (26.06)	1.930 (49.02)	1.020 (25.91)
24	1.514 (38.46)	1.765 (44.83)	1.688 (42.88)	1-7/16-18UNEF-2A	1.104 (28.04)	1.930 (49.02)	1.080 (27.43)

Straight Plug Grounded

MS27484

(MS service class E, P, T)

KJG6



NOTE: For backshell dimensions and configurations, see pages A-30, A-32.

Shell Size	A Dia. Max.	G Dia. Max.	P Dia. Max.	T Thread	Overall Length With Backshells		
					E Straight	F Cable Clamp	P Potting Max.
8	.485 (12.32)	.749 (19.02)	.630 (16.00)	7/16-28UNEF-2A	1.026 (26.06)	1.555 (39.50)	1.020 (25.91)
10	.606 (15.39)	.858 (21.79)	.752 (19.10)	9/16-24UNEF-2A	1.026 (26.06)	1.555 (39.50)	1.020 (25.91)
12	.765 (19.43)	1.030 (26.16)	.925 (23.50)	11/16-24UNEF-2A	1.026 (26.06)	1.555 (39.50)	1.020 (25.91)
14	.890 (22.61)	1.155 (29.34)	1.050 (26.67)	13/16-20UNEF-2A	1.026 (26.06)	1.790 (45.47)	1.020 (25.91)
16	1.014 (25.76)	1.280 (32.51)	1.172 (29.77)	15/16-20UNEF-2A	1.026 (26.06)	1.790 (45.47)	1.020 (25.91)
18	1.140 (28.96)	1.405 (35.69)	1.304 (33.12)	1-1/16-18UNEF-2A	1.026 (26.06)	1.790 (45.47)	1.020 (25.91)
20	1.264 (32.11)	1.530 (38.86)	1.435 (36.45)	1-3/16-18UNEF-2A	1.026 (26.06)	1.790 (45.47)	1.020 (25.91)
22	1.389 (35.28)	1.640 (40.66)	1.560 (39.62)	1-5/16-18UNEF-2A	1.026 (26.06)	1.930 (49.02)	1.020 (25.91)
24	1.514 (38.46)	1.765 (44.83)	1.688 (42.88)	1-7/16-18UNEF-2A	1.104 (28.04)	1.930 (49.02)	1.080 (27.43)

Performance Specifications - Pages A-7, A-8.

Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33.

Contact Arrangements - Pages A-24, A-25.



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

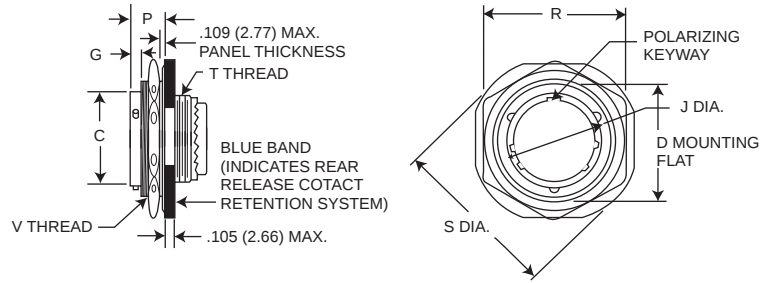
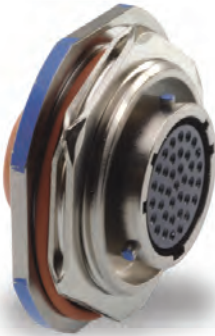
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Jam Nut Receptacle

MS27474

(MS service class E, P, T)

KJ7



NOTE: For backshell dimensions and configurations, see pages A-30, A-32.

Shell Size	C Dia. Max.	D Max.	G Max.	J Max.	P Max.	R Max. Hex.	S Dia. Max.	T Thread	V Thread	Overall length With Backshells		
										E Straight	F Cable Clamp	P Potting Max.
8	.474 (12.04)	.818 (20.78)	.145 (3.68)	.563 (14.30)	.443 (11.25)	1.079 (27.41)	1.381 (35.08)	7/16-28UNEF-2A	7/8-20UNEF-2A	.840 (21.34)	1.555 (39.50)	1.020 (25.91)
10	.591 (15.01)	.942 (23.93)	.145 (3.68)	.680 (17.27)	.443 (11.25)	1.205 (30.61)	1.506 (38.25)	9/16-24UNEF-2A	1-20UNEF-2A	.840 (21.34)	1.555 (39.50)	1.020 (25.91)
12	.751 (19.08)	1.066 (27.08)	.145 (3.68)	.859 (21.82)	.443 (11.25)	1.329 (33.76)	1.631 (41.43)	11/16-24UNEF-2A	1-1/8-18UNEF-2A	.840 (21.34)	1.555 (39.50)	1.020 (25.91)
14	.876 (22.25)	1.191 (30.25)	.145 (3.68)	.984 (24.99)	.443 (11.25)	1.455 (36.96)	1.756 (44.60)	13/16-20UNEF-2A	1-1/4-18UNEF-2A	.840 (21.34)	1.790 (45.47)	1.020 (25.91)
16	1.001 (25.43)	1.321 (33.55)	.145 (3.68)	1.108 (28.14)	.443 (11.25)	1.579 (40.11)	1.944 (49.38)	1-15/16-20UNEF-2A	1-3/8-18UNEF-2A	.840 (21.34)	1.790 (45.47)	1.020 (25.91)
18	1.126 (28.60)	1.441 (36.60)	.145 (3.68)	1.233 (31.32)	.443 (11.25)	1.705 (43.31)	2.022 (51.36)	1-1/16-18UNEF-2A	1-1/2-18UNEF-2A	.840 (21.34)	1.790 (45.47)	1.020 (25.91)
20	1.251 (31.78)	1.566 (39.78)	.171 (4.34)	1.358 (34.49)	.469 (11.91)	1.829 (46.46)	2.147 (54.53)	1-3/16-18UNEF-2A	1-5/8-18UNEF-2A	.840 (21.34)	1.790 (45.47)	1.020 (25.91)
22	1.376 (33.95)	1.691 (42.95)	.171 (4.34)	1.483 (37.67)	.469 (11.91)	2.017 (51.23)	2.271 (57.68)	1-5/16-18UNEF-2A	1-3/4-18UNEF-2A	.840 (21.34)	1.930 (49.02)	1.020 (25.91)
24	1.501 (38.13)	1.816 (46.13)	.171 (4.34)	1.610 (40.89)	.469 (11.91)	2.142 (54.41)	2.396 (60.86)	1-7/16-18UNEF-2A	1-7/8-18UNEF-2A	.860 (21.84)	1.900 (48.26)	1.080 (27.43)

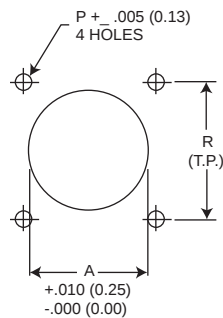
Performance Specifications - Pages A-7, A-8.

Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33.

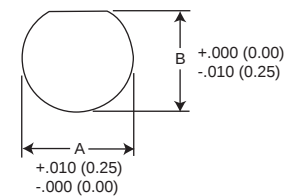
Contact Arrangements - Pages A-24, A-25.

Panel Cutouts

Flange Mounted Receptacle



Jam Nut Receptacle



Shell Size	A Dia.	P Dia.	R	Mfg. Screw
8	.610 (15.49)	.125 (3.18)	.594 (15.09)	#4
10	.734 (18.64)	.125 (3.18)	.719 (18.26)	#4
12	.860 (21.84)	.125 (3.18)	.812 (20.62)	#4
14	.985 (25.02)	.125 (3.18)	.906 (23.01)	#4
16	1.110 (28.19)	.125 (3.18)	.969 (24.61)	#4
18	1.234 (31.34)	.125 (3.18)	1.062 (26.97)	#4
20	1.360 (35.54)	.125 (3.18)	1.156 (29.36)	#4
22	1.484 (37.69)	.125 (3.18)	1.250 (31.75)	#4
24	1.611 (40.92)	.152 (3.86)	1.375 (34.93)	#6

Shell Size	A Dia.	B Dia.
8	.885 (22.48)	.830 (21.08)
10	1.010 (25.65)	.955 (24.26)
12	1.135 (28.82)	1.085 (27.56)
14	1.260 (32.00)	1.210 (30.73)
16	1.385 (35.18)	1.335 (33.91)
18	1.510 (38.35)	1.460 (37.08)
20	1.635 (41.53)	1.585 (40.26)
22	1.760 (44.70)	1.710 (43.43)
24	1.885 (47.88)	1.835 (46.61)

Cannon KJA/KJB MIL-DTL-38999 Series III Connectors



A

Circular

How To Order

Military Nomenclature

CONNECTOR TYPE _____ D38999 20 F C 35 A N

SHELL STYLE _____

SERVICE CLASS (HARDWARE FINISH) _____

SHELL SIZE _____

CONTACT ARRANGEMENT _____

CONTACT STYLE _____

POLARIZING POSITION _____

CONNECTOR TYPE
D38999/ - MIL-DTL-38999 Series III

CONTACT ARRANGEMENT
See pages A-24, A-25.

SHELL STYLE
D38999/20 - Wall mount receptacle
D38999/24 - Jam nut receptacle
D38999/26 - Straight Plug, Grounded

CONTACT STYLE
P - Pin contacts
S - Socket contact
A - Less Pin contacts*
B - Less Socket contact*

SERVICE CLASS
(Hardware Finish)
F - Electroless nickel - 85°F to +392°F
(-65°C to +200°C)
G - Electroless nickel plated. Space Grade.
W - Olive drab cadmium over electroless nickel
plate, -85°F to +347°F (-65°C to +175°C)

* Used only when other than power contacts are to be installed (i.e., shielded, thermocouple, etc.)

POLARIZING POSITION
N (normal), A, B, C, D, E. See page A-23.

Note: To order MS connectors less standard power contacts, purchase order must state "Less Contacts".

SHELL SIZE

A	B	C	D	E	F	G	H	J	Military Designation
9	11	13	15	17	19	21	23	25	Cannon Designation

Cannon Nomenclature

SERIES PREFIX _____ KJB 0 T 13 F 35 P N L

SHELL STYLE _____

CLASS _____

SHELL SIZE _____

HARDWARE FINISH _____

CONTACT ARRANGEMENT _____

CONTACT STYLE _____

POLARIZING POSITION _____

MODIFICATION CODE _____

SERIES PREFIX

KJA - Series III - Scoop proof, threaded coupling
*KJB - Series III - Scoop proof, threaded coupling, and with plastic contact retention

SHELL STYLE

0 - Wall mount receptacle
6 - Straight plug
7 - Jam nut receptacle

CLASS

T - Environment-resistant (without rear accessory)

* Consult factory for applicable layouts

SHELL SIZE

9	11	13	15	17	19	21	23	25	Cannon Designation
A	B	C	D	E	F	G	H	J	Military Designation

HARDWARE FINISH

F - Electroless nickel, - 85°F to +392°F
(-65°C to +200°C)
G - Electroless nickel plated. Space Grade.
W - Olive drab cadmium over electroless nickel
plate, -85°F to +347°F (-65°C to +175°C)
Z - Zinc Nickel, Black
- - (Dash) When using a finish modification code

CONTACT ARRANGEMENTS
See pages A-24 and A-25.

CONTACT STYLE

P -Pin contacts
S -Socket contacts

POLARIZING POSITION

N (normal) A, B, C, D, E. See page A-23.

MODIFICATION CODE

L - Less contacts, not stamped on connector
16 - Outgassed
NASA space graded connector
27- Outgassed, standard connector
T-69 Olive Drab (Green) Zinc Cobalt



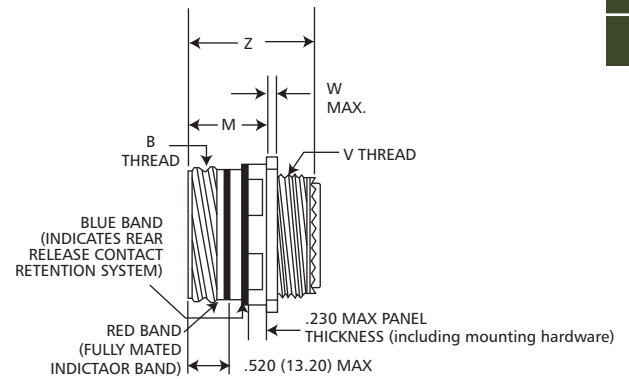
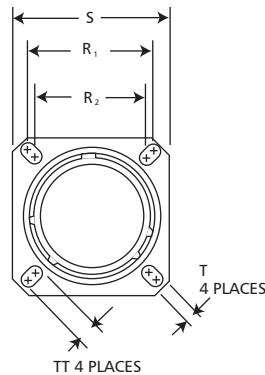
Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Wall Mount Receptacle

D38999/20

KJA0T

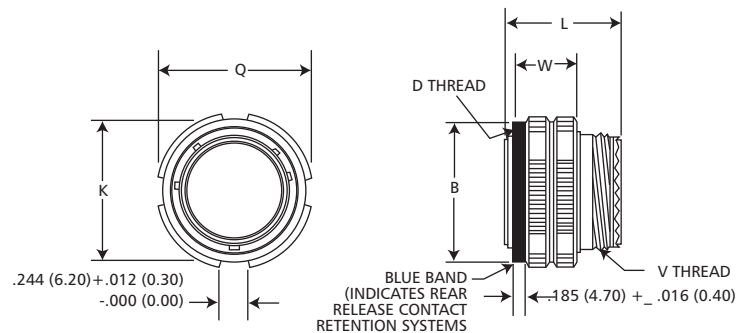


Shell Size	MS Shell size Code	B Thread Class 2A (Plated)	M +.000 (.000) -.005 (.130)	R 1	R 2	S +.004 (.100) -.002 (.050)	T +.004 (.100) -.002 (.050)	TT +.004 (.100) -.002 (.050)	Metric V Thread (Plated)	W Max.	Z +.005 (.130) -.010 (.250)
9	A	.6250-0.1P-0.3L-TS	.820 (20.83)	.719 (18.26)	.594 (15.09)	.938 (23.83)	.128 (3.25)	.216 (5.49)	M12X1-6g0.100R	.098 (2.50)	1.235 (31.36)
11	B	.7500-0.1P-0.3L-TS	.820 (20.83)	.812 (20.62)	.719 (18.26)	1.031 (26.19)	.128 (3.25)	.194 (4.93)	M15X1-6g0.100R	.098 (2.50)	1.235 (31.36)
13	C	.8750-0.1P-0.3L-TS	.820 (20.83)	.906 (23.01)	.812 (20.62)	1.125 (28.58)	.128 (3.25)	.194 (4.93)	M18X1-6g0.100R	.098 (2.50)	1.235 (31.36)
15	D	1.0000-0.1P-0.3L-TS	.820 (20.83)	.969 (24.61)	.906 (23.01)	1.219 (30.96)	.128 (3.25)	.173 (4.39)	M22X1-6g0.100R	.098 (2.50)	1.235 (31.36)
17	E	1.1875-0.1P-0.3L-TS	.820 (20.83)	1.062 (26.97)	.969 (24.61)	1.312 (33.32)	.128 (3.25)	.194 (4.93)	M25X1-6g0.100R	.098 (2.50)	1.235 (31.36)
19	F	1.2500-0.1P-0.3L-TS	.820 (20.83)	1.156 (29.36)	1.062 (26.97)	1.438 (36.53)	.128 (3.25)	.194 (4.93)	M28X1-6g0.100R	.098 (2.50)	1.235 (31.36)
21	G	1.3750-0.1P-0.3L-TS	.790 (20.07)	1.250 (31.75)	1.156 (29.36)	1.562 (39.67)	.128 (3.25)	.194 (4.93)	M31X1-6g0.100R	.126 (3.20)	1.235 (31.36)
23	H	1.5000-0.1P-0.3L-TS	.790 (20.07)	1.375 (34.92)	1.250 (31.75)	1.688 (42.88)	.154 (3.91)	.242 (6.15)	M34X1-6g0.100R	.126 (3.20)	1.235 (31.36)
25	J	1.6250-0.1P-0.3L-TS	.790 (20.07)	1.500 (38.10)	1.375 (34.92)	1.812 (46.02)	.154 (3.91)	.242 (6.15)	M37X1-6g0.100R	.126 (3.20)	1.235 (31.36)

Straight Plug Grounded

D38999/26

KJA6T



Shell Size	MS Shell size Code	B +.008 (.200) -.000 (.000)	D Thread Class 2B (Plated)	K Max.	L Max.	Q Dia Max.	Metric V Thread (Plated)	W +.008 (.200) -.004 (.100)
9	A	.724 (18.40)	.6250-0.1P-0.3L-TS	.748 (19.00)	1.234 (31.34)	.859 (21.82)	M12X1-6g0.100R	.760 (19.30)
11	B	.831 (21.10)	.7500-0.1P-0.3L-TS	.862 (21.90)	1.234 (31.34)	.969 (24.61)	M15X1-6g0.100R	.760 (19.30)
13	C	1.000 (25.40)	.8750-0.1P-0.3L-TS	1.027 (26.10)	1.234 (31.34)	1.141 (28.98)	M18X1-6g0.100R	.760 (19.30)
15	D	1.130 (28.70)	1.0000-0.1P-0.3L-TS	1.153 (29.30)	1.234 (31.34)	1.266 (32.16)	M22X1-6g0.100R	.760 (19.30)
17	E	1.268 (32.20)	1.1875-0.1P-0.3L-TS	1.291 (32.80)	1.234 (31.34)	1.391 (35.53)	M25X1-6g0.100R	.760 (19.30)
19	F	1.374 (34.90)	1.2500-0.1P-0.3L-TS	1.398 (35.50)	1.234 (31.34)	1.500 (38.10)	M28X1-6g0.100R	.760 (19.30)
21	G	1.500 (38.10)	1.3750-0.1P-0.3L-TS	1.524 (38.70)	1.234 (31.34)	1.625 (41.28)	M31X1-6g0.100R	.760 (19.30)
23	H	1.618 (41.40)	1.5000-0.1P-0.3L-TS	1.642 (41.70)	1.234 (31.34)	1.750 (44.45)	M34X1-6g0.100R	.760 (19.30)
25	J	1.744 (44.30)	1.6250-0.1P-0.3L-TS	1.768 (44.90)	1.234 (31.34)	1.875 (47.62)	M37X1-6g0.100R	.760 (19.30)

Performance Specifications-Pages A-7, A-8.

Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33.

Contact Arrangements - Pages A-24, A-25.



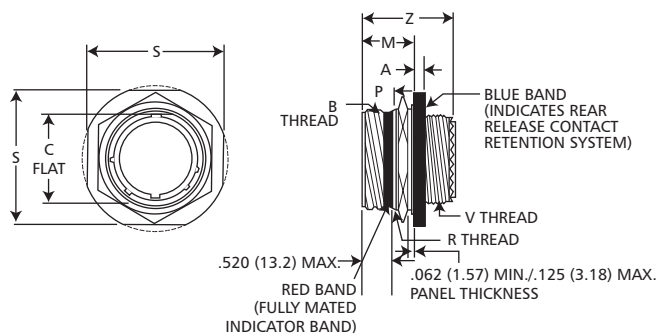
A

Circular

Jam Nut Receptacle

D38999/24

KJA7T



Shell Size	MS Shell size Code	A +.010 (.250) -.005 (.130)	B Thread Class 2A (Plated)	C +.004 (.100) -.010 (.250)	Z +.005 (.130) -.040 (.100)	M +.005 (.130) -.004 (.100)	P +.016 (.410) -.004 (.100)	S	Metric R Thread (Plated)	Metric V Thread (Plated)
9	A	.104 (2.64)	.6250-0.1P-0.3L-TS	.651 (16.53)	1.243 (31.57)	.871 (22.12)	.555 (14.10)	1.062 (26.97)	M17X1-6g0.100R	M12X1-6g0.100R
11	B	.104 (2.64)	.7500-0.1P-0.3L-TS	.751 (19.07)	1.243 (31.57)	.871 (22.12)	.555 (14.10)	1.250 (31.75)	M20X1-6g0.100R	M15X1-6g0.100R
13	C	.104 (2.64)	.8750-0.1P-0.3L-TS	.938 (23.82)	1.243 (31.57)	.878 (22.30)	.563 (14.30)	1.375 (34.92)	M25X1-6g0.100R	M18X1-6g0.100R
15	D	.104 (2.64)	1.0000-0.1P-0.3L-TS	1.062 (26.97)	1.243 (31.57)	.878 (22.30)	.563 (14.30)	1.500 (38.10)	M28X1-6g0.100R	M22X1-6g0.100R
17	E	.104 (2.64)	1.1875-0.1P-0.3L-TS	1.187 (30.15)	1.243 (31.57)	.878 (22.30)	.563 (14.30)	1.625 (41.28)	M32X1-6g0.100R	M25X1-6g0.100R
19	F	.135 (3.43)	1.2500-0.1P-0.3L-TS	1.312 (33.32)	1.243 (31.57)	.878 (22.30)	.563 (14.30)	1.812 (46.02)	M35X1-6g0.100R	M28X1-6g0.100R
21	G	.135 (3.43)	1.3750-0.1P-0.3L-TS	1.437 (36.50)	1.243 (31.57)	.878 (22.30)	.563 (14.30)	1.938 (49.23)	M38X1-6g0.100R	M31X1-6g0.100R
23	H	.135 (3.43)	1.5000-0.1P-0.3L-TS	1.562 (39.67)	1.243 (31.57)	.878 (22.30)	.563 (14.30)	2.062 (52.37)	M41X1-6g0.100R	M34X1-6g0.100R
25	J	.135 (3.43)	1.6250-0.1P-0.3L-TS	1.687 (42.85)	1.243 (31.57)	.878 (22.30)	.563 (14.30)	2.188 (55.38)	M44X1-6g0.100R	M37X1-6g0.100R

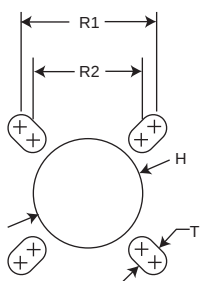
Performance Specifications-Pages A-7, A-8.

Contacts, Sealing Plugs, Assembly Tools - Pages A-26, A-32, A-33.

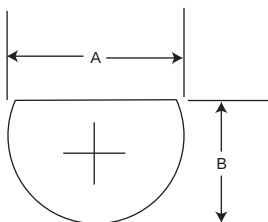
Contact Arrangements - Pages A-24, A-25.

Panel Cutouts

Wall Mounted Receptacle



Jam Nut Receptacle



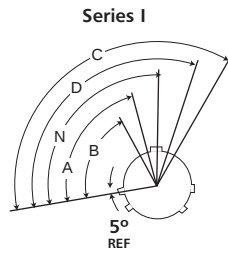
Shell Size	A +.010 (.25) -.000 (.00)	B +.000 (.00) -.010 (.25)	H +.010 (.25) -.000 (.00)	R1 (TP)	R2 (TP)	T (Max.)
9	.700 (17.78)	.670 (17.02)	.626 (15.90)	.719 (18.26)	.594 (15.09)	.134 (3.40)
11	.825 (20.96)	.771 (19.58)	.751 (19.08)	.812 (20.62)	.719 (18.26)	.134 (3.40)
13	1.010 (25.65)	.955 (24.26)	.876 (22.25)	.906 (23.01)	.812 (20.62)	.134 (3.40)
15	1.135 (28.83)	1.085 (27.56)	1.001 (25.43)	.969 (24.61)	.906 (23.01)	.134 (3.40)
17	1.260 (32.00)	1.210 (30.73)	1.188 (30.18)	1.062 (26.97)	.969 (24.61)	.134 (3.40)
19	1.385 (35.18)	1.335 (33.91)	1.251 (31.78)	1.156 (29.36)	1.062 (26.97)	.134 (3.40)
21	1.510 (38.35)	1.460 (37.08)	1.376 (34.95)	1.250 (31.75)	1.156 (29.36)	.134 (3.40)
23	1.635 (41.53)	1.585 (40.26)	1.511 (38.38)	1.375 (34.92)	1.250 (31.75)	.160 (4.06)
25	1.760 (44.70)	1.710 (43.43)	1.626 (41.30)	1.500 (38.10)	1.375 (34.92)	.160 (4.06)

Polarizing Positions



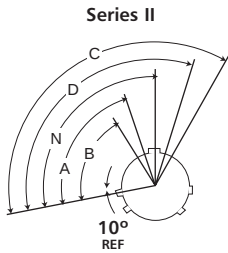
A

Circular



Front face of receptacle (plug opposite). Insert arrangement does not rotate with main key-keyway. The master key is rotated to provide shell polarization; the minor keys remain fixed.

Shell Size	Angle of Rotation (Degrees)				
	Normal	A	B	C	D
9	95°	77°			113°
11	95°	81°	67°	123°	109°
13	95°	75°	63°	127°	115°
15	95°	74°	61°	129°	116°
17	95°	77°	65°	125°	113°
19	95°	77°	65°	125°	113°
21	95°	77°	65°	125°	113°
23	95°	80°	69°	121°	110°
25	95°	80°	69°	121°	110°

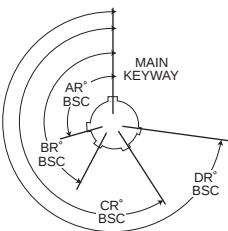


Front face of receptacle (plug opposite). Insert arrangement does not rotate with main key-keyway. The master key is rotated to provide shell polarization; the minor keys remain fixed.

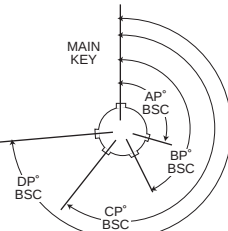
Shell Size	Angle of Rotation (Degrees)				
	Normal	A	B	C	D
8	100°	82°			118°
10	100°	86°	72°	128°	114°
12	100°	80°	68°	132°	120°
14	100°	79°	66°	134°	121°
16	100°	82°	70°	130°	118°
18	100°	82°	70°	130°	118°
20	100°	82°	70°	130°	118°
22	100°	85°	74°	126°	115°
24	100°	85°	74°	126°	115°

Series III

RECEPTACLE
(Front face shown)



PLUG (Front face shown)



NOTES

1. All Angles are BSC
2. The insert arrangement does not rotate with main key/keyway
3. All minor keys are rotated to provide shell polarization, the master key remains fixed at twelve o'clock position.
4. Polarization is different from Series I and II.

Shell Size	Key & Keyway Arrangement identification Letter	Key Locations			
		AR° or AP° BSC	BR° or BP° BSC	CR° or CP° BSC	DR° or DP° BSC
9	N	105	140	215	265
	A	102	132	248	320
	B	80	118	230	312
	C	35	140	205	275
	D	64	155	234	304
	E	91	131	197	240
11 13 and 15	N	95	141	208	236
	A	113	156	182	292
	B	90	145	195	252
	C	53	156	220	255
	D	119	146	176	298
	E	51	141	184	242
17 and 19	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
	D	62	145	180	280
	E	79	153	197	272
21 23 and 25	N	80	142	196	293
	A	135	170	200	310
	B	49	169	200	244
	C	66	140	200	257
25	D	62	145	180	280
	E	79	153	197	272

Cannon KJL/KJ/KJA/KJB MIL-DTL-38999 Series I, II, III Connectors



Circular

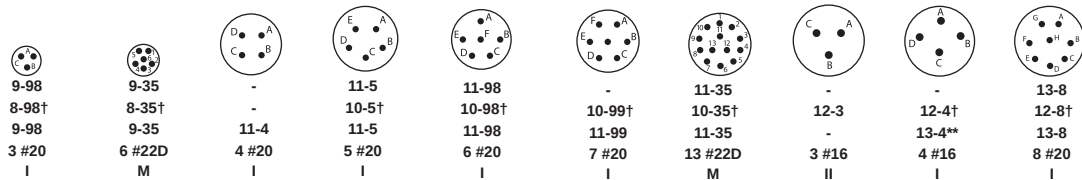
Contact Arrangements (Engaging View Pin Insert)

* Socket insert only

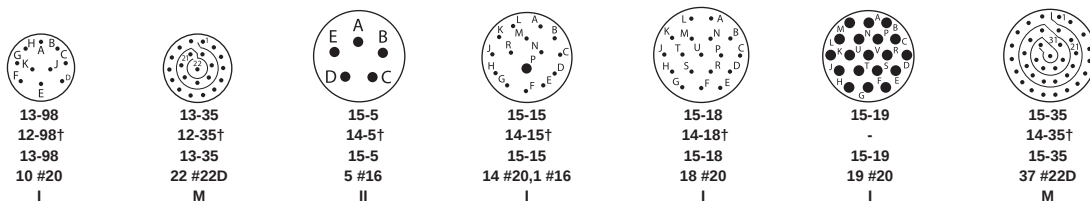
** Pin insert only (Not available in socket insert Series I and III)

Indicates layouts are available in all shell styles including MS27499, MS27508, KJ2E and KJ5E
† Consult factory MS27505E/KJL5E insert availability

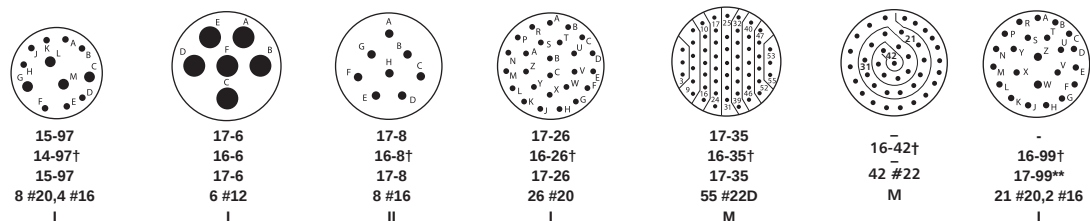
Series III
Series II
Series I
No. of Contacts
Service Ratings



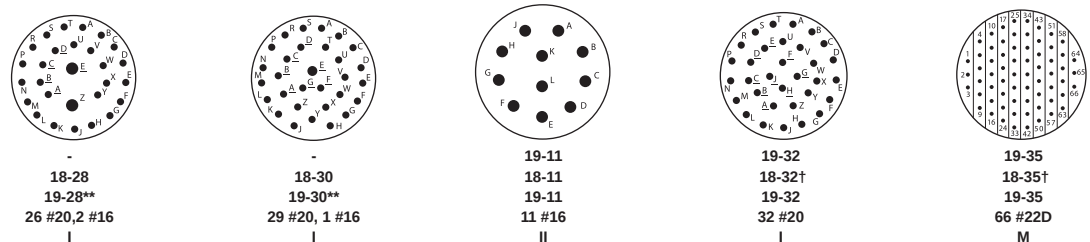
Series III
Series II
Series I
No. of Contacts
Service Ratings



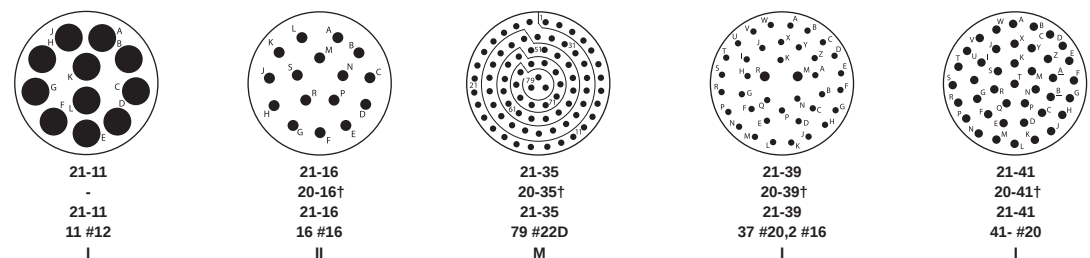
Series III
Series II
Series I
No. of Contacts
Service Ratings



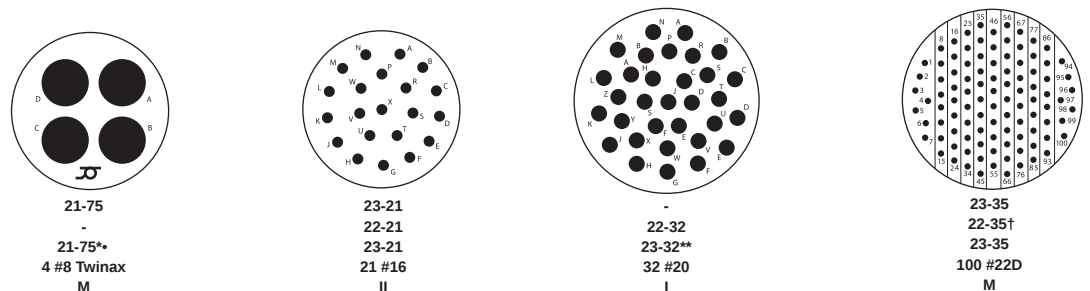
Series III
Series II
Series I
No. of Contacts
Service Ratings



Series III
Series II
Series I
No. of Contacts
Service Ratings



Series III
Series II
Series I
No. of Contacts
Service Ratings



Please consult factory for availability of layouts not shown.



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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A

Circular

Contact Arrangements (Engaging View Pin Insert)

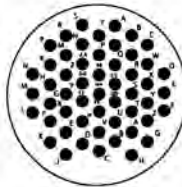
* Socket insert only

** Pin insert only (Not available in socket insert Series I and III)

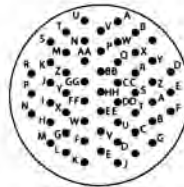
† Indicates layouts are available in all shell styles including MS27499, MS27508, KJ2E and KJ5E

• Consult factory for MS27505E/KJL5E insert availability

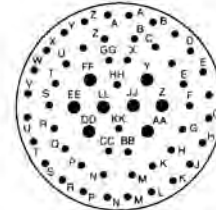
Series III
Series II
Series I
No. of Contacts
Service Ratings



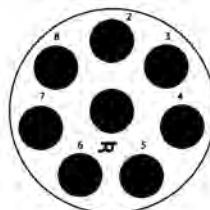
23-53
22-53†
23-53
53 #20
I



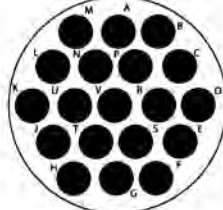
23-55
22-55†
23-55
55 #20
I



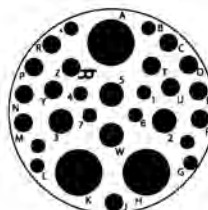
25-4
24-4†
25-4
48 #20, 8 #16
I



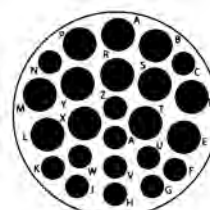
25-8
25-8*
8 #8 Twinax
Twinax



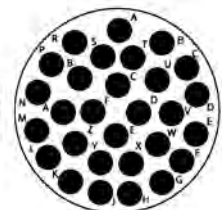
25-19
25-19
19 #12
I



25-20
25-20*
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4 #12 Coax, 10 #20
N / Coax / Twinax

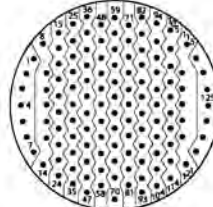


25-24
24-24†
25-24
12 #16, 12 #12
I

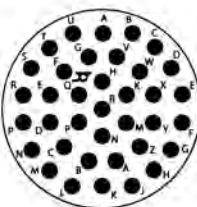


25-29
24-29†
25-29
29 #16
I

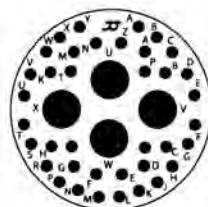
Series III
Series II
Series I
No. of Contacts
Service Ratings



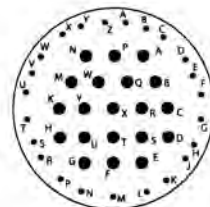
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24-35†
25-35
128 #22D
M



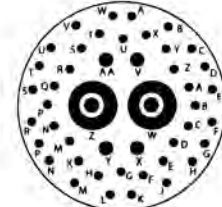
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25-37*
37 #16
II



25-42
25-42*
38 #20, 4 #8 Coax
I, Coax

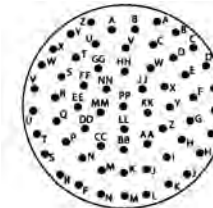


25-43
25-43
23 #20, 20 #16
I

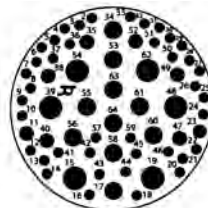


25-46
25-46
40 #20, 4 #16, 2 #8
Twinax

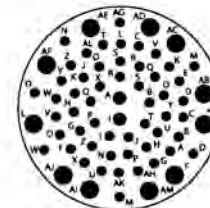
Series III
Series II
Series I
No. of Contacts
Service Ratings



25-61
24-61†
25-61
61 #20
I



25-64
25-64
40 #22D, 8 #20
10 #16, 6 #12
I



25-66*
25-66*
53 #22D, 2 #20, 11 #16
I

Series III
Series II
Series I
No. of Contacts
Service Rating

Cannon KJL/KJ/KJA/KJB
MIL-DTL-38999 Series I, II, III Connectors

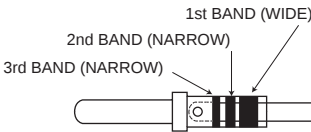


A

Circular

Contacts-Pin (Series I/II/III)

MIL-C-39029/58 KJL/KJ/KJA

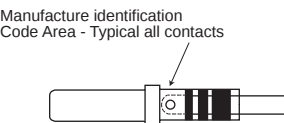


Contact Size	1	Color Bands 2	3	Cannon Part Number	M39029 Military Part Number
22D	Orange	Blue	Black	980-0008-878	M39029/58-360
20	Orange	Blue	Orange	980-0008-879	M39029/58-363
16	Orange	Blue	Yellow	980-0008-880	M39029/58-364
12	Orange	Blue	Green	980-0008-881	M39029/58-365

Contact Size	Cannon Part Number	Cable Accomodations
8 Coax 95 Ohms	249-2196-000	RG-180
	249-2196-001	RG-174, 179, 316
	249-2196-002	RG-142
8 Twinax 75 Ohms	980-1000-012	M17/176-00002
	12 Coax 980-1000-016	RG-174, 179, 316

Contacts-Socket (Series II)

MIL-C-39029/57 KJ



Contact Size	1	Color Bands 2	3	Cannon Part Number	M39029 Military Part Number
22D	Orange	Green	Yellow	980-0008-874	M39029/57-354
20	Orange	Green	Violet	980-0008-875	M39029/57-357
16	Orange	Green	Gray	980-0008-876	M39029/57-358
12	Orange	Green	White	980-0008-877	M39029/57-359

Contacts-Socket (Series I & III)

MIL-C-39029/56 KJL/KJA



Contact Size	1	Color Bands 2	3	Cannon Part Number	M39029 Military Part Number
22D	Orange	Yellow	Gray	980-0008-870	M39029/56-348
20	Orange	Green	Brown	980-0008-871	M39029/56-351
16	Orange	Green	Red	980-0008-872	M39029/56-352
12	Orange	Green	Orange	980-0008-873	M39029/56-353

Contact Size	Cannon Part Number	Cable Accomodations
8 Coax 95 Ohms	249-2195-000	RG-180
	249-2195-001	RG-174, 179, 316
	249-2195-002	RG-142
8 Twinax 75 Ohms	980-1000-013	M17/176-00002
	12 Coax 980-1000-015	RG-174, 179, 316



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

www.ittcannon.com

Contact Sealing Bushings



A

Circular

Size 8 Twinax Sealing Bushing 321-1035-000

Used with the Twinax contact in Twinax layouts for sealing cable size M17/176-00002

Size 8 Coax Sealing Bushing 321-1034-001

Used with the Coax contact in Twinax layouts for sealing cable size RG-180



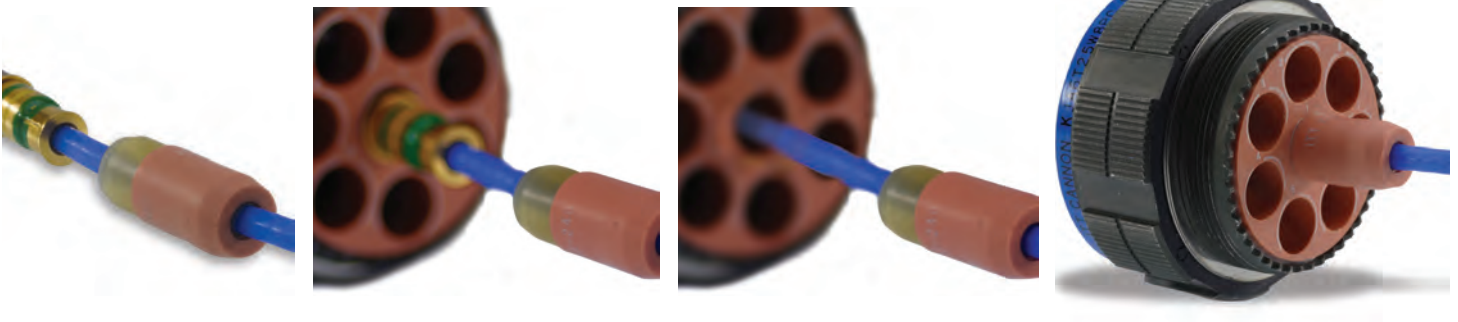
Twinax Grommet



Coax Grommet

Contact Sealing Bushing Sequence into Twinax Grommet

(Bushing only used with Twinax grommet)



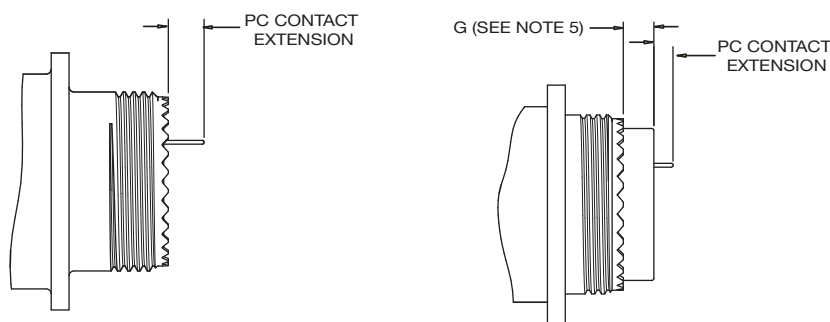


Circular

Contacts-Printed Circuit Board

PIN PRINTED CIRCUIT CONTACT EXTENSION FROM REAR OF CONNECTOR (MAX / MIN)

PC CONTACT PART NUMBER	CONTACT SIZE	TAIL DIA. ±.001	MS27466 MS27467 KJL0 / KJL6	MS27656 MS27468 KJL3 / KJL7	MS27505E KJL5E	MS27472 MS27474 KJ0 / KJ7	MS27499E MS27508E KJ2E / KJ5E	MS27513E MS27497 / NO MS KJ2R / KJ3 / KJ5R	MS27473 MS27484 KJ6 / KJG6	D38999/20 KJA0	D38999/26 KJA6	D38999/24 KJA7 (9-17)	D38999/24 KJA7 (19-25)
030-2097-002	22D	0.020	0.261 0.189	0.244 0.176	0.408 0.376	0.264 0.226	0.408 0.376	0.264 0.226	0.264 0.226	0.262 0.200	0.266 0.194	0.280 0.216	0.258 0.198
030-2097-006	22D	0.020	0.069 N/A	0.052 N/A	0.216 0.184	0.072 0.034	0.216 0.184	0.072 0.034	0.072 0.034	0.070 0.008	0.074 0.002	0.088 0.024	0.066 0.006
030-2097-008	22D	0.020	0.216 0.144	0.199 0.131	0.363 0.331	0.219 0.181	0.363 0.331	0.219 0.181	0.219 0.181	0.217 0.155	0.221 0.149	0.235 0.171	0.213 0.153
030-2097-015	22D	0.020	0.293 0.221	0.276 0.208	0.440 0.408	0.296 0.258	0.440 0.408	0.296 0.258	0.296 0.258	0.294 0.232	0.298 0.226	0.312 0.248	0.290 0.230
030-1997-006	20	0.025	0.166 0.094	0.149 0.081	0.313 0.281	0.169 0.131	0.313 0.281	0.169 0.131	0.169 0.131	0.167 0.105	0.171 0.099	0.185 0.121	0.163 0.103
030-1997-022	20	0.025	0.281 0.209	0.264 0.196	0.428* 0.396*	0.284 0.246	0.428* 0.396*	0.284 0.246	0.284 0.246	0.282 0.220	0.286 0.214	0.300 0.236	0.278 0.218
030-1997-030	20	0.019	0.364 0.292	0.347 0.279	0.511 0.479	0.367 0.329	0.511 0.479	0.367 0.329	0.367 0.329	0.365 0.303	0.369 0.297	0.383 0.319	0.361 0.301
030-1995-023	16	0.062	0.278 0.206	0.261 0.193	0.425 0.393	0.281 0.243	0.425 0.393	0.281 0.243	0.281 0.243	0.279 0.217	0.283 0.211	0.297 0.233	0.275 0.215
030-1995-024	16	0.062	0.118 0.046	0.101 0.033	0.265 0.233	0.121 0.083	0.265 0.233	0.121 0.083	0.121 0.083	0.119 0.057	0.123 0.051	0.137 0.073	0.115 0.055



(KJL0/3/6/7 & KJA0/6/7)

(KJL5E, KJ0/2E/2R/3/5E/5R/6/7, & KJG6)

SOCKET (SERIES II) PRINTED CIRCUIT CONTACT EXTENSION FROM REAR OF CONNECTOR (MAX / MIN)

PC CONTACT PART NUMBER	CONTACT SIZE	TAIL DIA. ±.001	MS27472 MS27474 KJ0 / KJ7	MS27499E MS27508E KJ2E / KJ5E	MS27513E MS27497 / NO MS KJ2R / KJ3 / KJ5R	MS27473 MS27484 KJ6 / KJG6
031-1186-006	22D	0.020	0.179 0.141	0.323 0.291	0.179 0.141	0.179 0.141
031-1186-011	22D	0.020	0.109 0.071	0.253 0.221	0.109 0.071	0.109 0.071
031-1186-013	22D	0.020	0.217 0.179	0.361 0.329	0.217 0.179	0.217 0.179
031-1186-021	22D	0.020	0.262 0.224	0.406 0.374	0.262 0.224	0.262 0.224
031-1124-021	20	0.025	0.247 0.209	0.391* 0.359*	0.247 0.209	0.247 0.209
031-1123-007	16	0.062	0.101 0.063	0.245 0.213	0.101 0.063	0.101 0.063

SOCKET (SERIE I & III) PRINTED CIRCUIT CONTACT EXTENSION FROM REAR OF CONNECTOR (MAX / MIN)

PC CONTACT PART NUMBER	CONTACT SIZE	TAIL DIA. ±.001	MS27466 MS27467 KJL0 / KJL6	MS27656 MS27468 KJL3 / KJL7	MS27505E KJL5E	D38999/20 KJA0	D38999/26 KJA6	D38999/24 KJA7 (9-17)	D38999/24 KJA7 (19-25)
031-1147-014	22D	0.021	0.244 0.172	0.227 0.159	0.391* 0.359*	0.245 0.183	0.249 0.177	0.263 0.199	0.241 0.181
031-1147-039	22D	0.020	0.168 0.096	0.151 0.083	0.315* 0.283*	0.169 0.107	0.173 0.101	0.187 0.123	0.165 0.105
031-1147-040	22D	0.020	0.438 0.366	0.421 0.353	0.585* 0.553*	0.439 0.377	0.443 0.371	0.457 0.393	0.435 0.375
031-1124-040	20	0.025	0.486 0.414	0.469 0.401	0.633 0.601	0.487 0.425	0.491 0.419	0.505 0.441	0.483 0.423
031-1123-020	16	0.029	0.272 0.200	0.255 0.187	0.419 0.387	0.273 0.211	0.277 0.205	0.291 0.227	0.269 0.209

NOTES: UNLESS OTHERWISE SPECIFIED.

1. PC CONTACTS HAVE GOLD PLATING OVER SUITABLE UNDERPLATE PER MIL-C-39029 SPECIFICATION.

2. PC CONTACT EXTENSIONS APPLY TO ITT CANNON CONNECTORS ONLY FOR ALL SHELL SIZES.

3. N/A INDICATES NO EXTENSION.

4. * INDICATES PC TAIL WITH STEP EXTENDING FROM REAR OF CONNECTOR.

5. G DIM. IS .031 +/- .016 FOR KJL5E AND .120 +/- .030 (SHELL SIZES 8 THRU 22) AND .090 +/- .050 (SHELL SIZE 24) FOR KJ0/2E/2R/3/5E/5R/6/7 & KJG6.

6. FOR OTHER SPECIFIC PC CONTACT DATA, CONSULT ITT EC, SANTA ANA, CA, USA.



A

Circular

Wire Sizes and Diameters

Contact Size	Wire size (AWG)	Finished wire outside dimensions	
		Minimum	Maximum
22D	28, 26, 24, 22	0.030	0.054
22M*	28, 26, 24	0.030	0.050
22*	26, 24, 22	0.034	0.060
20	24, 22, 20	0.040	0.083
16	20, 18, 16	0.065	0.109
12	14, 12	0.097	0.142
8 Coax	RG-180	0.136	0.146
8 Twinax	M17/176-00002	0.124	0.134
12 Coax	RG174, 179, 316	0.094	0.102

*For reference only

Recommended Jam Nut Torque Values

Series II		Series I & III	
Shell Size	Inch-Pounds	Shell Size	Inch-Pounds
8	46/50	9	30/36
10	55/60	11	40/46
12	70/75	13	55/60
14	80/85	15	70/75
16	90/95	17	80/85
18	100/110	19	90/95
20	110/120	21	100/110
22	120/130	23	110/120
24	140/150	25	120/130

Coupling Nut Torque Values (Series I, II and III)

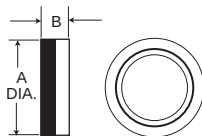
Maximum engagement and disengagement		Minimum disengagement
Shell Size	Inch Pound	Inch Pound
8	8	2
9	8	2
10	12	2
11	12	2
12	16	2
13	16	2
14	20	4
15	20	3
16	24	4
17	24	3
18	28	5
19	28	3
20	32	6
21	32	5
22	36	7
23	36	5
24	36	7
25	40	5



A

Circular

Backshell - Type E (Straight), Series II only

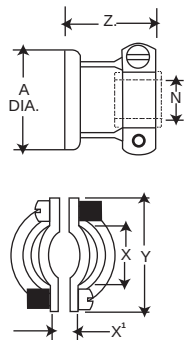


Shell Size		
Series II	A Dia. Max.	B Dia. Max.
8	.580 (14.73)	.328 (8.33)
10	.705 (17.91)	.328 (8.33)
12	.830 (21.08)	.328 (8.33)
14	.955 (24.26)	.328 (8.33)
16	1.080 (27.32)	.328 (8.33)
18	1.205 (30.61)	.328 (8.33)
20	.330 (33.78)	.328 (8.33)
22	1.455 (36.96)	.328 (8.33)
24	1.555 (39.50)	.270 (6.86)

How To Order

Finishes				
Shell Size	A	B	C	N
Series II	Cadmium/Nickel-Clear Part Number	Cadmium/Nickel-O.D Part Number	Anodic Non-Cond. Part Number	Electroless Nickel Part Number
8	057-0776-000	057-0862-000	057-0819-000	057-0776-002
10	057-0777-000	057-0863-000	057-0820-000	057-0777-002
12	057-0778-000	057-0864-000	057-0821-000	057-0778-002
14	057-0779-000	057-0846-000	057-0822-000	057-0779-002
16	057-0780-000	057-0847-000	057-0823-000	057-0780-002
18	057-0781-000	057-0848-000	057-0824-000	057-0781-002
20	057-0782-000	057-0849-000	057-0825-000	057-0782-002
22	057-0783-000	057-0850-000	057-0826-000	057-0783-002
24	057-0784-000	057-0851-000	057-0827-000	057-0784-002

Backshell - Type F (Cable Clamp)



Shell Size							
Series I	Series II	A Max.	N Dia. Max.	X Dia. Min.	X' Dia. Min.	Y Max.	Z Max.
9	8	.508 (14.73)	.135 (3.43)	.234 (5.94)	.187 (4.75)	.829 (21.06)	.813 (20.65)
11	10	.705 (17.91)	.198 (5.03)	.297 (7.54)	.187 (4.75)	.891 (22.63)	.813 (20.65)
13	12	.830 (21.08)	.322 (7.18)	.422 (10.72)	.281 (7.14)	1.016 (25.81)	.813 (20.65)
15	14	.955 (24.26)	.385 (9.78)	.547 (12.89)	.325 (8.26)	1.141 (28.98)	.813 (20.65)
17	16	1.080 (27.43)	.510 (12.95)	.609 (15.47)	.356 (9.04)	1.203 (30.56)	.933 (23.70)
19	18	1.205 (30.61)	.635 (16.13)	.734 (18.64)	.456 (11.58)	1.469 (37.31)	.933 (23.70)
21	20	1.330 (33.78)	.635 (16.13)	.734 (18.64)	.519 (13.18)	1.469 (37.31)	.933 (23.70)
23	22	1.455 (36.96)	.760 (19.30)	.922 (23.42)	.519 (13.18)	1.656 (42.06)	.933 (23.70)
25	24	1.555 (39.50)	.810 (20.57)	.984 (24.99)	.657 (16.69)	1.750 (44.45)	.893 (22.68)

How To Order (MS Version)

Military Designation
MS27506 - A - 8 - 2
MS27506 Type F Straight with Cable Clamp

Finish
A - Cad/Nickel (Clear)
B - Cad/Nickel (O.D)
F - Nickel (Electroless)

Shell Size
Series I - 9, 11, 13, 15, 17, 19, 21, 23, 25
Series II - 8, 10, 12, 14, 16, 18, 20, 22, 24

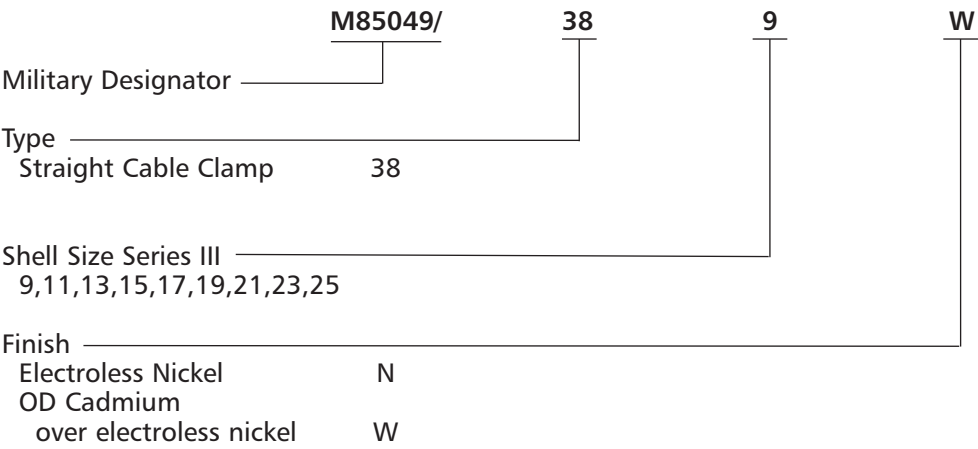
Adapter
Geometry - 2

Shell Size				Finishes					
Series I	Series II	MS Part Number	Cannon Part Number	A	B	N	F		
9	8	27506-*8-2	057-3005-***	-012	A	-013	B	-015	F
11	10	27506-*10-2	057-3006-***	-011	A	-012	B	-014	F
13	12	27506-*12-2	057-3007-***	-012	A	-013	B	-015	F
15	14	27506-*14-2	057-3008-***	-010	A	-011	B	-013	F
17	16	27506-*16-2	057-3009-***	-012	A	-013	B	-015	F
19	18	27506-*18-2	057-3010-***	-013	A	-014	B	-016	F
21	20	27506-*20-2	057-3011-***	-011	A	-013	B	-015	F
23	22	27506-*22-2	057-3012-***	-015	A	-016	B	-018	F
25	24	27506-*24-2	057-3013-***	-013	A	-014	B	-017	F

* MS Finish

*** Cannon Finish

Shell Size Series III	Military Part Number	Cannon Part Number	Cannon	Military	Cannon	Military
9	M85049/ 38-9 **	970-6000-***	-336	N	-345	W
11	M85049/ 38-11 **	970-6000-***	-337	N	-346	W
13	M85049/ 38-13 **	970-6000-***	-338	N	-347	W
15	M85049/ 38-15 **	970-6000-***	-339	N	-348	W
17	M85049/ 38-17 **	970-6000-***	-340	N	-349	W
19	M85049/ 38-19 **	970-6000-***	-341	N	-350	W
21	M85049/ 38-21 **	970-6000-***	-342	N	-351	W
23	M85049/ 38-23 **	970-6000-***	-343	N	-352	W
25	M85049/ 38-25 **	970-6000-***	-344	N	-353	W



** Finish
*** Cannon Part No.



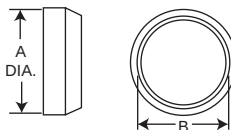
Cannon KJL/KJ/KJA/KJB MIL-DTL-38999 Series I, II, III Connectors



A

Circular

Backshell - Type P (Potting Boot)



Shell Size		A Dia. Max.		B Dia. Max.	
Series I	Series II				
9	8	.598 (15.19)		.434 (11.02)	
11	10	.723 (18.36)		.548 (13.92)	
13	12	.847 (21.51)		.673 (17.09)	
15	14	.969 (24.61)		.798 (20.27)	
17	16	1.087 (27.61)		.899 (22.83)	
19	18	1.211 (30.76)		1.024 (26.01)	
21	20	1.336 (33.93)		1.141 (29.98)	
23	22	1.461 (37.11)		1.274 (32.36)	
25	24	1.586 (40.28)		1.399 (35.53)	

How To Order (MS Version)

MS Designation _____
Shell Size _____
Series I - 9, 11, 13, 15, 17, 19, 21, 23, 25
Series II - 8, 10, 12, 14, 16, 18, 20, 22, 24
1 - Straight Cup

MS27486 - 10 - 1

NOTE: When ordering the MS version you must specify both MS numbers for the Potting Boot and the Adapter Ring.

Shell Size		MS27486 Part Number		Cannon Part Number	
Series I	Series II				
9	8	27486--1		040-0185-000	
11	10	27486--1		040-0169-000	
13	12	27486--1		040-0170-000	
15	14	27486--1		040-0171-000	
17	16	27486--1		040-0172-000	
19	18	27486--1		040-0173-000	
21	20	27486--1		040-0174-000	
23	22	27486--1		040-0175-000	
25	24	27486--1		040-0176-000	

** Only even numbered shell size is applicable.

Potting Boot Adapter Ring

How To Order (MS Version)

Military Designation _____
Finish _____
A - Cad/Nickel (Clear)
B - Cad/Nickel (O.D)
F - Nickel (Electroless)
Shell Size _____
Series I - 9, 11, 13, 15, 17, 19, 21, 23, 25
Series II - 8, 10, 12, 14, 16, 18, 20, 22, 24

MS27485 - A - 8

NOTE: When ordering the MS version you must specify both MS numbers for the Potting Boot and the Adapter Ring.

Shell Size		MS27485 Part Number		Cannon Part Number		Finishes					
Series I	Series II					A		B		N	F
						Cadmium/Nickel		Clear Cadmium/Nickel-O.D		Electroless	Nickel
9	8	27485-*--		237-0887-***		Cannon	MS	Cannon	MS	Cannon	MS
11	10	27485-*--		237-0874-***		-000	A	-001	B	-002	F
13	12	27485-*--		237-0875-***		-000	A	-001	B	-002	F
15	14	27485-*--		237-0876-***		-000	A	-001	B	-002	F
17	16	27485-*--		237-0877-***		-000	A	-001	B	-002	F
19	18	27485-*--		237-0878-***		-000	A	-001	B	-002	F
21	20	27485-*--		237-0879-***		-000	A	-001	B	-002	F
23	22	27485-*--		237-0880-***		-000	A	-001	B	-003	F
25	24	27485-*--		237-0881-***		-000	A	-001	B	-003	F

* MS Finish

** Only even numbered shell size is applicable

*** Cannon Finish

Wire Sealing Plugs

Series III Size	Series I & II Size	Part Number		Color Code
		Cannon	MS27488	
22D	22D	225-1013-000	MS27488-22-2	Black
20	20	225-0070-000	MS27488-20-2	Red
16	16	225-0104-000	MS27488-16-2	Green
12	12	225-0105-000	MS27488-12-2	Orange

Wire sealing plugs meet MS27488 standards. The plugs are color coded according to size for easy identification. Wire sealing plugs may be ordered separately.

Tools - Crimp



M22520/1-01



M22520/2-01



CBT-565

Contact Size	Pin Contact Series I/II/III		Socket Contact Series II		Socket Contact Series I & III	
	Crimp Tool Part Number	Locator or Turret Part Number	Crimp Tool Part Number	Locator or Turret Part Number	Crimp Tool Part Number	Locator or Turret Part Number
22D or 22M*	M22520/2-01	M22520/2-09	M22520/2-01	M22520/2-06	M22520/2-01	M22520/2-07
22*	M22520/2-01	M22520/2-09	M22520/2-01	M22520/2-06	M22520/2-01	M22520/2-07
20	M22520/1-01	M22520/1-04 OR TH 187	M22520/1-01	M22520/1-04	M22520/1-01	M22520/1-04
16	M22520/1-01	M22520/1-04 OR TH 187	M22520/1-01	M22520/1-04	M22520/1-01	M22520/1-04
12	M22520/1-01	M22520/1-04	M22520/1-01	M22520/1-04	M22520/1-01	M22520/1-04
8 Coax Inner Conductor	Crimp Tool	Crimp Tool Locator	Outer Conductor		Crimp Tool	Crimp Tool Locator
RG180	M22520/2-01	995-0002-268	RG180		M22520/5-01	M22520/5-39B
RG 174, 179, 316	M22520/2-01	995-0002-268	RG 174, 179, 316		M22520/5-01	M22520/5-37B
RG 142	M22520/2-01	995-0002-268	RG 142		M22520/5-01	M22520/5-19B
12 Coax Inner Conductor	Crimp Tool	Crimp Tool Locator	Outer Conductor		Crimp Tool	Crimp Tool Locator
RG174, 179, 316	M22520/2-01	M22520/2-34	RG174, 179, 316		M22520/31-01	M22520/31-02
8 Twinax Center Contact	Crimp Tool	Crimp Tool Locator				
	M22520/2-01	K709				
Intermediate Contact	M22520/5-01	Y631 Die Closure B				
Outer Contact	M22520/5-01	Y631 Die Closure A				

* For reference only

Tools - Plastic



Insertion/Extraction

Contact Size	Cannon Description	Cannon Part Number	M81969 Part Number	Superseded Military Part Number	Insertion Color Tip	Extraction Color Tip
22D	CIET-22D-01	274-7048-000	M81969/14-01	MS27534-22D	Green	White
22M*	CIET-22D-01	274-7048-000	M81969/14-01	MS27534-22D	Green	White
20	CIET-20-10	274-7001-000	M81969/14-10	MS27534-20	Red	Orange
16	CIET-16-03	274-7002-000	M81969/14-03	MS27534-16	Blue	White
12	CIET-12-04	274-7003-000	M81969/14-04	MS27534-12	Yellow	White
8 Coax/Twinax	CET8-T	323-7004-001	—	—	—	—
12 Coax	CIET-12-04	274-7003-000	M81969/14-04	M527534-12	Yellow	White

Insertion tool not required for size 8

Tools - Metal (MS)



Insertion



Extraction

Contact Size	Insertion			Extraction			
	MS27495 Part Number	ITT CANNON Part Number	Color Band	MS27495 Part Number	ITT CANNON Part Number	Color Band No.1	No.2
22D OR 22M*	MS27495 A22M	995-0001-718	Black	MS27495 R22M	995-0001-719	Black	White
22*	MS27495 A22	995-0001-720	Brown	MS27495 R22	995-0001-721	Brown	White
20	MS27495 A20	995-0001-716	Red	MS27495 R20	995-0001-717	Red	White
16	MS27495 A16	995-0001-732	Blue	MS27495 R16	995-0001-731	Blue	White

Band No. 1 indicates tool size.
Band No. 2 indicates removal tool.

* For reference only

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Assembly Instructions

Wire Stripping

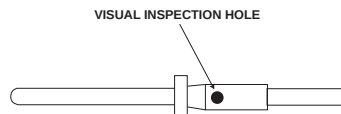
Strip insulation from end of wire to be crimped. (See table for proper stripping dimensions.) Do not cut or damage wire strands.



Wire Size	A
22D or 22M*	.125 (3.18)
20	.188 (4.77)
16	.188 (4.77)
12	.188 (4.77)

* For reference only

Contact Crimping



1. Insert stripped wire into contact crimp pot. Wire must be visible thru inspection hole.



2. Using correct crimp tool and locator, cycle the tool once to be sure the indentors are open. Insert contact and wire into locator. Squeeze tool handles firmly and completely to insure a proper crimp. The tool will not release unless the crimp indentors in the tool head have been fully actuated.



3. Release crimped contact and wire from tool. Be certain the wire is visible thru inspection hole in contact.

Contact Insertion



1. Remove hardware from plug or receptacle and slip over wire bundle in proper order for reassembly.



2. Using proper plastic or metal insertion tool for corresponding contact, position wire in tip of the tool so that the tool tip butts up against the contact shoulder.



3. Press tool against contact shoulder and, with firm and even pressure, insert wired contact and tool tip into center contact cavity. A slight click may be heard as metal retaining tines snap into place behind contact shoulder.

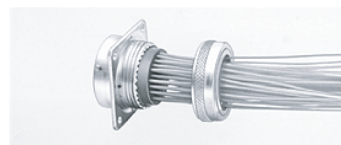


4. Remove tool and pull back lightly on wire to make sure contact is properly seated. Repeat operation with remainder of contacts to be inserted, beginning with the center cavity and working outward in alternating rows.



5. After all contacts are inserted, fill any empty cavities with wire sealing plugs, Resemble plug or receptacle hardware.

Contact Extraction



1. Remove hardware from plug or receptacle and slide hardware back along wire bundle.



2. Using plastic or metal extraction tool with proper color code corresponding to contact size, place wire in tool.



3. Insert tool into contact cavity until tool tip bottoms against the contact shoulder, expanding clip retaining tines.



4. Hold wire firmly in tool and extract wired contact and tool. Repeat operation for all contacts to be extracted.



5. Fill any empty wire cavities with wire sealing plugs, and



6. Reassemble plug or receptacle.

MIL-DTL-38999 Specifications

The following excerpts are some of the parameter requirements of the MIL-DTL-3899 Specification.

Test Description	Paragraph Reference	Requirements																																																												
Contact Retention	4 5 19	After preloading to 3 pounds maximum, the force shall be applied at a rate of approximately 1 pound per second and maintained at full load for 5-10 seconds. No damage to contacts or insert shall result nor shall the contacts be dislocated from their normal position in the connector more than 0.012 inch under the given load. Failure to meet these requirements shall be cause for rejection. <table><tr><td>Contact Size</td><td>22M*</td><td>22D</td><td>22*</td><td>20</td><td>18</td></tr><tr><td>Loads in Pounds ± 10%</td><td>10</td><td>10</td><td>10</td><td>15</td><td>25</td></tr></table>	Contact Size	22M*	22D	22*	20	18	Loads in Pounds ± 10%	10	10	10	15	25																																																
Contact Size	22M*	22D	22*	20	18																																																									
Loads in Pounds ± 10%	10	10	10	15	25																																																									
Coupling Torque	4 5 6	For qualification testing, mating halves shall be coupled and uncoupled, measuring the torques necessary. The torques required to couple and uncouple mating connector halves shall fall within the limits specifications as follows: <table><tr><th>Shell Size</th><th>Torque Max.</th><th>Min.</th><th>Shell Size</th><th>Torque Max.</th><th>Min.</th><th>Shell Size</th><th>Torque Max.</th><th>Min.</th><th>Shell Size</th><th>Torque Max.</th><th>Min.</th></tr><tr><td>8/9</td><td>8</td><td>2</td><td>14</td><td>20</td><td>4</td><td>18</td><td>28</td><td>5</td><td>22</td><td>36</td><td>7</td></tr><tr><td>10/11</td><td>12</td><td>2</td><td>15</td><td>20</td><td>3</td><td>19</td><td>28</td><td>3</td><td>23</td><td>36</td><td>5</td></tr><tr><td>12</td><td>16</td><td>2</td><td>16</td><td>24</td><td>4</td><td>20</td><td>32</td><td>6</td><td>24</td><td>36</td><td>7</td></tr><tr><td>13</td><td>16</td><td>2</td><td>17</td><td>24</td><td>3</td><td>21</td><td>32</td><td>5</td><td>25</td><td>40</td><td>5</td></tr></table>	Shell Size	Torque Max.	Min.	Shell Size	Torque Max.	Min.	Shell Size	Torque Max.	Min.	Shell Size	Torque Max.	Min.	8/9	8	2	14	20	4	18	28	5	22	36	7	10/11	12	2	15	20	3	19	28	3	23	36	5	12	16	2	16	24	4	20	32	6	24	36	7	13	16	2	17	24	3	21	32	5	25	40	5
Shell Size	Torque Max.	Min.	Shell Size	Torque Max.	Min.	Shell Size	Torque Max.	Min.	Shell Size	Torque Max.	Min.																																																			
8/9	8	2	14	20	4	18	28	5	22	36	7																																																			
10/11	12	2	15	20	3	19	28	3	23	36	5																																																			
12	16	2	16	24	4	20	32	6	24	36	7																																																			
13	16	2	17	24	3	21	32	5	25	40	5																																																			
Durability	4 5 7	Connector halves shall be mated and unmated 250 times for Series II with ground fingers and 500 times for Series I and III at a rate not exceeding 300 cycles per hour. The test may be performed by hand or by mechanical means, but the coupling ring shall be operated as in normal service. Failure to complete this test because of mechanical malfunction shall be cause for rejection.																																																												
Insulation Resistance	4 5 9	An insulation resistance test shall be performed on unmated connectors in accordance with MIL-STD-202, Method 302, Test condition B. Measurement shall be made between three pairs of adjacent contacts and the shell. Failure to meet the minimum requirement of 50,000 megohms for Classes E, P, F, R, and T shall be cause for rejection.																																																												
Vibration	4 5 22	Wired, mated connectors shall be subjected to the vibration test of MIL-STD-202, Method 214, Test Condition II, except that the duration shall be one hour in each plane. Receptacles shall be mounted on the vibration fixture by normal means. All contacts shall be wired in a series circuit and 100-500 millamperes of current shall be allowed to flow through the series circuit during vibration. Suitable means shall be employed to monitor the current flow and to indicate any discontinuity of more than 1 microsecond. The wire bundle shall be damped to the nonvibrating points at least 8 inches from the rear of the connector. Current discontinuity of 1 microsecond or more, disengagement of the mated connectors, evidence of cracking, breaking, or loosening of parts shall be cause for rejection.																																																												
Shock	4 5 23	Wired mated connectors shall be subjected to one shock in each direction in each of three mutually perpendicular axes. The pulse shall be approximate half sine wave of 300g ± 15% magnitude with a duration of 3 ± 1 milliseconds. Receptacles shall be mounted on a shock fixture by normal means. All contacts shall be wired in a series circuit and 100-150 ma. of current shall flow through the series circuit during shock. Suitable means shall be employed to monitor the current flow and to indicate any discontinuity of more than 1 microsecond. The wire bundle shall be clamped to fixed points at least 8 inches from the rear of the connector. Current discontinuity of 1 microsecond or more, disengagement of the mated connectors, evidence of cracking, breaking, or loosening of parts shall be cause for rejection.																																																												
Thermal Shock	4 5 4	Unmated receptacles shall be subjected to 10 cycles of thermal shock in the following manner: Step a The receptacle shall be suspended for 10 ± 1 - 0 minutes in the center of a cold water bath with a volume of approximately one cubic foot. No dimension of the bath shall be less than 10 inches. The water temperature shall not exceed 4°C (39.20°F) Step b The receptacle shall be suspended for 10 ± 1 - 0 minutes in the center of a hot water bath with a volume of approximately one cubic foot. No dimension of the bath shall be less than 10 inches. The water temperature shall be not less than 94°C (201°F). The time of transfer from one bath to the other shall not exceed 5 seconds. At the end of the tenth cycle, the receptacle shall have the excess moisture shaken off and shall then be dried in a forced air oven at 66±5°C for 15 ± 1 minutes. Any evidence of damage resulting from this test shall be cause for rejection.																																																												
Altitude Immersion	4 5 8	Mated connectors shall be placed in a container of water at approximately 20°C and placed in an altitude chamber. All wire ends shall be located within the chamber and exposed to the chamber atmosphere, but not submerged. The exposed wire ends shall not be sealed. A quantity of salt, 5 percent by weight, shall be added to make the water conductive. The chamber pressure shall then be reduced to approximately one inch of mercury and maintained for thirty minutes. The chamber pressure shall then be slowly returned to atmospheric. This shall be considered one cycle. Two additional cycles shall be performed. At the end of the last cycle, while the mated connectors are still submerged, the Insulation Resistance Test (room temperature), and the High Potential Test (sea level voltages) shall be performed upon the same circuits. Failure to meet an insulation resistance minimum of 2,000 megohms or any evidence of dielectric breakdown or -flashover shall be cause for rejection.																																																												
Solvent Immersion	4 5 29	Unmated connectors shall be immersed fully in the applicable fluid specified below for 20 hours. After removal from the fluid, each connector shall remain for one hour in free air at room temperature. a.) Jet fuel JP-4 to MIL-J-5624 b.) Aircraft lubricating oil to MIL-L-9236																																																												
Corrosion	4 5 12	Unmated connectors and individual contact samples shall be subjected to the soft spray of MIL-STD-202, Method 101, Test Condition 8 (tin plated, Class Y receptacles-24 hours). Immediately after exposure, the surfaces of the specimens shall be thoroughly washed in tap water and dried in a circulatory oven at a temperature of 38 ±3°C (100°F) for a period of approximately 12 hours. Any exposure of basis metal as a result of this test, shall be cause for rejection.																																																												
Dynamic Salt Spray	4 5 12 2	(Series I and 11, finish B; Series III, class W). The wired assembled plugs and receptacles shall be mated and unmated 50 cycles at a rate of 300 cycles per hour maximum. The mating and unmating shall be accomplished so that the plug and receptacle are completely separated during each cycle. The connectors shall then be subjected to the salt spray test in accordance with method 1001 of MIL-STD- 1344. The connectors shall be tested for 452 hours mated followed by 48 hours unmated. After the salt spray exposure the remaining number of durability cycles specified in 4.7.7 shall be completed.																																																												
Temperature Durability	4 5 33	Wired rated connectors shall be subjected to the indicated ambient temperature for a period of 1,000 hours <table><tr><td>Series I and II (finish A)</td><td>150^{+3°}_{-0°C} (302° F)</td><td>Series I and II (finish B)</td><td>175^{+3°}_{-0°C} (347° F)</td></tr><tr><td>Series III (class W)</td><td>175^{+3°}_{-0°C} (347° F)</td><td>All other finishes</td><td>200^{+3°}_{-0°C} (392° F)</td></tr></table>	Series I and II (finish A)	150 ^{+3°} _{-0°C} (302° F)	Series I and II (finish B)	175 ^{+3°} _{-0°C} (347° F)	Series III (class W)	175 ^{+3°} _{-0°C} (347° F)	All other finishes	200 ^{+3°} _{-0°C} (392° F)																																																				
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* For reference only



A

Circular

Cannon KPT/KPSE MIL-C-26482 Series I Connectors



Introduction

The miniature circular connectors series KPT and KPSE from ITT Cannon conform to meet the performance specification of MIL-C-26482 with three point bayonet coupling and five-keyway polarization. They offer general purpose solder connectors and high performance crimp connectors. The broad product range provides the most complete family of connectors that conform to Mil-C-26482 and VG95328 performance specifications.

The versatility of these connectors has been proven by their usage in general as well as in high performance environmental applications.

In addition to the basic series presented in this section, connectors for special applications are available. They include corrosion resistant types, filter connectors for electromagnetic compatibility, and non-outgassing radiation resistant versions.

All connectors conform to the above mentioned performance specifications and are fully interchangeable and accept a wide range of interchangeable accessories. Thereby design modifications can be achieved more easily and at a lower cost with connectors of the KPT/KPSE series.

KPT General purpose solder contact connectors



KPT General purpose solder contact connectors

- General purpose
- Solder termination
- Closed entry socket contacts

Series KPT from ITT Cannon offers general purpose connectors used in military applications, but also widely used in industrial applications calling for a circular connector with fixed contacts for solder termination.

The KPT series conforms to meet the performance specifications of MIL-C-26482 and is interchangeable with all connectors according to the above specifications. VG95328H is also interchangeable with the KPT and MIL-C-26482, see page A-62



A

Circular

Technical Data

Material and Finishes	KPT	KPSE
Shell	Aluminum alloy, conductive olive drab chromate over cadmium finish per QQ-P-416 Contact Factor for other plating options	
Insulator	Polychloroprene	Polychloroprene
Grommet and Seal	Polychloroprene	Polychloroprene
Contacts	Copper alloy, gold plated	Copper alloy, gold plated

MECHANICAL

Shell Sizes 00 - wall mounting receptacle
 01 - cable connecting plug
 02 - box mounting receptacle
 06 - straight plug
 07 - jam nut receptacle
 08 - 90° angle plug
 B - thru-bulkhead receptacle
 (KPT only)

Shell Sizes KPT 8 thru 24
 KPSE 10 thru 24

Polarization/Coupling: five keyway/three point bayonet

Service Classes A - general duty
 B - general duty with strain relief
 E - grommet seal
 F - grommet seal with strain relief
 J - gland nut with strain relief for jacketed cable
 P - potted

Environmental Sealing Acc. to VG95319 Part 2, Test No. 5.9.2. For styles A to E and J to W, Z1, Z2 and Z3 and gaskets style A and B only
 Test pressure 0,2 bar overpressure
 Test temperature 25 ± 3°C
 Test duration 48 h
 The connector shall be free of moisture
 See 26482 specification

Operating temperature -55 / 125°C

Electrical Data

Number of contacts	2 thru 61	3 thru 61
Wire Size AWG	16 thru 24	12 thru 24
Contact termination	Solder	Crimp

Contact rating	Size AWG	Rated current A	Test current A	Millivolt drop mV
	20	7.5	7.5	less than 55
	16	13.0	13.0	less than 50
	12	23.0	23.0	less than 42

Insulation resistance ⊕ 5000 MW

Service rating	Test voltage	Service class	Vrms	VDC	With scoop proof connectors operating voltages acc. to MIL-C-26482 and VG 96912 are permitted
Exception: Service rating between the central contact and the housing of the coaxial contact	Sea level	1	1500	2100	
		2	2300	3200	
	21336 m (70 000 ft)	1	375	535	
		2	550	770	
Operating voltage					
Service class			VG 95328	MIL-C-26482	
1			140 VDC/100 VAC	850 VDC/600 VAC	
2			165 VDC/115 VAC	1400 VDC/1000 VAC	

Operating voltage and connector usage Connectors are equipment which must not be separated or mated when under load conditions. When the connectors will be operated with line voltage, please consult factory.



A

Circular

KPT General purpose solder contact connectors

How to order	MS KPT	3112 02	E E	22 22	- -	55 55	P P	W W	• •
SERIES PREFIX									
SHELL STYLE									
CLASS									
SHELL SIZE									
CONTACT ARRANGEMENT									
CONTACT TYPE									
ALTERNATE INSERT POSITION									
MODIFICATION CODE									

SERIES PREFIX

KPT -ITT Cannon prefix
KPTR -ITT Cannon RoHS prefix (U.S. version)
MS-MIL-DTL 26482 prefix

SHELL STYLE

ITT Cannon designation
00 -wall mounting receptacle
01 -cable connecting receptacle
02 -box mounting receptacle (class E only)
06 -straight plug
07 -jam nut receptacle
08 -90° angle plug
B - thru bulkhead receptacle, see page A-49

MS DESIGNATION

3110 - Wall mounting receptacle
3111 - Cable connecting receptacle
3112 - Box mounting receptacle (Class E only)
3114 - Jam nut receptacle
3116 - Straight plug

CLASS

A -general duty (not MS approved)
B -general duty with strain relief (not MS approved) without grommet and ferrule
E -with a grommet seal, not for 02 and 3112 (MS specification)
F -grommet seal with strain relief (MS specification)
J -watertight gland seal with strain relief (MS specification) for jacketed cable (U.S. version)
P -for potting (MS specification U.S. version)
PG - PG adapter (not available for shell #8)
ME - Metric adapter (not available for shell #8)

SHELL SIZES

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

CONTACT ARRANGEMENTS

see page A-41

CONTACT TYPE

P -Pin S -Socket

ALTERNATE INSERT POSITION

W, X, and Z (omit for normal), see page A-42

MODIFICATION CODE

A34 - Electroless nickel hardware, RoHS compliant (European version)
A71 - Electroless nickel hardware (U.S. version RoHS compliant after 11/1/07))
A206 - Black zinc cobalt hardware (U.S. version, RoHS compliant)
A232 - Black zinc cobalt hardware (European version, RoHS compliant)
A233 - Green zinc cobalt hardware (European version)
A408 - Extended Life Contact - Gold over Nickel
DN - Shrink boot adapter for shell styles 00, 01, 06 and 07 (Class E only)
DZ - Endbell for shielding braids and shrink boots. (Class E only)
07 - Clear chromate over cadmium hardware (U.S. version)
16 - Lanyard release (applicable to plug only) (U.S. version)
23 - Ground springs (applicable to plug only)
F42 - connectors without endbell and related components

P9 = PG9 for shell #10	M12 = M12x1,5 for shell #10
P11 = PG11 for shell #12	M16 = M16x1,5 for shell #12
P13 = PG13,5 for shell #14	M20 = M20x1,5 for shell #14
P16 = PG16 for shell #16	M25 = M25x1,5 for shell #16
P21 = PG21 for shell #18	M25 = M25x1,5 for shell #18
P21 = PG21 for shell #20	M25 = M25x1,5 for shell #20
P21 = PG21 for shell #22	M32 = M32x1,5 for shell #22
P29 = PG29 for shell #24	M32 = M32x1,5 for shell #24

Consult factory for other modifications. Omit first digit (0) of shell style indication when using a modification code.



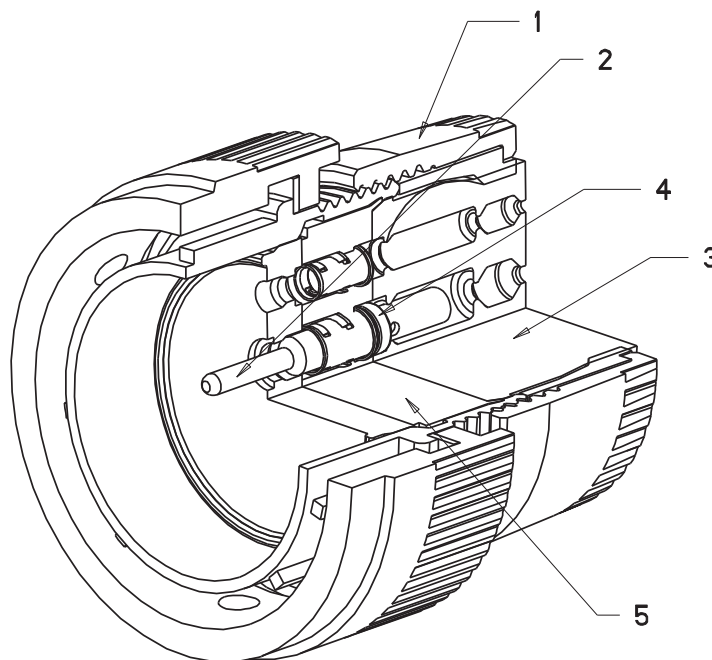
KPSE High performance crimp contact connectors

KPSE High performance crimp contact connectors

- High performance
- Crimp termination
- Closed entry socket contacts

Series KPSE environmental, miniature circular, quick disconnect connectors are designed for the exacting requirements of today's electronic industry.

They are intermateable, intermountable and interchangeable with all connectors manufactured acc. to MIL-C-26482 and VG95328.



1 Standard MIL-C-26482 mates with any connector designed to MIL-C-26482 and VG 95328.

2 Crimp, snap-in contacts are designed to MIL-C-39029 and can be crimped with the standard M22520/1 crimp tool.

Closed-entry socket contacts eliminate damage from abuse by test probes and help to correct any misaligned pins during engagement

Contact insertion is accomplished from the rear of the connector. When the contact is fully inserted, the clip tines snap securely behind the contact shoulder.

Contact extraction is accomplished with a front-inserted tool. Pressing the tool plunger pushes the contact out through the rear of the connector.

3 Monobloc insulator does not leave any access to moisture and avoids interfacial empty space.

4 Contact retaining clip is completely encased in a tough plastic wafer to protect the clip from damage

Complete moisture sealing is achieved by combining four seals: shell, peripheral, interfacial and wire seals

Shell Seal is effected when the plug shell pushes against the sealing ring in the receptacle when the connectors are mated.

Peripheral Seal around the edge of the pin insulator is designed so that mating the connector puts tension on the seal and greatly reduces compression set.

Interfacial Seal is achieved by the insulator faces meeting when the plug and receptacle are mated.

Wire Seal is accomplished by a multiple ripple design, exceeding the wire sealing requirements of MIL-C-26482.

5 Positive insert-to-shell mechanical retention with hard plastic wafer firmly locked into a groove in the shell, in addition to a strong adhesive bond between the insert and shell.



A

Circular

KPSE High performance crimp contact connectors

How to order	MS	3120	E	18	-	32	P	X	*
	KSPE	00	E	18	-	32	P	X	*
SERIES PREFIX									
SHELL STYLE									
CLASS									
SHELL SIZE									
CONTACT ARRANGEMENT									
CONTACT TYPE									
ALTERNATE INSERT POSITION									
MODIFICATION CODE									

SERIES PREFIX

KPSE -ITT Cannon prefix
KPSR - ITT Cannon RoHS prefix
MS -MIL-C-26482 prefix

SHELL STYLE

ITT Cannon designation
00 -wall mounting receptacle
01 -cable connecting plug
02 -box mounting receptacle (class E only)
06 -straight plug
07 -jam nut receptacle
08 -90° angle plug

MS DESIGNATION

3120 - Wall mounting receptacle
3121 - Cable connecting receptacle
3122 - Box mounting receptacle
3124 - Jam nut receptacle
3126 - Straight plug

CLASS

A - general duty (not MS approved)
B - general duty with strain relief (not MS approved)
E - with a grommet seal (MS specification)
F - grommet seal with strain relief (MS specification)
J - gland seal with strain relief for jacketed cable (U.S. version) (not MS approved)
P -for potting (MS specification) (U.S. version)

SHELL SIZES

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

CONTACT ARRANGEMENTS

see page A-41

CONTACT TYPE

P -Pin
S -Socket

ALTERNATE INSERT POSITION

W, X, and Z (omit for normal), see page A-42

MODIFICATION CODE (Include Same Codes as KPT)

A34 - Electroless nickel hardware, RoHS compliant (European version)
A71 - Electroless nickel hardware (U.S. version RoHS compliant after 11/1/07))
A206 - Black zinc cobalt hardware (U.S. version, RoHS compliant)
A232 - Black zinc cobalt hardware (European version, RoHS compliant)
A233 - Green zinc cobalt hardware (European version)
A408 - Extended Life Contact - Gold over Nickel
DN - Shrink boot adapter for shell styles 00, 01, 06 and 07 (Class E only)
DZ - Endbell for shielding braids and shrink boots. (Class E only)
07 - Clear chromate over cadmium hardware (U.S. version)
16 - Lanyard release (applicable to plug only) (U.S. version)
23 - Ground springs (applicable to plug only)
F42 - connectors without endbell and related parts

P9 = PG9 for shell #10 M12 = M12x1,5 for shell #10
P11 = PG11 for shell #12 M16 = M16x1,5 for shell #12
P13 = PG13,5 for shell #14 M20 = M20x1,5 for shell #14
P16 = PG16 for shell #16 M25 = M25x1,5 for shell #16
P21 = PG21 for shell #18 M25 = M25x1,5 for shell #18
P21 = PG21 for shell #20 M25 = M25x1,5 for shell #20
P21 = PG21 for shell #22 M32 = M32x1,5 for shell #22
P29 = PG29 for shell #24 M32 = M32x1,5 for shell #24

Consult factory for other modifications. **Omit first digit (0) of shell style indication when using a modification code.**

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

www.ittcannon.com



Contact Arrangements

LEGEND

- ▲ KPT
- ◆ KPSE
- △ Authorized per MIL-C-26482 (NAVY)
- Not MS approved ITTC proprietary
- ★ VG95328

Drawing not to scale; face view of pin insert shown (socket view is opposite)

Shell Size
No. of Contacts
Service Rating

Shell Size 8

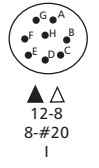


Shell Size
No. of Contacts
Service Rating

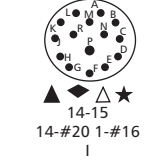
Shell Size 10



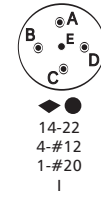
Shell Size 12



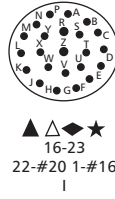
Shell Size 14



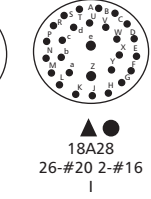
Shell Size
No. of Contacts
Service Rating



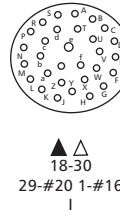
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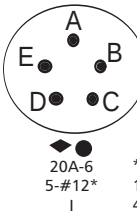
Shell Size 18



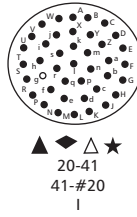
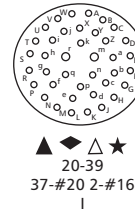
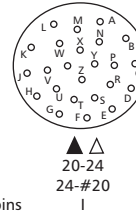
Shell Size
No. of Contacts
Service Rating



Shell Size 20

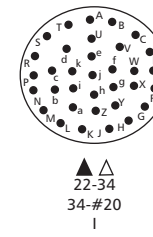
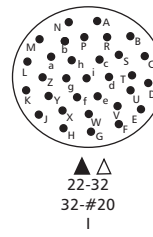
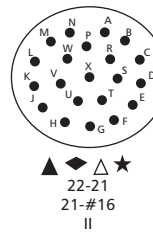


*Note: Contacts are
1 Grounding Pin &
4 Standard Size 12 pins

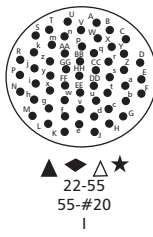
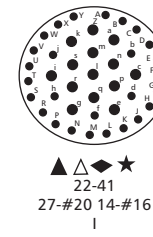
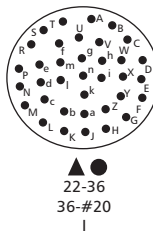


Shell Size
No. of Contacts
Service Rating

Shell Size 22

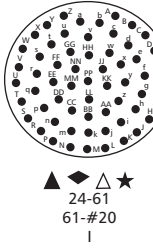
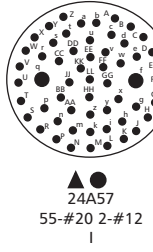


20A-6*



Shell Size
No. of Contacts
Service Rating

Shell Size 24



A

Circular

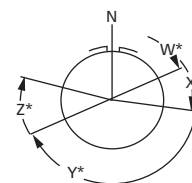


A

Circular

Alternate Insert Positions

Face view of pin inserts



The five positions (W,X,Y,Z and Normal) differ in degree or rotation for various sizes and arrangements

No. of Contacts	Shell Size	Arr. No.	Degrees of Rotation			
			W	X	Y	Z
2	8	8-2	58	122	-	-
3	8	8-3	60	210	.-	-
3	8	8-3A*	60	-	-	-
3	8	8-33	90	-	-	-
3	12	12-3	-	-	180	-
4	8	8-4	45	-	-	-
5	14	14-5	40	92	184	273
5	14	14-22	**	**	**	**
5	20	20A-6*	90	180	270	-
6	10	10-6	90	-	-	-
6	10	10-98	90	180	240	270
7	10	10-7*	**	**	**	**
8	12	12-8	90	112	203	292
8	16	16-8	54	152	180	331
10	12	12-10	60	155	270	295
11	18	18-11	62	119	241	340
12	14	14-12	43	90	-	-
14	12	12-14*	**	**	**	**
15	14	14-15	17	110	155	234
16	20	20-16	238	318	333	347
18	14	14-18	15	90	180	270
19	14	14-19	30	165	315	-
21	22	22-21	16	135	175	349
23	16	16-23	158	270	-	-
23	16	16-99	66	156	223	340
24	20	20-24	70	145	215	290
26	16	16-26	60	-	275	338
28	18	18A26*	-	-	-	-
30	18	18-30	180	193	285	350
32	18	18-32	85	138	222	265
32	22	22-32	72	145	215	288
34	22	22-34	62	142	218	298
36	22	22-36*	72	144	216	288
39	20	20-39	63	144	252	333
41	20	20-41	45	126	225	-
41	22	22-41	39	135	264	-
55	22	22-55	30	142	226	314
57	24	24A57*	90	180	270	324
61	24	24-61	90	180	270	-

* Contact arrangements not MIL-C-26482 qualified

† Not available in KPSE

LA, LBF, LE, LJ and LP are connector overall lengths



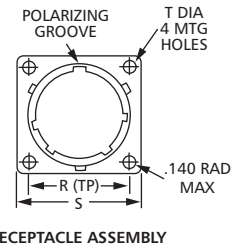
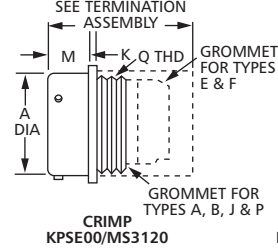
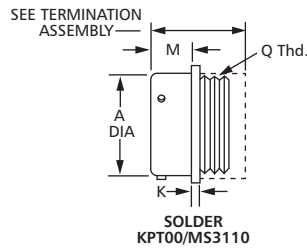
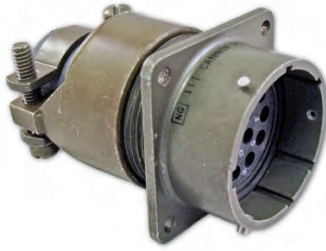
Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Wall Mounting Receptacles

MS3110 (MS service class E,F,J,P)
MS3120 (MS service class E,F,P)

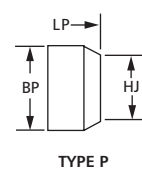
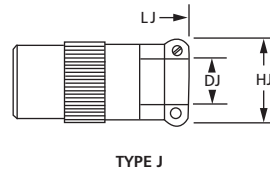
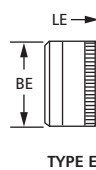
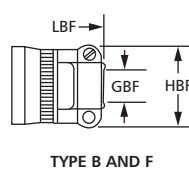
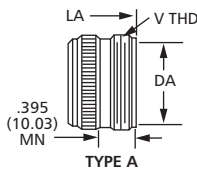
KPT00
KPSE00



Shell Size	A ±.003 (±.08)	K ±.016 (±.41)	M +.031 (+.79) -.000 (.00)	R* (TP)	S Max.	T ±.005 (±.13)	Q Thread Class 2A
†8	.471 (11.96)	.062 (1.57)	.431 (10.95)	.594 (15.09)	.828 (21.03)	.120 (3.05)	7/16-28UNEF
10	.588 (14.96)	.062 (1.57)	.431 (10.95)	.719 (18.26)	.954 (24.23)	.120 (3.05)	9/16-24UNEF
12	.748 (19.00)	.062 (1.57)	.431 (10.95)	.812 (20.62)	1.047 (26.59)	.120 (3.05)	11/16-24UNEF
14	.873 (22.17)	.062 (1.57)	.431 (10.95)	.906 (23.01)	1.141 (28.98)	.120 (3.05)	13/16-20UNEF
16	.998 (25.35)	.062 (1.57)	.431 (10.95)	.969 (24.61)	1.234 (31.34)	.120 (3.05)	15/16-20UNEF
18	1.123 (28.52)	.062 (1.57)	.431 (10.95)	1.062 (26.97)	1.328 (33.73)	.120 (3.05)	1-1/16-18UNEF
20	1.248 (31.70)	.094 (2.39)	.556 (14.12)	1.156 (29.36)	1.453 (36.91)	.120 (3.05)	1-3/16-18UNEF
22	1.373 (34.87)	.094 (2.39)	.556 (14.12)	1.250 (31.75)	1.578 (40.08)	.120 (3.05)	1-5/16-18UNEF
24	1.498 (38.05)	.094 (2.39)	.589 (14.96)	1.375 (34.92)	1.703 (43.26)	.147 (3.73)	1-7/16-18UNEF

† Not available in KPSE * (TP) located within .010 T.P. with respect to diameter A and master keyway.

Receptacles with Termination Assemblies



Shell Size	DA Min.	TYPE A LA Max.	V Thread Class 2A	GBF Min.	TYPE B and F HBF Max.	LBF Max.	BE Max.	TYPE E LE Max.
†8	.335 (8.51)	1.58 (40.00)	1/2-28UNEF	.115 (2.92)	.828 (21.03)	1.922 (48.82)	.608 (15.44)	1.328 (33.73)
10	.466 (11.84)	1.58 (40.00)	5/8-24UNEF	.178 (4.52)	.891 (22.63)	1.922 (48.82)	.734 (18.64)	1.328 (33.73)
12	.591 (15.01)	1.58 (40.00)	3/4-20UNEF	.302 (7.67)	1.016 (25.81)	1.922 (48.82)	.858 (21.79)	1.328 (33.73)
14	.700 (17.90)	1.58 (40.00)	7/8-20UNEF	.365 (9.27)	1.141 (28.98)	1.922 (48.82)	.984 (24.99)	1.328 (33.73)
16	.830 (21.08)	1.58 (40.00)	1-20UNEF	.490 (12.45)	1.203 (30.56)	2.047 (51.99)	1.110 (28.19)	1.328 (33.73)
18	.948 (24.08)	1.58 (40.00)	1-3/16-18UNEF	.615 (15.62)	1.469 (37.31)	2.078 (52.78)	1.234 (31.34)	1.328 (33.73)
20	1.043 (26.49)	1.728 (43.89)	1-3/16-18UNEF	.615 (15.62)	1.469 (37.31)	2.344 (59.54)	1.360 (34.54)	1.531 (38.89)
22	1.198 (30.43)	1.728 (43.89)	1-7/16-18UNEF	.740 (18.80)	1.656 (42.06)	1.344 (34.14)	1.484 (37.69)	1.531 (38.89)
24	1.293 (32.84)	1.738 (44.15)	1-7/16-18UNEF	.790 (20.07)	1.750 (44.45)	2.406 (61.11)	1.610 (40.49)	1.594 (40.49)

Shell Size	DJ Max./Min.	TYPE J HJ Max.	L J Max.	BP Max.	TYPE P DP Min.	LP Max.
†8	.230/.168 (5.84/4.27)	.828 (21.03)	2.271 (57.68)	.608 (15.44)	.317 (8.05)	1.453 (36.91)
10	.312/.205 (7.92/5.21)	.891 (22.63)	2.271 (57.68)	.734 (18.64)	.434 (11.02)	1.453 (36.91)
12	.442/.338 (11.23/8.59)	1.016 (25.81)	2.411 (61.24)	.858 (21.79)	.548 (13.92)	1.453 (36.91)
14	.539/.416 (13.56/10.57)	1.141 (28.98)	2.599 (66.01)	.984 (24.99)	.673 (17.09)	1.453 (36.91)
16	.616/.550 (15.65/13.97)	1.203 (30.56)	2.943 (74.75)	1.110 (28.19)	.798 (20.27)	1.453 (36.91)
18	.672/.600 (17.07/15.24)	1.469 (37.31)	3.172 (80.57)	1.234 (31.34)	.899 (20.83)	1.453 (36.91)
20	.747/.634 (18.97/16.13)	1.469 (37.31)	3.610 (91.69)	1.360 (34.54)	1.024 (26.01)	1.672 (42.47)
22	.846/.670 (21.49/17.02)	1.656 (42.06)	3.766 (95.66)	1.484 (37.69)	1.149 (29.18)	1.672 (42.47)
24	.894/.740 (22.71/18.80)	1.750 (44.45)	3.985 (101.22)	1.610 (40.89)	1.274 (32.36)	1.734 (44.04)

† Not available in KPSE

LA, LBF, LE, LJ and LP are connector overall lengths

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

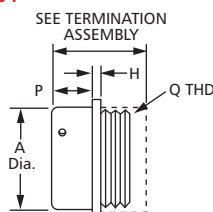
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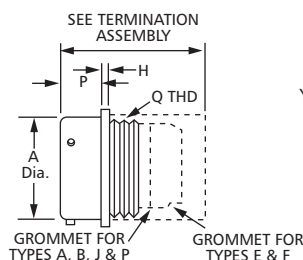
Circular

MS3111 (MS service class E,F,J,P)
MS3121 (MS service class E,F,P)

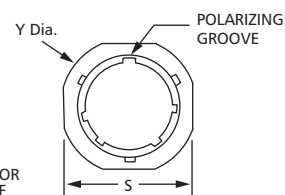
KPT01
KPSE01



SOLDER
KPT01/MS3111



CRIMP
KPSE01/MS3121

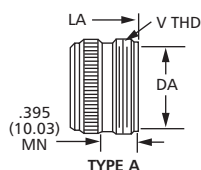


PLUG ASSEMBLY

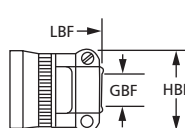
Shell Size	A ±.003 (±.08)	HJ ±.016 (±.41)	+.031 (+.79) -.000 (-.00)	S Max.	Y Max.	Q Thread Class 2A
†8	.471 (11.96)	.094 (2.39)	.400 (10.16)	.828 (21.03)	.958 (24.33)	7/16-28UNEF
10	.588 (14.94)	.094 (2.39)	.400 (10.16)	.954 (24.23)	1.082 (27.48)	9/16-24UNEF
12	.748 (19.00)	.094 (2.39)	.400 (10.16)	1.047 (26.59)	1.176 (29.87)	11/16-24UNEF
14	.873 (22.17)	.094 (2.39)	.400 (10.16)	1.141 (24.99)	1.270 (32.26)	13/16-20UNEF
16	.998 (25.35)	.094 (2.39)	.400 (10.16)	1.110 (28.98)	1.364 (34.65)	15/16-20UNEF
18	1.123 (28.52)	.094 (2.39)	.400 (10.16)	1.234 (31.34)	1.458 (37.03)	1-1/16-18UNEF
20	1.248 (31.70)	.115 (2.92)	.535 (13.59)	1.328 (33.73)	1.582 (40.18)	1-3/16-18UNEF
22	1.373 (34.87)	.115 (2.92)	.535 (13.59)	1.578 (40.08)	1.708 (43.38)	1-5/16-18UNEF
24	1.498 (38.05)	.115 (2.92)	.558 (14.43)	1.703 (43.26)	1.832 (46.53)	1-7/16-18UNEF

† Not available in KPSE *(TP) located within .010 T.P. with respect to diameter A and master keyway.

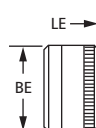
Cable Connecting Plugs with Termination Assemblies



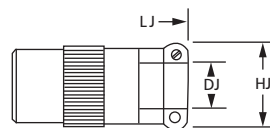
TYPE A



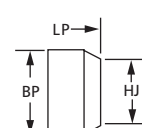
TYPE B AND F



TYPE E



TYPE J



TYPE P

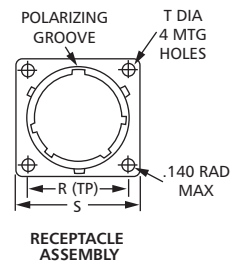
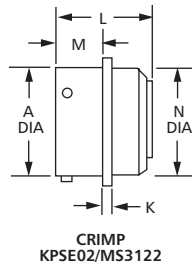
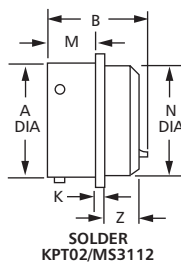
Shell Size	TYPE A			TYPE B and F			TYPE E	
	DA Min.	LA Max.	V Thread Class 2A	GBF Min.	HBF Max.	LBF Max.	BE Max.	LE Max.
†8	.335 (8.51)	1.50 (38.00)	1/2-28UNEF	.115 (2.92)	.828 (21.03)	1.922 (48.82)	.608 (15.44)	1.328 (33.73)
10	.466 (11.84)	1.50 (38.00)	5/8-24UNEF	.178 (4.52)	.891 (22.63)	1.922 (48.82)	.734 (18.64)	1.328 (33.73)
12	.591 (15.01)	1.50 (38.00)	3/4-20UNEF	.302 (7.67)	1.016 (25.81)	1.922 (48.82)	.858 (21.79)	1.328 (33.73)
14	.700 (17.90)	1.50 (38.00)	7/8-20UNEF	.365 (9.27)	1.141 (28.98)	1.922 (48.82)	.984 (24.99)	1.328 (33.73)
16	.830 (21.08)	1.50 (38.00)	1-20UNEF	.490 (12.45)	1.203 (30.56)	2.047 (51.99)	1.110 (28.19)	1.328 (33.73)
18	.948 (24.08)	1.50 (38.00)	1-3/16-18UNEF	.615 (15.62)	1.469 (37.31)	2.078 (52.78)	1.234 (31.34)	1.328 (33.73)
20	1.043 (26.49)	1.728 (43.89)	1-3/16-18UNEF	.615 (15.62)	1.469 (37.31)	2.344 (59.54)	1.360 (34.54)	1.531 (38.89)
22	1.198 (30.43)	1.728 (43.89)	1-7/16-18UNEF	.740 (18.80)	1.656 (42.06)	1.344 (34.14)	1.484 (37.69)	1.531 (38.89)
24	1.293 (32.84)	1.738 (44.15)	1-7/16-18UNEF	.790 (20.07)	1.750 (44.45)	2.406 (61.11)	1.610 (40.49)	1.594 (40.49)

Shell Size	TYPE J		L J Max.	BP Max.	TYPE P	
	DJ Max./Min.	HJ Max.			DP Min.	LP Max.
†8	.230/.168 (5.84/4.27)	.828 (21.03)	2.271 (57.68)	.608 (15.44)	.317 (8.05)	1.453 (36.91)
10	.312/.205 (7.92/5.21)	.891 (22.63)	2.271 (57.68)	.734 (18.64)	.434 (11.02)	1.453 (36.91)
12	.442/.338 (11.23/8.59)	1.016 (25.81)	2.411 (61.24)	.858 (21.79)	.548 (13.92)	1.453 (36.91)
14	.539/.416 (13.56/10.57)	1.141 (28.98)	2.599 (66.01)	.984 (24.99)	.673 (17.09)	1.453 (36.91)
16	.616/.550 (15.65/13.97)	1.203 (30.56)	2.943 (74.75)	1.110 (28.19)	.798 (20.27)	1.453 (36.91)
18	.672/.600 (17.07/15.24)	1.469 (37.31)	3.172 (80.57)	1.234 (31.34)	.899 (20.83)	1.453 (36.91)
20	.747/.634 (18.97/16.13)	1.469 (37.31)	3.610 (91.69)	1.360 (34.54)	1.024 (26.01)	1.672 (42.47)
22	.846/.670 (21.49/17.02)	1.656 (42.06)	3.766 (95.66)	1.484 (37.69)	1.149 (29.18)	1.672 (42.47)
24	.894/.740 (22.71/18.80)	1.750 (44.45)	3.985 (101.22)	1.610 (40.89)	1.274 (32.36)	1.734 (44.04)

Box Mounting Receptacles

MS3112 (MS service class E)
MS3122 (MS service class E)

KPT02
KPSE02



Note: Connector does not accommodate backshell.

Shell Size	A ±.003 (±.08)	B Max.	K ±.016 (±.41)	L Max.	M +.031 (+.79) -.000 (-.00)	N Dia. Max.	R* (TP)	S Max.	T ±.005	Z Max.
†8	.471 (11.96)	.978 (24.84)	.062 (1.57)	1.320 (33.07)	.431 (10.95)	.469 (11.91)	.594 (15.09)	.828 (21.03)	.120 (3.05)	.354 (8.99)
10	.588 (14.96)	.978 (24.84)	.062 (1.57)	1.320 (33.07)	.431 (10.95)	.593 (15.06)	.719 (18.26)	.954 (24.23)	.120 (3.05)	.354 (8.99)
12	.748 (19.00)	.978 (24.84)	.062 (1.57)	1.320 (33.07)	.431 (10.95)	.719 (18.26)	.812 (20.62)	1.047 (26.59)	.120 (3.05)	.354 (8.99)
14	.873 (22.17)	.978 (24.84)	.062 (1.57)	1.320 (33.07)	.431 (10.95)	.843 (21.41)	.906 (23.01)	1.141 (28.98)	.120 (3.05)	.354 (8.99)
16	.998 (25.35)	.978 (24.84)	.062 (1.57)	1.320 (33.07)	.431 (10.95)	.969 (24.61)	.969 (24.61)	1.234 (31.34)	.120 (3.05)	.354 (8.99)
18	1.123 (28.52)	.978 (24.84)	.062 (1.57)	1.320 (33.07)	.431 (10.95)	1.093 (27.76)	1.062 (26.97)	1.328 (33.73)	.120 (3.05)	.354 (8.99)
20	1.248 (31.70)	1.196 (30.38)	.094 (2.39)	1.387 (34.72)	.556 (14.12)	1.219 (30.96)	1.156 (29.36)	1.453 (36.91)	.120 (3.05)	.417 (10.59)
22	1.373 (34.87)	1.196 (30.38)	.094 (2.39)	1.387 (34.72)	.556 (14.12)	1.343 (34.11)	1.250 (31.75)	1.578 (40.08)	.120 (3.05)	.417 (10.59)
24	1.498 (38.05)	1.196 (30.38)	.094 (2.39)	1.418 (36.02)	.589 (14.96)	1.469 (37.31)	1.375 (34.92)	1.703 (43.26)	.147 (3.73)	.445 (11.30)

† Not available in KPSE *(TP) located within .010 T.P. with respect to diameter A and master keyway.



A

Circular



A

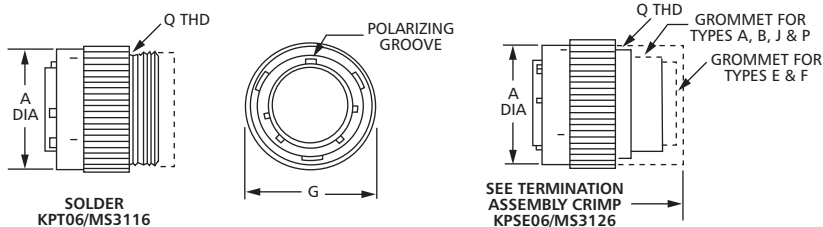
Circular

MS3116 (MS service class E,F,J,P)
MS3126 (MS service class E,F,P)

KPT06
KPSE06



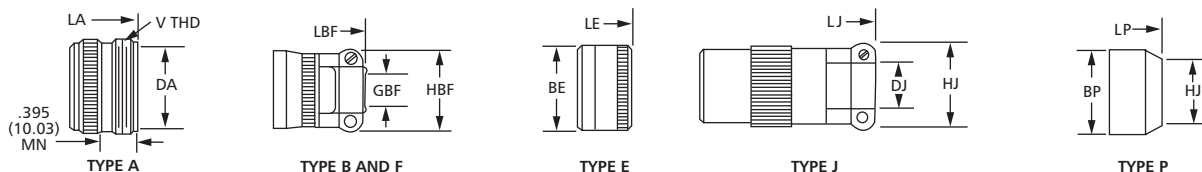
Straight Plugs



Shell Size	A Dia. Max.	G Max.	J $\pm .010 (\pm 0.25)$	Q Thread Class 2A
†8	.765 (19.43)	.782 (19.86)	.353 (8.99)	7/16-28UNEF
10	.840 (21.34)	.926 (23.52)	.353 (8.99)	9/16-24UNEF
12	.999 (25.38)	1.043 (26.49)	.353 (8.99)	11/16-24UNEF
14	1.139 (28.93)	1.183 (30.05)	.353 (8.99)	13/16-20UNEF
16	1.261 (32.03)	1.305 (33.15)	.353 (8.99)	15/16-20UNEF
18	1.337 (33.96)	1.391 (35.33)	.353 (8.99)	1-1/16-18UNEF
20	1.477 (37.52)	1.531 (38.89)	.415 (10.54)	1-3/16-18UNEF
22	1.602 (40.69)	1.656 (42.06)	.415 (10.54)	1-5/16-18UNEF
24	1.723 (43.76)	1.777 (45.14)	.415 (10.54)	1-7/16-18UNEF

† Not available in KPSE

Straight Plugs with Termination Assemblies



Shell Size	TYPE A			TYPE B and F			TYPE E	
	DA Min.	LA Max.	V Thread Class 2A	GBF Min.	HBF Max.	LBF Max.	BE Max.	LE Max.
†8	.335 (8.51)	1.440 (36.58)	1/2-28UNEF	.115 (2.92)	.828 (21.03)	1.906 (48.41)	.608 (15.44)	1.328 (33.73)
10	.466 (11.84)	1.440 (36.58)	5/8-24UNEF	.178 (4.52)	.891 (22.63)	1.906 (48.41)	.734 (18.64)	1.328 (33.73)
12	.591 (15.01)	1.440 (36.58)	3/4-20UNEF	.302 (7.67)	1.016 (25.81)	1.906 (48.41)	.858 (21.79)	1.328 (33.73)
14	.700 (17.90)	1.440 (36.58)	7/8-20UNEF	.365 (9.27)	1.141 (28.98)	1.906 (48.41)	.984 (24.99)	1.328 (33.73)
16	.830 (21.08)	1.440 (36.58)	1-20UNEF	.490 (12.45)	1.203 (30.56)	2.047 (51.99)	1.110 (28.19)	1.328 (33.73)
18	.948 (24.08)	1.662 (42.21)	1-3/16-18UNEF	.615 (15.62)	1.469 (37.31)	2.078 (52.78)	1.234 (31.34)	1.328 (33.73)
20	1.043 (26.49)	1.662 (42.21)	1-3/16-18UNEF	.615 (15.62)	1.469 (37.31)	2.250 (57.15)	1.360 (34.54)	1.453 (36.91)
22	1.198 (30.43)	1.662 (42.21)	1-7/16-18UNEF	.740 (18.80)	1.656 (42.06)	2.250 (57.15)	1.484 (37.69)	1.453 (36.91)
24	1.293 (32.84)	1.672 (42.47)	1-7/16-18UNEF	.790 (20.07)	1.750 (44.45)	2.312 (58.72)	1.610 (40.49)	1.510 (38.54)

Shell Size	TYPE J			TYPE P		
	DJ Max./Min.	HJ Max.	LJ Max.	BP Max.	DP Min.	LP Max.
†8	.230/.168 (5.84/4.27)	.828 (21.03)	2.271 (57.68)	.608 (15.44)	.317 (8.05)	1.500 (38.10)
10	.312/.205 (7.92/5.21)	.891 (22.63)	2.271 (57.68)	.734 (18.64)	.434 (11.02)	1.500 (38.10)
12	.442/.338 (11.23/8.59)	1.016 (25.81)	2.411 (61.24)	.858 (21.79)	.548 (13.92)	1.500 (38.10)
14	.539/.416 (13.56/10.57)	1.141 (28.98)	2.599 (66.01)	.984 (24.99)	.673 (17.09)	1.500 (38.10)
16	.616/.550 (15.65/13.97)	1.203 (30.56)	2.943 (74.75)	1.110 (28.19)	.798 (20.27)	1.500 (38.10)
18	.672/.600 (17.07/15.24)	1.469 (37.31)	3.172 (80.57)	1.234 (31.34)	.899 (20.83)	1.500 (38.10)
20	.747/.634 (18.97/16.13)	1.469 (37.31)	3.610 (91.69)	1.360 (34.54)	1.024 (26.01)	1.609 (40.87)
22	.846/.670 (21.49/17.02)	1.656 (42.06)	3.766 (95.66)	1.484 (37.69)	1.149 (29.18)	1.609 (40.87)
24	.894/.740 (22.71/18.80)	1.750 (44.45)	3.985 (101.22)	1.610 (40.89)	1.274 (32.36)	1.687 (42.85)

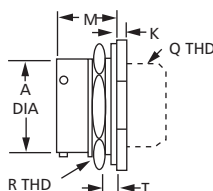
† Not available in KPSE

LA, LBF, LE, LJ and LP are connector overall lengths

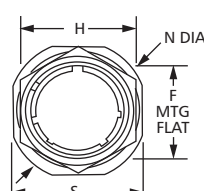
Jam Nut Receptacles

MS3114 (MS service class E,F,P)
MS3124 (MS service class E,F,P)

KPT07
KPSE07



SOLDER
KPT07/MS3114

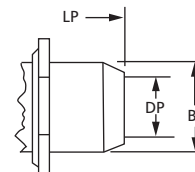
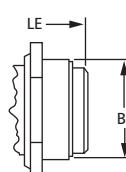
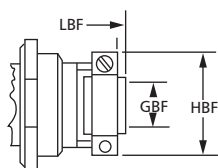
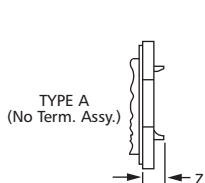


CRIMP
KPSE07/MS3124

Shell Size	A ±.003 (±.08)	A ±.005 (0.130)	H ±.017 (±.43)	K ±.020 (±.05)	M +.031 (+.08) -.000 (-.00)	N Max.	S Max.	T Panel Thickness Min.	T Max.	R Thread Class 2A
†8	.471 (11.96)	.525 (13.34)	.750 (19.05)	.117 (2.97)	.691 (17.55)	1.078 (27.38)	.954 (15.09)	.062 (1.57)	.125 (3.17)	9/16-24UNEF
10	.588 (14.96)	.650 (16.51)	.875 (22.22)	.117 (2.97)	.691 (17.55)	1.206 (30.56)	1.078 (27.38)	.062 (1.57)	.125 (3.17)	11/16-24UNEF
12	.748 (19.00)	.813 (20.65)	1.062 (26.97)	.117 (2.97)	.691 (17.55)	1.319 (35.33)	1.266 (32.16)	.062 (1.57)	.125 (3.17)	7/8-20UNEF
14	.873 (22.17)	.937 (23.80)	1.188 (30.17)	.117 (2.97)	.691 (17.55)	1.516 (38.51)	1.391 (35.33)	.062 (1.57)	.125 (3.17)	1-20UNEF
16	.998 (25.35)	1.061 (26.95)	1.312 (33.32)	.117 (2.97)	.691 (17.55)	1.641 (41.68)	1.516 (38.51)	.062 (1.57)	.125 (3.17)	1-1/8-18UNEF
18	1.123 (28.52)	1.186 (30.12)	1.438 (36.25)	.117 (2.97)	.691 (17.55)	1.766 (44.86)	1.641 (41.68)	.062 (1.57)	.125 (3.17)	1-1/4-18UNEF
20	1.248 (31.70)	1.311 (33.30)	1.562 (39.67)	.148 (3.76)	.879 (22.33)	1.954 (49.63)	1.828 (46.43)	.062 (1.57)	.250 (6.35)	1-3/8-18UNEF
22	1.373 (34.87)	1.436 (36.47)	1.688 (42.87)	.148 (3.76)	.879 (22.33)	2.078 (52.78)	1.954 (49.63)	.062 (1.57)	.250 (6.35)	1-1/2-18UNEF
24	1.498 (38.05)	1.561 (39.65)	1.812 (46.02)	.148 (3.76)	.912 (23.16)	2.203 (55.96)	2.078 (52.78)	.062 (1.57)	.250 (6.35)	1-5/8-18UNEF

† Not available in KPSE

Jam Nut Receptacles with Termination Assemblies



Shell Size	TYPE A Z Max.	TYPE B and F HBF Max.	TYPE B and F GBF Min.	TYPE B and F LBF Max.	TYPE E BE Max.	TYPE E LE Max.	TYPE P BP Max.	TYPE P DP Min.	TYPE P LP Max.
†8	.312 (7.92)	.828 (21.03)	.115 (2.92)	1.906 (48.41)	.655 (16.64)	1.344 (34.14)	.608 (15.44)	.317 (8.05)	1.391 (35.33)
10	.312 (7.92)	.891 (22.63)	.178 (4.52)	1.906 (48.41)	.843 (21.41)	1.344 (34.14)	.734 (18.64)	.434 (11.02)	1.391 (35.33)
12	.312 (7.92)	1.016 (25.81)	.302 (7.67)	1.906 (48.41)	.968 (24.59)	1.344 (34.14)	.858 (21.79)	.548 (13.92)	1.391 (35.33)
14	.312 (7.92)	1.141 (28.98)	.365 (9.27)	1.906 (48.41)	1.093 (27.76)	1.344 (34.14)	.984 (24.99)	.673 (17.09)	1.391 (35.33)
16	.312 (7.92)	1.203 (30.56)	.490 (12.45)	2.047 (51.99)	1.218 (30.94)	1.344 (34.14)	1.110 (28.19)	.798 (20.27)	1.391 (35.33)
18	.312 (7.92)	1.469 (37.31)	.615 (15.62)	2.078 (52.78)	1.343 (34.11)	1.344 (34.14)	1.234 (31.34)	.899 (22.83)	1.391 (35.33)
20	.193 (4.90)	1.469 (37.31)	.615 (15.62)	2.328 (59.13)	1.500 (38.10)	1.594 (40.49)	1.360 (34.54)	1.024 (26.01)	1.641 (41.68)
22	.193 (4.90)	1.656 (42.06)	.740 (18.80)	2.328 (59.13)	1.625 (41.28)	1.594 (40.49)	1.484 (37.69)	1.149 (29.18)	1.641 (41.68)
24	.150 (3.81)	1.750 (44.45)	.790 (20.07)	2.453 (62.31)	1.750 (44.45)	1.641 (41.68)	1.610 (40.89)	1.274 (32.36)	1.703 (43.26)

LBF, LE, and LP are connector overall lengths.



A

Circular

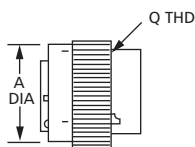


A

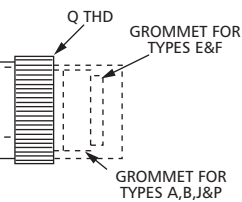
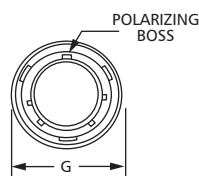
Circular

Right Angle Plugs

KPT08/KPSE08



KPT08



KPSE08

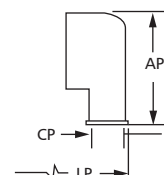
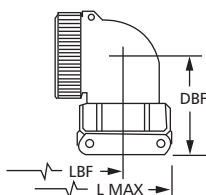
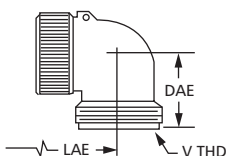
Shell Size	KPT/KPSE		Q Thread Class 2A
	A Dia. Max.	G Max.	
†8	.765 (19.43)	.782 (19.86)	7/16-28UNEF
10	.866 (22.00)	.926 (23.52)	9/16-24UNEF
12	1.031 (26.20)	1.043 (26.49)	11/16-24UNEF
14	1.157 (29.40)	1.183 (30.05)	13/16-20UNEF
16	1.291 (32.80)	1.305 (33.15)	15/16-20UNEF
18	1.394 (35.40)	1.391 (35.33)	1-1/16-18UNEF
20	1.535 (39.00)	1.531 (38.89)	1-3/16-18UNEF
22	1.657 (42.10)	1.656 (42.06)	1-5/16-18UNEF
24	1.780 (45.20)	1.777 (45.14)	1-7/16-18UNEF

† Not available in KPSE

NOTE: for size 10 and 24 consult factory for availability in type A,B,E and F.

For size 8 consult factory for availability in Type P.

Right Angle Plugs with Termination Assemblies



Shell Size	TYPE A and E			TYPE B and F			AP Max.	TYPE P	
	LAE	DAE Max.	V Thread Max.	DBF Class 2A	LBF Max.	L Max.		LP Max.	CP Min.
Max.									
†8	1.421 (36.09)	.822 (20.88)	1/2-28UNEF	1.238 (31.44)	1.421 (36.09)	1.842 (46.79)	-(-)	-(-)	-(-)
10	1.484 (37.69)	.853 (21.67)	5/8-28UNEF	1.269 (32.24)	1.484 (37.69)	1.937 (49.20)	1.030 (26.16)	1.380 (35.05)	.252 (6.40)
12	1.546 (39.27)	.916 (23.27)	3/4-20UNEF	1.395 (35.43)	1.546 (39.27)	2.091 (53.10)	1.030 (26.16)	1.567 (39.80)	.252 (6.40)
14	1.577 (40.05)	.978 (24.84)	7/8-20UNEF	1.519 (38.58)	1.577 (40.05)	2.173 (55.20)	1.030 (26.16)	1.567 (39.80)	.283 (7.19)
16	1.609 (40.87)	1.041 (26.44)	1-20UNEF	1.582 (40.18)	1.609 (40.87)	2.238 (56.85)	1.280 (32.51)	1.567 (39.80)	.355 (9.02)
18	1.734 (44.04)	1.103 (28.70)	1-3/16-18UNEF	1.644 (41.76)	1.734 (44.04)	2.455 (62.35)	1.280 (32.51)	1.755 (44.58)	.530 (13.46)
20	1.879 (47.73)	1.166 (29.62)	1-3/16-18UNEF	1.707 (43.36)	1.879 (47.73)	2.629 (66.78)	1.530 (38.86)	1.782 (45.26)	.562 (14.27)
22	2.035 (51.69)	1.245 (31.62)	1-7/16-18UNEF	1.884 (47.85)	2.035 (51.69)	2.815 (71.51)	1.530 (38.86)	1.782 (45.26)	.562 (14.27)
24	2.035 (51.69)	1.322 (33.58)	1-7/16-18UNEF	1.963 (49.86)	2.035 (51.69)	2.902 (73.70)	1.780 (45.21)	2.087 (53.01)	.610 (15.49)

† Not available in KPSE.

NOTE: For size 10 and 24 consult factory for availability in type A,B,E and F. For size 8 consult factory for availability in Type P.



A

Circular

KPSE High performance crimp contact connectors

How to order acc. to VG 95328

VG 95328

A

18

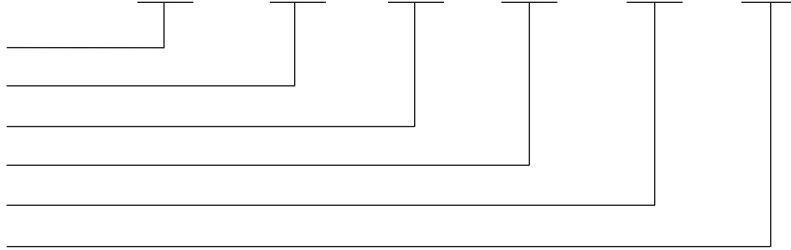
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1

S

N

SPECIFICATION
SHELL STYLE
SHELL SIZE
CONTACT ARRANGEMENT
CONTACT TYPE
ALTERNATE INSERT POSITION



SPECIFICATION

SHELL STYLE

- A -wall mounting receptacle with straight endbell
- B -wall mounting receptacle with cable clamp
- C -box mounting receptacle
- D -jam nut receptacle
- E -jam nut receptacle with cable clamp
- J -straight plug with adapter DN
- K -straight plug with cable clamp
- M -straight plug, version DZ
- N -straight plug
- S -jam nut receptacle with adapter DN
- T -jam nut receptacle, version DZ

SHELL SIZES

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

CONTACT ARRANGEMENTS

see page A-41

CONTACT TYPE

- P -Pin
- S -Socket

ALTERNATE INSERT POSITION

see page A-42

How to Order – KPTB Thru-Bulkhead Receptacle Connectors

- General Purpose
- Double ended pin and socket contacts
- Contains KPT socket insert
- Nonremovable contacts



KPTB connectors are a series of general purpose, miniature circular connectors, qualified for use in military applications. They are also widely used in industrial applications. The KPTB in a thru-bulkhead version with double faced pin and socket insert construction allowing mating from both ends. They contain

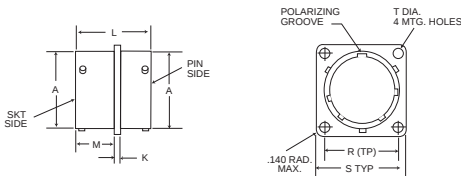
KPT socket inserts with feed-thru (pin/socket) non-removable contacts. The thru-bulkhead receptacle is provided for applications requiring the disconnection of a power source from either side of a panel. A typical connector to be used if air leakage requirements are critical.

SERIES PREFIX KPTB
SHELL SIZE 22
CONTACT ARRANGEMENT 55
CONTACT STYLE (pin & socket) PS
ALTERNATE INSERT POSITION Y

MIL-C-26482 PREFIX MS3119
CLASS E
SHELL SIZE 22
CONTACT ARRANGEMENT 55
ALTERNATE INSERT POSITION Y

MS3119 (MS service class E)

KPTB (MS service class E)



*(T.P.) located within .010 T.P. with respect to the diameter A and master keyway.

Shell Size	A Dia.	K	L	M		S	T
				+.031 (+.79)	R* (TP)		
8	.471 (11.96)	.062 (1.57)	1.125 (28.58)	.562 (14.27)	.594 (15.09)	7/16-28UNEF	.120 (3.05)
10	.588 (14.94)	.062 (1.57)	1.125 (28.58)	.562 (14.27)	.719 (18.26)	9/16-24UNEF	.120 (3.05)
12	.748 (19.00)	.062 (1.57)	1.125 (28.58)	.562 (14.27)	.812 (20.62)	11/16-24UNEF	.120 (3.05)
14	.873 (22.17)	.062 (1.57)	1.125 (28.58)	.562 (14.27)	.906 (23.01)	13/16-20UNEF	.120 (3.05)
16	.998 (25.35)	.062 (1.57)	1.125 (28.58)	.562 (14.27)	.969 (24.61)	15/16-20UNEF	.120 (3.05)
18	1.123 (28.52)	.062 (1.57)	1.125 (28.58)	.562 (14.27)	1.062 (26.97)	1-1/16-18UNEF	.120 (3.05)
20	1.248 (31.70)	.094 (2.39)	1.406 (35.71)	.688 (17.48)	1.156 (29.36)	1-3/16-18UNEF	.120 (3.05)
22	1.373 (34.87)	.094 (2.39)	1.406 (35.71)	.688 (17.48)	1.250 (31.76)	1-5/16-18UNEF	.120 (3.05)
24	1.498 (38.05)	.094 (2.39)	1.406 (35.71)	.688 (17.48)	1.375 (34.92)	1-7/16-18UNEF	.147 (3.73)

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

www.ittcannon.com



A

Circular

Dummy Receptacles

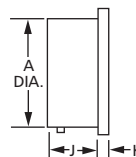
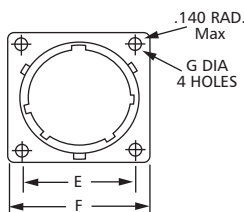
How To Order **KPT 15 - 12A •**

SERIES PREFIX ——— **KPT**

DUMMY RECEPTACLE INDICATOR ——— **15**

SHELL SIZE ——— **12A**

MODIFICATIONS ——— **•**



NOTE: For MS Version and additional finishes see PV catalog

SERIES PREFIX
KPT - ITT Cannon Prefix

SHELL SIZE
8 THRU 24

MODIFICATIONS
None-Olive drab chromate over cadmium

Shell Size	A ±.003 (.08)	E Basic	F Max.	G ±.005 (.13)	J +.031 (.79) -.000 (.00)	K ±.016 (.41)
8	.471 (11.96)	.594 (15.09)	.828 (21.03)	.120 (3.05)	.462 (11.73)	.062 (1.57)
10	.588 (14.94)	.719 (18.26)	.954 (24.23)	.120 (3.05)	.462 (11.73)	.062 (1.57)
12	.748 (19.00)	.812 (20.62)	1.047 (26.60)	.120 (3.05)	.462 (11.73)	.062 (1.57)
14	.873 (22.17)	.906 (23.01)	1.141 (28.98)	.120 (3.05)	.462 (11.73)	.062 (1.57)
16	.998 (25.35)	.969 (24.61)	1.234 (31.34)	.120 (3.05)	.462 (11.73)	.062 (1.57)
18	1.123 (28.52)	1.061 (26.97)	1.328 (33.73)	.120 (3.05)	.462 (11.73)	.062 (1.57)
20	1.248 (31.70)	1.156 (29.36)	1.453 (36.91)	.120 (3.05)	.556 (14.12)	.094 (2.39)
22	1.373 (34.87)	1.250 (31.75)	1.578 (40.08)	.120 (3.05)	.556 (14.12)	.094 (2.39)
24	1.498 (38.05)	1.375 (34.93)	1.703 (43.26)	.147 (3.73)	.589 (14.96)	.094 (2.39)

Protective Caps

How To Order **KPT 80 12 C •**

SERIES PREFIX ——— **KPT**

TYPE ——— **80**

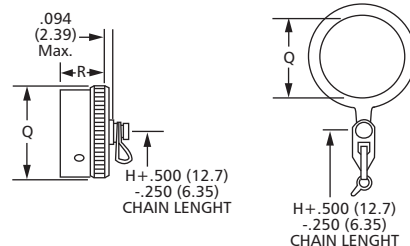
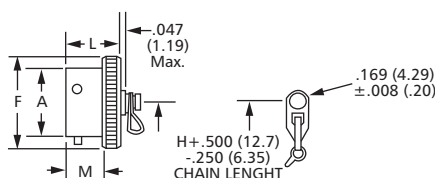
SHELL SIZE ——— **12**

TERMINATION STYLE ——— **C**

MODIFICATIONS ——— **•**

80 - Cap for plugs

81 - Cap for receptacle



SERIES PREFIX
KPT - ITT Cannon Prefix

TYPE
80 - Plug Cap
81 - Receptacle Cap

SHELL SIZE
8 THRU 24

TERMINATION STYLE
C - Sash Chain
N - Sash Chain with Ring

NOTE: F or MS version and additional finishes see PV catalog.

Shell Size	A ±.003 (.08)	F Max.	H	L Max.	M +.031 (.79) -.000 (.00)	N Min.	Q Max.	R Max
8	.471 (11.96)	.719 (18.26)	3.000 (76.20)	.562 (14.27)	.368 (9.35)	.578 (14.68)	.734 (18.64)	.562 (14.27)
10	.588 (14.94)	.844 (21.44)	3.000 (76.20)	.562 (14.27)	.368 (9.35)	.703 (17.86)	.859 (21.82)	.562 (14.27)
12	.748 (19.00)	1.000 (25.40)	3.500 (88.90)	.562 (14.27)	.368 (9.35)	.891 (22.63)	1.000 (25.40)	.562 (14.27)
14	.873 (22.17)	1.125 (28.58)	3.500 (88.90)	.562 (14.27)	.368 (9.35)	1.016 (25.81)	1.025 (28.58)	.562 (14.27)
16	.998 (25.35)	1.250 (31.75)	3.500 (88.90)	.562 (14.27)	.368 (9.35)	1.141 (28.98)	1.250 (31.75)	.562 (14.27)
18	1.123 (28.52)	1.375 (34.93)	3.500 (88.90)	.562 (14.27)	.368 (9.35)	1.266 (32.16)	1.375 (34.93)	.562 (14.27)
20	1.248 (31.70)	1.500 (38.10)	4.000 (101.60)	.625 (15.88)	.430 (10.92)	1.391 (35.33)	1.500 (38.10)	.562 (14.27)
22	1.373 (34.87)	1.625 (41.26)	4.000 (101.60)	.625 (15.88)	.430 (10.92)	1.516 (38.51)	1.625 (41.26)	.562 (14.27)
24	1.498 (38.05)	1.750 (44.45)	4.000 (101.60)	.658 (16.71)	.463 (11.76)	1.641 (41.68)	1.750 (44.45)	.602 (15.29)

MATERIALS and FINISHES

	KPT
Protective Cap	aluminum alloy, olive drab finish per QQ-P-416
Sash Chain	stainless steel
Ring/Rivet	stainless steel
Gasket	polychloroprene



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

www.ittcannon.com

Receptacles with Printed Circuit Board Contacts



A

Circular

How to order	KPT	2	E	22	-	36	P	W	•
SERIES PREFIX									
SHELL STYLE									
CLASS									
SHELL SIZE									
CONTACT ARRANGEMENT									
CONTACT TYPE									
ALTERNATE INSERT POSITION									
MODIFICATION CODE									

SERIES PREFIX

KPT -ITT Cannon designation

SHELL STYLE

ITT Cannon designation
2 -box mounting receptacle (class E only)
7 -jam nut receptacle

CLASS

A -general duty (shell type 7 only)
E - shell type 2 only

SHELL SIZES

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

CONTACT ARRANGEMENTS

see page A-41

CONTACT TYPE

P -Pin
S -Socket

ALTERNATE INSERT POSITION

W, X, and Z (omit for normal position)

MODIFICATION CODE (see following page for description)

DV - KPT2 with PC tail contacts
.025 ± .001 dia. size 20
.040 ± .001 dia. size 16
EX - KPT2/ KPT7 with PC tail contacts
.76 mm dia. size 16 and size 20
EW - KPT2/ KPT7 with PC tail contacts
.6mm dia. size 16 and size 20

Note: Consult factory for custom PC Tail configurations



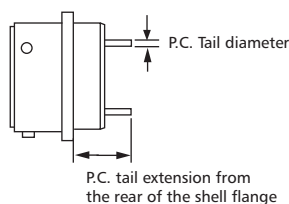
A

Circular

KPT Connectors with P.C. Tail Contacts



KPT2E-PDV



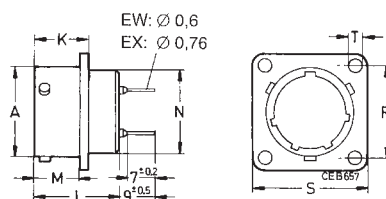
P.C. contacts to extend .600" $\pm$.032" from rear of shell flange.

Contact Size

20	.025 $\pm$.001 Diameter
16	.040 $\pm$.001 Diameter

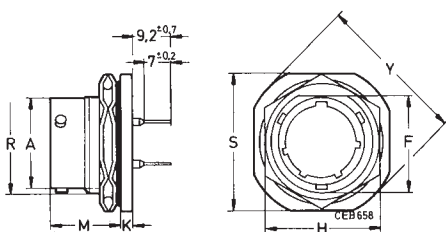
Contact factory for additional requirements.

Box Mounting Receptacle – KPT2 EW/EX



Shell Size	A +0,03 -0,13	K +0,25	L max.	M $\pm 0,15$	N max.	R $\pm 0,15$	S max.	Ø T $\pm 0,15$
8	12,00	13,50	21,1	11,60	11,10	15,10	21,00	3,05
10	15,00	13,50	21,1	11,60	14,30	18,30	24,20	3,05
12	19,05	13,50	21,1	11,60	17,50	20,60	26,60	3,05
14	22,23	13,50	21,1	11,60	20,60	23,00	29,00	3,05
16	25,40	13,50	21,1	11,60	23,80	24,60	31,30	3,05
18	28,58	13,50	21,1	11,60	27,00	27,00	33,70	3,05
20	31,75	16,50	22,7	14,25	30,20	29,40	36,90	3,05
22	34,93	16,50	22,7	14,25	33,40	31,70	40,10	3,05
24	38,10	17,30	22,7	15,10	36,50	34,90	43,30	3,75

Jam Nut Receptacle – KPT7 EW/EX



Shell Size*	A +0,03 -0,13	F +0,15	H $\pm 0,15$	K $\pm 0,25$	M $\pm 0,15$	R Thread Type 2 A	S $\pm 0,5$	Panel Thickness min.	Y max.
8	12,00	13,3	19,0	3,2	17,7	9/16-24UNEF	2,40	1,6	28,0
10	15,00	16,5	22,2	3,2	17,7	11/16-24UNEF	2,70	1,6	31,0
12	19,05	20,6	27,0	3,2	17,7	7/8-20UNEF	3,20	1,6	36,0
14	22,23	23,8	30,2	3,2	17,7	1-20UNEF	3,50	1,6	39,0
16	25,40	26,9	33,3	3,2	17,7	1-1/8-18UNEF	3,85	1,6	42,0
18	28,58	30,1	36,5	3,2	17,7	1-1/4-18UNEF	4,15	1,6	45,0
20	31,75	33,3	39,7	4,0	22,5	1-3/8-18UNEF	4,60	1,6	50,0
22	34,93	36,5	42,9	4,0	22,5	1-1/2-18UNEF	4,95	1,6	55,0
24	38,10	39,6	46,0	4,0	23,3	1-5/8-18UNEF	5,25	1,6	57,0

Special Versions with Grounding Continuity

These connectors are designed for ensuring continuity.

- At the cable shielding level (to protect it against radio frequency interferences)
- At the grounding level (if it is connected to the shielding)

The plugs are manufactured with grounding fingers soldered to the front face of the shell. They make contact with the inner side of the receptacle shell.

Plug and receptacle feature a special endbell which supports the cable shielding. The connectors are in accordance with the VG 95328 specification.

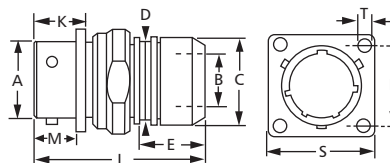


A

Circular

Receptacle with Grounding Continuity (for shielded cable)

KPT/KPSE 0E...DZ



Shell Size	A +.003-0.13	B Min.	C +0.5	D Max.	E 1.00	K ±0.25	L Max.	M ±0.15	R ±0.15	S Max.	øT ±0.15
†8	.472 (12.00)	.360 (6.6)	.630 (16.0)	.524 (13.3)	.590 (15.0)	.531 (13.5)	2.047 (52.0)	.457 (11.6)	.594 (15.1)	.827 (21.0)	.120 (3.05)
10	.590 (15.00)	.362 (9.2)	.709 (18.0)	.634 (16.1)	.590 (15.0)	.531 (13.5)	2.047 (52.0)	.457 (11.6)	.720 (18.3)	.953 (24.2)	.120 (3.05)
12	.750 (19.05)	.480 (12.2)	.866 (22.0)	.787 (20.0)	.669 (17.0)	.531 (13.5)	2.440 (62.0)	.457 (11.6)	.811 (20.6)	1.047 (26.6)	.120 (3.05)
14	.875 (22.23)	.598 (15.2)	.984 (25.0)	.874 (22.2)	.709 (18.0)	.531 (13.5)	2.440 (62.0)	.457 (11.6)	.905 (23.0)	1.142 (29.0)	.120 (3.05)
16	1.00 (25.40)	.720 (18.3)	1.102 (28.0)	1.031 (26.2)	.709 (18.0)	.531 (13.5)	2.440 (62.0)	.457 (11.6)	.968 (24.6)	1.232 (31.3)	.120 (3.05)
18	1.125 (28.58)	.787 (20.0)	1.259 (32.0)	1.122 (28.5)	.709 (18.0)	.531 (13.5)	2.440 (62.0)	.457 (11.6)	1.063 (27.0)	1.327 (33.7)	.120 (3.05)
20	1.25 (31.75)	.905 (23.0)	1.338 (34.0)	1.280 (32.5)	.709 (18.0)	.650 (16.5)	2.440 (62.0)	.561 (14.25)	1.157 (29.4)	1.453 (36.9)	.120 (3.05)
22	1.375 (34.93)	1.023 (26.0)	1.50 (38.0)	1.370 (34.8)	.709 (18.0)	.650 (16.5)	2.440 (62.0)	.561 (14.25)	1.248 (31.7)	1.579 (40.1)	.120 (3.05)
24	1.50 (38.10)	1.134 (28.8)	1.614 (41.0)	1.492 (37.9)	.709 (18.0)	.681 (17.3)	2.440 (62.0)	.594 (15.1)	1.374 (34.9)	1.705 (43.3)	.148 (3.75)

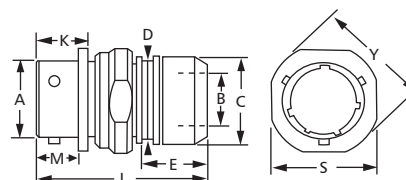
† In series KPSE only contact arrangements 8-3A and 8-33 available



Cable Connecting Plug with Grounding Continuity (for shielding cable)

KPT/KPSE 1E...DZ

Circular

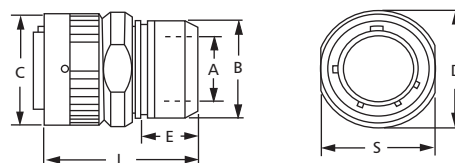


Shell Size	A +.003-0.13	B Min.	C +0.50	D Max.	E ±1.0	K ±0.25	L Max.	M ±0.15	S Max.	øY Max.
†8	.472 (12.00)	.360 (6.6)	.630 (16.0)	.524 (13.3)	.590 (15.0)	.531 (13.5)	2.047 (52.0)	.457 (11.6)	.728 (18.5)	.827 (21.0)
10	.590 (15.00)	.362 (9.2)	.709 (18.0)	.634 (16.1)	.590 (15.0)	.531 (13.5)	2.047 (52.0)	.457 (11.6)	.905 (23.0)	.953 (24.2)
12	.750 (19.05)	.480 (12.2)	.866 (22.0)	.787 (20.0)	.669 (17.0)	.531 (13.5)	2.440 (62.0)	.457 (11.6)	1.142 (29.0)	1.047 (26.6)
14	.875 (22.23)	.598 (15.2)	.984 (25.0)	.874 (22.2)	.709 (18.0)	.531 (13.5)	2.440 (62.0)	.457 (11.6)	1.161 (29.5)	1.142 (29.0)
16	1.00 (25.40)	.720 (18.3)	1.102 (28.0)	1.031 (26.2)	.709 (18.0)	.531 (13.5)	2.440 (62.0)	.457 (11.6)	1.126 (32.0)	1.232 (31.3)
18	1.125 (28.58)	.787 (20.0)	1.259 (32.0)	1.122 (28.5)	.709 (18.0)	.531 (13.5)	2.440 (62.0)	.457 (11.6)	1.378 (35.0)	1.327 (33.7)
20	1.25 (31.75)	.905 (23.0)	1.338 (34.0)	1.280 (32.5)	.709 (18.0)	.650 (16.5)	2.440 (62.0)	.561 (14.25)	1.516 (38.5)	1.453 (36.9)
22	1.375 (34.93)	1.023 (26.0)	1.50 (38.0)	1.370 (34.8)	.709 (18.0)	.650 (16.5)	2.440 (62.0)	.561 (14.25)	1.653 (42.0)	1.579 (40.1)
24	1.50 (38.10)	1.134 (28.8)	1.614 (41.0)	1.492 (37.9)	.709 (18.0)	.681 (17.3)	2.440 (62.0)	.594 (15.1)	1.811 (46.0)	1.705 (43.3)

† In series KPSE only contact arrangements 8-3A and 8-33 available

Straight Plug with Grounding Continuity

KPT/KPSE 6E...DZ

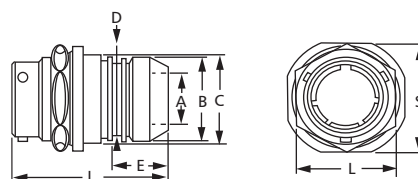


Shell Size	A Min.	B +0.50	C Max.	D Max.	E ±1.0	L Max.	S ±0.2
†8	.360 (6.6)	.630 (16.0)	.752 (19.1)	(20.0)	.590 (15.0)	1.890 (48.0)	.669 (17.0)
10	.362 (9.2)	.709 (18.0)	.866 (22.0)	(15.0)	.590 (15.0)	1.890 (48.0)	.748 (19.0)
12	.480 (12.2)	.866 (22.0)	1.031 (26.2)	(26.0)	.669 (17.0)	1.890 (48.0)	.905 (23.0)
14	.598 (15.2)	.984 (25.0)	1.157 (29.4)	(30.0)	.709 (18.0)	1.929 (49.0)	1.024 (26.0)
16	.720 (18.3)	1.102 (28.0)	1.291 (32.8)	(33.0)	.709 (18.0)	1.929 (49.0)	1.142 (29.0)
18	.787 (20.0)	1.260 (32.0)	1.394 (35.4)	(36.0)	.709 (18.0)	1.929 (49.0)	1.299 (33.0)
20	.905 (23.0)	1.340 (34.0)	1.535 (39.0)	(40.0)	.709 (18.0)	2.087 (53.0)	1.378 (35.0)
22	1.023 (26.0)	1.50 (38.0)	1.657 (42.1)	(43.0)	.709 (18.0)	2.087 (53.0)	1.535 (39.0)
24	1.133 (28.8)	1.614 (41.0)	1.779 (45.2)	(46.0)	.709 (18.0)	2.087 (53.0)	1.653 (42.0)

† In series KPSE only contact arrangements 8-3A and 8-33 available

Jam Nut Receptacle with Grounding Continuity (for shielded cable)

KPT/KPSE 7E...DZ

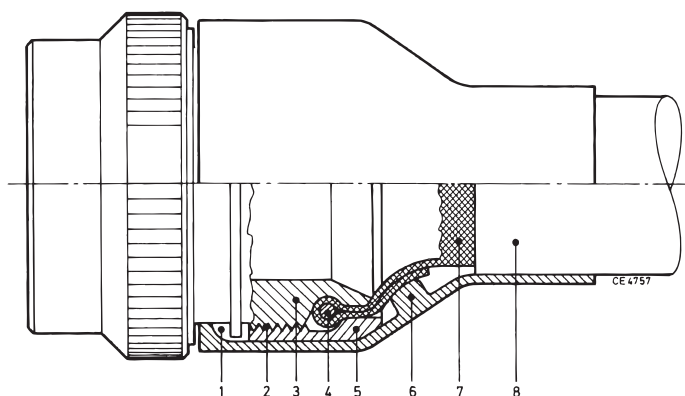


Shell Size	øA Min.	øB +0.5	øC Max.	D Max.	E 1.0	L Max.	S ±0.25	T ±0.25
†8	.360 (6.6)	.630 (16.0)	.716 (18.2)	.524 (13.3)	.590 (15.0)	1.850 (47.0)	.905 (23.0)	.748 (19.0)
10	.362 (9.2)	.709 (18.0)	.842 (21.4)	.634 (16.1)	.590 (15.0)	1.850 (47.0)	1.063 (27.0)	.874 (22.2)
12	.480 (12.2)	.866 (22.0)	.968 (24.6)	.787 (20.0)	.669 (17.0)	1.929 (49.0)	1.248 (31.7)	1.063 (27.0)
14	.598 (15.2)	.984 (25.0)	1.094 (27.8)	.874 (22.2)	.709 (18.0)	1.968 (50.0)	1.374 (34.9)	1.089 (30.2)
16	.720 (18.3)	1.102 (28.0)	1.216 (30.9)	1.031 (26.2)	.709 (18.0)	1.968 (50.0)	1.50 (38.1)	1.311 (33.3)
18	.787 (20.0)	1.260 (32.0)	1.342 (34.1)	1.222 (28.5)	.709 (18.0)	1.968 (50.0)	1.626 (41.3)	1.437 (36.5)
20	.905 (23.0)	1.340 (34.0)	1.50 (38.1)	1.279 (32.5)	.709 (18.0)	2.165 (55.0)	1.811 (46.0)	1.563 (39.7)
22	1.023 (26.0)	1.50 (38.0)	1.626 (41.3)	1.370 (34.8)	.709 (18.0)	2.165 (55.0)	1.937 (49.2)	1.689 (42.9)
24	1.133 (28.8)	1.614 (41.0)	1.748 (44.4)	1.492 (37.9)	.709 (18.0)	2.165 (55.0)	2.059 (52.3)	1.811 (46.0)

† In series KPSE only contact arrangements 8-3A and 8-33 available

Wiring Instructions

KPT/KPSE ...DZ



Fixing of shielding braid to connectors with
DZ-adapter

- Loosen lock nut (5). Slide heat shrink component (6) and lock nut (5) over cable.
- Push shielding braid (7) onto endbell (3) and over thread (2).
- Fasten shielding braid (7) into rounded groove by means of bailing wire
- Fold back protruding shielding braid on cone.
- Slide lock nut (5) onto endbell (3). The folded back shielding braid protrudes under the tightened lock nut.
- Shrink heat shrink component (6) according to manufacturer's instructions. (End of heat shrink component to be located in square groove (1)).

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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A

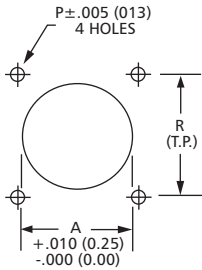
Circular



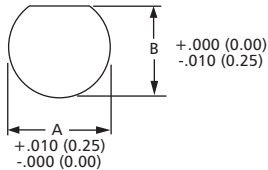
Circular

A

Box and Wall Mounting Receptacle



Jam Nut Receptacle



Panel Cutouts

Shell Size	FLANGE (FRONT MOUNTING) KPT/KPSE		MOUNTING HOLE DIA.	
	A Dia.	R	KPT/KPSE P ± .005	Screw
†8	.618 (15.70)	.594 (15.09)	.125 (3.17)	#4
10	.735 (16.67)	.719 (18.26)	.125 (3.17)	#4
12	.859 (21.82)	.812 (20.62)	.125 (3.17)	#4
14	.985 (25.02)	.906 (23.01)	.125 (3.17)	#4
16	1.113 (28.27)	.969 (24.61)	.125 (3.17)	#4
18	1.235 (31.37)	1.062 (26.97)	.125 (3.17)	#4
20	1.361 (34.57)	1.156 (29.36)	.125 (3.17)	#4
22	1.485 (37.72)	1.250 (31.75)	.125 (3.17)	#4
24	1.611 (40.92)	1.375 (34.92)	.155 (3.94)	#6

† Not available in KPSE connectors.

Shell Size	KPT/KPSE	
	A	B
†8	.578 (14.68)	.540 (13.72)
10	.703 (17.86)	.665 (16.89)
12	.890 (22.61)	.828 (21.02)
14	1.015 (25.78)	.952 (24.18)
16	1.140 (28.96)	1.076 (27.33)
18	1.265 (32.13)	1.201 (30.51)
20	1.390 (35.31)	1.326 (33.68)
22	1.515 (38.48)	1.451 (36.86)
24	1.640 (41.66)	1.576 (40.03)

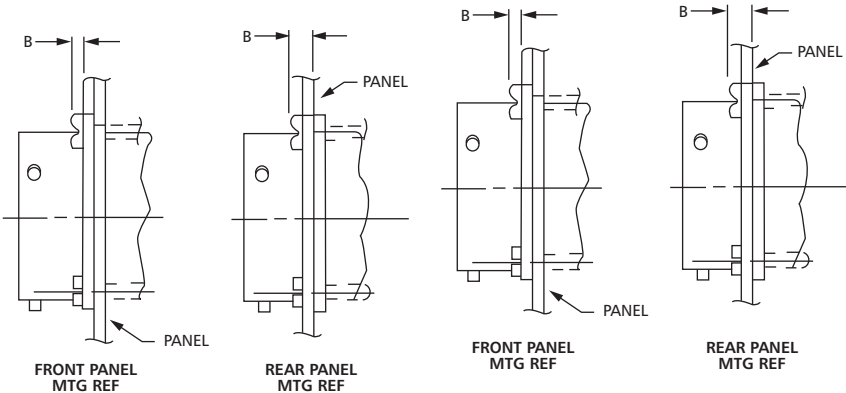
† Not available in KPSE connectors.

Panel Thickness

Maximum panel thickness dimensions allowable to ensure complete connector operation for the the Wall Mounting Receptacle, Box Mounting Receptacle, and Thru-Bulkhead Receptacle.

Wall Mounting and Box Mounting Receptacle

Thru-Bulkhead Receptacle



Size	B Max.
8	.087 (2.21)
10	
12	
14	
16	
20	
22	.212 (5.38)
24	

Size	B Max. panel and screw head
8	.218 (5.54)
10	
12	
14	
16	.334 (8.74)
18	
20	.311 (7.90)
22	
24	



A

Circular

MIL-C-26482 Specifications

The following excerpts are some of the parameter requirements of the MIL-C-26482 specification.

Test Description	Paragraph Reference	Requirements
Contact Retention	4.6.32.1	After preloading to 3 pounds maximum, the force shall be applied at a rate of approximately 1 pound per second and maintained at full load for 5-10 seconds.. No damage to contacts or insert shall result nor shall the contacts be dislocated from their normal position in the connector more that 0.012 inch under giveload for KPSE and within 1 minute after the load is removed for KPT.
		Contact Size 20 16 12
		Load in Pounds Min. 15 25 25
		Load in KG Min. 6.8 11.3 11.3
Contact Insertion/Extraction (KPSE only) Coupling Torque	4.6.11	When using the proper insertion and extraction tools the forces required to insert or extract the contact shall not exceed 20 Lbs. Connectors shall be less endbell.
	4.6.3	For qualification testing, mating halves shall be coupled and uncoupled, measuring the torques necessary. The torques required to couple and uncouple mating connectors halves shall fall within the limits specified as follows:
		Torque in lb (NM) Torque in lb. (NM)
		Shell Size Max Min. Shell Size Max Min
		8 8 (.90) 1 (.11) 18 28 (3.16) 4 (.45)
		10 12 (1.36) 1 (.11) 20 32 (3.62) 6 (.68)
		12 16 (1.81) 2 (.23) 22 36 (4.07) 7 (.79)
		14 20 (2.26) 4 (.45) 24 44 (4.97) 7 (.79)
		16 24 (2.71) 4 (.45)
Durability	4.6.17	Connector halves shall be mated and unmated 500 times at a rate of 200 ± 100 cycles per hour. The test may be performed by hand or by mechanical means, but the coupling ring shall be operated as in normal service. Failure to complete this test because of mechanical malfunction shall be cause for rejection.
Insert Retention	4.6.29	Connectors with the endbells and grommets (if possible) removed shall be subjected to a 75 psi load on the insulator in both directions. The load shall be applied at a rate of 10lb/sec. and held for 5 to 10 secs. Insulators shall not be dislodged from their original position.
Insulation Resistance	4.6.7.1	On unmated connectors at 25°C ±3°C a potential of 500 VDC ±10% shall be applied between all, but not more than 6, pairs of adjacent contacts and between all, but not more than 6, contacts and the shell. Failure to meet a minimum requirement of 5,000 megohms shall be cause for rejection.
Vibration	4.6.21	Wired, mated connectors shall be subjected to the vibration test of MIL-STD-1344, Method 205, Test Condition II. Receptacles shall be mounted on the vibration fixture by normal means. All contacts shall be wired in a series circuit and 100 max. mil-liamperes of current shall be allowed to flow through the series circuit during vibration. Suitable means shall be employed to monitor the current flow and to indicate any discontinuity of more than 10 microseconds. The wire bundle shall be clamped to nonvibrating points at least 8 inches from the rear of the connector. Current discontinuity of 10 microsecond or more, dis-engagement of the mated connectors, evidence of cracking, breaking, or loosening of parts shall be cause for rejection.
Shock	4.6.23	Wired, mated connectors shall be subject to one shock in each direction in each of three mutually perpendicular axes. The pulse shall be approximate half sine wave of 50g±15% magnitude with a duration of 11 ± 1 milliseconds. Receptacles shall be mounted on a shock fixture by normal means. All contacts shall be wired in a series circuit and 90-110 ma. of current shall flow through the series circuit during shock. Suitable means shall be employed to monitor the current flow and to indi-cate any discontinuity of more than 10 microseconds. Current discontinuity of 10 microseconds or more, disengagement of the mated connectors, evidence of cracking, breaking, or loosening of parts shall be cause for rejection.
Thermal Shock	4.6.12	Wired, unmated plug and receptacle shall be subjected to 5 cycles of hot and cold temperatures. Maximum temperature shall be +125°C and the minimum shall be -55°C. The temperature extreme shall be 1/2 hour minimum. Cracking, breaking or loosening of parts shall be cause for rejection.
Humidity	4.6.25	The connectors shall be subjected to varying humidity, 50% to 95%, conditions for a period of 10 days KRSE or 20 days KPT. The insulation resistance shall not be less than 100 megohms.
Air Leakage (KPT Only)	4.6.15.1	A 30 psi pressure differential shall be applied across the connector for 30 minutes. The leak rate, in either direction, shall be no greater than 1 atmosphere cubic inch per hour (4,55 X 10 ⁻³ cm ³ /S) at -67°F (-55°C).
Salt Spray (Corrosion)	4.6.19	Unmated and wired connectors shall be subject to a salt fog for 48 hours. These shall be no exposure of base metal, the con- nector shall be functional and meet the contact resistance requirement.
Fluid Immersion	4.6.27	At least one connector, unmated and wired, shall he immersed in each fluid for a period of 20 hours then dried for an hour. Connectors shall be able to make and meet the coupling torque requirements. a) Hydraulic Fluid per MIL-H-5606, b) Lubricating Oil per MIL-L-7808



A

Circular

Tooling Crimp

M22520/1-01 CRIMP TOOL
M22520/01-02 Turret



CBT-520/530

Tooling Insertion/Extraction



KPSE Insertion



KPSE Extraction

Contact Size	
20	MS24256A20
16	MS24256A16

Contact Size	
20	MS24256R20
16	MS24256R16

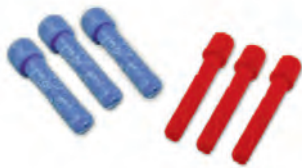
Contacts



#20

Contact Size/Type	Military Part Number	Color Bands			ITT Cannon Part Number
		1st	2nd	3rd	
20 Socket	M39029/32-259	Red	Green	White	980-0008-992
20 Pin	M39029/31-240	Red	Yellow	Black	030-9036-000
16 Socket	M39029/32-247	Red	Yellow	Violet	031-9095-003
16 Pin	M39029/31-228	Red	Red	Grey	030-9032-003

Wire Hole Fillers/Grommets Sealing Plugs



Contact Size	Part Number Cannon	Military	Color Code
20	225-1012-000	MS3187A20	Red
16	225-1011-000	MS3187-16	Blue

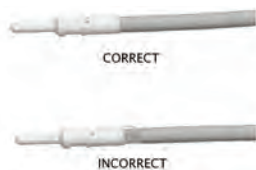
KPSE Assembly Instructions



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Circular

Contact Size	Wire Size AWG	mm ²	Strip Insulation	mm
20	#20-#24	.5 - .2	3/16"	4.76
16	#16-#20	1.3 - .5	1/4"	6.35

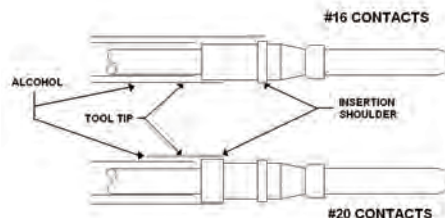
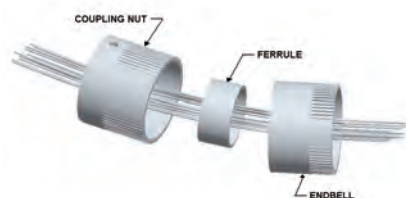


CRIMPING CONTACTS

1. Strip wires according to the table above taking care not to cut or nick strands.

2. Inserts stripped wire into contact crimp pot. Wire must be visible thru inspection hole.

3. Using correct tool and locator select proper crimp setting for wire size to be crimped; cycle the tool once to be sure the indentors are open. Insert contact and wire into locator. Squeeze tool handles firmly and completely to insure a proper crimp. The tool will not release unless the crimp indentors in the tool head have been fully actuated. Release crimped contact and wire from tool. Be certain the wire is visible thru inspection hole in contact. CAUTION: Check that none of the contacts are bent or damaged in any way after crimping.



CONTACT INSERTION

1. Remove hardware from plug and receptacle. Slide hardware over wire bundle in proper order for reassembly.

2. Use the proper contact insertion tool and slide the tool over the terminal end of the contact. The size 16 contact lies in the tool and the tool tip butts against the contact shoulder. The rear, or insulation support of the size 20 contact butts against an internal shoulder in the tool tip.
NOTE: Apply a small amount of isopropyl alcohol to the insertion tool tip while installing contacts.

3. Beginning from center cavity and working outwards in a circular pattern, insert wired contacts into rear of connector by hand until the front of the contact shoulder is no more than 1/8" from the grommet. Holding the connector horizontally, position tool behind contact. Push tool straight into contact cavity until contact snaps into position. A light pull on wire will assure that contact is locked securely. Repeat for remaining contacts.



Size	Torque in-lb (NM)
8, 10, 12 and 14	10-15 (1.23-1.69)
16 and 18	15-25 (1.69-2.82)
20, 22 and 24	25-35 (2.82-3.95)

4. Use contacts and grommet sealing plugs to fill any empty cavities.

COMPLETION

4. Check face of plug or receptacle for proper contact installation.

2. Using mating connector with contacts installed, mate both connector halves together.

3. Assemble Ferrule over the grommet by hand as far as possible.

4. Assemble endbell over ferrule and loosely tighten endbell. Partially loosen (1/4 turn) and retighten to recommended torque limits.



CONTACT EXTRACTION

1. Slide hardware back over wire bundle. Using proper extraction tool or extraction end of proper insertion/extraction tool, proceed as follows:

KPSE: There are two lines on the clip sleeve which are vital to the removal process. The first index line is used for removing pin contacts while the second index line is for removing socket contacts.

Carefully place the tool tip over the contact to be extracted until the tool tip touches the insulator face. Carefully rotate the tool until the index line is slightly below the insulator face. Keep an even pressure against the tool body; push plunger forward with thumb and index finger, and push the contact out through the clip. Carefully remove extraction tool from connector. Pull wire by hand to complete the removal of the contact.



A

Circular

How to Order - Special Termination Connectors



KPT	03	-	18	-	32	P	W
KPT	04	-	18	-	32	P	W
KPT	05	-	18	-	32	P	W
KPSE	03	-	18	-	32	P	W
KPSE	04	-	18	-	32	P	W
KPSE	05	-	18	-	32	P	W

PREFIX _____
SHELL STYLE _____
DASH (No Class required, less
rear termination) _____
SHELL SIZE _____
CONTACT ARRANGEMENT _____
CONTACT TYPE _____
P - PIN
S - Socket
ALTERNATE INSERT POSITION _____

Contact ITT Cannon for additional Information

Solder Type KPT03/04/05 - Supplied less endball, ferrule and grommet.

KPT03



KPT04



KPT05



Crimp Type KPSE03/04/05 - Supplied less endball, ferrule.

KPSE03



KPSE04



KPSE05



Twist Pull Lanyard Release Coupler Plug

KPT06/KPSE06



KPT	6	A	22	-	55	P	W	16
KPSE	6	E	22	-	55	S	Z	16

PREFIX _____
SHELL STYLE _____
SERVICE TYPE _____
SHELL SIZE _____
CONTACT ARRANGEMENT _____
CONTACT TYPE _____
POLARIZATION _____
MODIFICATION CODE* _____

*Omit (0) of shell style indication when using this modification code.
16 = Overall length of connector including lanyard to be 6.0 (152.40) ± .125 (3.18) when measured
over a 1.0 (25.40) ± .005 (0.13) diameter mandrel.



A

Circular

Cross Reference List KPT/MIL-C-26482, VG 95328

Part No. ITT Cannon	Part No. MIL-26482	Part No. VG 95328
KPT00B*_*_*_*		
KPT00B*_*_*_*		
KPT00E*_*_*_*	MS3110E*_*_*_*	
KPT00F*_*_*_*	MS3110F*_*_*_*	
KPT00G*_*_*_*		
KPT00J*_*_*_*	MS3110J*_*_*_*	
KPT00P*_*_*_*	MS3110P*_*_*_*	
KPT0E*_*_*_*DN		
KPT0E*_*_*_*DZ		
KPT01A*_*_*_*		
KPT01B*_*_*_*		
KPT01E*_*_*_*	MS3111E*_*_*_*	
KPT01F*_*_*_*	MS3111F*_*_*_*	
KPT01G*_*_*_*		
KPT01J*_*_*_*	MS3111J*_*_*_*	
KPT01P*_*_*_*	MS3111P*_*_*_*	
KPT1E*_*_*_*DN		
KPT06A*_*_*_*		
KPT06B*_*_*_*		
KPT06E*_*_*_*	MS3116E*_*_*_*	
KPT06F*_*_*_*	MS3116F*_*_*_*	
KPT06G*_*_*_*		
KPT1E*_*_*_*DZ		
KPT06J*_*_*_*	MS3116J*_*_*_*	
KPT06P*_*_*_*	MS3116P*_*_*_*	
KPT6A*_*_*_*88		
KPT6E*_*_*_*DN		
KPT6E*_*_*_*DZ		
KPT02E*_*_*_*	MS3112E*_*_*_*	H*_*_*_*VG 95328
KPT07A*_*_*_*		
KPT07E*_*_*_*	MS3114E*_*_*_*	
KPT07F*_*_*_*	MS3114F*_*_*_*	
KPT08E*_*_*_*		
KPT08F*_*_*_*		
KPT08P*_*_*_*		
KPT7E*_*_*_*DN		
KPTB*_*_*_*	MS3119E*_*_*_*	

Cross Reference List List Protective Caps

Part No. ITT Cannon	Part No. MIL-26482	Part No. VG 95328
KPT80	MS 3180	
KPT80...C	MS 3180...C	Z 2...VG 95328
KPT81	MS 3181	
KPT81...C	MS 3181...C	Z 1...VG 95328
KPT81...N	MS 3181...N	

Cannon KPT/KPSE MIL-C-26482 Series I Connectors



A

Circular

Cross Reference List KPSE/MIL-C-26482, VG 95328

Part No. KPSE ITT Cannon	Part No. MIL-C-26482	Part No. VG 95328
KPSE00A*_*_*_*		
KPSE00B*_*_*_*		
KPSE00E*_*_*_*	MS3120E*_*_*_*	A*_*_*_*VG 95328
KPSE00F*_*_*_*	MS3120F*_*_*_*	B*_*_*_*VG 95328
KPSE0E*_*_*_*DZ		R*_*_*_*VG 95328
KPSE00J*_*_*_*		
KPSE00P*_*_*_*	MS3120P*_*_*_*	
KPSE0E*_*_*_*DN		
KPSE00G*_*_*_*		
KPSE01A*_*_*_*	25101RA*_*_*_*50	
KPSE01B*_*_*_*		
KPSE01E*_*_*_*	MS3121E*_*_*_*	
KPSE01F*_*_*_*	MS3121F*_*_*_*	
KPSE01G*_*_*_*		
KPSE01J*_*_*_*		
KPSE01P*_*_*_*	MS3121P*_*_*_*	
KPSE*_*_*_*DN		
KPSE02E*_*_*_*	MS3122E*_*_*_*	C*_*_*_*VG 95328
KPSE06A*_*_*_*		
KPSE06B*_*_*_*		
KPSE06E*_*_*_*	MS3126E*_*_*_*	
KPSE06F*_*_*_*	MS3126F*_*_*_*	K*_*_*_*VG 95328
KPSE06G*_*_*_*		
KPSE06J*_*_*_*		
KPSE06P*_*_*_*	MS3126P*_*_*_*	
KPSE6A*_*_*_*88		
KPSE6E*_*_*_*88		N*_*_*_*VG 95328
KPSE6E*_*_*_*DN		J*_*_*_*VG 95328
KPSE6E*_*_*_*DZ		M*_*_*_*VG 95328
KPSE07A*_*_*_*		
KPSE1E*_*_*_*DZ		
KPSE7E*_*_*_*DN		S*_*_*_*VG 95328
KPSE07E*_*_*_*	MS3124E*_*_*_*	D*_*_*_*VG 95328
KPSE07F*_*_*_*	MS3124F*_*_*_*	E*_*_*_*VG 95328
KPSE08E*_*_*_*		
KPSE08F*_*_*_*		
KPSE08P*_*_*_*		
KPSE7E*_*_*_*DZ		T*_*_*_*VG 95328

- Intermatable with MIL-C-26482 Series 1
- Operating temperature – 55 C to + 200 C

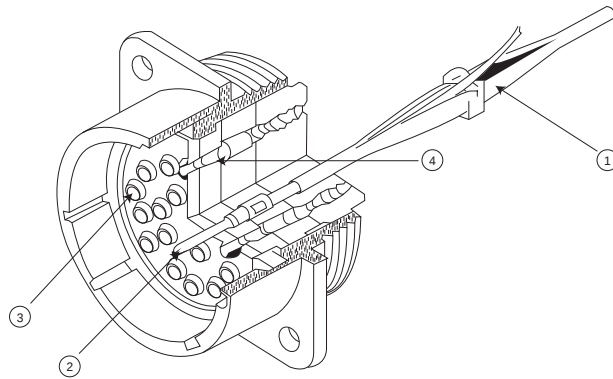
The PV Connector is designed to meet the rugged requirements of MIL-C-26482, Series 2/MIL-C-83723 Series I*, the specification which delineates the critical requirements of space-age applications. PV Connectors have been used extensively on major aerospace programs requiring general-purpose, miniature cylindrical bayonet coupling connectors such as Space Shuttle, Apollo, ATM, OWS Minuteman, Skylab, Thor-Delta, Titan IIIC and Viking.

The PV series is an important member of the Universal Interconnect System (UIS) – the only system that can perform all interconnection missions. This system is adaptable for use with connectors of all shapes and sizes, including circular and rectangular configurations, standard, miniature, and subminiature sizes. UIS is a rear servicing system that evolved from the LITTLE CAESAR® rear release contact retention assembly, pioneered and developed by ITT Cannon. Since this time, ITT Cannon, and its licensees, have supplied to industry over 250 million interconnections utilizing this system.

PV7 connectors are available under numerous industrial specifications, some of which are listed below:

- CS512089 Jet Propulsion Laboratory
- 40M39569 NASA, George C. Marshall Space Flight Center
- 81D52 Martin Marietta, Denver Division
- MG414-0365 Rockwell International Space Division
- AC414-0013 Rockwell International Autonetics Division
- STS0003 McDonnell Douglas Astronautics

This connector series is manufactured to accommodate the following backshells: M85049/31 (MS3416), M85049/51 (MS3418), and M85049/52 (MS3417). Backshells are not included with connector and must be ordered separately. Backshells on page A-67 are Non-MS type.



- 1. Universal Insertion / Extraction Tool Style** – A single, expendable plastic tool is used for insertion and extraction of both pins and sockets.
- 2. Simple, Strong Contact Design** – One basic configuration eliminates undercuts and maximizes bend resistance for positive contact mating.

Closed-Entry Socket Insert – Hard dielectric socket face of mating connector has lead-in chambers for positive alignment of pins and sockets.

- 3. Interfacial Pin Insert Seal** – Universal interconnect permits design of raised moisture barriers around each pin which mate into lead-in chambers of hard face sockets insert for individual contact sealing. Interfacial sealing is never touched by service tools.
- 4. Superior Contact Stability** – Rear Contact Release System (LITTLE CAESAR contact assembly) features a stamped metal retaining clip captivated by molded-in shoulders of each contact cavity in the insulator. A rear-inserted plastic tool expands at times beyond the contact shoulder, releasing the contact.

Polarized Backshells – Interlocking teeth on the front of the backshell and rear portion of the shell allow endbells to be positioned as desired, eliminating chafing of wire during assembly.

Military Specification Cross Reference

PV7 and MIL-C-26482 (Series 2) Replacement for		MS Standards	ITT Cannon Prefix Commercial Design	MIL-C-83723* Slash Sheet	Description	
MIL-C-26482 (Series 1)			MIL-C-26482	Socket	Pin	
MS3110, MS3120		MS3470	PV70	/1	/2	Narrow Flange Receptacle
MS3111, MS3121		MS3471	PV71	/7	/8	Cable Connecting Receptacle
MS3112, MS3122		MS3470	PV70	/1	/12	Narrow Flange Receptacle
MS3114, MS3124		MS3474	PV74	/5	/6	Jam Nut Receptacle
MS3116, MS3126		MS3476	PV76	/13	/14	Straight Plug
		MS3472	PV72	/3	/4	Wide Flange Receptacle
		MS3475	PV75	/43	/42	Straight Plug, RFI Shielded
NAS1599						
NAS 1650, NAS1699		MS3470		/1	/2	Narrow Flange Receptacle
NAS1651, NAS1700		MS3472		/3	/4	Wide Flange Receptacle
NAS1652, NAS1701		MS3474		/5	/6	Jam Nut Receptacle
NAS1653, NAS1702		MS3476		/13	/14	Straight Plug

* NOTE: M83723 series has been superseded by MIL-C-26482 Series 2



PV MIL-C-26482, Series 2 Connectors



Circular

Performance and Material Specifications

MATERIALS AND FINISHES

Description	Material	Finish
Shell	Aluminum alloy per QQ-A-367, QQ-A-591 or QQ-A-225	Electoless nickel per MIL-C-2674, anodized per MIL-A-8625 or olive drab cadmium over nickel
Insulators	Rigid dielectric	None
Elastometers (grommets, interfacial and O ring seals)	Silicone rubber (ITT Cannon blend) or Fluorosilicone rubber (ITT Cannon blend)	None
Contacts	Copper alloy	Gold plate per MIL-G-45204
Coupling Nut	Aluminum alloy per QQ-A-591	Electoless nickel per MIL-C-26074, anodized per MIL-A-8625 or olive drab cadmium over nickel
Jam Nut (on PV74)	Aluminum alloy per QQ-A-225	Electoless nickel per MIL-C-26074, anodized per MIL-A-8625 or olive drab cadmium over nickel

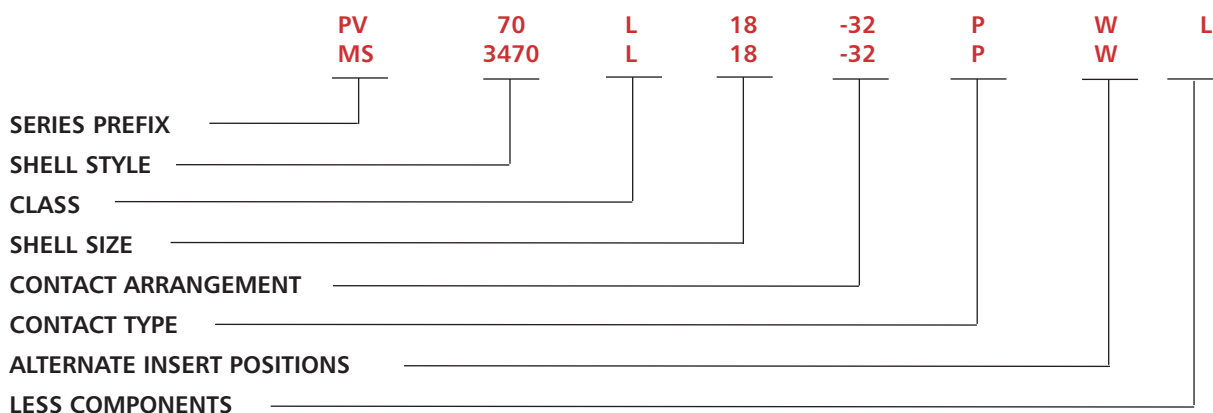
ELECTRICAL

Contact Size	Wire Size	Insulation O. D. Limits, Inch (mm)		Max. Current for Test (amps)	Potential Drop (Millivolts at 25° C)
Size	Size	min.	max.		
12	12	.097 (2.46)	.158 (4.01)	23	50
	14			17	45
16	16	.053 (1.53)	.103 (2.62)	13	50
	20			7.5	45
20	20	.040 (1.02)	.083 (2.11)	7.5	55
	24			3.0	45

Dielectric Withstanding Voltage (Test Voltage)

Service Rating	Sea Level	70,000 ft. Altitude	(25° C)
I	1500 Vac rms	375 Vac rms	5000 megohms minimum
II	2300 Vac rms	500 Vac rms	5000 megohms minimum

How to Order



SERIES PREFIX

MS - Complies with MIL-C-26482 Series 2
PV - ITT Cannon interchangeable with MIL-C-26482, Series 2

SHELL STYLE

Part No.	Military	Description
PV70	MS3470	Narrow Flange Receptacle
PV71	MS3471	Cable Connecting Receptacle
PV72	MS3472	Wide Flange Receptacle
PV74	MS3474	Jam Nut Receptacle
PV75	MS3475	Straight Plug, RFI Shielded
PV76	MS3476	Straight Plug

**Consult Factory for availability

CLASS

(PV Series and MS Series)
**A - Fluid resistant, 200°C, non-conductive (anodized)
L - Fluid resistant, 200°C, conductive, finish (nickel)
W - Corrosive and fluid resistant, 175°C (cadmium over nickel)
R - RoHS Compliant Black Zinc Cobalt (PV Series Only)

SHELL SIZE

8, 10, 12, 14, 16, 18, 20, 22, and 24
(Size 8 available in PV70 & 76 only)

CONTACT ARRANGEMENTS

See page A-69

CONTACT TYPE

P - Pin contact
S - Socket contact
A - Less pin contact* (MS only)
B - Less socket contacts* (MS only)
* The "A" and "B" designators are used only when other than power contacts are to be installed (i. e. shielded, coaxial and thermocouple contacts)

ALTERNATE INSERT POSITIONS

No designation required for normal position.
Standard MS alternate positions available.

LESS COMPONENTS

Use "L" if PV connectors are ordered less contacts, sealing plugs and insertion/extraction tool ("L" is not stamped on connectors). To order MS connectors *less contacts*, purchase order must state less contacts.



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

www.ittcannon.com

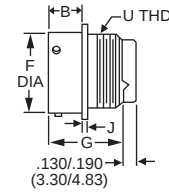
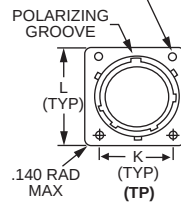
Narrow Flange Receptacle

MS3470

PV70



4 HOLES .125/.115 (3.18/2.92) DIA. SIZES 10-22
.152/.142 (3.86/3.61) DIA. SIZE 24 ONLY

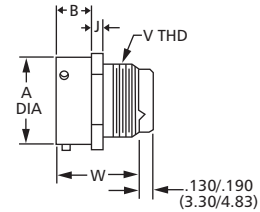
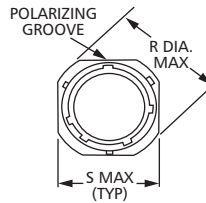


Shell Size	B Max.	F Max.	G Max.	J Max.	K	L	U Thread UNEF Class 2A
8	.462 (11.73)	.474 (12.04)	1.215 (30.85)	.078 (1.98)	.594 (15.09)	.828 (21.03)	1/2-20
10	.462 (11.73)	.594 (15.01)	1.215 (30.85)	.078 (1.98)	.719 (18.26)	.954 (24.23)	5/8-24
12	.462 (11.73)	.751 (19.08)	1.215 (30.85)	.078 (1.98)	.812 (20.62)	1.047 (26.59)	3/4-20
14	.462 (11.73)	.876 (22.25)	1.215 (30.85)	.078 (1.98)	.906 (23.01)	1.141 (28.98)	7/8-20
16	.462 (11.73)	1.001 (25.43)	1.215 (30.85)	.078 (1.98)	.969 (24.61)	1.234 (31.34)	1-20
18	.462 (11.73)	1.126 (28.60)	1.215 (30.85)	.078 (1.98)	1.062 (26.97)	1.328 (33.73)	1 1/16-18
20	.587 (14.91)	1.251 (31.78)	1.275 (32.40)	.110 (2.79)	1.156 (29.36)	1.453 (36.91)	1 3/16-18
22	.587 (14.91)	1.376 (34.95)	1.275 (32.40)	.110 (2.79)	1.250 (31.75)	1.578 (40.08)	1 5/16-18
24	.620 (15.75)	1.501 (38.13)	1.275 (32.40)	.110 (2.79)	1.375 (34.93)	1.703 (43.26)	1 7/16-18

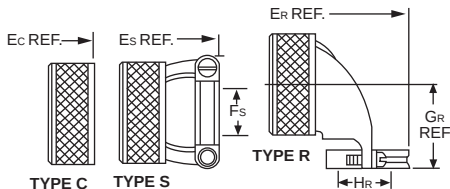
Cable Connecting Receptacle

MS3471

PV71



Shell Size	A Max.	B Max.	J Max.	R Dia. Max.	S Max.	W Max.	V Thread UNEF Class 2A
10	.591 (15.01)	.462 (11.73)	.078 (1.98)	1.082 (27.48)	.954 (24.23)	1.215 (30.86)	5/8-24
12	.751 (19.08)	.462 (11.73)	.078 (1.98)	1.176 (29.87)	1.047 (26.59)	1.215 (30.86)	3/4-20
14	.876 (22.25)	.462 (11.73)	.078 (1.98)	1.270 (32.26)	1.141 (28.98)	1.215 (30.86)	7/8-20
16	1.001 (25.43)	.462 (11.73)	.078 (1.98)	1.364 (34.64)	1.234 (31.34)	1.215 (30.86)	1-20
18	1.126 (28.60)	.462 (11.73)	.078 (1.98)	1.458 (37.03)	1.328 (33.73)	1.215 (30.86)	1 1/16-18
20	1.251 (31.78)	.587 (14.91)	.110 (2.79)	1.708 (43.38)	1.578 (40.08)	1.275 (32.38)	1 3/16-18
22	1.376 (34.95)	.587 (14.91)	.110 (2.79)	1.708 (43.38)	1.578 (40.08)	1.275 (32.38)	1 5/16-18
24	1.501 (38.13)	.620 (15.75)	.110 (2.79)	1.832 (46.53)	1.703 (43.26)	1.275 (32.38)	1 7/16-18



Backshell Assemblies not supplied with MS connectors

Receptacle Assembly with Backshell

Shell Size	TYPE C	TYPE S		TYPE R		
	Ec Max.	Fs Max.	Es Max.	Gr Max.	Hr Max.	Er Max.
10	1.492 (37.90)	.286 (7.26)	1.842 (46.79)	.880 (22.35)	.286 (7.26)	2.115 (53.72)
12	1.492 (37.90)	.416 (10.57)	1.842 (46.79)	.950 (24.13)	.416 (10.57)	2.250 (57.15)
14	1.492 (37.90)	.476 (12.09)	2.077 (52.76)	1.010 (25.65)	.476 (12.09)	2.340 (59.44)
16	1.492 (37.90)	.626 (15.90)	2.077 (52.76)	1.070 (27.18)	.626 (15.90)	2.475 (62.87)
18	1.492 (37.90)	.706 (17.93)	2.077 (52.76)	1.130 (28.70)	.706 (17.93)	2.574 (65.38)
20	1.552 (39.42)	.831 (21.11)	2.137 (54.28)	1.190 (30.23)	.831 (21.11)	2.767 (70.28)
22	1.552 (39.42)	.956 (24.28)	2.137 (54.28)	1.260 (32.00)	.956 (24.28)	2.890 (73.41)
24	1.552 (39.42)	1.081 (27.46)	2.137 (54.28)	1.320 (33.53)	1.081 (27.46)	3.012 (76.50)

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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A

Circular



A

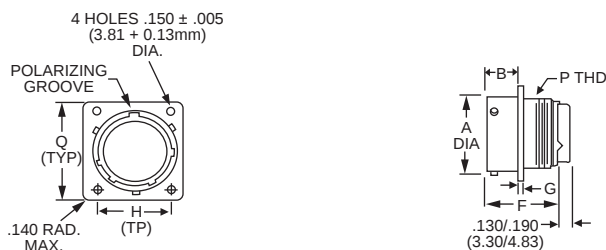
Circular

Wide Flange Receptacle

MS3472



PV72



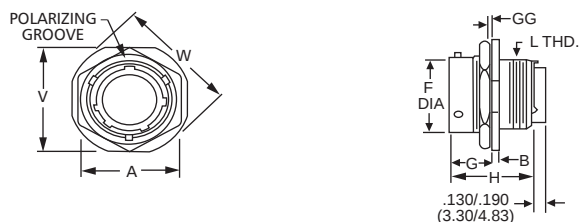
Shell Size	A Max.	B Max.	F Max.	G Max.	H Max.	Q Max.	P Thread UNEF Class A
10	.591 (15.01)	.493 (12.52)	1.215 (30.85)	.078 (1.98)	.812 (20.62)	1.141 (28.98)	5/8-24
12	.751 (19.08)	.493 (12.52)	1.215 (30.85)	.078 (1.98)	.938 (23.83)	1.266 (32.16)	3/4-20
14	.876 (22.25)	.493 (12.52)	1.215 (30.85)	.078 (1.98)	1.031 (26.19)	1.360 (34.54)	7/8-20
16	1.001 (25.43)	.493 (12.52)	1.215 (30.85)	.078 (1.98)	1.125 (28.58)	1.453 (36.91)	1-20
18	1.126 (28.60)	.493 (12.52)	1.215 (30.85)	.078 (1.98)	1.203 (30.56)	1.532 (38.91)	1 1/16-18
20	1.251 (31.78)	.587 (14.91)	1.275 (32.40)	.110 (2.79)	1.297 (32.94)	1.688 (42.88)	1 3/16-18
22	1.376 (34.95)	.587 (14.91)	1.275 (32.40)	.110 (2.79)	1.375 (34.93)	1.766 (44.86)	1 5/16-18
24	1.501 (38.13)	.620 (15.75)	1.275 (32.40)	.110 (2.79)	1.500 (38.10)	1.891 (48.03)	1 7/16-18

Jam Nut Receptacle

MS3474

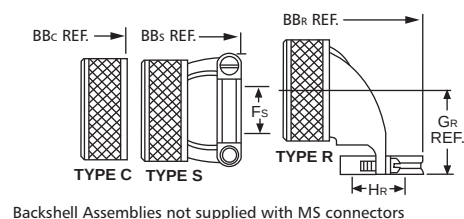


PV74



Shell Size	V Max.	A Max.	B Max.	F Max.	G Max.	GG Panel Thickness	H Max.	W Dia. Max.	L Thread UNEF Class 2
8	.954 (24.23)	.767 (19.48)	.113 (2.87)	.474 (12.04)	.707 (17.96)	.187/.062 (4.75/1.57)	1.215 (30.86)	1.078 (27.38)	1/2-20
10	1.078 (27.38)	.892 (22.66)	.113 (2.87)	.591 (15.01)	.707 (17.96)	.187/.062 (4.75/1.57)	1.215 (30.86)	1.203 (30.56)	5/8-24
12	1.266 (32.16)	1.079 (27.41)	.113 (2.87)	.751 (19.08)	.707 (17.96)	.187/.062 (4.75/1.57)	1.215 (30.86)	1.391 (35.33)	3/4-20
14	1.391 (35.33)	1.205 (30.61)	.113 (2.87)	.876 (22.25)	.707 (17.96)	.187/.062 (4.75/1.57)	1.215 (30.86)	1.516 (38.51)	7/8-20
16	1.516 (38.51)	1.329 (33.76)	.113 (2.87)	1.001 (25.43)	.707 (17.96)	.187/.062 (4.75/1.57)	1.215 (30.86)	1.641 (41.68)	1-20
18	1.641 (41.68)	1.455 (36.96)	.113 (2.87)	1.126 (28.60)	.707 (17.96)	.187/.062 (4.75/1.57)	1.215 (30.86)	1.766 (44.86)	1 1/16-18
20	1.828 (46.43)	1.579 (40.11)	.148 (3.76)	1.251 (31.78)	.772 (19.61)	.250/.062 (6.35/1.57)	1.275 (32.40)	1.954 (49.63)	1 3/16-18
22	1.954 (49.63)	1.705 (43.31)	.148 (3.76)	1.376 (34.95)	.772 (19.61)	.250/.062 (6.35/1.57)	1.275 (32.40)	2.078 (52.78)	1 5/16-18
24	2.078 (52.78)	1.829 (46.46)	.148 (3.76)	1.501 (38.13)	.772 (19.61)	.219/.062 (5.56/1.57)	1.275 (32.40)	2.203 (55.96)	1 7/16-18

Receptacle Assembly with Backshell

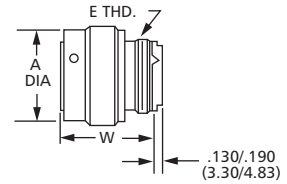
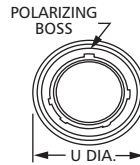


Shell Size	TYPE C	TYPE S		Gr Max.	TYPE R	BBr Max.
	BBc Max.	BBs Max.	Fs Max.		Hr Max.	
10	1.492 (37.90)	1.842 (46.79)	.286 (7.26)	.880 (23.35)	.286 (7.26)	2.115 (53.72)
12	1.492 (37.90)	1.842 (46.79)	.416 (10.57)	.950 (24.13)	.416 (10.57)	2.250 (57.15)
14	1.492 (37.90)	2.077 (52.76)	.476 (12.09)	1.010 (25.65)	.476 (12.09)	2.340 (59.44)
16	1.492 (37.90)	2.077 (52.76)	.626 (15.90)	1.070 (27.18)	.626 (15.90)	2.475 (62.87)
18	1.492 (37.90)	2.077 (52.76)	.706 (17.93)	1.130 (28.70)	.706 (17.93)	2.574 (65.38)
20	1.552 (39.42)	2.137 (54.28)	.831 (21.11)	1.190 (30.23)	.831 (21.11)	2.767 (70.28)
22	1.552 (39.42)	2.137 (54.28)	.956 (24.28)	1.260 (32.00)	.956 (24.28)	2.890 (73.41)
24	1.552 (39.42)	2.137 (54.28)	1.081 (27.46)	1.320 (33.53)	1.081 (27.46)	3.012 (76.50)

Straight Plug

MS3476

PV76



Shell Size	A Dia. Max.	U Max.	W Max.	E Thread UNEF Class 2A
8	.765 (19.43)	.782 (19.86)	1.230 (31.24)	1/2-20
10	.840 (21.34)	.926 (23.52)	1.230 (31.24)	5/8-24
12	.999 (25.37)	1.043 (26.49)	1.230 (31.24)	3/4-20
14	1.139 (28.93)	1.183 (30.05)	1.230 (31.24)	7/8-20
16	1.261 (32.03)	1.305 (33.15)	1.230 (31.24)	1-20
18	1.337 (33.96)	1.391 (35.33)	1.230 (31.24)	1-1/16-18
20	1.477 (37.52)	1.531 (38.89)	1.230 (31.24)	1-3/16-18
22	1.602 (40.69)	1.656 (42.06)	1.230 (31.24)	1-5/16-18
24	1.723 (43.76)	1.777 (45.14)	1.230 (31.24)	1-7/16-18

MS3475

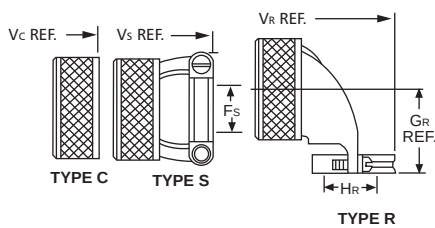
Straight Plug, RFI Shielded

PV75



Shell Size	A Dia. Max.	U Max.	W Max.	E Thread UNEF Class 2A
10	.840 (21.34)	.926 (21.72)	1.230 (31.24)	5/8-24
12	.999 (25.37)	1.043 (26.42)	1.230 (31.24)	3/4-20
14	1.139 (28.93)	1.183 (29.97)	1.230 (31.24)	7/8-20
16	1.261 (32.03)	1.305 (33.15)	1.230 (31.24)	1-20
18	1.337 (33.96)	1.391 (35.33)	1.230 (31.24)	1-1/16-18
20	1.477 (37.52)	1.531 (38.89)	1.230 (31.24)	1-3/16-18
22	1.602 (40.69)	1.656 (42.06)	1.230 (31.24)	1-5/16-18
24	1.723 (43.76)	1.777 (45.14)	1.230 (31.24)	1-7/16-18

Plug Assembly with Backshell



Backshell Assemblies not supplied with MS connectors

Shell Size	TYPE C Vc Max.	TYPE S Vs Max. Fs Max.		TYPE R GR Max. HR Max. VR Max.		
10	1.507 (38.28)	1.857 (47.17)	.286 (7.26)	.880 (22.35)	.286 (7.26)	2.130 (54.10)
12	1.507 (38.28)	1.857 (47.17)	.416 (10.57)	.950 (24.13)	.416 (10.57)	2.265 (57.53)
14	1.507 (38.28)	2.092 (53.14)	.476 (12.09)	1.010 (25.65)	.476 (12.09)	2.355 (59.82)
16	1.507 (38.28)	2.092 (53.14)	.626 (15.90)	1.070 (27.18)	.626 (15.90)	2.490 (63.25)
18	1.507 (38.28)	2.092 (53.14)	.706 (17.93)	1.130 (28.70)	.706 (17.93)	2.589 (65.76)
20	1.507 (38.28)	2.092 (53.14)	.831 (21.11)	1.190 (30.23)	.831 (21.11)	2.722 (69.14)
22	1.507 (38.28)	2.092 (53.14)	.956 (24.28)	1.260 (32.00)	.956 (24.28)	2.845 (72.26)
24	1.507 (38.28)	2.092 (53.14)	1.081 (27.46)	1.320 (33.53)	1.081 (27.46)	2.967 (75.36)

Backshells (Non-MS)



Type C

Type S

Type R

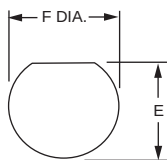
Shell Size	TYPE C (Short) ITT CANNON Conductive (Nickel finish)	TYPE S (Straight) ITT CANNON Conductive (Nickel finish)	TYPE R (90°) ITT CANNON Conductive (Nickel finish)
10	057-0716-002	057-0683-002	057-0704-001
12	057-0717-002	057-0684-002	057-0705-001
14	057-0718-002	057-0685-002	057-0706-001
16	057-0719-002	057-0686-002	057-0707-001
18	057-0720-002	057-0687-002	057-0708-001
20	057-0721-002	057-0688-002	057-0709-001
22	057-0722-002	057-0689-002	057-0710-001
24	057-0723-002	057-0713-002	057-0711-001

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

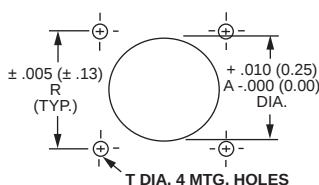
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Panel Cutouts

Jam Nut Receptacle



Narrow Flange and Thru-Bulkhead/Wide Flange



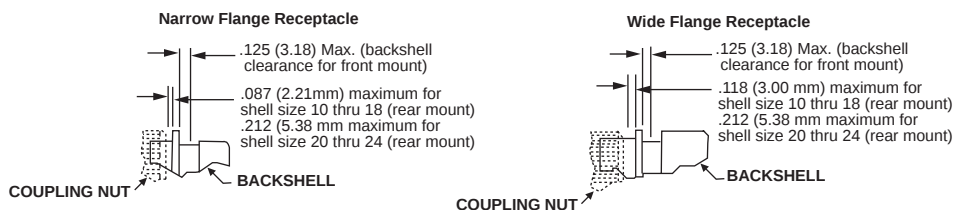
Shell Size	E ±.005 (0.13)	F Dia. ±.005 (0.13)
10	.661 (16.79)	.697 (17.70)
12	.824 (20.93)	.895 (22.73)
14	.948 (24.08)	1.010 (25.65)
16	1.072 (27.23)	1.135 (28.33)
18	1.197 (30.40)	1.260 (32.00)
20	1.322 (33.58)	1.385 (35.18)
22	1.447 (36.75)	1.510 (38.35)
24	1.572 (39.93)	1.635 (41.53)

Shell Size	Flange Front and Rear Mounting		Mounting Hole	
	A Dia.	R	T Dia.	Screw Size
8	.620 (15.75)	.594 (15.09)	.125 (3.14)	#4
10	.740 (18.80)	.719 (18.26)	.125 (3.14)	#4
12	.864 (21.95)	.812 (20.62)	.125 (3.14)	#4
14	.990 (25.15)	.906 (23.01)	.125 (3.14)	#4
16	1.118 (28.40)	.969 (24.61)	.125 (3.14)	#4
18	1.240 (31.50)	1.062 (26.97)	.125 (3.14)	#4
20	1.366 (34.70)	1.156 (29.36)	.125 (3.14)	#4
22	1.490 (37.85)	1.250 (31.75)	.125 (3.14)	#4
24	1.616 (41.05)	1.375 (34.92)	.155 (3.97)	#6

Shell Size	Flange Front and Rear Mounting		Mounting Hole	
	A Dia.	R	T Dia.	Screw Size
10	.740 (18.80)	.812 (20.62)	.155 (3.97)	#6
12	.864 (21.95)	.938 (23.93)	.155 (3.97)	#6
14	.990 (25.15)	1.031 (26.19)	.155 (3.97)	#6
16	1.118 (28.40)	1.125 (28.58)	.155 (3.97)	#6
18	1.240 (31.50)	1.203 (30.56)	.155 (3.97)	#6
20	1.366 (34.70)	1.297 (32.94)	.155 (3.97)	#6
22	1.490 (37.85)	1.375 (34.92)	.155 (3.97)	#6
24	1.616 (41.05)	1.500 (38.10)	.155 (3.97)	#6

Panel Thickness

Shown here are the maximum panel thickness including screw head height allowable to ensure complete connector operation.



Dummy Stowage Receptacles

How To Order

PV Description

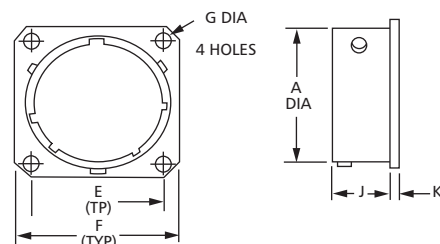
PVS -15 G 12

SERIES PREFIX _____
Contact Cavities
DUMMY RECEPTACLE _____
INDICATOR _____
-15-PV
CLASS _____
G - Conductive finish (nickel)
A - Nonconductive finish (anodized)
SHELL SIZE _____
8 through 24

MS Description

MS 3115 -12 L

SERIES PREFIX _____
MS - Complies with MIL-C-26482
MS STANDARD _____
3115 - Dummy receptacle
SHELL SIZE _____
8 through 24
CLASS _____
L - Conductive finish (nickel)
A - Nonconductive finish (anodized)



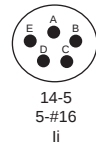
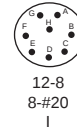
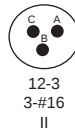
NOTE: Usable on KPT/KPSE series also.

Shell Size	A Dia. Max.	E (TYP)	F Max.	G Max.	J Max.	K Max.
8	.474 (12.04)	.594 (15.09)	.828 (21.03)	.125 (3.18)	.493 (12.52)	.078 (1.98)
10	.591 (15.01)	.719 (18.26)	.954 (24.23)	.125 (3.18)	.493 (12.52)	.078 (1.98)
12	.751 (19.08)	.812 (20.62)	1.047 (26.59)	.125 (3.18)	.493 (12.52)	.078 (1.98)
14	.876 (22.25)	.906 (23.01)	1.141 (28.98)	.125 (3.18)	.493 (12.52)	.078 (1.98)
16	1.001 (25.43)	.969 (24.61)	1.234 (31.34)	.125 (3.18)	.493 (12.52)	.078 (1.98)
18	1.126 (28.60)	1.062 (26.97)	1.328 (33.73)	.125 (3.18)	.493 (12.52)	.078 (1.98)
20	1.251 (31.78)	1.156 (29.36)	1.453 (36.91)	.125 (3.18)	.587 (14.91)	.110 (2.79)
22	1.376 (34.95)	1.250 (31.75)	1.578 (40.08)	.125 (3.18)	.587 (14.91)	.110 (2.79)
24	1.501 (38.13)	1.375 (34.92)	1.703 (43.26)	.152 (3.86)	.620 (15.75)	.110 (2.79)

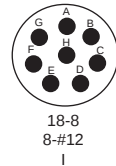
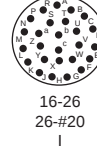
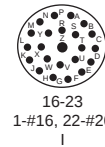
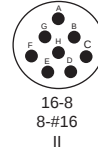
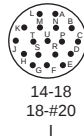
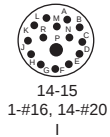
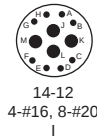
Contact Arrangements

Face view, pin insert

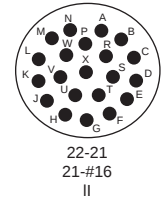
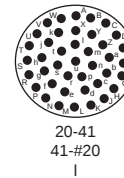
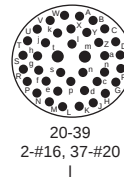
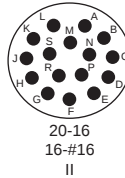
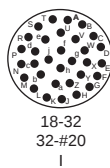
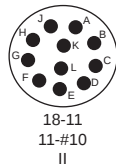
Shell Size
No. of Contacts
Service Rating



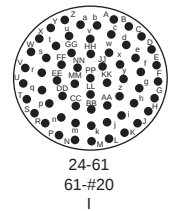
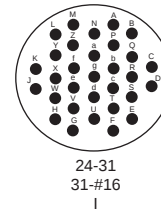
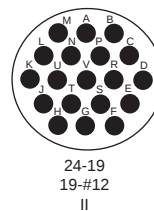
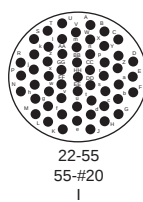
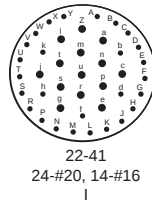
Shell Size
No. of Contacts
Service Rating



Shell Size
No. of Contacts
Service Rating



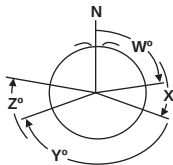
Shell Size
No. of Contacts
Service Rating



* Layouts are available in shell styles MS3470 and MS3476 only.

Alternate Insert Positions

Face view, pin insert



Contact arrangements requiring reduced diameter for lead-in chamfer on outer row of contact cavities as indicated below.

Shell	Contact Arrangements	Contact Cavities
8	33, -98	A, B, C
12	10	C, G
14	12	A, B, C, D, E, F, G, and H
14	18	A, C, E, G, J, and L
14	19	B, D, F, H, K, and M
16	26	A, B, C, D, E, F, G, H, J, K, L, M, N, P, and R
18	32	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, and T
22	41	A, B, C, D, E, F, G, H, J, K, L, M, N, P, R, S, T, U, V, W, X, and Y

Shell Size	Arrangement	N	W	Pos Code		
				X	Y	Z
8	33	0°	90°	-	-	-
	98	0°	-	-	-	-
10	6	0°	90°	-	-	-
	3	0°	-	-	180°	-
12	8	0°	90°	112°	203°	292°
	10	0°	60°	115°	270°	295°
	4	0°	45°	-	-	-
	5	0°	40°	92°	184°	273°
14	12	0°	43°	90°	-	-
	15	0°	17°	110°	155°	234°
	18	0°	15°	90°	180°	270°
	19	0°	30°	165°	315°	-
	8	0°	54°	152°	180°	331°
16	23	0°	158°	270°	-	-
	26	0°	60°	-	275°	338°
	8	0°	180°	-	-	-
18	11	0°	62°	119°	241°	340°
	32	0°	85°	138°	222°	265°
	16	0°	238°	318°	333°	347°
20	39	0°	63°	144°	252°	333°
	41	0°	45°	126°	225°	-
	21	0°	16°	135°	175°	349°
22	41	0°	39°	135°	264°	-
	55	0°	30°	142°	226°	314°
	19	0°	30°	165°	315°	-
24	31	0°	90°	225°	225°	-
	61	0°	90°	180°	270°	324°

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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A

Circular

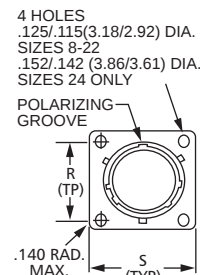
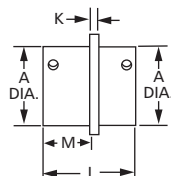
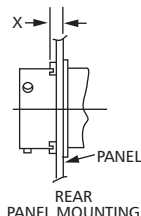
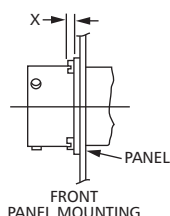


A

Circular

Thru-Bulkhead Receptacle

PV-TBF



Shell Size	A Dia. $\pm .003$ (0.08)	K $\pm .016$ (0.41)	L Max.	M $\pm .016$ (0.41)	R (TP)	S Max.	X Max.
8	.471 (11.96)	.062 (1.57)	1.125 (28.58)	.577 (14.66)	.594 (15.09)	.828 (21.03)	.218 (5.54)
10	.588 (14.94)	.062 (1.57)	1.125 (28.58)	.577 (14.66)	.719 (18.26)	.954 (24.23)	.218 (5.54)
12	.748 (19.00)	.062 (1.57)	1.125 (28.58)	.577 (14.66)	.812 (20.62)	1.047 (26.59)	.218 (5.54)
14	.873 (22.17)	.062 (1.57)	1.125 (28.58)	.577 (14.66)	.906 (23.01)	1.141 (28.98)	.218 (5.54)
16	.998 (25.35)	.062 (1.57)	1.125 (28.58)	.577 (14.66)	.969 (24.61)	1.234 (31.34)	.218 (5.54)
18	1.123 (28.52)	.062 (1.57)	1.125 (28.58)	.577 (14.66)	1.062 (26.97)	1.328 (33.73)	.218 (5.54)
20	1.248 (31.70)	.094 (2.39)	1.406 (35.71)	.703 (17.86)	1.156 (29.36)	1.453 (36.91)	.344 (8.74)
22	1.373 (34.87)	.094 (2.39)	1.406 (35.71)	.703 (17.86)	1.250 (31.75)	1.578 (40.08)	.344 (8.74)
24	1.498 (38.05)	.094 (2.39)	1.406 (35.71)	.703 (17.86)	1.375 (34.92)	1.703 (43.26)	.311 (7.90)

Notes: 1) Shell available in conductive (nickel finish) only. 2) Contacts are nonremovable.

How to Order - PV-TBF

SERIES PREFIX PV-TBF

SHELL SIZE 10

INSERT ARRANGEMENTS -6

CONTACT STYLE PS

ALTERNATE POLARIZING POSITION W

SERIES PREFIX

PV-TBF - ITT Cannon Prefix

SHELL SIZE

8 thru 24

INSERT ARRANGEMENTS

10-6, 14-19, 16-8, 16-26, 18-32, 20-39, 20-41, 22-41, 22-55, 24-61

CONTACT STYLE

Pin and socket

ALTERNATE POLARIZING POSITION

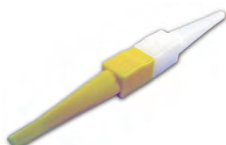
No designation required for normal. Standard MS alternate positions available.

Notes: 1) Shell available in conductive (nickel finish) only

2) Contacts are nonremovable.

3) Designed to MS3119 configuration and meets the performance requirements of MIL-C-26482 Series 2.

Tooling



Wire Contact Tools

Contact Size	Cannon Part Number	M81969 Part Number	Insertion Color Tip	Extraction Color Tip	Superseded Mil. Pt. No.	Unwired Contact Tools Cannon Pt. No.
20	CIET-20-11 (274-7001-006)	M81969/14-11	Red	White	MS27534-20, MS3447-20, NAS1664-20	274-7007-000
16	CIET-16-03 (274-7002-000)	M81969/14-03	Blue	White	MS27534-16, MS3447-16, NAS1664-16	274-7008-000
12	CIET-12-04 (274-7003-000)	M81969/14-04	Yellow	White	MS27534-12, MS3447-12, NAS1664-12	274-7009-000

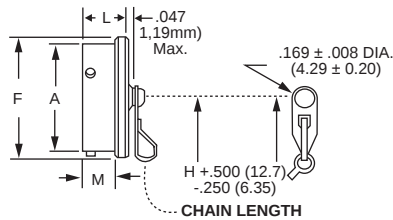


Dimensions shown in inches (mm)
Specifications and dimensions subject to change

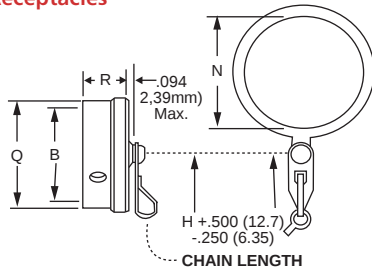
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Protective Metal Caps

Plugs



Receptacles



SERIES PREFIX

PVS - ITT Cannon Prefix
MS - Complies with MIL-C-26482 (Series 2)

TYPE

80 or 3180 - Plug Cap
81 or 3181 - Receptacle Cap

SHELL SIZE

8 thru 24

TERMINATION STYLE

C -- Sash chain (MS approved)
N - Sash chain with ring (81 or 3181 type only) MS approved

FINISH

A - Hard anodic, non-conductive (MS approved)
G - Nickel, conductive (not MS) (PVS only)

NOTE: Usable on KPT/KPSE series also.
N style used primarily on Jam Nut Receptacle

Shell Size	A Max. Dia.	B Max.	F Max. Dia.	H	L Max.	M Max.	N Min. Dia.	Q Max.	R Max.
8	.474 (12.04)	.486 (12.34)	.719 (18.26)	3.000 (76.20)	.562 (14.27)	.399 (10.13)	.578 (14.68)	.734 (18.64)	.562 (14.27)
10	.591 (15.01)	.607 (15.42)	.844 (21.44)	3.000 (76.20)	.562 (14.27)	.399 (10.13)	.703 (17.86)	.859 (21.82)	.562 (14.27)
12	.751 (19.08)	.766 (19.46)	1.000 (25.40)	3.500 (88.90)	.562 (14.27)	.399 (10.13)	.891 (22.63)	1.000 (25.40)	.562 (14.27)
14	.876 (22.25)	.890 (22.60)	1.125 (28.58)	3.500 (88.90)	.562 (14.27)	.399 (10.13)	1.061 (25.81)	1.125 (28.58)	.562 (14.27)
16	1.001 (25.43)	1.015 (25.78)	1.250 (31.75)	3.500 (88.90)	.562 (14.27)	.399 (10.13)	1.141 (28.98)	1.250 (31.75)	.562 (14.27)
18	1.126 (28.60)	1.141 (28.98)	1.375 (34.93)	3.500 (88.90)	.562 (14.27)	.399 (10.13)	1.266 (32.16)	1.375 (34.93)	.562 (14.27)
20	1.251 (31.78)	1.265 (32.13)	1.500 (38.10)	4.000 (101.60)	.625 (15.88)	.461 (11.71)	1.391 (35.33)	1.500 (38.10)	.562 (14.27)
22	1.376 (34.96)	1.390 (35.31)	1.625 (41.26)	4.000 (101.60)	.625 (15.88)	.461 (11.71)	1.516 (38.51)	1.625 (41.26)	.562 (14.27)
24	1.501 (38.13)	1.515 (38.48)	1.750 (44.45)	4.000 (101.60)	.658 (16.71)	.494 (12.55)	1.641 (41.68)	1.750 (44.45)	.602 (15.29)

Contacts

Contact Size	Type	M39029 Number	1st	Color Brands	2nd	3rd	ITT Cannon
20	Socket	M39029/5-115	Brown	Brown	Brown	Green	980-0008-882
20	Pin	M39029/4-110	Brown	Brown	Brown	Black	980-0008-885
16	Socket	M39029/5-116	Brown	Brown	Brown	Blue	980-0008-883
16	Pin	M39029/4-111	Brown	Brown	Brown	Brown	980-0008-886
12	Socket	M39029/5-118	Brown	Brown	Brown	Grey	980-0008-884
12	Pin	M39029/4-113	Brown	Brown	Brown	Orange	980-0008-887

Thermocouple Contacts

Contact Size	Alumel	Chromal
20 Pin	030-1831-000	030-1832-000
20 Socket	031-1013-000	031-1014-000

Wire Hole Fillers

Contact Size	Cannon	Part Number	Color Code
20	225-0070-000	MS27488-20-2	Red
16	225-0104-000	MS27488-16-2	Green
12	225-0105-000	MS27488-12-2	Orange



Circular



ITT Cannon is the foremost manufacturer of MS and MS type connectors with the widest range of connector styles, sizes and variations in the industry. These connectors utilize the finest materials, which, along with precision manufacturing and rigid quality control, assure ITT Cannon customers of the finest quality connectors. The MS A & B product line has environmentally safe green and black zinc alloy plating. The Black

zinc plating is RoHS compliant. The plating is a high quality, uniform finish. The contact, which are preloaded in the insulator, have been redesigned such that the solder cups remain in the proper orientation and will not rotate during wiring termination. The contacts are machined for strength and durability and plated with silver. The Cannon MS A&B design meets the performance requirements of the MIL-C-5015. The

product is available in all the popular sizes and configurations available in Class A (solid end bell) and Class B (split end bell) versions.

Applications:

- Industrial Controls
- Test Equipment
- Traffic Signals
- Bus Systems

Product Features and Benefits

- High strength aluminum alloy connector
- High strength plastic insulators
- Environmentally safe shell finishes
- Protected against corrosion
- High quality plating finish
- Threaded coupling
- Product is tooled and available in 50 insert patterns
- Machined contacts
- Low cost
- UL recognized

Performance Specifications

Temperature Range:	–55°C to 125°C (–67°F to 257°F)
Current Rating:	13 A to 150 A*
Durability:	500 mating cycles min.
Wire Accommodation:	0 to 20 AWG*
No. of Contacts:	2 to 48
Termination:	Solder

*Depending on contact size.

ELECTRICAL SERVICE DATA

Test current ratings of contacts and 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 the allowable in wire bundles as specified in MIL-W-5088.

Contact Size	Test Current (amps)	Potential Drop (millivolts)
16	13	49
12	23	42
8	46	28
4	80	23
0	150	21

HIGH POTENTIAL TEST VOLTAGE

MS connectors show no evidence of breakdown with the test voltage given below is applied between the two closest contacts and between the shell and the contacts closest to the shell for a period of one minute.

MS Service Rating	Test Voltage (RMS) 60 cps	Suggested* Operating Voltages		Air Spacing Nom. (inches)	Creepage Distance Nom. (inches)
		DC	AC (rms)		
Inst.	1000	250	200		1/16
A	2000	700	500	1/16	1/8
D	2800	1250	900	1/8	3/16
E	3500	1750	1250	3/16	1/4
B	4500	2450	1750	1/4	5/16
C	7000	4200	3000	5/16	1

*As indicated in previous MS Specification and to be used by designer only as a guide.

Materials and Finishes

Description	Material	Finish
Shell	Aluminum Alloy	Green Zinc Standard, Black Zinc (RoHS), OD CAD
Insulator	Hard Plastic	—
Contact	Brass or Copper Alloy	Silver



A

Circular

CA/MS 3100A wall mounting receptacles are used to carry wires through walls or bulkheads, or to provide the means of disconnection at a bulkhead. CA/MS 3100A receptacles mate with CA/MS 3106 and 3108 plugs.



CA/MS 3101A cable connecting receptacles are used for cable extension requirements where mounting provisions are unnecessary. CA/MS 3101A plugs mate with 3106A/B and 3108B connectors.



Note: The D revision of MIL-C-5015 has changed the nomenclature of the 3101 from receptacle to plugs.

CA/MS 3102A box mounted receptacles are used in junction boxes or as an integral part of equipment. CA/MS 3102A receptacles will mate with 3106 and 3108 plugs.



CA/MS 3106A straight plug utilizes a solid endbell. The CA/MS 3106A mates with 3100, 3101, and 3102 connectors.



CA/MS 3106B is identical to the 3106A straight plug except it utilizes a split endbell. CA/MS 3106B mates with 3100, 3101, and 3102 connectors.



CA/MS 3108B 90° angle plugs are used where there is limited space and where wires must be brought at abrupt angles. This plug will mate with 3100, 3101, and 3102 connectors.

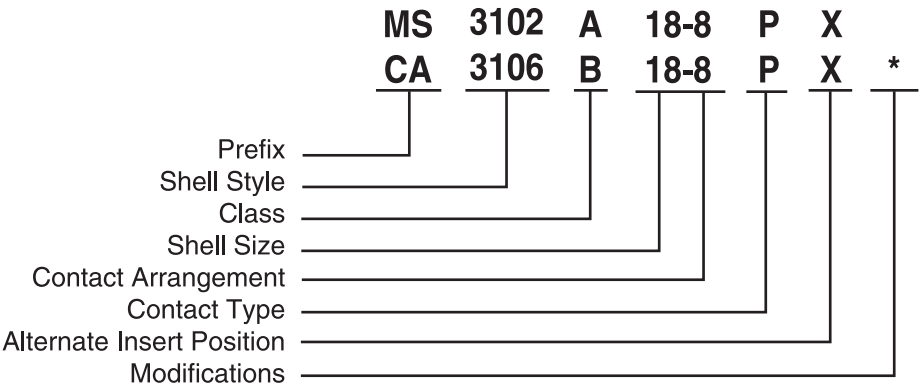




A

Circular

How to Order



- SERIES PREFIX**
MS – Complies with Military Specification MIL-C-5015
CA – Cannon prefix
CAR – RoHS Compliant (Black Zinc Only)

- SHELL STYLE**
3100 – Wall Mounting Receptacle (A version only)
3101 – Cable Connector Receptacle (A version only)
3102 – Box Mounting Receptacle
3106 – Straight Plug
3108 – 90° Angle Plug (B version only)

- CLASS**
A – Solid or one-piece endbell
B – Split or two-piece endbell

SHELL SIZE
Coupling thread diameter in sixteenths of an inch

CONTACT ARRANGEMENTS
Refer to page B-5

- CONTACT TYPE**
P – Pin
S – Socket
ALTERNATE INSERT POSITIONS
Refer to page 4

MODIFICATIONS
A206 (RoHS) Black Zinc Plating
Contact Cannon for other options.

 For more information, please contact your local Cannon sales office.

Contact Cavity Arrangements



A

Circular

	10SL-3* 3 - #16	10SL-4* 2 - #16	12S-3 2 - #16	14S-1 3 - #16	14S-2 4 - #16	14S-5 5 - #16	14S-6 6 - #16	14S-7 3 - #16	14S-9 2 - #16	16-9 2 - #16 (B, D) 2 - #12 (A, C)	16-10 3 - #12	16-11 2 - #12
Service Rating	A	A	A	A	Inst.	Inst.	Inst.	A	A	A	A	A
	16S-1 7 - #16	16S-8 5 - #16	18-1 10 - #16	18-4 4 - #16	18-5 1 - #16 (A) 2 - #12 (B, C)	18-8 7 - #16 (A-G) 1 - #12 (H)	18-9 5 - #16 (B, C, E-G) 2 - #12 (A, D)	18-10 4 - #12	18-11 5 - #12	18-12 6 - #16		
	A	A	A (B,C,F,G) Inst. (all others)	D	D	A	Inst.	A	A	A		
	18-20 5 - #16	18-22 3 - #16	20-3 3 - #12	20-4 4 - #12	20-7 8 - #16	20-19 3 - #8	20-27 14 - #16	20-29 17 - #16	20-33 11 - #16			
	A	D	D	D	A (C-F) D (A,B,G,F)	A	A	A	A			
	22-2 3 - #8	22-14 19 - #16	22-19 14 - #16	22-23 8 - #12	22-28 7 - #12	24-2 7 - #12	24-10 7 - #8	24-20 9 - #16 (A-D, G-L) 2 - #12 (E, F)				
	D	A	A	D (H) A (all others)	A	D	A	D				
	24-28 24 - #16	28-10 3 - #12 (A, F, G) 2 - #8 (B, E) 2 - #4 (C, D) D (G) A (all others)	28-11 18 - #16 (A-I, N-X) 4 - #12 (J-M)	28-12 26 - #16	28-15 35 - #16	28-16 20 - #16	28-21 37 - #16					
	Inst.		A	A	A	A	A					
	36-5 4 - #0	36-7 40 - #16 (A-Z, a-s) 7 - #12 (t-z)	36-8 46 - #16 (A-X, Z-z) 1 - #12 (Y)	36-10 48 - #16								
	A	A	A	A								

* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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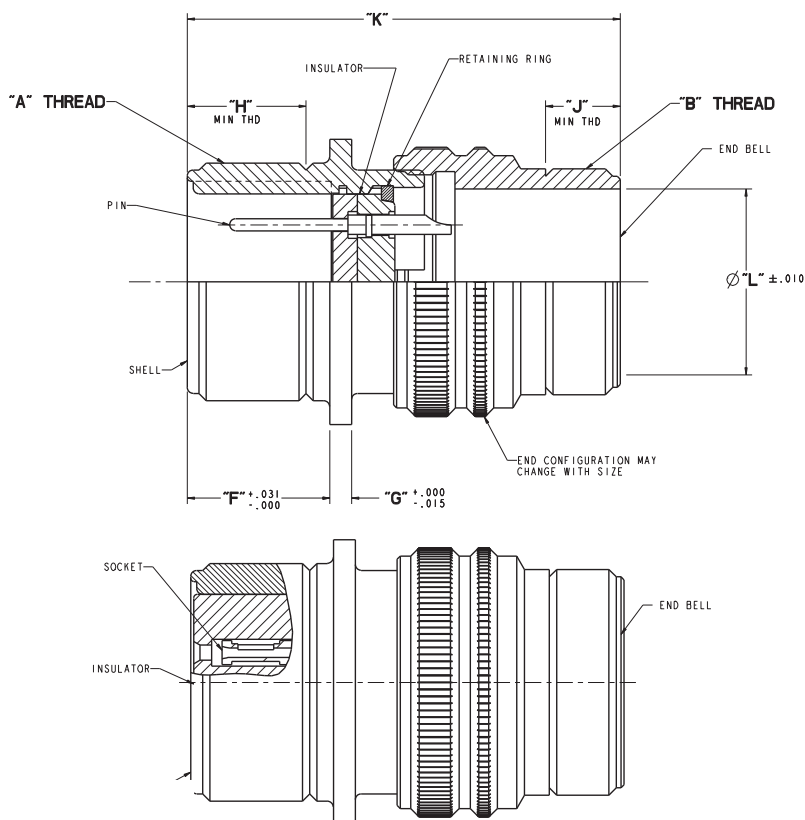
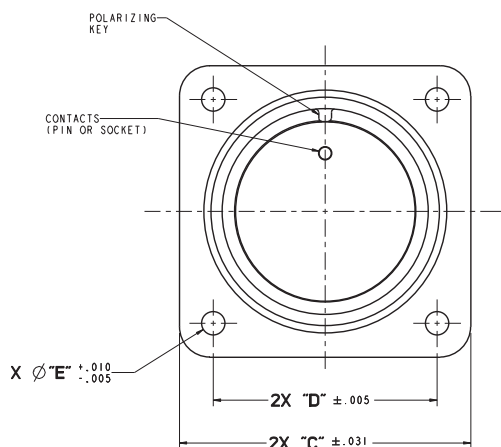
A

Circular

Wall Mounting Receptacle - Solid Endbell

MS3100A

CA/CAR 3100A



TABLE

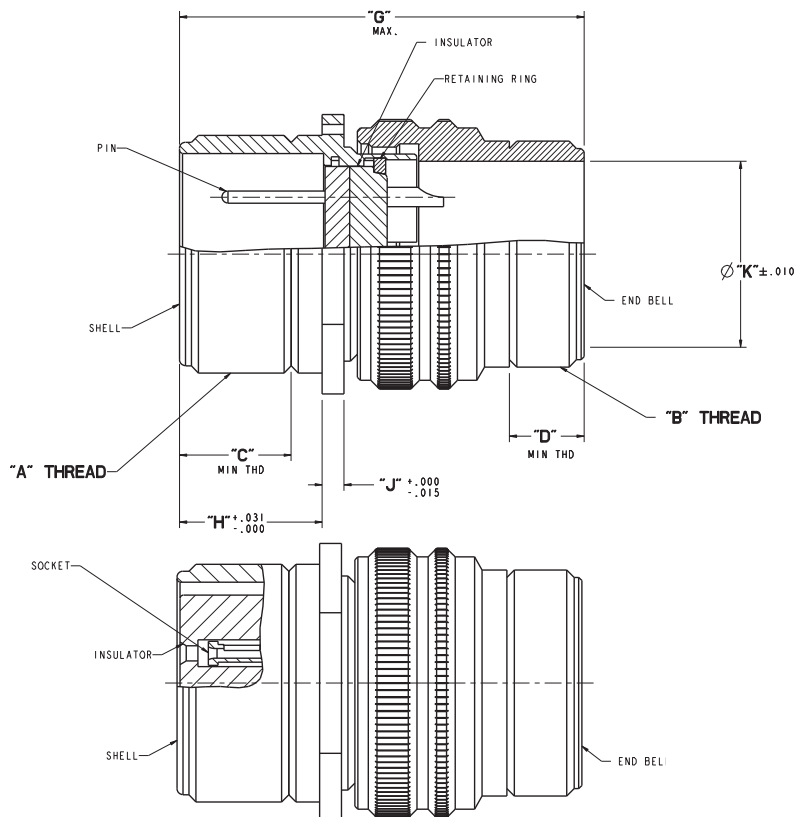
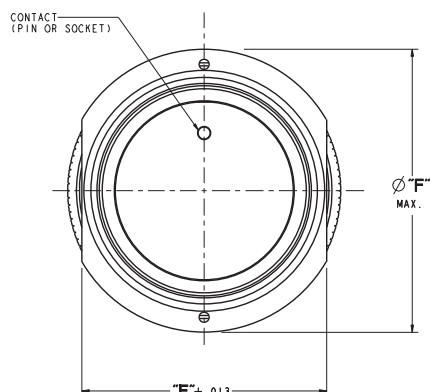
SIZE	ITT CANNON HARDWARE KIT NO. (GREEN ZINC)	ITT CANNON HARDWARE KIT NO. (BLACK ZINC)	"A" THREAD (CLASS: 2A)	"B" THREAD (CLASS: 2A)	"C"	"D"	"E"	"F"	"G"	"H"	"J"	"K"	ϕ "L"
10SL*	002799-0000	002799-0001	5/8-24 UNEF	5/8-24 UNEF	1.000 (25.40)	.718 (18.24)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.375 (9.53)	.354 (9.00)	1.625 (42.27)	.346 (8.79)
12S	002602-0000	002602-0001	3/4-20 UNEF	5/8-24 UNEF	1.094 (27.80)	.813 (20.65)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.375 (9.53)	.393 (9.98)	1.655 (42.04)	.465 (11.81)
14S	002604-0000	002604-0001	7/8-20 UNEF	3/4-20 UNEF	1.188 (30.20)	.906 (23.00)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.375 (9.53)	.354 (9.00)	1.705 (45.31)	.575 (14.61)
16S	002606-0000	002606-0001	1-20 UNEF	7/8-20 UNEF	1.281 (32.50)	.969 (24.60)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.375 (9.53)	.374 (9.50)	1.775 (45.09)	.669 (17.00)
12	002603-0000	002603-0001	3/4-20 UNEF	5/8-24 UNEF	1.094 (27.80)	.813 (20.65)	.120 (3.05)	.750 (19.10)	.093 (2.36)	.625 (15.88)	.393 (9.98)	1.845 (46.86)	.465 (11.81)
14	002605-0000	002605-0001	7/8-20 UNEF	3/4-20 UNEF	1.188 (30.20)	.906 (23.00)	.120 (3.05)	.750 (19.10)	.093 (2.36)	.625 (15.88)	.354 (9.00)	1.885 (47.88)	.575 (14.61)
16	002607-0000	002607-0002	1-20 UNEF	7/8-20 UNEF	1.281 (32.50)	.969 (24.60)	.120 (3.05)	.750 (19.10)	.093 (2.36)	.625 (15.88)	.374 (9.50)	1.965 (49.91)	.669 (17.00)
18	002608-0000	002607-0001	1 1/8-18 UNEF	1-20 UNEF	1.375 (35.00)	1.062 (27.00)	.120 (3.05)	.750 (19.10)	.115 (2.92)	.625 (15.88)	.374 (9.50)	2.035 (51.69)	.807 (20.50)
20	002609-0000	002609-0001	1 1/4-18 UNEF	1 3/16-18 UNEF	1.500 (38.10)	1.152 (29.36)	.120 (3.05)	.750 (19.10)	.115 (2.92)	.625 (15.88)	.393 (9.98)	2.245 (57.02)	.978 (20.50)
22	002610-0000	002610-0001	1 3/8-18 UNEF	1 3/16-18 UNEF	1.625 (41.30)	1.250 (31.75)	.120 (3.05)	.750 (19.10)	.115 (2.92)	.625 (15.88)	.393 (9.98)	2.185 (55.50)	.980 (24.89)
24	002611-0000	002611-0001	1 1/2-18 UNEF	1 7/16-18 UNEF	1.750 (44.45)	1.375 (31.90)	.147 (3.74)	.812 (20.63)	.115 (2.92)	.625 (15.88)	.393 (9.98)	2.285 (58.04)	1.220 (31.00)
28	002612-0000	002611-0001	1 3/4-18 UNS	1 7/16-18 UNEF	2.000 (50.80)	1.562 (39.70)	.147 (3.74)	.812 (20.63)	.115 (2.92)	.625 (15.88)	.394 (10.00)	2.245 (57.02)	1.114 (28.30)
32	002613-0000	002613-0001	2-18 UNS	1 3/4-18 UNS	2.250 (57.15)	1.750 (44.45)	.173 (4.40)	.875 (22.23)	.166 (4.21)	.625 (15.88)	.453 (11.50)	2.275 (57.79)	1.425 (36.20)
36	002614-0000	002614-0001	2 1/4-16 UN	2-18 UNS	2.500 (63.50)	1.937 (49.20)	.173 (4.40)	.875 (22.23)	.166 (4.21)	.625 (15.88)	.492 (12.50)	2.485 (63.12)	1.772 (45.00)

* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only

Cable Connecting Receptacle - Solid Endbell

MS3101A

CA/CAR 3101A



TABLE

SIZE	ITT CANNON HARDWARE KIT NO. (GREEN ZINC)	ITT CANNON HARDWARE KIT NO. (BLACK ZINC)	"A" THREAD (CLASS: 2A)	"B" THREAD (CLASS: 2A)	"C"	"D"	"E"	Ø"F"	"G"	"H"	"J"	Ø"K"
10SL*	030922-0000	030922-0001	5/8-24 UNEF	5/8-24 UNEF	.375 (9.53)	.354 (9.00)	.771 (19.58)	.969 (24.61)	1.531 (38.89)	.562 (14.30)	.093 (2.36)	.346 (8.79)
12S	030923-0000	030923-0001	3/4-20 UNEF	5/8-24 UNEF	.375 (9.53)	.393 (9.98)	.771 (19.58)	1.062 (26.77)	1.688 (42.88)	.562 (14.30)	.093 (2.36)	.465 (11.81)
14S	030925-0000	030925-0001	7/8-20 UNEF	3/4-20 UNEF	.375 (9.53)	.354 (9.00)	.898 (22.80)	1.156 (29.36)	1.688 (42.88)	.562 (14.30)	.093 (2.36)	.575 (14.61)
16S	030927-0000	030927-0001	1-20 UNEF	7/8-20 UNEF	.375 (9.53)	.374 (9.50)	1.021 (25.93)	1.250 (31.75)	1.688 (42.88)	.562 (14.30)	.093 (2.36)	.669 (17.00)
12	030924-0000	030924-0001	3/4-20 UNEF	5/8-24 UNEF	.625 (15.88)	.393 (9.98)	.771 (19.58)	1.062 (26.97)	2.062 (52.37)	.750 (19.10)	.093 (2.36)	.465 (11.81)
14	030926-0000	030924-0001	7/8-20 UNEF	3/4-20 UNEF	.625 (15.88)	.354 (9.00)	.898 (22.80)	1.156 (29.36)	2.062 (52.37)	.750 (19.10)	.093 (2.36)	.575 (14.61)
16	030928-0000	030928-0002	1-20 UNEF	7/8-20 UNEF	.625 (15.88)	.374 (9.50)	1.021 (25.93)	1.250 (31.75)	2.062 (52.37)	.750 (19.10)	.093 (2.36)	.669 (17.00)
18	030929-0000	030929-0001	1 1/8-18 UNEF	1-20 UNEF	.625 (15.88)	.374 (9.50)	1.145 (29.08)	1.344 (34.13)	2.062 (52.37)	.750 (19.10)	.115 (2.92)	.807 (20.50)
20	030930-0000	030930-0001	1 1/4-18 UNEF	1 3/16-18 UNEF	.625 (15.88)	.393 (9.98)	1.270 (32.25)	1.469 (37.30)	2.188 (55.58)	.750 (19.10)	.115 (2.92)	.978 (20.50)
22	030931-0000	030931-0001	1 3/8-18 UNEF	1 3/16-18 UNEF	.625 (15.88)	.393 (9.98)	1.395 (35.43)	1.594 (40.50)	2.188 (55.58)	.750 (19.10)	.115 (2.92)	.980 (24.89)
24	030932-0000	030932-0001	1 1/2-18 UNEF	1 7/16-18 UNEF	.625 (15.88)	.393 (9.98)	1.520 (38.60)	1.719 (43.66)	2.312 (58.72)	.812 (20.63)	.115 (2.92)	1.220 (31.00)
28	030933-0000	030933-0001	1 3/4-18 UNS	1 7/16-18 UNEF	.625 (15.88)	.394 (10.00)	1.770 (45.00)	1.969 (50.00)	2.312 (58.72)	.812 (20.63)	.115 (2.92)	1.114 (28.30)
32	030934-0000	030934-0001	2-18 UNS	1 3/4-18 UNS	.625 (15.88)	.453 (11.50)	2.020 (51.30)	2.219 (56.36)	2.438 (61.93)	.875 (22.23)	.166 (4.21)	1.425 (36.20)
36	030935-0000	030935-0001	2 1/4-16 UN	2-18 UNS	.625 (15.88)	.492 (12.50)	2.270 (57.65)	2.469 (62.70)	2.438 (61.93)	.875 (22.23)	.166 (4.21)	1.772 (45.00)

* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only



A

Circular

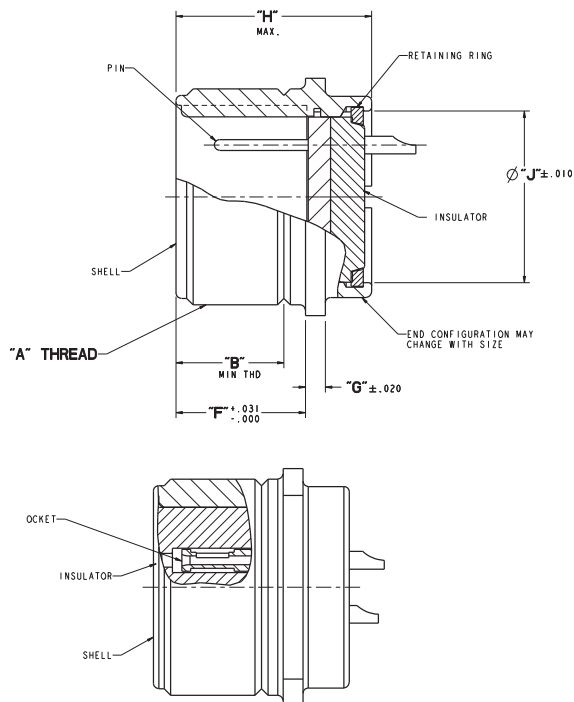
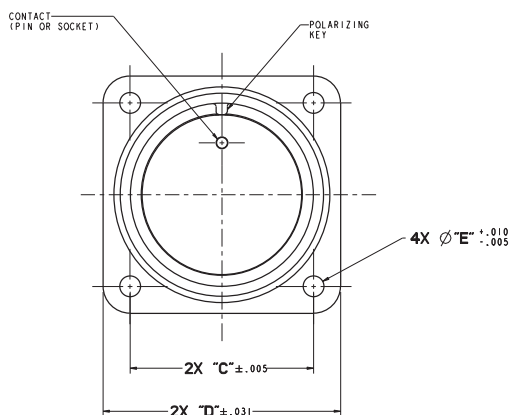


MS3102A

CA/CAR 3102A

Box Mounting Receptacle

Circular



TABLE

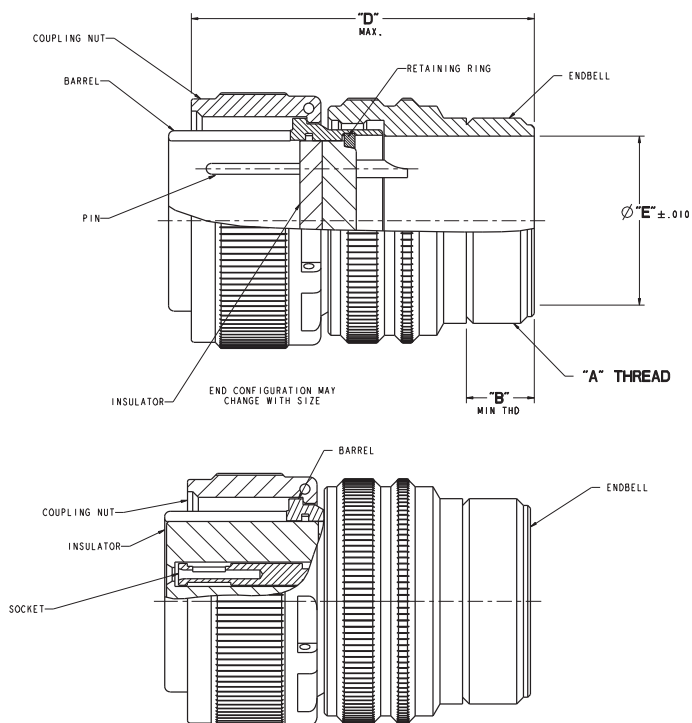
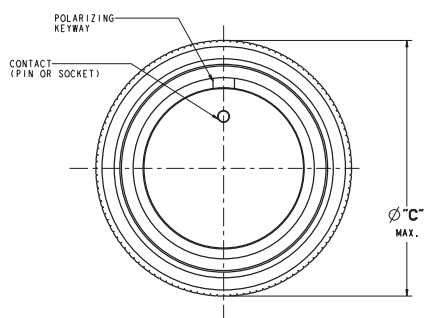
SIZE	ITT CANNON HARDWARE KIT NO. (GREEN ZINC)	ITT CANNON HARDWARE KIT NO. (BLACK ZINC)	"A" THREAD (CLASS: 2A)	"B"	"C"	"D"	Ø"E"	"F"	"G"	"H"	Ø"J"
10SL*	248-0112-021	248-0112-022	5/8-24 UNEF	.375 (9.53)	.718 (18.24)	1.000 (25.40)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.938 (23.83)	.389 (9.88)
12S	248-0091-027	248-0091-028	3/4-20 UNEF	.375 (9.53)	.813 (20.65)	1.094 (27.80)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.955 (24.26)	.517 (13.13)
14S	248-0093-051	248-0093-052	7/8-20 UNEF	.375 (9.53)	.906 (23.00)	1.188 (30.20)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.955 (24.26)	.597 (15.16)
16S	248-0095-038	248-0095-039	1-20 UNEF	.375 (9.53)	.969 (24.60)	1.281 (32.50)	.120 (3.05)	.562 (14.30)	.093 (2.36)	.955 (24.26)	.719 (18.26)
12	248-0090-009	248-0090-010	3/4-20 UNEF	.625 (15.88)	.813 (20.65)	1.094 (27.80)	.120 (3.05)	.750 (19.10)	.093 (2.36)	1.143 (29.03)	.517 (13.13)
14	248-0092-011	248-0092-012	7/8-20 UNEF	.625 (15.88)	.906 (23.00)	1.188 (30.20)	.120 (3.05)	.750 (19.10)	.093 (2.36)	1.143 (29.03)	.597 (15.16)
16	248-0094-023	248-0094-024	1-20 UNEF	.625 (15.88)	.969 (24.60)	1.281 (32.50)	.120 (3.05)	.750 (19.10)	.093 (2.36)	1.143 (29.03)	.719 (18.26)
18	248-0096-042	248-0096-043	1 1/8-18 UNEF	.625 (15.88)	1.062 (27.00)	1.375 (35.00)	.120 (3.05)	.750 (19.10)	.115 (2.92)	1.143 (29.03)	.839 (21.31)
20	248-0097-033	248-0097-034	1 1/4-18 UNEF	.625 (15.88)	1.156 (29.36)	1.500 (38.10)	.120 (3.05)	.750 (19.10)	.115 (2.92)	1.149 (29.18)	.994 (25.25)
22	248-0098-040	248-0098-041	1 3/8-18 UNEF	.625 (15.88)	1.250 (31.75)	1.625 (41.30)	.120 (3.05)	.750 (19.10)	.115 (2.92)	1.149 (29.03)	1.089 (27.66)
24	248-0099-032	248-0099-033	1 1/2-18 UNEF	.625 (15.88)	1.375 (31.90)	1.750 (44.45)	.147 (3.74)	.812 (20.63)	.115 (2.92)	1.305 (33.015)	1.216 (30.84)
28	248-0100-039	248-0100-040	1 3/4-18 UNS	.625 (15.88)	1.562 (39.70)	2.000 (50.80)	.147 (3.74)	.812 (20.63)	.115 (2.92)	1.305 (33.15)	1.436 (36.047)
32	248-0101-023	248-0101-025	2-18 UNS	.625 (15.88)	1.750 (44.45)	2.250 (57.15)	.173 (4.40)	.875 (22.23)	.166 (4.21)	1.305 (33.15)	1.686 (42.82)
36	248-0102-025	248-0102-026	2 1/4-16 UN	.625 (15.88)	1.937 (49.20)	2.500 (63.50)	.173 (4.40)	.875 (22.23)	.166 (4.21)	1.305 (33.15)	1.901 (48.29)

* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only

Straight Plug - Solid Endbell

MS3106A

CA/CAR 3106A



TABLE

SIZE	ITT CANNON HARDWARE KIT NO. (GREEN ZINC)	ITT CANNON HARDWARE KIT NO. (BLACK ZINC)	"A" THREAD (CLASS: 2A)	"B"	Ø "C"	"D"	Ø "E"
10SL*	030903-0000	030903-0002	5/8-24 UNEF	.375 (9.53)	.969 (24.61)	1.531 (38.89)	.346 (8.79)
12S	030904-0000	030904-0001	5/8-24 UNEF	.375 (9.53)	1.062 (26.97)	1.688 (42.88)	.465 (11.81)
14S	030906-0000	030906-0002	3/4-20 UNEF	.375 (9.53)	1.156 (29.36)	1.688 (42.88)	.575 (14.61)
16S	030908-0000	030908-0001	7/8-20 UNEF	.375 (9.53)	1.250 (31.75)	1.688 (42.88)	.669 (17.00)
12	030905-0000	030905-0001	5/8-24 UNEF	.375 (9.53)	1.062 (26.97)	2.062 (52.37)	.465 (11.81)
14	030907-0000	030907-0001	3/4-20 UNEF	.375 (9.53)	1.156 (29.36)	2.062 (52.37)	.575 (14.61)
16	030909-0000	030909-0001	7/8-20 UNEF	.375 (9.53)	1.250 (31.75)	2.062 (52.37)	.669 (17.00)
18	030910-0000	030910-0002	1-20 UNEF	.375 (9.53)	1.344 (34.14)	2.062 (52.37)	.807 (20.50)
20	030911-0000	030911-0003	1 3/16-18 UNEF	.375 (9.53)	1.469 (37.31)	2.188 (55.58)	.978 (20.50)
22	030912-0000	030912-0002	1 3/16-18 UNEF	.375 (9.53)	1.594 (40.49)	2.188 (55.58)	.980 (24.89)
24	030913-0000	030913-0002	1 7/16-18 UNEF	.375 (9.53)	1.719 (43.66)	2.312 (58.72)	1.220 (31.00)
28	030914-0000	030914-0003	1 7/16-18 UNEF	.375 (9.53)	1.969 (50.01)	2.312 (58.72)	1.114 (28.30)
32	030915-0000	030915-0002	1 3/4-18 UNS	.438 (11.13)	2.219 (56.36)	2.438 (61.93)	1.425 (36.20)
36	030916-0000	030916-0002	2-18 UNS	.500 (12.70)	2.469 (62.71)	2.438 (61.93)	1.772 (45.00)

* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only

Straight Plug - Split Endbell

MS3106B

CA/CAR 3106B

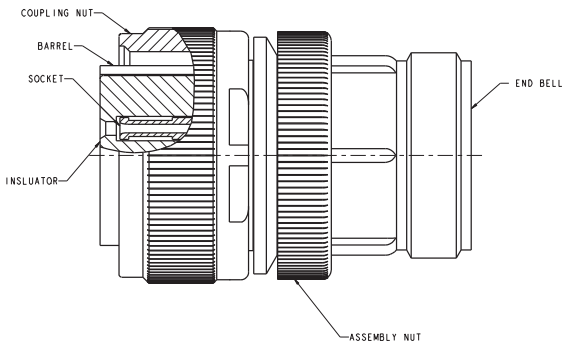
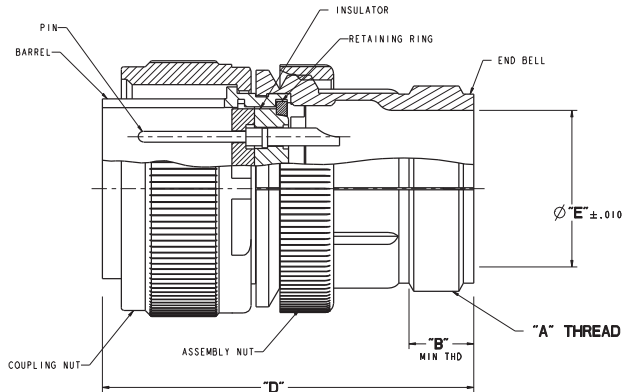
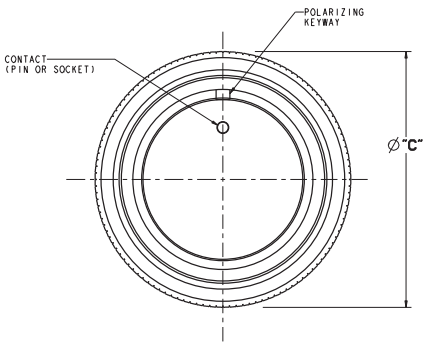


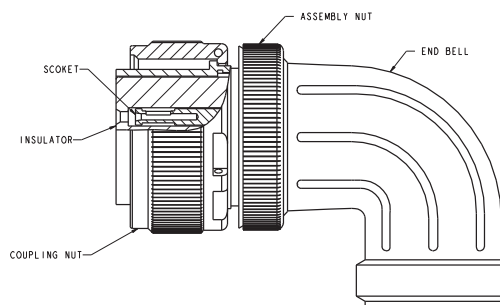
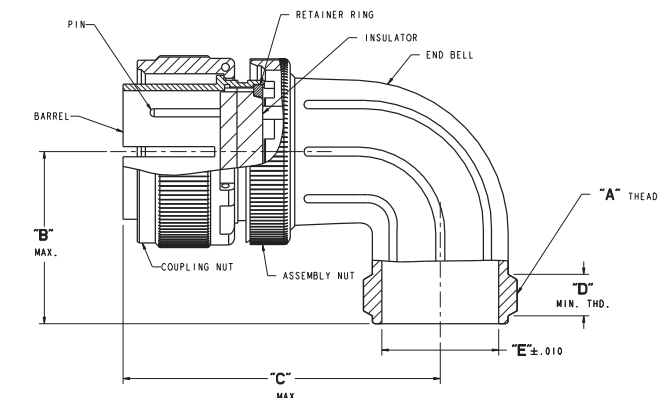
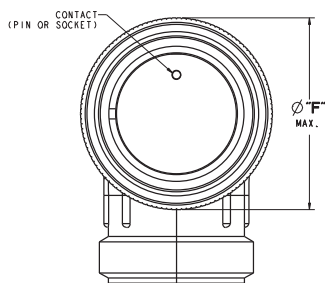
TABLE							
SIZE	ITT CANNON HARDWARE KIT NO. (GREEN ZINC)	ITT CANNON HARDWARE KIT NO. (BLACK ZINC)	"A" THREAD (CLASS: 2A)	"B"	Ø"C"	"D"	Ø"E"
10SL*	002778-0001	002778-0002	5/8-24 UNEF	.751 (19.07)	.969 (24.61)	1.531 (38.89)	.438 (11.13)
12S	002779-0000	002779-0002	5/8-24 UNEF	.751 (19.07)	1.034 (26.26)	1.688 (42.88)	.379 (9.62)
14S	002781-0000	002781-0003	3/4-20 UNEF	.736 (18.69)	1.138 (28.90)	1.688 (42.88)	.489 (12.42)
16S	002783-0000	002783-0003	7/8-20 UNEF	.744 (18.89)	1.256 (31.90)	1.688 (42.88)	.615 (15.62)
12	002780-0000	002780-0001	5/8-24 UNEF	.751 (19.07)	1.034 (26.26)	2.062 (52.37)	.379 (9.62)
14	002782-0000	002782-0001	3/4-20 UNEF	.736 (18.69)	1.138 (28.90)	2.062 (52.37)	.489 (12.42)
16	002784-0000	002784-0002	7/8-20 UNEF	.744 (18.89)	1.256 (31.90)	2.062 (52.37)	.615 (15.62)
18	002785-0000	002785-0003	1-20 UNEF	.909 (23.08)	1.331 (33.80)	2.062 (52.37)	.802 (20.37)
20	002786-0000	002786-0003	1 3/16-18 UNEF	1.032 (26.31)	1.479 (37.56)	2.188 (55.58)	.906 (23.01)
22	002787-0000	002787-0003	1 3/16-18 UNEF	.984 (24.99)	1.609 (40.86)	2.188 (55.58)	.906 (23.01)
24	002788-0000	002788-0003	1 7/16-18 UNEF	1.150 (29.21)	1.721 (43.71)	2.312 (58.72)	1.180 (29.97)
28	002789-0000	002789-0003	1 7/16-18 UNEF	1.150 (29.21)	1.997 (50.72)	2.312 (58.72)	1.164 (29.56)
32	002790-0000	002790-0002	1 3/4-18 UNS	1.209 (30.70)	2.252 (57.20)	2.438 (61.93)	1.489 (37.72)
36	002791-0000	002791-0002	2-18 UNS	1.281 (32.53)	2.496 (63.39)	2.438 (61.93)	1.666 (42.32)

* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only

90° Angle Plug - Split Endbell

MS3108B

CA/CAR 3108B



TABLE

SIZE	ITT CANNON HARDWARE KIT NO. (GREEN ZINC)	ITT CANNON HARDWARE KIT NO. (BLACK ZINC)	"A" THREAD (CLASS: 2A)	"B"	"C"	"D"	"E"	"F"
10SL*	002756-0001	002756-0002	5/8-24 UNEF	1.00 (25.40)	1.500 (38.10)	.375 (9.53)	.25 (6.35)	.969 (24.61)
12S	002757-0000	002757-0001	5/8-24 UNEF	1.063 (27.00)	1.688 (42.86)	.375 (9.53)	.344 (8.74)	1.062 (26.94)
14S	002759-0000	002759-0002	3/4-20 UNEF	1.125 (28.57)	1.75 (44.45)	.375 (9.53)	.469 (11.91)	1.156 (29.36)
16S	002761-0000	002761-0002	7/8-20 UNEF	1.188 (30.17)	1.938 (49.23)	.375 (9.53)	.594 (15.08)	1.25 (31.75)
12	002758-0000	002758-0001	5/8-24 UNEF	1.063 (27.00)	1.938 (49.23)	.375 (9.53)	.344 (8.74)	1.062 (26.94)
14	002760-0000	002760-0001	3/4-20 UNEF	1.125 (28.57)	1.938 (49.23)	.375 (9.53)	.469 (11.91)	1.156 (29.36)
16	002762-0000	002762-0001	7/8-20 UNEF	1.188 (30.17)	2.125 (53.98)	.375 (9.53)	.594 (15.08)	1.25 (31.75)
18	002763-0000	002763-0002	1-20 UNEF	1.313 (33.35)	2.188 (55.58)	.375 (9.53)	.719 (18.26)	1.344 (34.14)
20	002764-0000	002764-0002	1 3/16-18 UNEF	1.375 (34.93)	2.438 (61.93)	.375 (9.53)	.875 (22.25)	1.469 (37.31)
22	002765-0000	002765-0002	1 3/16-18 UNEF	1.375 (34.93)	2.438 (61.93)	.375 (9.53)	.875 (22.25)	1.594 (40.49)
24	002766-0000	002766-0002	1 7/16-18 UNEF	1.563 (39.70)	2.688 (68.28)	.375 (9.53)	1.094 (27.78)	1.719 (43.6)
28	002767-0000	002767-0002	1 7/16-18 UNEF	1.563 (39.70)	2.688 (68.28)	.375 (9.53)	1.094 (27.78)	1.969 (50.01)
32	002768-0000	002768-0001	1 3/4-18 UNS	1.875 (47.63)	2.875 (73.03)	.438 (11.13)	1.375 (34.93)	2.219 (56.36)
36	002769-0000	002769-0002	2-18 UNS	2.063 (52.40)	2.938 (74.63)	.500 (12.70)	1.625 (41.28)	2.469 (62.71)

* 10SL is available in the following configurations only: 3100, 3101, 3102, pin contacts only and 3106 and 3108 socket contacts only

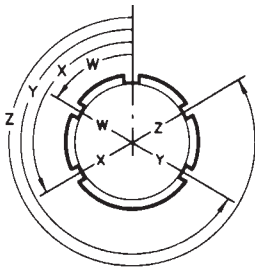


A

Circular

Alternate Insert Positions

Pin front view: Shell rotation



Contact Arrangement	W°	X°	Y°	Z°
10SL-3	—	—	—	—
10SL-4	—	—	—	—
12S-3	70	145	215	290
14S-1	—	—	—	—
14S-2	—	120	240	—
14S-5	—	110	—	—
14S-6	—	—	—	—
14S-7	90	180	270	—

Contact Arrangement	W°	X°	Y°	Z°
14S-9	70	145	215	290
16-9	35	110	250	325
16-10	90	180	270	—
16-11	35	110	250	325
16S-1	80	—	—	280
16S-8	—	170	265	—
18-1	70	145	215	290
18-4	35	110	250	325
18-5	80	110	250	280
18-8	70	—	—	290
18-9	80	110	250	280
18-10	—	120	240	—
18-11	—	170	265	—
18-12	80	—	—	280
18-20	90	180	270	—
18-22	70	145	215	290
20-3	70	145	215	290
20-4	45	110	250	—
20-7	80	110	250	280
20-19	90	180	270	—
20-27	35	110	250	325

Contact Arrangement	W°	X°	Y°	Z°
20-29	80	—	—	280
20-33	35	110	256	325
22-2	70	145	215	290
22-14	80	—	—	280
22-19	80	110	250	280
22-23	35	—	250	—
22-28	80	—	—	280
24-2	80	—	—	280
24-10	80	—	—	280
24-20	80	110	250	280
24-28	80	110	250	280
28-10	80	110	250	280
28-11	80	110	250	280
28-12	90	180	270	—
28-15	80	110	250	280
28-16	80	110	250	280
28-21	80	110	250	280
36-5	—	120	240	—
36-7	80	110	250	280
36-8	80	110	250	280
36-10	80	125	235	280

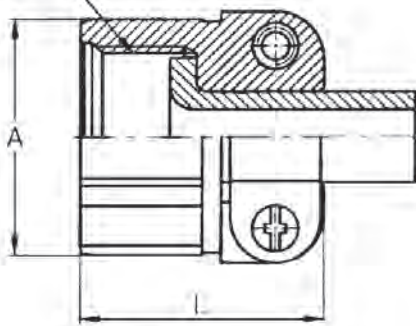
Accessories

Cable clamps are available in both the environmentally safe green zinc and black zinc, and will accommodate shell sizes 10SL-36. Double clamping action provides a balanced, positive hold on the wires and greatly reduces moisture transmission, a real benefit in applications that require environmental sealing. This clamp is provided with the bushing.

Shell Size	Part Number Green Zinc	Part Number Black Zinc RoHS compliant
10SL, 12S	CA17711-111	CA17711-103
14S	CA17711-112	CA17711-104
16S, 16	CA17711-113	CA17711-101
18	CA17711-114	CA17711-102
20, 22	CA17711-115	CA17711-22
24, 28	CA17711-116	CA17711-105
32	CA17711-117	CA17711-106
36	CA17711-118	CA17711-107



Z Thd.



Size	A	L	Z	Green Zinc	Black Zinc RoHS compliant	Cadmium
4A	.811 (20.60)	.811 (20.60)	5/8-24INEF-2B	995-0002-558	995-0002-280	995-0002-550
6A	.969 (24.60)	.969 (24.60)	3/4-20UNEF-2B	995-0002-559	995-0002-281	995-0002-551
8A	1.094 (27.80)	1.094 (27.80)	7/8-20UNEF-2B	995-0002-560	995-0002-282	995-0002-552
10A	1.89 (30.20)	1.89 (30.20)	1-20UNEF-2B	995-0002-561	995-0002-283	995-0002-553
12A	1.378 (35.00)	1.378 (35.00)	13/16-18UNEF-2B	995-0002-562	995-0002-284	995-0002-554
16A	1.693 (43.00)	1.693 (43.00)	17/16-18UNEF-2B	995-0002-563	995-0002-285	995-0002-555
20A	2.031 (51.60)	2.031 (51.60)	1-3/4-18UNS-2B	995-0002-564	995-0002-286	995-0002-556
24A	2.220 (56.40)	2.220 (56.40)	2-18UNS-2B	995-0002-565	995-0002-287	995-0002-557

Metal Protective Caps



For more information on protective caps contact Interconnect Solutions Sales Offices.

ITT Cannon is the foremost manufacturer of MS and MS type connectors with the widest range of connector styles, sizes and variations in the industry. These connectors utilize the finest materials, which, along with precision manufacturing and rigid quality control, assure ITT Cannon customers of the finest quality connectors.

These circular connectors were originally designed for aircraft, but are now widely used in many other fields. They are particularly suitable for commercial applications requiring low cost and high reliability.



ENVIRONMENTAL RESISTANT MS-E, MS-F, MS-R, AND F80 (Solder/Crimp Termination)

MS-E, MS-F and MS-R are similar to MS-A and MS-B connectors but have resilient insulators and wire sealing grommets for extreme environmental conditions and high altitude sealing. MS-E's and MS-F's have a mechanical cable clamp; the MS-R has a shorter, lighter weight endbell without the cable clamp. Both the MS-F and MS-R have O rings to supplement the interfacial seal. Shells are aluminum alloy. Contacts are silver plated copper alloy. The F80 modification (crimp contact termination) is available in E, R, F and BFR styles with resilient insulators.

POTTING ER CONNECTORS (Solder Contact Termination)

These Lightweight potting connectors provide resistance to salt water, fuels, etc., and will withstand the effects of high vibration. 3100 and 3106 connectors with plastic potting cups and resilient inserts meet the requirements of MS3103 and MS25183. Contacts are silver plated copper or brass. ER insulators are resilient; shells are aluminum alloy. A 90° plug (3108ER) is also available.



ACCESSORIES

Accessories to fit MS connectors include junction shells, protective caps, dummy or stowage receptacles, cable clamps, telescoping bushings.



A

Circular

How to Order

In the latest revision of MIL-C-5015, a new class of environment-resistant connectors was added. This new class F connector supersedes the previous class E connector. The MS3106F has an O ring under the coupling nut. The class E will be available upon request for existing programs, and upon ordering will also bear the E nomenclature on the shell.

MS-F and MS-R connectors are designed to operate in the extreme environmental conditions of high altitude flight and must be completely sealed to withstand moisture, condensation, vibration, corona and flashover caused by high altitude environments. They have resilient grommet with internal restrictions in the wire cavities which act as O rings around the wires. This allows the wires to slide thru the grommet with a minimum of friction, yet when the ferrule is seated and the endbell tightened it provides a perfect wire seal thru a wide variety of wire diameters. This seal at the rear, plus the interfacial seal at the front, effects a completely environment-resistant assembly when the plug is mated to and F or R receptacle. Sockets are of the closed-entry type.

The temperature range for this connector is -55°C (67°F) to +125° (+257°F) and meets the requirements of MIL-C-5015.

The F80 modification (crimp contact termination) is available in resilient insulators in the E, R, F, and BFR styles, creating a large selection of insert assemblies and hardware. Components are identical to the MS-5015 except that the contacts are modified for crimp termination providing and inexpensive crimp contact connector with the proven reliability of and complete intermateability with the MS-5015 series. Cable clamps have been integrally designed with the endbell on MS-E and MS-F connectors. Class R is without the cable clamp.

	MS	3106	R	18	-	1	P	W	*
	CA	3106	F	18	-	1	S	-	F80*
PREFIX									
SHELL STYLE									
CLASS									
SHELL SIZE									
CONTACT ARRANGEMENT									
CONTACT TYPE									
ALTERNATE INSERT POSITION									
MODIFICATION CODE									

PREFIX

MS - Conforms to latest MIL-C-5015 revision.

CA - Cannon designation (for any modification)

CAR - RoHS compliant

SHELL STYLE

3100 - Wall mounting receptacle

3101 - Cable connecting plug

3102 - Box mounting receptacle

3106 - Straight plug

3108 - 90° angle plug

CLASS

E - with resilient insulator and integral clamp for cable strain relief

F - same as E, however style 3106 with O-ring seal under the coupling nut

* When ordering MS3106F to the Cannon part number, designate CA06R.

SHELL SIZE

10S, 12S, 14S, 16S, 16, 18, 20, 22, 24, 28, 32 and 36.

CONTACT ARRANGEMENTS

See pages A-85 to A-89

CONTACT TYPE

P - Pin

S - Socket

ALTERNATE INSERT POSITION

W, X, Y and Z (omit for "Normal", see page A-89)

MODIFICATION CODE

A71 - Electroless Nickel Hardware, RoHS

A176 - Contacts hard gold over nickel, RoHS

A206 - Black zinc cobalt hardware, RoHS

F42 - Connector supplied without endbell, grommet and ferrule

F80 - Snap-in crimp contacts

F183 - Snap-in crimp contacts for metric conductors

DN - CA3106 (plug only), endbell for shrink boot adapter

A232 - Black zinc cobalt hardware, RoHS European version

A233 - Green zinc cobalt hardware, European version



Circular

A

Performance and Material Specifications

MATERIALS AND FINISHES

Shell	Material Finish	Aluminum Alloy O.D. Chromate coating over cadmium plating
Insulator	Material	Polychloroprene (resilient)
Contacts	Material Finish Termination	Brass or copper alloy Silver plate Tinned solder pot

WIRING

For class E, F, and R connectors, satisfactory moisture sealing will be obtained if AWG and MS wire sizes and insulation outside diameters are governed by this table.

Contact Size	Wire Size (MIL-W-5086)	Insulation OD Limit (inches)
16	16 thru 20	.064 (1.63) min. to .130 (3.30) max.
12	12 thru 14	.114 (2.90) min. to .170 (4.32) max.
8	8 thru 10	.164 (4.17) min. to .255 (6.48) max.
4	4 thru 6	.275 (6.98) min. to .370 (9.40) max.
0	0 thru 2	.415 (10.54) min to .550 (13.97) max.

ELECTRICAL SERVICE DATA

Test current ratings of contacts and 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 the allowable in wire bundles as specified in MIL-W-5088.

Contact Size	Test Current (amps)	Potential Drop (millivolts)
16	13	49
12	23	42
8	46	26
4	80	23
0	150	21

THERMOCOUPLE CONTACTS

Sizes 12 and 16 contacts, machined from matching thermocouple lead wire alloys, can be supplied in ITT Cannon connectors. These thermocouple contacts maintain continuity from thermal-sensor leads through a bulkhead of other closures in temperature measuring applications.

These contacts for matching lead wires are detailed by the standards of the Instrument Society of America (ISA).

ISA Standards	Material
J and Y	Iron and constantan
K	Chromel and alumel
T	Copper and constantan

Since the thermocouple connector applications determines the soldering methods and materials to be used, thermocouple contacts, identified by permanent markings, are normally supplied with untinned solder pots. Thermocouple contacts are supplied only in connectors having resilient insulators.

HIGH POTENTIAL TEST VOLTAGE

MS connectors show no evidence of breakdown when the test voltage given below is applied between the two closest contacts and between the shell and the contacts closest to the shell for a period of one minute.

MS Service Rating	Test Voltage (RMS) 60 cps	Suggested* Operating Voltages		Air Spacing Nom. (inches)	Creepage Distance Nom. (inches)
		DC	AC (rms)		
Inst.	1000	250	200		1/16
A	2000	700	500	1/16	1/8
D	2800	1250	900	1/8	3/16
E	3500	1750	1250	3/16	1/4
B	4500	2450	1750	1/4	5/16
C	7000	4200	3000	5/16	1

*As indicated in previous MS specification and to be used by designer only as a guide.

Contact Arrangements (Face View Pin Insert)

LEGEND

● Not MS Approved. ITT Cannon Proprietary (see ITT Cannon designed alternative insert positions, page A-90)

⌘ High Volume Layouts - readily available from Cannon Distributors

Shell Size	8S-1	10S-2	10SL-4	10SL-3	10SLA4	12S-4	12-5	12S-3	12SA10	14-3	14S-9
No. of Contacts	1 #16	1 #16	2 #16	3 #16	5 #20	1 #16	1 #12	2 #16	4 #16	1 #8	2 #16
Service Rating	A	A	A	A	A	D	D	A	Inst.	A	A
Shell Size	14S-1	14S-7	14S-2	14S-5	14S-6	16-7	16-12	16-11	16S-4	16-13	16-13
No. of Contacts	3 #16	3 #16	4 #16	5 #16	6 #16	2 #16 (A, B) 1 #8 (C)	1 #4	2 #12	2 #16	2 #12	2 #12
Service Rating	A	A	Inst.	Inst.	Inst.	A	A	A	D	(A-Iron B-Constantan)	A
Shell Size	16S-5	16S-6	16-10	16-9	16S-8	16S-1	18-7	18-3			
No. of Contacts	3 #16	3 #16	3 #12	2 #16 (B,D) 2 #12 (A,C)	5 #16	7 #16	1 #8	2 #12			
Service Rating	A	A	A	A	A	A	B	D			
Shell Size	18-5	18-22	18-4	18-10	18-13	18-15	18-11	18-12			
No. of Contacts	1 #16(A) 2 #12(B,C)	3 #16	4 #16	4 #12	3 #12 (B,C,C) 1 #8(A)	4 #12	5 #12	6 #16			
Service Rating	D	D	D	A	A	(A, C-Iron; B, D-Constantan)	A	A			
Shell Size	18-9	18-8	18-1	18-19	20-2	20-23	20-3	20-19			
No. of Contacts	5 #16(B,C,E-G) 2 #12(A,D)	7 #16(A-G) 1 #12(H)	10 #16	10 #16	1 #0	2 #8	3 #12	3 #8			
Service Rating	Inst.	A	A(B,C,F,G) Inst. (all others)	A	D	A	D	A			
Shell Size	20-4	20-24	20A-9	20A37	20A-48	20-14	20-8	20-17	20-22	20-15	
No. of Contacts	4 #12	2 #16 (A,C) 2 #8 (B,D)	9 #12 D (J)	ITT Cannon pos. #8 of 20-4	19 #16	3 #12(C,D,E) 2 #8(A,B)	4 #16(B,C,E,F) 2 #8(A,D)	1 #16(F) 5 #12(A-E)	3 #16(B,D,F) 3 #8(A,C,E)	7 #12	
Service Rating	D	A	A (all others)	D	Inst.	A	Inst.	A	A	A	

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

www.ittcannon.com



A

Circular



A

Contact Arrangements (continued)

LEGEND

● Not MS Approved. ITT Cannon Proprietary (see ITT Cannon designed alternative insert positions, page A-90)

⌄ High Volume Layouts - readily available from Cannon Distributors

Circular

Shell Size	20-7	20-16	20-18	20-33	20-11	20-27	20-29	22-7
No. of Contacts	8 #16	7 #16(A-G) 2 #12(H,I)	6 #16(A,C-E,G,H) 3 #12(B,F,I)	11 #16	13 #16	14 #16	17 #16	1 #0
Service Rating	A(C-F) D(A,B,G,H)	A	A	A	Inst.	A	A	E

Shell Size	22-11	22-2	22-6	22-9	22-4	22-10	22-22	22-12
No. of Contacts	2 #16	3 #8	1 #16(B) 2 #8(A,C)	3 #12	2 #12(A,C) 2 #8(B,D)	4 #16	4 #8	3 #16(A,C,D) 2 #8(B,E)
Service Rating	B	D	D	E	A	E	A	D

Shell Size	22-13	22-5	22-15	22-28	22-18	22-23	22-17	22-20
No. of Contacts	1 #16(E) 4 #12(A-D)	4 #16(A,C,D,F) 2 #12(B,E)	1 #16(D) 5 #12(A-C,E,F) A(A-C,E,F),E(D)	7 #12	8 #16	8 #12	8 #16(A-D,F-J) 1 #12(E)	9 #16
Service Rating	A(A-D), D(E)	D	A	A	A(C-E) D(all others)	D(H) A(all others)	D(A), A(all others)	A

Shell Size	22-27	22-19	22-14	24-9	24-22	24-12	24-2	24-10
No. of Contacts	8 #16(A-H) 1 #8(J)	14 #16	19 #16	2 #4	4 #8	3 #12(B,D,E) 2 #4(A,C)	7 #12	7 #8
Service Rating	D(J), A (all others)	A	A	A	D	A	D	A

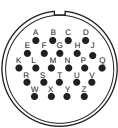
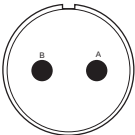
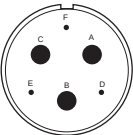
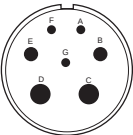
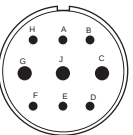
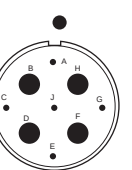
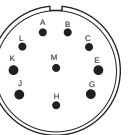
Shell Size	24-27	24-6	24-11	24-20	24-19	24A24	24-5	24-7
No. of Contacts	7 #16	8 #12	6 #12(A-C,G-I) 3 #8(D-F)	9 #16(A-D,G-L) 2 #12(E,F)	12 #16 6 #12(B-G)	12 #12	16 #16	14 #16(A-M,O) 2 #12(P,N)
Service Rating	E	D(A,G,H) A(all others)	A	D	A	A	A	A

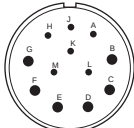
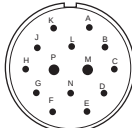
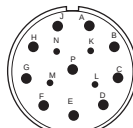
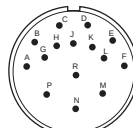
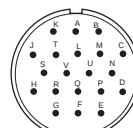
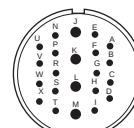
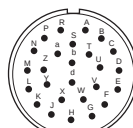
Contact Arrangements (continued)

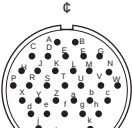
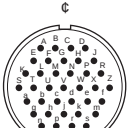
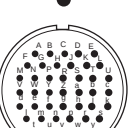
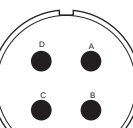
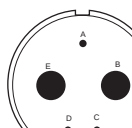
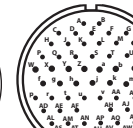
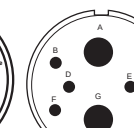
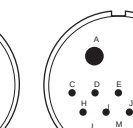
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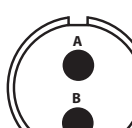
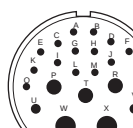
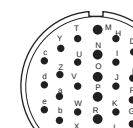
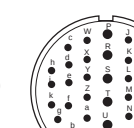
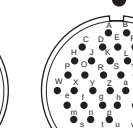
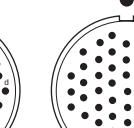
● Not MS Approved. ITT Cannon Proprietary (see ITT Cannon designed alternative insert positions, page A-90)

⌘ High Volume Layouts - readily available from Cannon Distributors

								
Shell Size	24-28	28-7	28-22	28-10	28-1	28A-16	28A-63	28-19
No. of Contacts	24 #16	2 #4	3 #16(D-F) 3 #4(A-C)	3 #12(A,F,G) 2 #8(B,E) 2 #4(C,D)	6 #12(A,B,D-F,H) 3 #8(C,J,G)	5 #16 (A, D-F, J) 4 #4 (B, C, G, H)	9 #12 19 #16	6 #16(A-C,H,L,M) 4 #12(E,G,J,K)
Service Rating	Inst.	D	D	D(G), A(all others)	D(A,E,J) A(all others)	A (e) Inst. (all others)	A (e) Inst. (all others)	A(C,E,G,J,K,L) B(H,M),D(A,B)

							
Shell Size	28-9	28-2	28-20	28-17	28-16	28-11	28-12
No. of Contacts	6 #16(A,H-M) 6 #12(B-G)	12 #16(A,L,N) 2 #12(M,P)	4 #16(K-N) 10 #12(A-J,P)	15 #16	20 #16	18 #16(A-I, N-X) 4 #12(J-M)	26 #16
Service Rating	D	D	A	A(A-L), B(R) D(M-P)	A	A	A

								
Shell Size	28-15	28-21	28A51	32-17	32-1	32A-69	32-15	32-9
No. of Contacts	35 #16	37 #16	43 #16	4 #4	3 #12(A,C,D) 2 #0(B,E)	41 #20 20 #16	2 #0(A,G) 6 #12(B,C,D,E,F,H)	12 #16(C-N) 2 #4(A,B)
Service Rating	A For MIL equip design, use 28-21	A	A	D	E(A),D(all others)	Inst.	D	D

							
Shell Size	32-5	32-6	32-8	32-7	32A47	32A10	36-4
No. of Contacts	2 #0	16 #16(A-O,S) 2 #12(U,V) 3 #8(P,R,T) 2 #4(W,X)	24 #16(A-L,T-Z,a-e) 6 #12(M-S) 2 #8(O,R)	28 #16(A-N,W-Z,a-k) 7 #12(O-V)	47 #16	54 #16	3 #0
Service Rating	D	A	A For new MIL equip. design, use 32-7	Inst. (A,B,h,i) A(all others)	A	A	A(B,C),C(A)

*NOTE: Additional layouts are the same as shown but in unique alternate positions. Please consult the factory.



A

Circular



A

Circular

Contact Arrangements (continued)

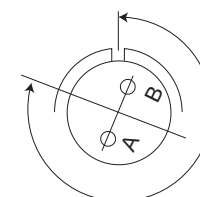
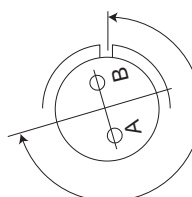
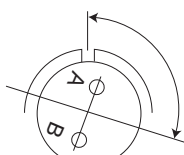
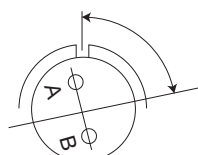
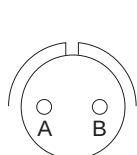
● Not MS Approved. ITT Cannon Proprietary (see ITT Cannon designed alternative insert positions, page A-90)

⌘ High Volume Layouts - readily available from Cannon Distributors

Shell Size	36-5	36-6	36-14	36A16	36A46	36-9
No. of Contacts	4 #0	4 #4(B,C,E,F) 2 #0(A,D)	6 #16(K-N,P,Q) 5 #12(B,D,F,H,J) 5 #8(A,C,E,G,I)	18 #12 (B,C,V,J,K,M,N, R, T-Iron; A,D-F,H,L P,S,U-Constantan)	27 #12	14 #16(A-G,Z-f) 14 #12(H-N,S-Y) 2 #8(O,R) 1 #4(P)
Service Rating	A	A	D	A	A	A
Shell Size	36-15	36-7	36-8	36-10	36A34	36A66
No. of Contacts	35 #16	40 #16(A-Z,a-s) 7 #12(t-z)	46 #16(A-X,Z-z) 1 #12(Y)	48 #16	52 #16	52 #16(A-c,h-AK) 4 #12(d,e,f,g)
Service Rating	D(m), A (all others)	A	A	A	A	A
Shell Size	40A33	40-10	40A27	40-56		
No. of Contacts	7 #8(G-N) 6 #4(A-F)	16 #16(A,B,E-H,M,N,P Q,V-Y,b,c) 9 #8(C,D,I,L,O,R,U,Z,a) 4 #4(K,J,S,T)	60 #16	85 #16		
Service Rating	A	A	A	A		
Shell Size	44-1	48-5				
No. of Contacts	36 #16(A-S,Z-t) 6 #12(T-Y)	90 #16(A-BL,BN-BT,BW,BX) 1 #8(CD) 9 #12(BM,BU,BV,BY-CC,CE)				
Service Rating	D	A				

MS Alternate Insert Positions

All views are looking into front of pin insert of rear of socket insert.



Normal Position

Position W

Position X

Position Y

Position Z

Contact				Alternate Positions				Contact				Alternate Positions				Contact				Alternate Positions					
Shell Size	Arrangement	Wire Size	Service Rating	W	X	Y	Z	Shell Size	Arrangement	Wire Size	Service Rating	W	X	Y	Z	Shell Size	Arrangement	Wire Size	Service Rating	W	X	Y	Z		
8S	8S-1	1 #16	A	-	-	-	-	20	20-22	3 #16	A	80	110	250	280	28	28-10	3 #12	D(G)	80	110	250	280		
10S	10S-2	1 #16	A	-	-	-	-			3 #8								2 #8	A(all others)						
	10SL-4	2 #16	A	-	-	-	-		20-23	2 #8	A	35	110	250	325			2 #4							
	10SL-3	3 #16	A	-	-	-	-		20-24	2 #16	A	35	110	250	325		28-11	18 #16	A	80	110	250	280		
12	12-5	1 #12	D	-	-	-	-			2 #8								4 #12							
12S	12S-4	1 #16	D	-	-	-	-		20-27	14 #16	A	35	110	250	325		28-12	26 #16	A	90	180	270	-		
	12S-3	2 #16	A	70	145	215	290		20-29	17 #16	A	80	-	-	280		28-15	35 #16	A	80	110	250	280		
14	14-3	1 #8	A	-	-	-	-		20-33	11 #16	A	-	-	-	-		28-16	20 #16	A	80	110	250	280		
14S	14S-1	3 #16	A	-	-	-	-	22	22-2	3 #8	D	70	145	215	290		28-17	15 #16	A(A-L),B(R)	80	110	250	280		
	14S-2	4 #16	Inst.	-	120	240	-		22-4	2 #12	A	35	110	250	325			D(M-P)							
	14S-5	5 #16	Inst.	-	110	-	-			2 #8						28-19	6 #16	A(C,E,G,J,K,L)	80	110	250	280			
	14S-6	6 #16	Inst.	-	-	-	-		22-5	4 #16	D	35	110	250	325		4 #12	B(H,M), D(A,B)							
	14S-7	3 #16	A	90	180	270	-			2 #12						28-20	4 #16		80	110	250	280			
	14S-9	2 #16	A	70	145	215	290		22-6	1 #16	D	80	110	250	280		10 #16								
16	16-7	2 #16	A	80	110	250	280			2 #8						28-21	37 #16	A	80	110	250	280			
	1 #8							22-7	1 #10	E	-	-	-	-		28-22	3 #16	D	70	145	215	290			
	16-9	2 #16	A	35	110	250	325		22-9	3 #12	E	70	145	215	290	32	32-1	3 #12	E(A)	80	110	250	280		
	2 #12							22-10	4 #16	E	35	110	250	325			2 #10	D(all others)							
	16-10	3 #12	A	90	180	270	-		22-11	2 #16	B	35	110	250	325			32-5	2 #10	D	80	110	250	325	
	16-12	1 #4	A	-	-	-	-		22-12	3 #16	D	80	110	250	280			32-6	16 #16	A	80	110	250	280	
	16-11	2 #12	A	35	110	250	325			2 #8							2 #12								
	16-13	2 #12	A	35	110	250	325		22-13	1 #16	A(A-D)	35	110	250	325		3 #8								
16S	16S-1	7 #16	A	80	-	-	280			4 #12	D(E)						2 #4								
	16S-4	2 #16	D	35	110	250	325		22-14	19 #16	A	80	-	-	280										
	16S-5	3 #16	A	70	145	215	290		22-15	1 #16	A(A-C,E,F)	80	110	250	280		32-7	28 #16	Inst.(A,B,h,i)	80	125	235	280		
	16S-6	3 #16	A	90	180	270	-			5 #12	E(D)						7 #12	A(all others)							
18	18-1	10 #16	A(B,C,F,G)	70	145	215	290		22-17	8 #16	D(A)	80	110	250	280		32-8	24 #16	A	80	125	235	280		
			Inst.(all others)						1 #12	A(all others)							6 #12								
								22-18	8 #16	A(C-E)	80	110	250	280		32-9	12 #16	D	80	110	250	280			
	18-3	2 #12	D	35	110	250	325										2 #4								
	18-4	4 #16	D	35	110	250	325		22-19	14 #16	A	80	110	250	280		32-15	2 #10	D	35	110	250	280		
	18-5	1 #16	D	80	110	250	280		22-20	9 #16	A	35	110	250	325			6 #12							
	2 #12								22-22	4 #8	A	-	110	250	-		32-17	4 #4	D	45	110	250	-		
	18-7	1 #8	B	-	-	-	-		22-23	8 #12	D(H)	35	-	250	-	36	36-4	3 #10	A(B,C)	70	145	215	290		
	18-8	7 #16	A	70	-	-	290												D(A)						
	1 #12							22-27	8 #16	D(I)	80	-	250	280			36-5	4 #10	A	-	120	240	-		
	18-9	5 #16	Inst.	80	110	250	280			1 #8	A(all others)						36-6	4 #4	A	35	110	250	325		
	20	2 #12								22-28	7 #12	A	80	-	-	280			2 #10						
		18-10	4 #12	A	-	120	240	-	24	24-2	7 #12	D	80	-	-	280		36-7	40 #16	A	80	110	250	280	
		18-11	5 #12	A	-	170	265	-			24-5	16 #16	A	80	110	250	280			7-12					
		18-12	6 #16	A	80	-	-	280			24-6	8 #12	D(A,G,H)	80	110	250	280		36-8	46 #16	A	80	110	250	280
		18-13	3 #12	A	80	110	250	280											1 #12						
1 #8								24-7	14 #16	A	80	110	250	280		36-9	14 #16	A	80	125	235	280			
18-15		4 #12	A	-	120	240	-		2 #12								14 #12								
18-19		10 #16	A	-	120	240	-		24-9	2 #4	A	35	110	250	325			2 #8							
18-22		3 #16	D	70	145	215	290		24-10	7 #8	A	80	-	-	280			1 #4							
20		20-2	1 #10	D	-	-	-	-		24-11	6 #12	A	35	110	250	325		36-10	48 #16	A	80	125	235	280	
		20-3	3 #12	D	70	145	215	290			3 #8						36-14	6 #16	D	90	180	270	-		
		20-4	4 #12	D	45	110	250	-		24-12	3 #12	A	80	110	250	280			5 #12						
	20-7	8 #16	A(C-F)	80	110	250	280			2 #4							5 #8								
			D(A,B,G,H)					24-20	9 #16	D	80	110	250	280		36-15	35 #16	D(m)	60	125	245	305			
	20-8	4 #16	Inst.	80	110	250	280			2 #12								A(all others)							
	2 #8							24-22	4 #8	D	45	110	250	-	40	40-10	16 #16	A	65	125	225	310			
	20-14	3 #12	A	80	110	250	280		24-27	7 #16	E	80	-	-		280		9 #8							
2 #12								24-28	24 #16	Inst.	80	110	250	280			4 #4								
20-15	7 #12	A	80	-	-	280	28	28-1	6 #12	D(A,E,I)	80	110	250	280			40-56	85 #16	A	72	144	216	288		
20-16	7 #16	A	80	110	250	280			3 #8	A(all others)						44	44-1	36 #16	D	65	125	225	310		
2 #12									28-2	12 #16	D	35	110	250	325			6 #12							
20-17	1 #16	A	90	180	270	-			2 #12							48	48-5	90 #16	A	65	125	225	310		
20-18	5 #12								2 #4	D	35	110	250	325			1 #8								
	6 #16	A	35	110	250	325		28-9	6 #16		80	110	250	280			9 #12								
3 #12								6 #12	D																
20-19	3 #8	A	90	180	270	-																			

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

www.ittcannon.com

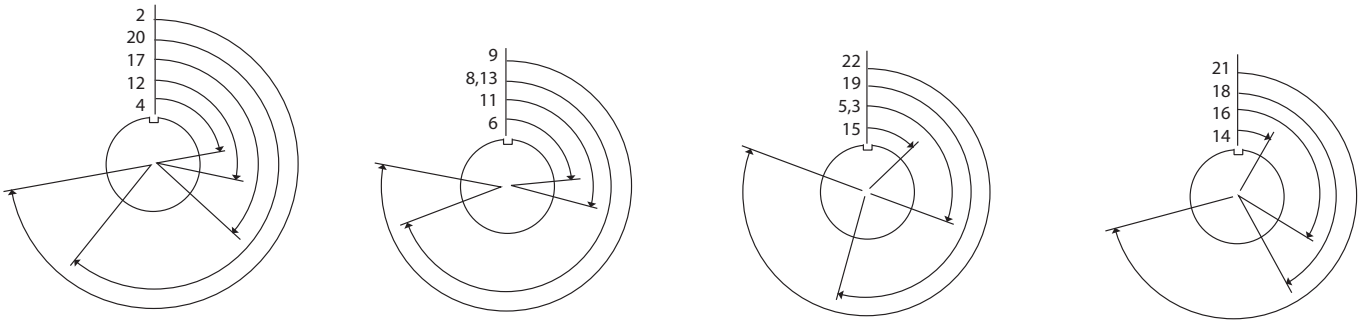


A

Circular

ITT Cannon Designated Alternate Insert Positions

Not MS approved.



NOTE: Front view of pin insulator rotates as shown.

Shell Size	Contact Arrangement	Wire Size	Service Rating	Available Position	
20	20A-9	9#12	D (I) A (all others)		
20	20A-48	19#16	Inst.	4	9
28	28A-16	5#16 4#4	A (e) Inst (all others)	2	12
28	28A-63	9#12 19#16	A (e) Inst (all others)		
32	32A-69	41#20 20#16	Inst	3	8
		20	220		
		21	255		
		22	290		
		23	165		
		24	330		
		25	235		
		26	125		

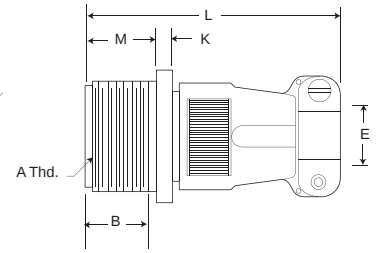
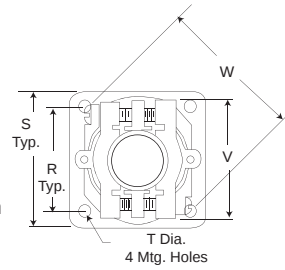
Wall Mounting Receptacle

MS3100E / MS3100F
Integral Cable Clamp

CA3100E / CA3100E

MS3100F wall mounting receptacles are used to carry wires thru walls or bulkheads, or to provide a means of disconnection at a bulkhead. MS3100F receptacles mate with 3106 and 3108 plugs.

MS3100E is identical to MS3100F and is available upon request. For new equipment, customer should specify MS3100F.



A

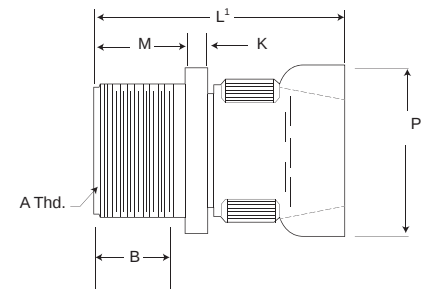
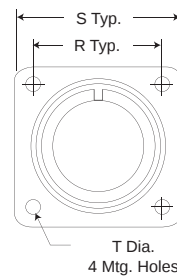
Circular

MS3100R



CA3100R

The MS3100R receptacle is identical in purpose to the MS3100F. The MS3100R features a shorter light weight endbell and mates with 3106 and 3108 plugs.



Shell Size	B Min.	E Max.	E Min.	K Max.	L Max.	L' Max.	E +.031 - .000	P Max.	R ± .005	S ± .031	T +.010 - .005	V Max.	W Max.
8S	.375 (9.53)	.235 (5.97)	.102 (2.59)	.125 (3.18)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	.890 (22.61)	.594 (15.09)	.875 (22.23)	.120 (3.05)	.840 (21.34)	1.046 (26.57)
10S	.375 (9.53)	.235 (5.97)	.102 (2.59)	.125 (3.18)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	.890 (22.61)	.719 (18.26)	1.000 (25.40)	.120 (3.05)	.840 (21.34)	1.046 (26.57)
10SL	.375 (9.53)	.297 (7.54)	.140 (3.56)	.125 (3.18)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	.970 (24.64)	.719 (18.26)	1.000 (25.40)	.120 (3.05)	.900 (22.86)	1.125 (28.58)
12S	.375 (9.53)	.297 (7.54)	.140 (3.56)	.140 (3.56)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	.970 (24.64)	.812 (20.62)	1.094 (27.79)	.120 (3.05)	.900 (22.86)	1.125 (28.58)
14S	.375 (9.53)	.422 (10.72)	.195 (4.95)	.140 (3.56)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	1.150 (29.21)	.906 (23.01)	1.188 (30.18)	.120 (3.05)	1.100 (27.94)	1.343 (34.11)
16S	.375 (9.53)	.547 (13.89)	.255 (6.48)	.140 (3.56)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	1.250 (31.75)	.969 (24.61)	1.281 (32.54)	.120 (3.05)	1.200 (30.48)	1.484 (37.69)
12	.625 (15.88)	.297 (7.54)	.140 (3.56)	.146 (3.71)	2.625 (66.68)	2.181 (55.40)	.750 (19.05)	.970 (24.64)	.812 (20.62)	1.094 (27.79)	.120 (3.05)	.900 (22.86)	1.125 (28.58)
14	.625 (15.88)	.422 (10.72)	.195 (4.95)	.146 (3.71)	2.625 (66.68)	2.181 (55.40)	.750 (19.05)	1.150 (29.21)	.906 (23.01)	1.188 (30.18)	.120 (3.05)	1.100 (27.94)	1.343 (34.11)
16	.625 (15.88)	.547 (13.89)	.255 (6.48)	.146 (3.71)	2.625 (66.68)	2.181 (55.40)	.750 (19.05)	1.250 (31.75)	.969 (24.61)	1.281 (32.54)	.120 (3.05)	1.200 (30.48)	1.484 (37.69)
18	.625 (15.88)	.610 (15.49)	.285 (7.24)	.180 (4.57)	2.688 (68.28)	2.181 (55.40)	.750 (19.05)	1.450 (36.83)	1.062 (26.97)	1.375 (34.93)	.120 (3.05)	1.300 (33.02)	1.609 (40.87)
20	.625 (15.88)	.735 (18.67)	.350 (8.89)	.180 (4.57)	2.750 (69.85)	2.181 (55.40)	.750 (19.05)	1.570 (39.88)	1.156 (29.36)	1.500 (38.10)	.120 (3.05)	1.500 (38.10)	1.890 (48.01)
22	.625 (15.88)	.740 (18.80)	.350 (8.89)	.180 (4.57)	2.750 (69.85)	2.181 (55.40)	.750 (19.05)	1.570 (39.88)	1.250 (31.75)	1.625 (41.28)	.120 (3.05)	1.500 (38.10)	1.890 (48.01)
24	.625 (15.88)	.922 (23.42)	.468 (11.89)	.203 (5.16)	2.969 (75.44)	2.181 (55.40)	.812 (20.62)	1.880 (47.75)	1.375 (34.93)	1.750 (44.45)	.147 (3.73)	1.740 (44.20)	2.170 (55.12)
28	.625 (15.88)	.922 (23.42)	.468 (11.89)	.203 (5.16)	3.031 (76.99)	2.181 (55.40)	.812 (20.62)	1.880 (47.75)	1.562 (39.67)	2.000 (50.80)	.147 (3.73)	1.740 (44.20)	2.170 (55.12)
32	.625 (15.88)	1.235 (31.37)	.664 (15.87)	.203 (5.16)	3.031 (76.99)	2.322 (58.98)	.875 (22.23)	2.205 (56.01)	1.750 (44.45)	2.250 (57.15)	.173 (4.39)	2.075 (52.71)	2.656 (67.46)
36	.625 (15.88)	1.360 (34.54)	.694 (17.63)	.203 (5.16)	3.281 (84.34)	2.322 (58.98)	.875 (22.23)	2.400 (60.96)	1.938 (49.23)	2.500 (63.50)	.173 (4.39)	2.300 (58.42)	2.922 (74.22)
40	.625 (15.88)	1.628 (41.35)	.911 (23.14)	.203 (5.16)	3.560 (89.66)†	2.427 (61.65)†	.875 (22.23)	2.840 (72.14)	2.188 (55.58)	2.750 (69.85)	.173 (4.39)	2.688 (68.28)	-

† Not to MS specification

Performance Specifications - Page A-84

Contact, Ceiling Plugs, Assembly Tools - Page A-105

Contact Arrangements - Page A-85 – A-89

Shell Size	A Thread	Shell Size	A Thread
8S	1/2-28UNEF-2A	16	1-20UNEF-2A
10S	5/8-24UNEF-2A	18	1-1/8-18UNEF-2A
10SL	5/8-24UNEF-2A	20	1-1/4-18UNEF-2A
12S	3/4-20UNEF-2A	22	1-3/8-18UNEF-2A
14S	7/8-20UNEF-2A	24	1-1/2-18UNEF-2A
16S	1-20UNEF-2A	28	1-3/4-18UNS-2A
12	3/4-20UNEF-2A	32	2-18UNS-2A
14	7/8-20UNEF-2A	36	2-1/4-16UN-2A
		40	2-1/2-16UN-2A



Cable Connecting Plug (Receptacle with no mounting flange)

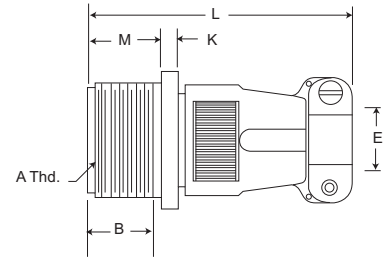
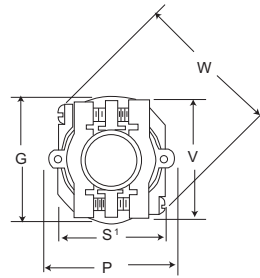
MS3101E / MS3101F
Integral Cable Clamp

CA3101E / CA3101E

MS3101E cable connecting plugs are used for cable extension requirements, where mounting provisions are unnecessary.

MS3101E receptacle mate with 3106, and 3108 plugs.

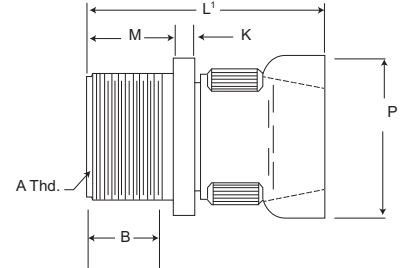
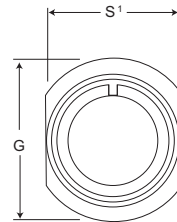
Note: MIL-C-5015 has changed the nomenclature of the 3101 from Receptacle to Plug.



MS3101R

CA3101R

MS3101R cable connecting plug is identical in purpose to the MS3101E. The MS3101R features a shorter light weight endbell and mates with 3106, and 3108 plugs.



Shell Size	B Min.	E Max.	E Min.	G Max.	K Max.	L Max.	L' Max.	M +.031 (0.79) - .000 (0.00)	P Max.	S' Max.	V Max.	W Max.
8S	.375 (9.53)	.235 (5.97)	.102 (2.59)	.844 (21.44)	.125 (3.18)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	.890 (22.61)	.515 (13.08)	.840 (21.34)	1.046 (26.57)
10S	.375 (9.53)	.235 (5.97)	.102 (2.59)	.969 (24.61)	.125 (3.18)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	.890 (22.61)	.640 (16.26)	.840 (21.34)	1.046 (26.57)
10SL	.375 (9.53)	.297 (7.54)	.140 (3.56)	1.062 (26.97)	.125 (3.18)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	.970 (24.64)	.640 (16.26)	.900 (22.86)	1.125 (28.58)
12S	.375 (9.53)	.297 (7.54)	.140 (3.56)	1.062 (26.97)	.140 (3.56)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	.970 (24.64)	.765 (19.43)	.900 (22.86)	1.125 (28.58)
14S	.375 (9.53)	.422 (10.72)	.195 (4.95)	1.156 (29.36)	.140 (3.56)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	1.150 (29.21)	.890 (22.61)	1.100 (27.94)	1.343 (34.11)
16S	.375 (9.53)	.547 (13.89)	.255 (6.48)	1.281 (32.54)	.140 (3.56)	2.250 (57.15)	1.838 (46.69)	.562 (14.27)	1.250 (31.75)	1.015 (25.78)	1.200 (30.48)	1.484 (37.69)
12	.625 (15.88)	.297 (7.54)	.140 (3.56)	1.062 (26.97)	.146 (3.71)	2.625 (66.68)	2.181 (55.40)	.750 (19.05)	.970 (24.64)	.765 (19.43)	.900 (22.86)	1.125 (28.58)
14	.625 (15.88)	.422 (10.72)	.195 (4.95)	1.156 (29.36)	.146 (3.71)	2.625 (66.68)	2.181 (55.40)	.750 (19.05)	1.150 (29.21)	.890 (22.61)	1.100 (27.94)	1.343 (34.11)
16	.625 (15.88)	.547 (13.89)	.255 (6.48)	1.281 (32.54)	.146 (3.71)	2.625 (66.68)	2.181 (55.40)	.750 (19.05)	1.250 (31.75)	1.015 (25.78)	1.200 (30.48)	1.484 (37.69)
18	.625 (15.88)	.610 (15.49)	.285 (7.24)	1.344 (34.14)	.180 (4.57)	2.688 (68.28)	2.181 (55.40)	.750 (19.05)	1.450 (36.83)	1.140 (28.96)	1.300 (33.02)	1.609 (40.87)
20	.625 (15.88)	.735 (18.67)	.350 (8.89)	1.500 (38.10)	.180 (4.57)	2.750 (69.85)	2.181 (55.40)	.750 (19.05)	1.570 (39.88)	1.265 (32.13)	1.500 (38.10)	1.890 (48.01)
22	.625 (15.88)	.740 (18.80)	.350 (8.89)	1.625 (41.28)	.180 (4.57)	2.750 (69.85)	2.181 (55.40)	.750 (19.05)	1.570 (39.88)	1.390 (35.31)	1.500 (38.10)	1.890 (48.01)
24	.625 (15.88)	.922 (23.42)	.468 (11.89)	1.750 (44.45)	.203 (5.16)	2.969 (75.44)	2.181 (55.40)	.812 (20.62)	1.880 (47.75)	1.515 (38.48)	1.740 (44.20)	2.170 (55.12)
28	.625 (15.88)	.922 (23.42)	.468 (11.89)	2.000 (50.80)	.203 (5.16)	3.031 (76.99)	2.181 (55.40)	.812 (20.62)	1.880 (47.75)	1.765 (44.83)	1.740 (44.20)	2.170 (55.12)
32	.625 (15.88)	1.235 (31.37)	.664 (15.87)	2.250 (57.15)	.203 (5.16)	3.031 (76.99)	2.322 (58.98)	.875 (22.23)	2.205 (56.01)	2.015 (51.18)	2.075 (52.71)	2.656 (67.46)
36	.625 (15.88)	1.360 (34.54)	.694 (17.63)	2.500 (63.50)	.203 (5.16)	3.281 (84.34)	2.322 (58.98)	.875 (22.23)	2.400 (60.96)	2.270 (57.66)	2.300 (58.42)	2.922 (74.22)
40	.625 (15.88)	1.628 (41.35)	.911 (23.14)	2.750 (69.85)	.203 (5.16)	3.560 (89.66)†	2.427 (61.65)†	.875 (22.23)	2.840 (72.14)	2.427 (61.65)	2.688 (68.28)	-

† Not to MS specification

Shell Size	A Thread
8S	1/2-28UNEF-2A
10S	5/8-24UNEF-2A
10SL	5/8-24UNEF-2A
12S	3/4-20UNEF-2A
14S	7/8-20UNEF-2A
16S	1-20UNEF-2A
12	3/4-20UNEF-2A
14	7/8-20UNEF-2A

Shell Size	A Thread
16	1-20UNEF-2A
18	1-1/8-18UNEF-2A
20	1-1/4-18UNEF-2A
22	1-3/8-18UNEF-2A
24	1-1/2-18UNEF-2A
28	1-3/4-18UNS-2A
32	2-18UNS-2A
36	2-1/4-16UN-2A
40	2-1/2-16UN-2A

Performance Specifications - Page A-84

Contact, Ceiling Plugs, Assembly Tools - Page A-105

Contact Arrangements - Page A-85 - A-89

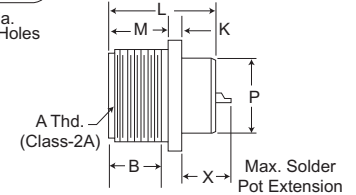
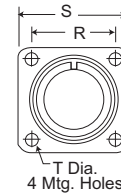
Box Mounting Receptacle

MS3102E / MS3102R



CA3102E / CA3102R

X DIMENSION					
Max. Solder Pot Ext. - Pin or Socket					
Contact Size					
Shell Size	16	12	8	4	0
8S, 10S, 10SL	.534	-	-	-	-
12S, 14S, 16S	.518	-	-	-	-
12	.705	.705	-	-	-
14	.705	.705	.767	-	-
16	.705	.705	.767	.767	-
18	.674	.674	.736	.736	-
20, 22	.674	.674	.736	.736	.971
24, 28	.612	.612	.674	.674	.909
32, 36	.549	.549	.611	.611	.846



MS3102E and MS3102R box mounting receptacles are used in junction boxes or as an integral part of equipment. These connectors are identical in construction and will mate with 3106 and 3108 plugs. For new equipment, customers should specify MS3102R.

Straight Plug

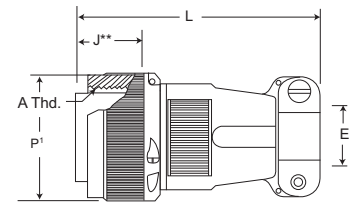
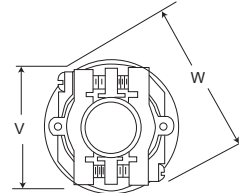
MS3106E / MS3106F



CA3106E / CA3106E

MS3106F straight plugs mate with 3100, 3102 and 3102 receptacles.

MS3106E is available upon request. For new equipment, customer should specify MS3106F. MS3106E is identical to MS3106F except to O-ring under the coupling nut.

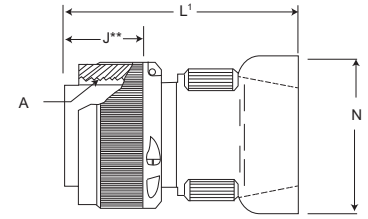
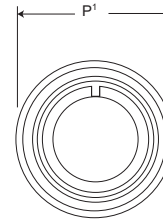


MS3106R



CA3106R

MS3106R straight plug is identical in purpose to the MS3106F. The MS3106R has the shorter endbell. This plug will mate with 3100, 3101, and 3102 receptacles.



Shell Size	E Max.	E Min.	J** Max.	L Max.	L' Max.	N Max.	P' Max.	V Max.	W Max.
8S	.235 (5.97)	.102 (2.59)	.536 (13.61)	2.250 (57.15)	1.838 (46.69)	.890 (22.61)	.844 (21.44)	.840 (21.34)	1.046 (26.57)
10S	.235 (5.97)	.102 (2.59)	.536 (13.61)	2.250 (57.15)	1.838 (46.69)	.890 (22.61)	.969 (24.61)	.840 (21.34)	1.046 (26.57)
10SL	.297 (7.54)	.140 (3.56)	.536 (13.61)	2.250 (57.15)	1.838 (46.69)	.970 (24.64)	.969 (24.61)	.900 (22.86)	1.125 (28.58)
12S	.297 (7.54)	.140 (3.56)	.536 (13.61)	2.250 (57.15)	1.838 (46.69)	.970 (24.64)	1.062 (26.97)	.900 (22.86)	1.125 (28.58)
14S	.422 (10.72)	.195 (4.95)	.536 (13.61)	2.250 (57.15)	1.838 (46.69)	1.150 (29.21)	1.156 (29.36)	1.100 (27.94)	1.343 (34.11)
16S	.547 (13.89)	.255 (6.48)	.536 (13.61)	2.250 (57.15)	1.838 (46.69)	1.250 (31.75)	1.250 (31.75)	1.200 (30.48)	1.484 (37.69)
12	.297 (7.54)	.140 (3.56)	.724 (18.39)	2.625 (66.68)	2.181 (55.40)	.970 (24.64)	1.062 (26.97)	.900 (22.86)	1.125 (28.58)
14	.422 (10.72)	.195 (4.95)	.724 (18.39)	2.625 (66.68)	2.181 (55.40)	1.150 (29.21)	1.156 (29.36)	1.100 (27.94)	1.343 (34.11)
16	.547 (13.89)	.255 (6.48)	.724 (18.39)	2.625 (66.68)	2.181 (55.40)	1.250 (31.75)	1.250 (31.75)	1.200 (30.48)	1.484 (37.69)
18	.610 (15.49)	.285 (7.24)	.724 (18.39)	2.688 (68.28)	2.181 (55.40)	1.450 (36.83)	1.344 (34.14)	1.300 (33.02)	1.609 (40.87)
20	.735 (18.67)	.350 (8.89)	.724 (18.39)	2.750 (69.85)	2.181 (55.40)	1.570 (39.88)	1.469 (37.31)	1.500 (38.10)	1.890 (48.01)
22	.740 (18.80)	.350 (8.89)	.724 (18.39)	2.750 (69.85)	2.181 (55.40)	1.570 (39.88)	1.594 (40.49)	1.500 (38.10)	1.890 (48.01)
24	.922 (23.42)	.468 (11.89)	.724 (18.39)	2.969 (75.44)	2.181 (55.40)	1.880 (47.75)	1.719 (43.66)	1.740 (44.20)	2.170 (55.12)
28	.922 (23.42)	.468 (11.89)	.724 (18.39)	3.031 (76.99)	2.181 (55.40)	1.880 (47.75)	1.969 (50.01)	1.740 (44.20)	2.170 (55.12)
32	1.235 (31.37)	.664 (15.87)	.724 (18.39)	3.031 (76.99)	2.322 (58.98)	2.205 (56.01)	2.219 (56.36)	2.075 (52.71)	2.656 (67.46)
36	1.360 (34.54)	.694 (17.63)	.724 (18.39)	3.281 (84.34)	2.322 (58.98)	2.400 (60.96)	2.469 (62.71)	2.300 (58.42)	2.922 (74.22)
40	1.628 (41.35)	.911 (23.14)	.724 (18.39)	3.560 (89.66)†	2.427 (61.65)†	2.840 (72.14)	2.723 (69.16)†	2.688 (68.28)	-

† Not to MS specification

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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A

Circular

Straight Plug (continued)

Performance Specifications - Page A-84

Contact, Ceiling Plugs, Assembly Tools - Page A-105

Contact Arrangements - Page A-85 – A-89

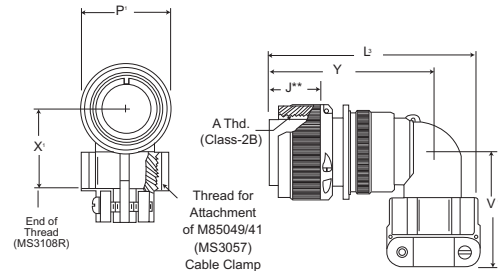
Shell Size	A Thread	Shell Size	A Thread
8S	1/2-28UNEF-2A	16	1-20UNEF-2A
10S	5/8-24UNEF-2A	18	1-1/8-18UNEF-2A
10SL	5/8-24UNEF-2A	20	1-1/4-18UNEF-2A
12S	3/4-20UNEF-2A	22	1-3/8-18UNEF-2A
14S	7/8-20UNEF-2A	24	1-1/2-18UNEF-2A
16S	1-20UNEF-2A	28	1-3/4-18UNS-2A
12	3/4-20UNEF-2A	32	2-18UNS-2A
14	7/8-20UNEF-2A	36	2-1/4-16UN-2A
		40	2-1/2-16UN-2A

90° Angle Plug

MS3108E / MS3108R

CA3108E / CA3108R

MS3108R 90° angle plugs with O-ring seal (less cable clamp) and the MS3108E 90° angle plugs (less O-ring seal with cable clamp) are used where there is limited space and where wires must be brought at abrupt angles. These plugs will mate with 3100, 3101 and 3102 receptacles.



Shell Size	B Min.	J** Max.	K Max.	L Max.	L ³ Max.	M +.031 (0.79) -0.000 (0.00)	P Max.	P ¹ Max.	R ± .005	S ± .031	T + .010 - .005	V ¹ Max.	X ¹ Max.	Y Max.
8S	.375 (9.53)	.536 (13.61)	.125 (3.18)	1.040 (26.42)	2.156 (54.76)	.562 (14.27)	.426 (10.86)	.844 (21.44)	.594 (15.09)	.875 (22.23)	.120 (3.05)	1.281 (30.94)	.811 (20.60)	1.640 (41.66)
10S	.375 (9.53)	.536 (13.61)	.125 (3.18)	1.040 (26.42)	2.156 (54.76)	.562 (14.27)	.520 (13.21)	.969 (24.61)	.719 (18.26)	1.000 (25.40)	.120 (3.05)	1.250 (31.75)	.842 (21.39)	1.640 (41.66)
10SL	.375 (9.53)	.536 (13.61)	.125 (3.18)	1.040 (26.42)	2.188 (55.58)	.562 (14.27)	.614 (15.60)	.969 (24.61)	.719 (18.26)	1.000 (25.40)	.120 (3.05)	1.281 (32.54)	.873 (22.17)	1.703 (43.26)
12S	.375 (9.53)	.536 (13.61)	.140 (3.56)	1.040 (26.42)	2.188 (55.58)	.562 (14.27)	.614 (15.60)	1.062 (26.97)	.812 (20.62)	1.094 (27.79)	.120 (3.05)	1.281 (32.54)	.873 (22.17)	1.703 (43.26)
14S	.375 (9.53)	.536 (13.61)	.140 (3.56)	1.040 (26.42)	2.312 (58.72)	.562 (14.27)	.739 (18.77)	1.156 (29.36)	.906 (23.01)	1.188 (30.18)	.120 (3.05)	1.406 (35.71)	.936 (23.77)	1.765 (44.83)
16S	.375 (9.53)	.536 (13.61)	.140 (3.56)	1.040 (26.42)	2.406 (61.11)	.562 (14.27)	.664 (21.95)	1.250 (31.75)	.969 (24.61)	1.281 (32.54)	.120 (3.05)	1.531 (38.89)	.998 (25.35)	1.796 (45.62)
12	.625 (15.88)	.724 (18.39)	.146 (3.71)	1.400 (35.56)	2.531 (64.29)	.750 (19.05)	.614 (15.60)	1.062 (26.97)	.812 (20.62)	1.094 (27.79)	.120 (3.05)	1.281 (32.54)	.873 (22.17)	2.062 (52.37)
14	.625 (15.88)	.724 (18.39)	.146 (3.71)	1.400 (35.56)	2.688 (68.28)	.750 (19.05)	.739 (18.77)	1.156 (29.36)	.906 (23.01)	1.188 (30.18)	.120 (3.05)	1.406 (35.71)	.936 (23.77)	2.125 (53.98)
16	.625 (15.88)	.724 (18.39)	.146 (3.71)	1.400 (35.56)	2.781 (70.64)	.750 (19.05)	.864 (21.95)	1.250 (31.75)	.969 (24.61)	1.281 (32.54)	.120 (3.05)	1.531 (38.89)	.998 (25.35)	2.156 (54.76)
18	.625 (15.88)	.724 (18.39)	.180 (4.57)	1.400 (35.56)	2.844 (72.24)	.750 (19.05)	.989 (25.12)	1.344 (34.14)	1.062 (26.97)	1.375 (34.93)	.120 (3.05)	1.593 (40.46)	1.061 (26.95)	2.250 (57.15)
20	.625 (15.88)	.724 (18.39)	.180 (4.57)	1.400 (35.56)	3.250 (82.55)	.750 (19.05)	1.145 (29.08)	1.469 (37.31)	1.156 (29.36)	1.500 (38.10)	.120 (3.05)	1.656 (42.06)	1.123 (28.52)	2.312 (58.72)
22	.625 (15.88)	.724 (18.39)	.180 (4.57)	1.400 (35.56)	3.250 (82.55)	.750 (19.05)	1.270 (32.26)	1.594 (40.49)	1.250 (31.75)	1.625 (41.28)	.120 (3.05)	1.718 (43.64)	1.186 (30.12)	2.312 (58.72)
24	.625 (15.88)	.724 (18.39)	.203 (5.16)	1.400 (35.56)	3.719 (94.46)	.812 (20.62)	1.395 (35.43)	1.719 (43.66)	1.375 (34.93)	1.750 (44.45)	.147 (3.73)	1.890 (48.01)	1.263 (32.08)	2.531 (64.29)
28	.625 (15.88)	.724 (18.39)	.203 (5.16)	1.400 (35.56)	3.719 (94.46)	.812 (20.62)	1.614 (41.00)	1.969 (50.01)	1.562 (39.67)	2.000 (50.80)	.147 (3.73)	1.968 (49.99)	1.342 (34.09)	2.531 (64.29)
32	.625 (15.88)	.724 (18.39)	.203 (5.16)	1.400 (35.56)	4.188 (106.38)	.875 (22.23)	1.864 (47.35)	2.219 (56.36)	1.750 (44.45)	2.250 (57.15)	.173 (4.39)	2.187 (55.55)	1.561 (39.65)	2.750 (69.85)
36	.625 (15.88)	.724 (18.39)	.203 (5.16)	1.400 (35.56)	4.297 (109.14)	.875 (22.23)	2.051 (52.10)	2.469 (62.71)	1.938 (49.23)	2.500 (63.50)	.173 (4.39)	2.406 (61.11)	1.780 (45.21)	2.875 (73.02)
40	.625 (15.88)	.724 (18.39)	.203 (5.16)	1.400 (35.56)	7.211 (183.10)†	.875 (22.23)	2.390 (60.71)	2.723 (69.16)†	2.188 (55.58)	2.750 (69.85)	.173 (4.39)	5.875 (149.22)	-	5.690 (144.53)

† Not to MS specification

Shell Size	Box Mounting Receptacle	90° Angle Plug	Shell Size	Box Mounting Receptacle	90° Angle Plug
8S	1/2-28UNEF-2A	1/2-28UNEF-2B	16	1-20UNEF-2A	1-20UNEF-2B
10S	5/8-24UNEF-2A	5/8-24UNEF-2B	18	1-1/8-18UNEF-2A	1-1/8-18UNEF-2B
10SL	5/8-24UNEF-2A	5/8-24UNEF-2B	20	1-1/4-18UNEF-2A	1-1/4-18UNEF-2B
12S	3/4-20UNEF-2A	3/4-20UNEF-2B	22	1-3/8-18UNEF-2A	1-3/8-18UNEF-2B
14S	7/8-20UNEF-2A	7/8-20UNEF-2B	24	1-1/2-18UNEF-2A	1-1/2-18UNEF-2B
16S	1-20UNEF-2A	1-20UNEF-2B	28	1-3/4-18UNS-2A	1-3/4-18UNS-2B
12	3/4-20UNEF-2A	3/4-20UNEF-2B	32	2-18UNS-2A	2-18UNS-2B
14	7/8-20UNEF-2A	7/8-20UNEF-2B	36	2-1/4-16UN-2A	2-1/4-16UN-2B
			40	2-1/2-16UN-2A	2-1/2-16UN-2B

Performance Specifications - Page A-84

Contact, Ceiling Plugs, Assembly Tools - Page A-105

Contact Arrangements - Page A-85 – A-89



A

Circular

Components

MS3106R
CA3106R
Straight Plug

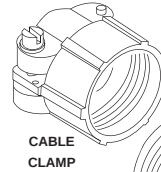
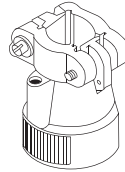
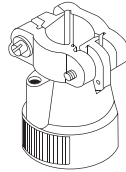
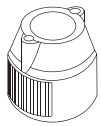
MS3106F
CA06R
Straight Plug

MS3106E*
CA3106E
Straight Plug

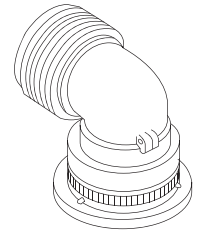
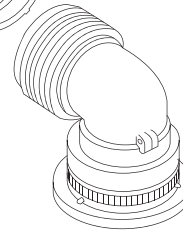
MS3108E
CA3108E
90° Angle Plug

MS3108R
CA3108R
90° Angle Plug

Endbell



CABLE
CLAMP



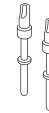
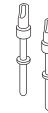
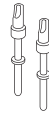
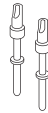
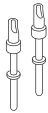
Ferrule



Grommet



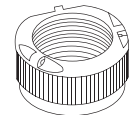
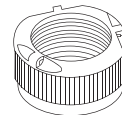
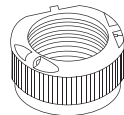
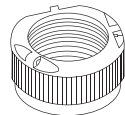
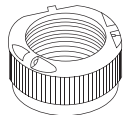
Pin Contacts



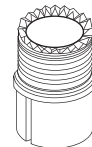
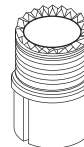
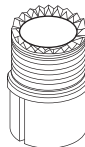
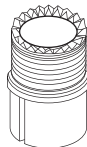
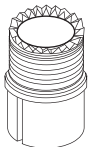
Insulator



Coupling Nut



Barrel



O Ring



Note: Class F is not applicable to MS3108 shell style.

* Class E inactive for new design. Use Class F or R.

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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A

Circular

MS type potting connectors are available with nylon cups. 00 and 06 shell styles with plastic cups and resilient insulators meet the requirements of MS3103 and MS25183. Also available is the 08 plug with resilient insulator and 90° angle nylon potting cup.

ITT Cannon provides for a 1/4" clearance for potting on all contact sizes.



How To Order

PREFIX _____

SHELL STYLE _____

CLASS _____

SHELL SIZE _____

CONTACT ARRANGEMENTS _____

CONTACT TYPE _____

MS 25183 - 18 - 10 P
MS 3103 - 18 - 10 P
CA 3100 ER 18 - 10 P

PREFIX
CA - ITT Cannon prefix indicating special application or variation of MS

SHELL STYLE
3100 - Wall mounting receptacle (MS3103)
3106 - Straight Plug (MS325183)
3108 - 90° angle plug

CLASS
ER - Resilient insulator, nylon potting cup and thread attachment ring
No class designator for MS types.

SHELL STYLE
Coupling thread diameter figured in sixteenths of an inch

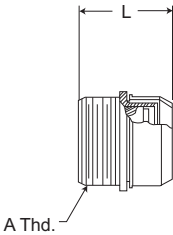
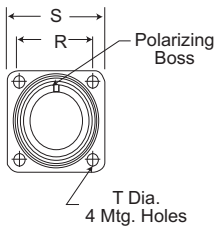
CONTACT ARRANGEMENTS
See pages A-85 – A-89

CONTACT TYPE
P - Pin
S - Socket

Wall Mounting Receptacle

MS3103
Nylon Potting Cup
Threaded Attachment Ring

CA3100ER



The CA3100ER receptacle (MS3103) is supplied with a resilient insulator and nylon potting cup with a threaded attachment ring. This receptacle mates with 3106 and 3108 plugs.

Shell Size	L Max.	R ± .005 (±0.13)	S Max.	R		A Thread
				+ .010 (+0.25)	-.005 (-.031)	
8S	1.531 (38.89)	.594 (15.09)	.906 (23.01)	.120 (3.05)		1/2-28UNEF-2A
10S	1.531 (38.89)	.719 (18.26)	1.031 (26.19)	.120 (3.05)		5/8-24NEF-2A
10SL	1.531 (38.89)	.719 (18.26)	1.031 (26.19)	.120 (3.05)		5/8-24NEF-2A
12S	1.531 (38.89)	.812 (20.62)	1.125 (28.58)	.120 (3.05)		3/4-20UNEF-2A
14S	1.531 (38.89)	.906 (23.01)	1.219 (30.96)	.120 (3.05)		7/8-20UNEF-2A
16S	1.531 (38.89)	.969 (24.61)	1.312 (33.32)	.120 (3.05)		1-20UNEF-2A
12	1.968 (49.99)	.812 (20.62)	1.125 (28.58)	.120 (3.05)		3/4-20UNEF-2A
14	1.968 (49.99)	.906 (23.01)	1.219 (30.96)	.120 (3.05)		3/4-20UNEF-2A
16	1.968 (49.99)	.969 (24.61)	1.312 (33.32)	.120 (3.05)		1-20UNEF-2A
18	1.968 (49.99)	1.062 (26.97)	1.406 (35.71)	.120 (3.05)		1-1/8-180NEF-2A
20	2.188 (55.58)	1.156 (29.36)	1.531 (38.89)	.120 (3.05)		1-1/4-18NEF-2A
22	2.188 (55.58)	1.250 (31.75)	1.656 (42.06)	.120 (3.05)		1-3/8-18NEF-2A
24	2.188 (55.58)	1.375 (34.93)	1.781 (45.24)	.147 (3.73)		1-1/2-18NEF-2A
28	2.188 (55.58)	1.562 (39.67)	2.031 (51.59)	.147 (3.73)		1-3/4-18NS-2A
32	2.188 (55.58)	1.750 (44.45)	2.281 (57.94)	.173 (4.39)		2-18NS-2A
36	2.188 (55.58)	1.938 (49.23)	2.531 (64.29)	.173 (4.39)		2-1/4-16UN-2A

Performance Specifications - Page A-84
Contact, Ceiling Plugs, Assembly Tools - Page A-105
Contact Arrangements - Page A-85 – A-89



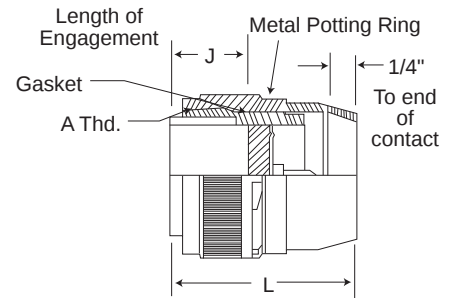
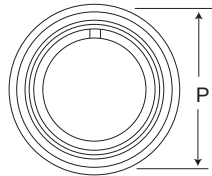
Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Straight Plug

MS25183
Nylon Potting Cup
Rubber Gasket

CA3106ER

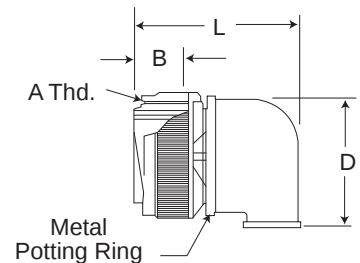
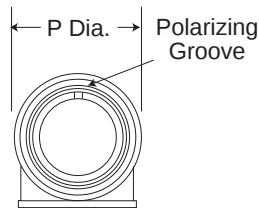


The CA3106ER plug is supplied with resilient insulators, nylon potting cups with threaded attachment rings, and a rubber gasket under the coupling nut. This plug mates with 3100, 3101 and 3102 receptacles.

90° Angle Plug

Nylon Potting Cup
Rubber Gasket

CA3108ER



The CA3108ER is supplied with resilient insulator, 90° nylon potting cup and threaded attachment ring with a rubber gasket under the coupling nut. This plug mates with 3100, 3101 and 3102 receptacles.

CA3106ER					CA3108ER					
Shell Size	J Max.	L Max.	P Max.	A Thread	B Max.	D Max.	L Max. For Arr. w/#16  Contacts	For Arr. w/#8 Contacts	P Max.	A Thread
8S	.536 (13.61)	1.562 (39.67)	.844 (21.44)	1/2-28UNEF-2B	-	-	-	-	-	-
10S	.536 (13.61)	1.562 (39.67)	.969 (21.44)	5/8-24UNEF-2B	-	-	-	-	-	-
10SL	.536 (13.61)	1.562 (39.67)	.969 (21.44)	5/8-24UNEF-2B	.563(13.61)	1.040(26.42)	1.463(37.16)	-	.969(24.61)	5/8-24UNEF-2B
12S	.536 (13.61)	1.562 (39.67)	1.062 (21.44)	3/4-20UNEF-2B	.563(13.61)	1.040(26.42)	1.600(40.64)	-	1.062(26.97)	3/4-24UNEF-2B
14S	.536 (13.61)	1.562 (39.67)	1.156 (21.44)	7/8-20UNEF-2B	.563(13.61)	1.040(26.42)	1.600(40.64)	2.300(58.42)	1.156(29.36)	7/8-20UNEF-2B
16S	.536 (13.61)	1.562 (39.67)	1.250 (21.44)	1-20UNEF-2B	.563(13.61)	1.290(32.77)	1.600(40.64)	2.550(64.77)	1.250(31.75)	1-20UNEF-2B
12	.724 (18.39)	2.000 (50.80)	1.062 (26.97)	3/4-20UNEF-2B	.724(18.39)	1.040(26.42)	1.910(48.51)	-	1.062(26.97)	3/4-20UNEF-2B
14	.724 (18.39)	2.000 (50.80)	1.156 (29.36)	7/8-20UNEF-2B	.724(18.39)	1.040(26.42)	1.910(48.51)	2.610(66.29)	1.156(29.36)	7/8-20UNEF-2B
16	.724 (18.39)	2.000 (50.80)	1.250 (31.75)	1-20UNEF-2B	.724(18.39)	1.290(32.77)	1.910(48.51)	2.850(72.39)	1.250(31.75)	1-20UNEF-2B
18	.724 (18.39)	2.000 (50.80)	1.344 (34.14)	1-1/8-18UNEF-2B	.724(18.39)	1.290(32.77)	2.100(53.34)	2.850(72.39)	1.344(34.14)	1-1/8-18UNEF-2B
20	.724 (18.39)	2.125 (53.98)	1.469 (37.31)	1-1/4-18UNEF-2B	.724(18.39)	1.540(39.12)	2.100(53.34)	2.850(72.39)	1.469(37.31)	1-1/4-18UNEF-2B
22	.724 (18.39)	2.125 (53.98)	1.594 (40.49)	1-3/8-18UNEF-2B	.724(18.39)	1.540(39.12)	2.100(53.34)	2.850(72.39)	1.594(40.49)	1-3/8-18UNEF-2B
24	.724 (18.39)	2.125 (53.98)	1.719 (43.66)	1-1/2-18UNEF-2B	.724(18.39)	1.790(45.47)	2.281(57.94)	2.985(75.82)	1.719(43.66)	1-1/2-18UNEF-2B
28	.724 (18.39)	2.125 (53.98)	1.969 (50.01)	1-3/4-18UNS-2B	.724(18.39)	2.040(51.82)	2.485(63.12)	2.985(75.82)	1.969(50.01)	1-3/4-18UNS-2B
32	.724 (18.39)	2.180 (55.37)	1.219 (30.96)	2-18UNS-2B	.724(18.39)	2.290(58.17)	2.485(63.12)	2.985(75.82)	1.219(30.96)	2-18UNS-2B
36	.724 (18.39)	2.180 (55.37)	2.469 (62.71)	2-1/4-16UN-2B	.724(18.39)	2.540(64.52)	2.485(63.12)	2.985(75.82)	2.469(62.71)	2-1/4-16UN-2B
40	.724 (18.39)	2.180 (55.37)	2.723 (69.16)	2-1/2-16UN-2B						

Performance Specifications - Page A-84

Contact, Ceiling Plugs, Assembly Tools - Page A-105

Contact Arrangements - Page A-85 – A-89

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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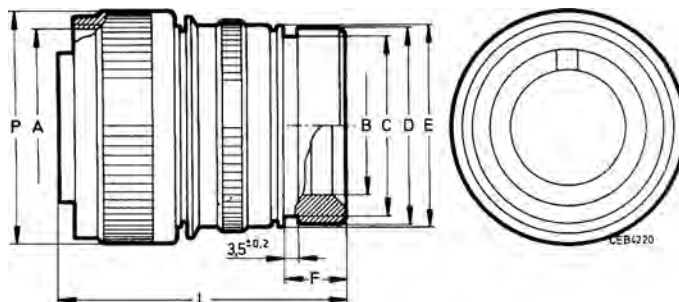
A

Circular

Straight Plug with Shrink Boot Adapter

CA3106E-DN

CA3106E-DN is a straight plug with endbell for shrink boot adapters. Crimp and solder versions are available (please indicate ...F80 or ...F183). CA3106-DN mate with 3100, 3101 and 3102 shell styles.



Order reference	A	B	C	D	E	F	L	P
Pin insert*	Thread	min.	max.	±0.2	±0.2	0.5	max.	max.
CA3106E10SL-**P-DN	5/8-24NEF-2B	7,7	13,2	15,5	17,0	11,7	11,7	50,0
CA3106E12S-**P-DN	3/4-20UNEF-2B	7,9	13,2	15,5	17,8	11,8	58,8	25,6
CA3106E14S-**P-DN	7/8-20UNEF-2B	10,6	17,0	19,1	19,1	11,7	50,0	28,6
CA3106E16S-**P-DN	1-20UNEF-2B	13,5	21,9	23,9	23,9	11,5	50,0	31,8
CA3106E12-**P-DN	3/4-20UNEF-2B	7,9	13,2	15,5	17,8	11,7	50,0	25,6
CA3106E14-**P-DN	7/8-20UNEF-2B	10,6	17,0	19,1	20,1	11,7	60,0	28,6
CA3106E16-**P-DN	1-20UNEF-2B	13,5	21,9	23,9	23,5	11,5	60,0	31,8
CA3106E18-**P-DN	1-1/8-18NEF-2B	14,6	21,9	23,9	26,5	12,7	60,0	34,1
CA3106E20-**P-DN	1-1/4-18NEF-2B	18,5	26,6	29,6	30,2	12,7	65,0	37,3
CA3106E22-**P-DN	1-3/8-18NEF-2B	20,8	26,2	29,6	33,6	12,7	65,0	40,5
CA3106E24-**P-DN	1-1/2-16NEF-2B	24,6	34,5	37,8	36,1	12,7	65,0	43,8
CA3106E28-**P-DN	1-3/4-18NS-2B	27,0	34,5	37,8	41,4	12,7	65,0	50,0
CA3106E32-**P-DN	2-18NS-2B	33,3	43,6	47,8	48,6	15,2	70,0	56,3
CA3106E36-**P-DN	2-1/4-16UN-2B	38,5	43,6	47,8	54,8	15,2	80,0	62,7

*For socket inserts substitute S for P

**Add contact arrangement number (see pages A-85 – A-89)

How To Order

TBF and BFR pressurized bulkhead receptacles mate with standard MS type plugs (3106 and 3108) if contact arrangements correspond. Both the BFR and TBF have resilient insulators. The TBF (thru bulkhead fitting) version has a double faced construction allowing mating from both ends. An O-ring is supplied as standard on both the BFR and TBF. Contacts are silver plated copper or brass alloy. Shells are aluminum alloy.



PREFIX _____ **SHELL SIZE** _____
CONTACT ARRANGEMENT _____
CONTACT TYPE _____
ALTERNATE POSITION _____
MOUNTING (BFR ONLY) _____

BFR 14S - S P * 1
TBF 20 - 15 PS *

PREFIX
 BFR - Bulkhead fittings
 TBF - Thru bulkhead fittings

CONTACT TYPE
 P - Pin; S - Socket;
 PS - pin and socket (TBF only)

SHELL SIZE
 Coupling thread diameter figured in sixteenths of an inch.

ALTERNATE POSITION
 (Consult factory for available alternate positions.)

CONTACT ARRANGEMENTS
 See pages A-85 – A-89

MOUNTING
 -1 obligatory code, BFR only

Thru-Bulkhead Receptacle

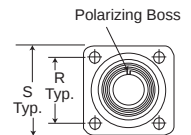
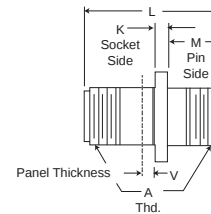
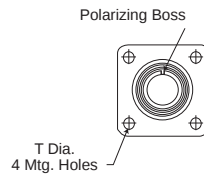
TBF - Resilient Insulator



Pin Insert Ends



Socket Insert Ends



TBF thru-bulkhead fittings have pressurized resilient insulators. Special double-faced pin and socket contact construction permits cable components to be wired and tested in the shop and then to be plugged into the mounted TBF plug to complete the installation. The TBF mates with 3106, 3107 and 3108 plugs.

Shell Size	K Max.	L Max.	M +.031 (0.79) -.000 (0.00)	R ±.005 (0.13)	S ±.031 (0.79)	T +.010 (0.25) -.005 (0.13)	V Max.	A Thread
8S	.125 (3.18)	1.482 (37.64)	.562 (14.27)	.594 (15.09)	.875 (22.22)	.120 (3.05)	.325 (8.26)	1/2-28UNEF-2A
10S	.125 (3.18)	1.482 (37.64)	.562 (14.27)	.179 (18.26)	1.000 (25.40)	.120 (3.05)	.325 (8.26)	5/8-24UNEF-2A
10SL	.125 (3.18)	1.482 (37.64)	.562 (14.27)	.179 (18.26)	1.000 (25.40)	.120 (3.05)	.325 (8.26)	5/8-24UNEF-2A
12S	.140 (3.56)	1.482 (37.64)	.562 (14.27)	.812 (20.62)	1.094 (27.79)	.120 (3.05)	.325 (8.26)	3/4-20UNEF-2A
14S	.140 (3.56)	1.482 (37.64)	.562 (14.27)	.906 (23.01)	1.188 (30.18)	.120 (3.05)	.325 (8.26)	7/8-20UNEF-2A
16S	.140 (3.56)	1.482 (37.64)	.562 (14.27)	.968 (24.59)	1.281 (32.54)	.120 (3.05)	.325 (8.26)	1-20UNEF-2A
12	.146 (3.71)	2.030 (51.56)	.750 (19.05)	.812 (20.62)	1.094 (27.79)	.120 (3.05)	.445 (11.30)	3/4-20UNEF-2A
14	.146 (3.71)	2.030 (51.56)	.750 (19.05)	.906 (23.01)	1.188 (30.18)	.120 (3.05)	.445 (11.30)	7/8-20UNEF-2A
16	.146 (3.71)	2.030 (51.56)	.750 (19.05)	.968 (24.59)	1.281 (32.54)	.120 (3.05)	.445 (11.30)	1-20UNEF-2A
18	.180 (4.57)	2.030 (51.56)	.750 (19.05)	1.062 (26.97)	1.375 (34.92)	.120 (3.05)	.445 (11.30)	1-1/8-18UNEF-2A
20	.180 (4.57)	2.030 (51.56)	.750 (19.05)	1.156 (29.36)	1.500 (38.10)	.120 (3.05)	.445 (11.30)	1-1/4-18UNEF-2A
22	.180 (4.57)	2.030 (51.56)	.750 (19.05)	1.250 (31.75)	1.625 (34.28)	.120 (3.05)	.445 (11.30)	1-3/8-18UNEF-2A
24	.203 (5.16)	2.030 (51.56)	.812 (20.62)	1.375 (34.92)	1.750 (44.45)	.147 (3.73)	.383 (9.73)	1-1/2-18UNEF-2A
28	.203 (5.16)	2.030 (51.56)	.812 (20.62)	1.562 (39.67)	2.000 (50.80)	.147 (3.73)	.383 (9.73)	1-3/4-18UNS-2A
32	.203 (5.16)	2.030 (51.56)	.875 (22.22)	1.750 (44.45)	2.250 (57.15)	.173 (4.39)	.320 (8.13)	2-18UNS-2A
36	.203 (5.16)	2.030 (51.56)	.812 (20.62)	1.938 (49.23)	2.500 (63.50)	.173 (4.39)	.383 (9.73)	2-1/4-16UN-2A
40	.203 (5.16)	2.030 (51.56)	.875 (22.22)	2.188 (55.58)	2.750 (69.85)	.173 (4.39)	.383 (9.73)	

Performance Specifications - Page A-84

Contacts, Sealing Plugs, Assembly Tools - Page A-105

Contact Arrangements - Page A-85 – A-89

MIL-DTL-5015 Bulkhead Receptacles BFR/TBF

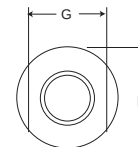
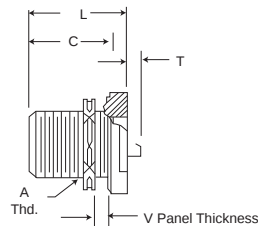
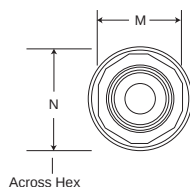


A

Circular

BFR

Pressurized Bulkhead Receptacle



Standard Position
Pin is 3/32" Dia.

TYPE 1

BFR pressurized bulkhead receptacles withstand the air leakage requirements of MIL-C-5015 not to exceed 1 cu. in. of air per hour when subjected to a pressure differential of 30 psi at -55°C. Insulators are resilient material bonded to aluminum shell. Both pin and socket assemblies are available. The BFR will mate with standard MS type 3106 and 3108 plugs.

Shell Standard
Insulator Polychloroprene
Lock Nut Hex with 6 wire holes
O Ring Neoprene
Position Pin Standard
Mounting Figure 1 or 2
Part No. Example BFR-14S-SP-1

Shell Size	C Max.	G Max.	H Max.	L Max.	M Max.	N Max.	#16	T Max. Solder Pot Ext.				V Max.
								#12	#8	#4	#0	
8S	.853 (21.67)	.895 (22.73)	1.077 (27.36)	1.087 (27.61)	.702 (17.83)	.820 (20.83)	.140 (3.56)	-	-	-	-	.250 (6.35)
10S	.853 (21.67)	1.015 (25.78)	1.203 (30.56)	1.087 (27.61)	.822 (20.88)	.960 (24.38)	.140 (3.56)	-	-	-	-	.250 (6.35)
10SL	.853 (21.67)	1.015 (25.78)	1.203 (30.56)	1.087 (27.61)	.822 (20.88)	.960 (24.38)	.140 (3.56)	-	-	-	-	.250 (6.35)
12S	.853 (21.67)	1.077 (27.36)	1.327 (33.71)	1.087 (27.61)	.955 (24.26)	1.110 (28.19)	.140 (3.56)	-	-	-	-	.250 (6.35)
14S	.853 (21.67)	1.203 (30.56)	1.453 (36.91)	1.087 (27.61)	1.072 (27.23)	1.250 (31.75)	.140 (3.56)	-	-	-	-	.375 (9.52)
16S	.853 (21.67)	1.327 (33.71)	1.577 (40.06)	1.087 (27.61)	1.265 (32.13)	1.460 (37.08)	.140 (3.56)	-	-	-	-	.375 (9.52)
12	1.244 (31.60)	1.077 (27.36)	1.327 (33.71)	1.525 (38.74)	.955 (24.26)	1.110 (28.19)	.062 (1.57)	.062 (1.57)	-	-	-	.375 (9.52)
14	1.244 (31.60)	1.203 (30.56)	1.453 (36.91)	1.525 (38.74)	1.072 (27.23)	1.250 (31.75)	.062 (1.57)	.062 (1.57)	.125 (3.18)	-	-	.375 (9.52)
16	1.244 (31.60)	1.327 (33.71)	1.577 (40.06)	1.525 (38.74)	1.265 (32.13)	1.460 (37.08)	.062 (1.57)	.062 (1.57)	.125 (3.18)	.125 (3.18)	-	.375 (9.52)
18	1.244 (31.60)	1.453 (36.91)	1.703 (43.26)	1.525 (38.74)	1.395 (35.43)	1.610 (40.89)	.062 (1.57)	.062 (1.57)	.125 (3.18)	.125 (3.18)	-	.375 (9.52)
20	1.244 (31.60)	1.577 (40.06)	1.827 (46.41)	1.525 (38.74)	1.515 (38.48)	1.750 (44.45)	.062 (1.57)	.062 (1.57)	.125 (3.18)	.125 (3.18)	.359 (9.12)	.375 (9.52)
22	1.244 (31.60)	1.577 (40.06)	1.953 (49.61)	1.525 (38.74)	1.635 (41.53)	1.900 (48.26)	.062 (1.57)	.062 (1.57)	.125 (3.18)	.125 (3.18)	.359 (9.12)	.375 (9.52)
24	1.244 (31.60)	1.827 (46.41)	2.077 (52.76)	1.525 (38.74)	1.765 (44.83)	2.030 (51.56)	.062 (1.57)	.062 (1.57)	.125 (3.18)	.125 (3.18)	.359 (9.12)	.375 (9.52)
28	1.244 (31.60)	1.953 (49.61)	2.327 (59.11)	1.525 (38.74)	2.015 (51.18)	2.330 (59.18)	.062 (1.57)	.062 (1.57)	.125 (3.18)	.125 (3.18)	.359 (9.12)	.375 (9.52)
32	1.244 (31.60)	2.203 (55.96)	2.577 (65.45)	1.525 (38.74)	2.205 (56.01)	2.550 (64.77)	.062 (1.57)	.062 (1.57)	.125 (3.18)	.125 (3.18)	.359 (9.12)	.375 (9.52)
36	1.244 (31.60)	2.577 (65.46)	2.827 (71.81)	1.525 (38.74)	2.455 (62.36)	2.840 (72.14)	.062 (1.57)	.062 (1.57)	.125 (3.18)	.125 (3.18)	.359 (9.12)	.312 (7.92)

Shell Size	A Thread
8S	1/2-28UNEF-2A
10S	5/8-24UNEF-2A
10SL	5/8-24UNEF-2A
12S	3/4-20UNEF-2A
14S	7/8-20UNEF-2A
16S	1-20UNEF-2A
12	3/4-20UNEF-2A
14	7/8-20UNEF-2A

Shell Size	A Thread
16	1-20UNEF-2A
18	1-1/8-18UNEF-2A
20	1-1/4-18UNEF-2A
22	1-3/8-18UNEF-2A
24	1-1/2-18UNEF-2A
28	1-3/4-18UNS-2A
32	2-18UNS-2A
36	2-1/4-16UN-2A

Performance Specifications - Page A-84

Contact, Ceiling Plugs, Assembly Tools - Page A-105

Contact Arrangements - Page A-85 - A-89

Mounting Dimensions

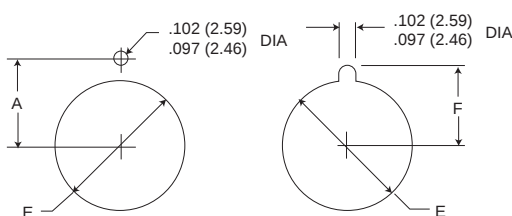


Fig. 1

Fig. 2

Shell Size	A ±.005 (0.13)	E +.015 (0.38) -.000 (0.00)	F ±.005 (0.13)
8S	.323 (8.20)	.500 (12.70)	.373 (9.47)
10S, 10SL	.385 (9.78)	.625 (15.88)	.435 (11.05)
12S, 12	.448 (11.38)	.750 (19.05)	.498 (12.65)
14S, 14	.510 (12.95)	.875 (22.22)	.560 (14.22)
16S, 16	.573 (14.55)	1.000 (25.40)	.623 (15.82)
18	.635 (16.13)	1.125 (28.58)	.685 (17.40)

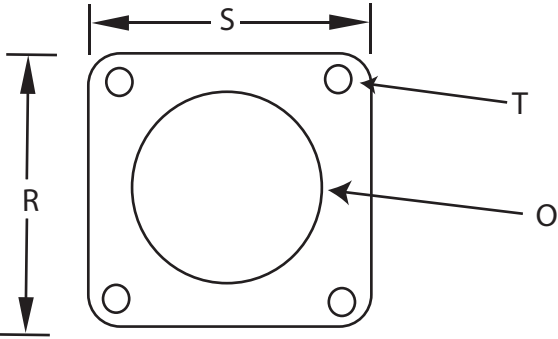
Shell Size	A ±.005 (0.13)	E +.015 (0.38) -.000 (0.00)	F ±.005 (0.13)
20	.698 (17.73)	1.250 (31.75)	.748 (19.00)
22	.760 (19.30)	1.375 (34.92)	.810 (20.57)
24	.823 (20.90)	1.500 (38.10)	.873 (22.17)
28	.948 (24.08)	1.750 (44.45)	.998 (25.35)
32	1.073 (27.25)	2.000 (50.80)	1.123 (28.52)
36	1.198 (30.43)	2.250 (57.15)	1.248 (31.70)



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Panel Cutouts



Flange dimensions and mounting holes for 5015 type MS receptacles. Mounting hole diameters do not apply to MS5015 class KT & KS connectors.

DIM TOL Shell Size	±.005 R	±.031 S	O	±.005 T
8S	.594	.875	.562	.120
10S & 10SL	.719	1.000	.688	.120
12 & 12S	.812	1.094	.812	.120
14 & 14S	.906	1.188	.938	.120
16 & 16S	.969	1.281	1.062	.120
18	1.062	1.375	1.188	.120
20	1.156	1.500	1.312	.120
22	1.250	1.625	1.438	.120
24	1.375	1.750	1.562	.147
28	1.562	2.000	1.812	.147
32	1.750	2.250	2.062	.173
36	1.938	2.500	2.312	.173
40	2.188	2.750	2.562	.173



A

Circular



A

Circular

Plug Metal Protective Caps

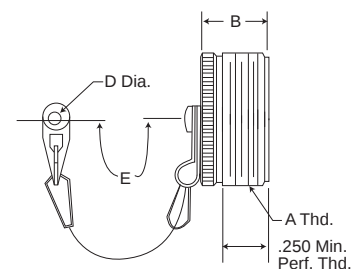
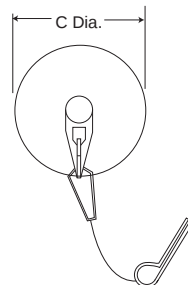
MS25042



CA17530
CA19741

For 06 and 08 Style Plugs

These externally threaded metal dust caps are used to protect the MS3106 and MS3108 plugs. Material is aluminum alloy. They are furnished with sash chain or less sash chain.



Part Number													
Black Anodized Finish With Sash Chain		Olive Drab Chromate Over Cadmium Finish with Sash Chain				Olive Drab Chromate Over Cadmium Finish Without Sash Chain		Fits Shell Size	B Max.	C Dia. Max.	E Max.	D Dia. Max.	A Thread
		May Still be Purchased by											
		Superceded MS Number (Ref)	ITTC Part Number	ITTC Part Number									
MS	ITT Cannon	MS Number (Ref)	ITTC Part Number	ITTC Part Number									
MS25042-8DA	CA17530-8000	MS25042-8D	CA17530-5100	CA19741-8	8S	.656 (16.66)	.562 (14.27)	4.500 (114.30)	.166 (4.22)	1/2-28UNEF-2A			
MS25042-10DA	CA17530-8001	MS25042-10D	CA17530-5101	CA19741-10	10S, 10SL	.656 (16.66)	.687 (17.45)	4.500 (114.30)	.166 (4.22)	5/8-24UNEF-2A			
MS25042-12DA	CA17530-8002	MS25042-12D	CA17530-5102	CA19741-12	12, 12S	.844 (21.44)	.812 (20.62)	5.500 (139.70)	.166 (4.22)	3/4-20UNEF-2A			
MS25042-14DA	CA17530-8003	MS25042-14D	CA17530-5103	CA19741-14	14, 14S	.844 (21.44)	.937 (23.80)	5.500 (139.70)	.166 (4.22)	7/8-20UNEF-2A			
MS25042-16DA	CA17530-8004	MS25042-16D	CA17530-5104	CA19741-16	16, 16S	.844 (21.44)	1.062 (26.97)	5.500 (139.70)	.166 (4.22)	1-20UNEF-2A			
MS25042-18DA	CA17530-8005	MS25042-18D	CA17530-5105	CA19741-18	18	.844 (21.44)	1.187 (30.15)	5.500 (139.70)	.166 (4.22)	1-1/8-18UNEF-2A			
MS25042-20DA	CA17530-8006	MS25042-20D	CA17530-5106	CA19741-20	20	.844 (21.44)	1.312 (33.32)	5.500 (139.70)	.197 (5.00)	1-1/4-18UNEF-2A			
MS25042-22DA	CA17530-8007	MS25042-22D	CA17530-5107	CA19741-22	22	.844 (21.44)	1.437 (36.50)	5.500 (139.70)	.197 (5.00)	1-3/8-18UNEF-2A			
MS25042-24DA	CA17530-8008	MS25042-24D	CA17530-5108	CA19741-24	24	.844 (21.44)	1.562 (39.67)	6.000 (152.40)	.197 (5.00)	1-1/2-18UNEF-2A			
MS25042-28DA	CA17530-8009	MS25042-28D	CA17530-5109	CA19741-28	28	.844 (21.44)	1.812 (46.02)	8.250 (209.55)	.197 (5.00)	1-3/4-18UNEF-2A			
MS25042-32DA	CA17530-8010	MS25042-32D	CA17530-5110	CA19741-32	32	.844 (21.44)	2.062 (52.37)	8.250 (209.55)	.228 (5.79)	2-18UNEF-2A			
MS25042-36DA	CA17530-8011	MS25042-36D	CA17530-5111	CA19741-36	36	.844 (21.44)	2.312 (58.72)	8.250 (209.55)	.228 (5.79)	2-1/4-16UN-2A			
MS25042-40DA	CA17530-8012	MS25042-40D	CA17530-5112	CA19741-40	40	.844 (21.44)	2.562 (65.07)	8.250 (209.55)	.228 (5.79)	2-1/2-16UN-2A			
MS25042-44DA	CA17530-8013	MS25042-44D	CA17530-5113	CA19741-44	44	.844 (21.44)	2.812 (71.42)	8.250 (209.55)	.228 (5.79)	2-3/4-16UN-2A			
MS25042-48DA	CA17530-8014	MS25042-48D	CA17530-5114	CA19741-48	48	.844 (21.44)	3.062 (77.77)	8.250 (209.55)	.228 (5.79)	3-16UN-2A			

Plug Metal Protective Caps

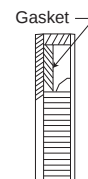
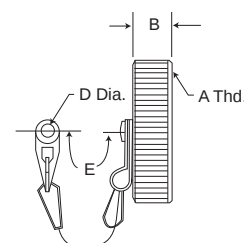
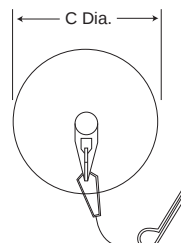
MS25043



CA2209
CA2322

For 00, 01 and 02
Style Receptacles

These internally threaded metal dust caps are used to protect the MS3100, MS3101 and MS3102 receptacles. Material is aluminum alloy. They are furnished with sash chain or less sash chain.



Black Anodized Finish With Sash Chain		Part Number				Fits Shell Size	B Max.	C Dia. Max.	E Max.	D Dia. Max.	A Thread
		Olive Drab Chromate Over Cadmium Finish with Sash Chain		Olive Drab Chromate Over Cadmium Finish Without Sash Chain							
		May Still be Purchased by									
		Superceded	ITTC Part Number	ITTC Part Number							
MS	ITT Cannon	MS Number (Ref)	ITTC Part Number	ITTC Part Number							
MS25043-8DA	CA2209-8000	MS25043-8D	CA2209-5100	CA2322-1	8S	.469 (11.91)	.688 (17.48)	4.500 (114.30)	.150 (3.81)	1/2-28UNEF-2B	
MS25043-10DA	CA2209-8001	MS25043-10D	CA2209-5101	CA2322-2	10S, 10SL	.469 (11.91)	.815 (20.70)	4.500 (114.30)	.150 (3.81)	5/8-24UNEF-2B	
MS25043-12DA	CA2209-8002	MS25043-12D	CA2209-5102	CA2322-3	12, 12S	.469 (11.91)	1.000 (25.40)	5.500 (139.70)	.150 (3.81)	3/4-20UNEF-2B	
MS25043-14DA	CA2209-8003	MS25043-14D	CA2209-5103	CA2322-4	14, 14S	.469 (11.91)	1.125 (28.58)	5.500 (139.70)	.150 (3.81)	7/8-20UNEF-2B	
MS25043-16DA	CA2209-8004	MS25043-16D	CA2209-5104	CA2322-5	16, 16S	.469 (11.91)	1.188 (30.18)	5.500 (139.70)	.150 (3.81)	1-20UNEF-2B	
MS25043-18DA	CA2209-8005	MS25043-18D	CA2209-5105	CA2322-6	18	.469 (11.91)	1.344 (34.14)	5.500 (139.70)	.150 (3.81)	1-1/8-18UNEF-2B	
MS25043-20DA	CA2209-8006	MS25043-20D	CA2209-5106	CA2322-7	20	.469 (11.91)	1.469 (37.31)	5.500 (139.70)	.150 (3.81)	1-1/4-18UNEF-2B	
MS25043-22DA	CA2209-8007	MS25043-22D	CA2209-5107	CA2322-8	22	.469 (11.91)	1.594 (40.49)	5.500 (139.70)	.150 (3.81)	1-3/8-18UNEF-2B	
MS25043-24DA	CA2209-8008	MS25043-24D	CA2209-5108	CA2322-9	24	.469 (11.91)	1.719 (43.66)	6.000 (152.40)	.181 (4.60)	1-1/2-18UNEF-2B	
MS25043-28DA	CA2209-8009	MS25043-28D	CA2209-5109	CA2322-10	28	.531 (13.49)	1.969 (50.01)	8.250 (209.55)	.181 (4.60)	1-3/4-18UNS-2B	
MS25043-32DA	CA2209-8010	MS25043-32D	CA2209-5110	CA2322-11	32	.531 (13.49)	2.219 (56.36)	8.250 (209.55)	.197 (5.00)	2-18UNS-2B	
MS25043-36DA	CA2209-8011	MS25043-36D	CA2209-5111	CA2322-12	36	.531 (13.49)	2.469 (62.71)	8.250 (209.55)	.197 (5.00)	2-1/4-16UN-2B	
MS25043-40DA	CA2209-8012	MS25043-40D	CA2209-5112	CA2322-13	40	.531 (13.49)	2.719 (69.06)	8.250 (209.55)	.197 (5.00)	2-1/2-16UN-2B	
MS25043-44DA	CA2209-8013	MS25043-44D	CA2209-5113	CA2322-14	44	.531 (13.49)	2.969 (75.41)	8.250 (209.55)	.197 (5.00)	2-3/4-16UN-2B	
MS25043-48DA	CA2209-8014	MS25043-48D	CA2209-5114	CA2322-15	48	.531 (13.49)	3.188 (80.98)	8.250 (209.55)	.197 (5.00)	3-16UN-2B	

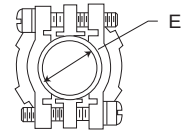
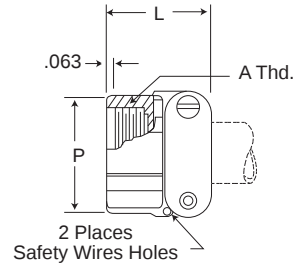
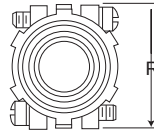


Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Cable Clamp

M85049-41
With or without bushing



M85049-41 cable clamp is made for plugs and receptacles that have an endbell with external conduit threads. The double clamping action provides a balanced, positive hold on the wires and greatly reduces moisture transmission. Provision is made for safety wiring. This clamp is supplied without bushing; to order bushing, add "with bushing" after part number.

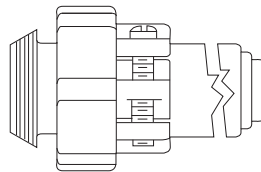
Part Number*	Superceded Part Number	Fits Shell Size	Accommodates MS Bushings	E Min.	E Max.	L ±.031 (0.79)	P ±.031 (0.79)	R ±.031 (0.79)	A Thread
M85049/41-3A	MS3057-3A	8S-10S	MS3420-3	.102 (2.59)	.250 (6.35)	.812 (20.62)	.688 (17.48)	.812 (20.62)	1/2-28UNEF-2B
M85049/41-4A	MS3057-4A	10SL, 12S, 12	MS3420-4	.140 (3.56)	.312 (7.92)	.812 (20.62)	.812 (20.62)	.875 (22.22)	5/8-24UNEF-2B
M85049/41-6A	MS3057-6A	14S, 14	MS3420-6	.195 (4.95)	.438 (11.13)	.875 (22.22)	.969 (24.61)	1.062 (26.97)	3/4-20UNEF-2B
M85049/41-8A	MS3057-8A	16S, 16	MS3420-8	.255 (6.48)	.562 (14.27)	.938 (23.83)	1.094 (27.79)	1.156 (29.36)	7/8-20UNEF-2B
M85049/41-10A	MS3057-10A	18	MS3420-10	.285 (7.24)	.625 (15.88)	.938 (23.83)	1.188 (30.18)	1.250 (31.75)	1-20UNEF-2B
M85049/41-12A	MS3057-12A	20, 22	MS3420-12	.350 (8.89)	.750 (19.05)	.938 (23.83)	1.375 (34.92)	1.496 (37.31)	1-3/16-18UNEF-2B
M85049/41-16A	MS3057-16A	24, 28	MS3420-16,12	.468 (11.89)	.938 (23.83)	1.031 (26.19)	1.656 (42.06)	1.688 (42.88)	1-7/16-18UNEF-2B
M85049/41-20A	MS3057-20A	32	MS3420-20,16	.664 (16.87)	1.250 (31.75)	1.094 (27.79)	2.031 (51.59)	2.031 (51.59)	1-3/4-18UNS-2B
M85049/41-24A	MS3057-24A	36	MS3420-24,20	.694 (17.63)	1.375 (34.92)	1.156 (29.36)	2.219 (56.36)	2.281 (57.94)	2-18UNS-2B
M85049/41-28A	MS3057-28A	40	MS3420-24,20	.911 (23.14)	1.625 (41.28)	1.688 (42.88)	2.500 (63.50)	2.688 (68.28)	2-1/4-16UN-2B
M85049/41-32A	MS3057-32A	44	MS3420-32,28,24	-	1.875 (47.62)	1.750 (44.45)	2.781 (70.64)	2.938 (74.63)	2-1/2-16UN-2B
M85049/41-40A	MS3057-40A	48	MS3420-40,32,28	-	2.375 (60.32)	1.750 (44.45)	3.281 (83.34)	3.500 (88.90)	3-16UN-2B

*To order cable clamp with bushing, add "with bushing" after part number.

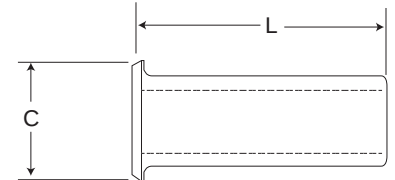
Telescoping Bushing

**MS3420/
MS39056(REF.)**

CA18220



**Telescoping bushing with
M85049/41 cable clamp**



Telescoping gland bushing (used with M85049/41 cable clamp) keep dirt, oil and moisture out of endbell. Taping or wrapping wires is eliminated since bushing protects wires going through clamp. Combinations of bushings may be used to decrease cable entry diameter to improve sealing.

MS Part Number	Superceded MS Part Number	ITT Cannon Part Number	Fits Shell Size	C ±.016 (0.41)	L ±.031 (0.79)	R ±.016 (0.41)
MS3420-3	MS39056-1	CA18220-3	8S-10S	.379 (9.63)	2.875 (73.02)	.130 (3.30)
MS3420-4	MS39056-2	CA18220-4	10SL, 12S, 12	.505 (12.83)	2.750 (69.85)	.200 (5.09)
MS3420-6	MS39056-3	CA18220-6	14S, 14	.619 (15.72)	2.625 (66.68)	.312 (7.92)
MS3420-8	MS39056-4	CA18220-8	16S, 16	.744 (18.90)	2.500 (63.50)	.437 (11.10)
MS3420-10	MS39056-5	CA18220-10	18	.869 (22.07)	2.375 (60.32)	.562 (14.27)
MS3420-12	MS39056-6	CA18220-12	20, 22	1.064 (27.03)	2.250 (57.15)	.625 (15.88)
MS3420-16	MS39056-7	CA18220-16	24, 28	1.314 (33.38)	2.125 (53.98)	.750 (19.05)
MS3420-20	MS39056-8	CA18220-20	32	1.596 (40.54)	2.000 (50.80)	.937 (23.80)
MS3420-24	MS39056-9	CA18220-24	36	1.847 (46.91)	1.875 (47.62)	1.250 (31.75)
MS3420-28	MS39056-10	CA18220-28	40	2.085 (52.96)	1.750 (44.45)	1.375 (34.92)
MS3420-32	MS39056-11	CA18220-32	44	2.335 (59.31)	1.625 (41.28)	1.624 (41.25)
MS3420-40	MS39056-12	CA18220-40	48	2.835 (72.01)	1.500 (38.10)	1.874 (47.60)



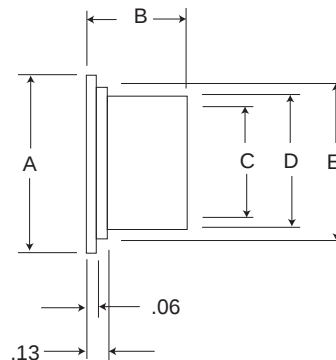
A

Circular

Plastic Protective Caps

025-XXXX-000

Protective dust caps are designed to cover the coupling and conduit ends of MS connectors where there is a possibility of foreign matter accumulating on the interior of the connector or of damage to the threaded parts. Material is red polyethylene. Plastic dust caps can be reused, but are not intended to replace the standard aluminum dust caps shown in preceding pages.



Part Number	MS3100FR		MS3102FR		MS-F (only) Solder Pot End	MS3106/MS3108 FR		Dimensions					
	Coupling End	Solder Pot End	Coupling End	Solder Pot End		Coupling End	Solder Pot End	A Max.	B Max.	C Max.	D Max.	E Max.	Wt. Lb.
025-0458-000				8S	8S	.469 (11.91)		.673	.440	.430	.486	.583	.0012
025-0459-000	8S	8S, 10S	8S	8S, 10S				.734	.440	.490	.546	.644	.0014
025-0460-000	10S, 10SL	10SL, 12S, 12	10S, 10SL	10SL, 12S, 12				.848	.700	.600	.656	.758	.0022
025-0462-000	12S, 12	14S, 14	12S, 12	14S, 14				.973	.700	.730	.786	.883	.0028
025-0463-000	14S, 14	16S, 16	14S, 14	16S, 16				1.098	.700	.850	.908	1.008	.0033
025-0466-000				18				1.209	.700	.950	1.016	1.119	.0042
025-0467-000				20				1.396	.700	1.150	1.216	1.308	.0054
025-0468-000	20		20	22				1.500	.700	1.240	1.306	1.405	.0060
025-0469-000	22		22	24				1.625	.700	1.360	1.426	1.530	.0067
025-0470-000				28				1.870	.700	1.610	1.676	1.775	.0087
025-0471-000				32				2.120	.700	1.860	1.926	2.025	.0103
025-0472-000				36				2.370	.700	2.110	2.176	2.275	.0141
025-0473-000				40				2.501	.700	2.310	2.380	2.491	.0164
025-0474-000				44				2.872	.700	2.590	2.660	2.772	.0186
025-0475-000				48				3.122	.700	2.840	2.910	30.22	.0222
025-0477-000						10S, 10SL		.802	.491	.550	.616	.712	.0017
025-0478-000						12S, 12		.911	.571	.669	.725	.821	.0022
025-0479-000						14S, 14		1.036	.571	.794	.850	.946	.0027
025-0480-000						16S, 16		1.161	.571	.919	.975	1.071	.0033
025-0484-000						18		1.290	.576	1.028	1.094	1.195	.0044
025-0486-000						22		1.540	.576	1.278	1.344	1.445	.0058
025-0487-000						24		1.665	.576	1.403	1.469	1.570	.0066
025-0488-000						28		1.907	.576	1.645	1.711	1.812	.0084
025-0489-000						32		2.157	.576	1.895	1.961	2.062	.0102
025-0490-000						36		2.412	.576	2.140	2.216	2.317	.0132
025-0491-000						40		2.672	.576	2.390	2.466	2.572	.0163
025-0492-000						44		2.922	.576	2.640	2.716	2.822	.0186
025-0493-000						48		3.172	.576	2.890	2.966	3.072	.0213
025-0498-000	16S, 16	18	16S, 16	48			18	1.240	.700	.990	1.056	1.150	.0044
025-0499-000		20, 22		36		22	20, 22	1.427	.700	1.117	1.183	1.337	.0055
025-0500-000		24, 24		40			24, 28	1.677	.700	1.420	1.486	1.587	.0072
025-0501-000	28	32	28	44			32	1.985	.700	1.730	1.796	1.895	.0095
025-0502-000	32	36	32	32			36	2.245	.700	1.980	2.046	2.155	.0114
025-0503-000	36	40	36	24, 28			40	2.495	.700	2.230	2.296	2.400	.0134
025-0504-000	40	44	40	20, 22			44	2.742	.700	2.480	2.546	2.652	.0186
025-0505-000	48		48	18			48	3.257	.700	2.980	3.046	3.157	.0233
025-0507-000	18		18		20			1.365	.700	1.110	1.176	1.275	.0050
025-0510-000	24		24					1.740	.700	1.490	1.556	1.650	.0077
025-0511-000	44	48	44					3.007	.700	2.730	2.796	2.907	.0220
025-0608-000					8S			.643	.440	.400	.456	.553	.0011
025-0609-000					10SL, 12S, 12			.829	.700	.580	.636	.739	.0021
025-0610-000					14S, 14			.954	.700	.710	.766	.864	.0028
025-0611-000					16S, 16			1.079	.700	.830	.886	.989	.0032
025-0612-000					28			1.839	.700	1.570	1.626	1.744	.0088
025-0613-000					32			2.089	.700	1.820	1.876	1.994	.0100
025-0614-000					36			2.376	.700	2.010	2.066	2.231	.0132

F80 Assembly Instructions

ITT Cannon provides a complete line of crimp insertion and extraction tooling to be used with CA-F80 contacts as follows.

Contact Size	Hand Crimp Tool*	Locator	Power Crimp Tool*	Crimp Head	Locator	Gauge
16	M-2252/1-01	TH-70-1	CBT-530			
12	M-2252/1-01	TP567	CBT-600/600B	CCH-12-7	CCHP-12-2	-
8	-	-	CBT-600/600B	CCH-8-1	CCHP-8-1	CCH-8-1
4	-	-	CBT-600/600B	CCH-4-1	CCHP-4-1	CCH-4-1
0	-	-	CBT-600B	CCH-0-1	CCHP-0-9	CCH-0

*The M-2252/1-01 is the MIL standard crimp tool for #12 thru #20 contacts and when used with crimp #12, 16 and 20 contacts for the CA-F80.

**The CBT-600 is recommended for crimping of #4 thru #12 contacts. The CBT-600B for #0 thru #8. The appropriate locators and crimp heads are available as shown above.



CBT-600



CBT-520/530

Crimp Tool



Crimping Contacts

1. Check the crimp tool to be sure that the proper crimp head locator is used.
2. Cycle to tool to be sure the indentors are open.
3. Place the contact, mating end first, into the tool.
4. Insert the stripped wire into the hollow end of the contact. Be sure the wire is inserted as far as it will go.
5. Close the tool completely to crimp. Unless the tool is closed completely, the tool will not release the contact.
6. Remove the crimped contact from the tool. Check the inspection hole to verify that the wire is fully inserted.

Insertion/Extraction Tools



Insertion and extraction tools used for these connectors are available for contact sizes 16 thru 0 as shown.

Contact Size	Insertion Tools	Extraction Tools	Handle Color
16	CIT-16 (038895-0000)	CET-16-4 (038888-0004)	Blue
12	CIT-12 (038896-0000)	CET-12-2 (038890-0002)	Yellow
8	CIT-8	CET-8	Red
4	CIT-4	CET-4	Blue
0	CIT-0	CET-0	Yellow

Insertion of Contacts

1. Before inserting the contacts, remove the endbell, grommets, and ferrule from the receptacle. Remove the endbell, grommet, ferrule, and coupling nut from the plug. Slide the hardware over the wire bundle in the proper order for reassembly after all the contacts are inserted.
2. To assist insertion of contacts, lubricate insert cavities with isopropyl alcohol. Alcohol will evaporate and will not leave a conductive film. Caution: Never use any lubricant other than isopropyl alcohol. Hold the plug or receptacle body firmly and insert the wired contacts as far as possible by hand. Starting at one side of the insulator, work progressively from contact to contact across the layout. When inserting socket contacts, be sure to provide fixture space below the front face to permit length of guide pins for #16 and #12 contacts to clear insulator face.
3. Place the correct insertion tool on the contact so that the wire runs along the groove in the tool. (Tool tip will butt against the shoulder.)
4. Beginning with a cavity on the outer edge of the plug, apply a slow, even pressure perpendicular to the insulator face until the contact snaps into position. If contacts are not inserted all the way prior to removing insertion tool, do not try to reinsert the insertion tool. Instead, using the extraction tool, push the contact back to the position it was in when the insertion tool was originally placed over the contact for push-in; otherwise the inside of contact cavity may be damaged by reinserting the insertion tool.
5. Inspect the front end of the insulator to assure that the contacts are inserted to the proper depth.

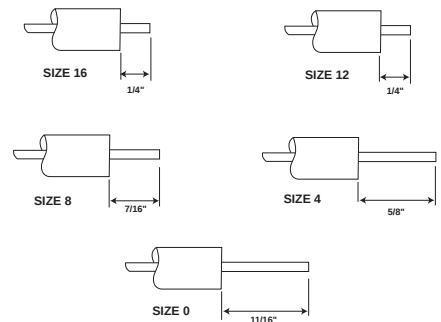
Completion

After all the cavities have been filled, slide the hardware back into position on the barrel. Tighten the endbell until the ferrule and endbell are flush. Compression of the grommet in this manner results in maximum sealing characteristics of the plug.

Extraction of Contacts

1. Select the appropriate tool. (Tool tips are reversible for either pin or socket.) Place the extraction tool over the pin or into the socket.
2. Apply a slow, even pressure to push the contact out of the rear of the insulator.

Recommended Wire Stripping



Contacts

Contact Part Numbers		
F80		
Contact Size	Pin	Socket
16S	330-0345-016	031-0554-161
16	330-0351-016	031-0560-161
12	330-0351-012	031-0560-121
8	330-0351-008	031-0560-081
4	330-0351-004	031-0560-041
0	330-0351-000	031-0560-001

Guide Pins

Guide pins are used to assist insertion of socket contact Sizes #16 and #12. Larger sizes do not require guide pins.

Contact	Guide Pin
#16	226-1017-000
#12	226-1018-000

Wire Hole Fillers

Wire Size AWG	ITT Cannon Part Number	Color
20	225-1000-000	Red
16/16S	225-0017-000	Blue
12	225-0018-000	Yellow
8	225-0019-000	White
4	225-8502-000	Green
0	225-8503-000	Black

MS/CV345* MIL-C-5015 Rear Release Connectors



A

Circular

Standard Circular High Environmental Connectors

These connectors are available for many applications, from commercial/industrial and mass transportation systems to the most stringent high reliability military and space requirements.

The MS/CV345* connector manufactured by ITT Cannon to MIL-C-5015 (Navy) is a threaded coupling, removable rear release crimp contact type. Fully interchangeable with existing MIL-C-5015 and threaded MIL-C-83723 Series II (USAF) type connectors, they provide for minimum effort and high economy upgrades for existing applications. In addition, they offer simplified design for new and interphase equipment.

MS/CV connectors converted under MIL-C-5015 (Navy) utilize fluid resistant elastomers to provide maximum protection against degrading fuels, oils, coolants and cleansers.

Temperature withstanding capabilities range from -55°C to +200°C depending upon the class. The use of electroless nickel and cadmium plating for hardware finishes gives the connectors maximum protection from the above factors. High quality manufacturing processes and materials combine to insure the optimum performance and materials combine to insure the optimum range of environmental conditions.

The MS/CV connector manufactured by ITT Cannon is available in five shell styles and 72 contact arrangements accommodating from 1 to 52 contact (sizes 0, 4, 8, 12, and 16).

This connectors series is manufactured to accommodate the following backshells: M85049/43 (MS3415), M8504/31 or /60 (MS3416), M85049/52 (MS3417), M85049/51 (MS 3418) and M85049/26 (MS3419). Shell polarization is effected by a single keyway and key, standard MS polarization positions are available to prevent mismatching.

*For information regarding MIL-C-83723 Series II (CVA) connectors, please call ITT Cannon, 714-557-4700

Features

Universal Insertion/Extraction Tool Style – A single, expendable plastic tool is used for insertion and extraction of both pins and sockets. Tool never touches engaging ends of contacts, cannot damage insert.

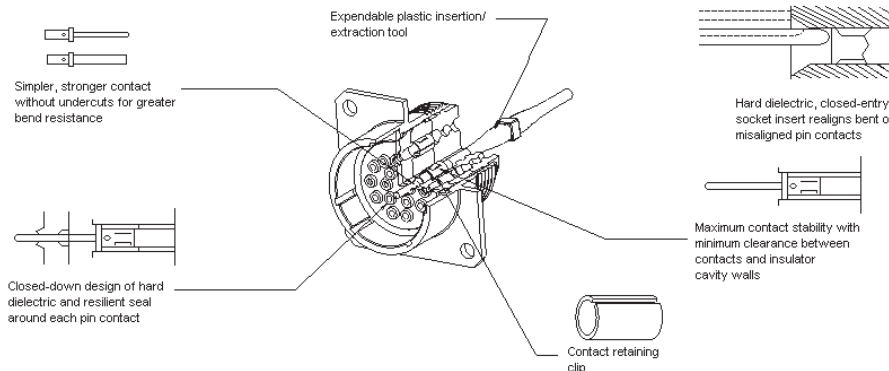
Simple, Strong Contact Design – One basic configuration eliminates undercuts, maximizes bend resistance for positive contact mating.

Interfacial Pin Insert Seal – Universal interconnect permits design of raised moisture barriers around each pin which mate into lead-in chamfers of hard face socket insert for individual contact sealing. Interfacial seal is never touched by service tools.

Superior Contact Stability – “Closed-down” design of each contact cavity in the insulator support each contact, minimizes contact springing.

Closed Entry Socket Insert – Hard dielectric socket face of mating connector has lead-in chamfers for positive alignment of pins and sockets.

Simplified Assembly Operations – One standard procedure for assembling connectors and contacts, standard MS crimp tools, all servicing of contacts accomplished from the rear of the connector.



How to Order

PREFIX

- MS - Complies with MIL-C-5015
- CV - ITT Cannon Prefix

SHELL STYLES

- MS3450 - Wall Mounting Receptacle
- MS3451 - Cable Connecting Receptacle
- MS3456 - Cable Connecting Plug
- MS3459 - Cable Connecting Plug with Self-Locking Coupling Nut
- CV3450 - Wall Mounting Receptacle
- CV3451 - Cable Connecting Receptacle
- CV3452 - Box Mounting Receptacle
- CV3456 - Cable Connecting Plug
- CV3459 - Cable Connecting Plug with Self-Locking Coupling Nut

CONNECTOR CLASSES

- Class KT, KS - Firewall
- Class LS - High Temperature, Fluid Resistant
- Class W - General Purpose

SHELL SIZE

See Pages A-108 and A-110

PREFIX

SERIES

SHELL STYLE

CONNECTOR CLASS

SHELL SIZE

CONTACT ARRANGEMENT

CONTACT SEX

ALTERNATE INSERT POSITION

LESS CONTACTS

CONTACT ARRANGEMENT

See page A-111 and A-112

CONTACT SEX

- P - Pin
- S - Socket
- *A - Less Pin Contact
- *B - Less Socket Contact

*Used only when other than power contacts are to be installed (i. e., Shielded, thermocouple, etc.)

ALTERNATE INSERT POSITION

W, X, Y, and Z (Omit for “Normal”)

LESS CONTACTS

Use “F0” when connectors are ordered less contacts, sealing plug and insertion/extraction tool (“F0” is not stamped on connector).



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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A

Circular

Performance Specifications

Class	Temp. °C	Moisture, Fluid and Fuel Resistant	Shell Material	Size Finish
W	-55 to +175	Yes	Aluminum per QQ-A-225 or QQ-A-591	Olive drab over cad plate
L	-55 to +200	Yes		Electroless nickel
KT	-55 to +175	Yes	Steel per QQ-S-637	Olive drab over card plate
KS LS	-55 to +200	Yes Steel		Passivate

NOTE: Resistant to hydraulic fluid per MIL-H-5606 or skydrol (LD), lubricating oils per MIL-L-7808 and MIL-L-23699, cleaners CeeBee 694 or Aerosafe 2300, jet engine fuel per MIL-J-5624 Grade JP-5, Ethylene Glycol, and Collanol 25.

Contacts (Crimp Removable Rear Release)

Material - Copper Alloy

Finish - Size 16 - Gold over Nickel

Size 12, 8, 4 and 0 - silver plated

Wire Range Accommodations

Contact Size	Wire Size	Minimum	Maximum
16-16	20, 18, 16	.053 (1.35)	.103 (2.62)
12-12	14, 12	.085 (2.16)	.158 (4.01)
8-8	10, 8	.132 (3.35)	.255 (6.48)
4-4	6, 4	.237 (6.02)	.370 (9.40)
0-0	2, 0	.360 (9.14)	.550 (13.97)

¹ Wire Reference - MIL-W16878, MIL-W-22759, Mil- 81381, MIL-C-915, MIL-C- 24145 and MIL-C 2194.

² MS3348 brushing required in crimp barrel to accommodate 10, 6 and 2 wire sizes - they are ordered separately, consult factory.

Test Data

High Potential Test Voltage

MS/CV connectors show no evidence of breakdown when the test voltage given below is applied between the two closes contacts and between, the shell and the contacts closest to the shell for a period of one minute.

Service Rating	Test Voltage (ms) 60cps	Suggested Operating Voltage DC	Suggested Operating Voltage AC (ms)
Inst.	1000	250	200
A	2000	700	500
D	2800	1250	900
E	3500	1750	1250
B	4500	2450	1750
C	7000	4200	3000

*As indicated in previous MS Specification and to be used by the designer only as a guide.

Test Current

Test current ratings of contacts and 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 allowable in wire bundles as specified in MIL-W-5088.

Current Rating with Silver Plated Wire (MIL-C-5015 test method)

Contact Size	Test Current (amps)	Potential Drop (millivolts)
16	13	49
12	23	42
8	46	26
4	80	23
0	150	21

MS Alternate Positions

All views are looking into front of pin insert or rear of socket insert.



Normal Position



Position W



Position X



Position Y



Position Z

Shell Size	No. of Contacts	Contact Arr.	W	X	Degrees Y	Z
8S	1 #16	85 -1	-	-	-	-
10S	1 #16	10S -2	-	-	-	-
10SL	2 #16	10SL -4	-	-	-	-
12	1 #12	12 -5	-	-	-	-
12S	2 #16	12S -3	70	145	215	290
14S	2 #16	14S -9	70	145	215	290
	3 #16	14S -7	70	145	215	290
	4 #16	14S -2	90	180	270	-
	5 #16	14S -5	-	110	-	-
	6 #16	14S -6	-	-	-	-
16S	2 #16	16S -4	35	110	250	325
	5 #16	16S -8	-	170	265	-
	7 #16	16S -1	80	-	-	280
16	2 #12	16 -11	35	110	250	325
	3 #12	16 -10	90	180	270	-
	2 #16, 2 #12	16 -9	35	110	250	325
	2 #16, 1 #8	16 -7	80	110	250	280
18	4 #16	18 -4	35	110	250	325
	4 #12	18 -10	-	120	240	-
	3 #16	18 -22	70	145	215	290
	5 #12	18 -11	-	170	265	-
	6 #12	18 -12	80	-	-	280
	5 #16, 2 #12	18 -9	80	110	250	280
	7 #16, 1 #12	18 -8	70	-	-	290
	10 #16	18 -1	70	145	215	290

Shell Size	No. of Contacts	Contact Arr.	W	X	Degrees Y	Z
20	1 #0	20 -2	-	-	-	-
	4 #12	20 -4	45	110	250	-
	8 #16	20 -7	80	110	250	280
	7 #16, 2 #12	20 -16	80	110	250	280
	14 #16	20 -27	35	110	250	325
	17 #16	20 -29	80	-	-	280
	3 #12, 2 #8	20 -14	80	110	250	280
	6 #16, 3 #12	20 -18	35	110	250	325
	7 #12	20 -15	80	-	-	280
22	3 #8	22 -2	70	145	215	290
	4 #8	22 -22	-	110	250	-
	1 #16, 4 #12	22 -13	35	110	250	325
	4 #16, 2 #12	22 -5	35	110	250	325
	8 #16	22 -18	80	110	250	280
	6 #16, 3 #12	22 -16	80	110	250	280
	14 #16	22 -19	80	110	250	280
	19 #16	22 -14	80	-	-	280
24	9 #16, 2 #12	24 -20	80	110	250	280
	3 #16, 1 #0	24 -4	80	110	250	280
	4 #8	24 -22	45	110	250	-
	7 #8	24 -10	80	-	-	280
	6 #12, 3 #8	24 -11	35	110	250	325
	14 #16, 2 #12	24 -7	80	110	250	280
	24 #16	24 -28	80	110	250	280

Shell Size	No. of Contacts	Contact Arr.	W	X	Degrees Y	Z
28	6 #16, 6 #12	28 -9	80	110	250	280
	12 #16	28 -18	70	145	215	290
	12 #16, 2 #12	28 -2	35	110	250	325
	15 #16	28 -17	80	110	250	280
	18 #16, 4 #12	28 -11	80	110	250	280
	26 #16	28 -12	90	180	270	-
	35 #16	28 -15	80	110	250	280
	37 #16	28 -21	80	110	250	280
32	4 #4	32 -71	45	110	250	-
	12 #16, 2 #4	32 -9	80	110	250	280
	10 #16, 5 #12	32 -12	80	110	250	280
	16 #16, 3 #8	32 -6	80	110	250	280
	2 #12, 2 #4					
	18 #16, 5 #12	32 -13	80	110	250	280
	28 #16, 7 #12	32 -7	80	125	235	280
36	40 #16, 7 #12	36 -7	80	110	250	280
	48 #16	36 -10	80	125	235	280
	4 #0	36 -5	-	120	240	-
	4 #4, 2 #0	36 -6	35	110	250	325
	3 #12, 3 #0	36 -3	70	145	215	290
	46 #16, 1 #12	36 -8	80	110	250	280
	52 #16	36 -52	72	144	216	288
40	24 #16, 6 #12	40 -1	65	130	235	300

Dimensions shown in inches (mm)

Specifications and dimensions subject to change

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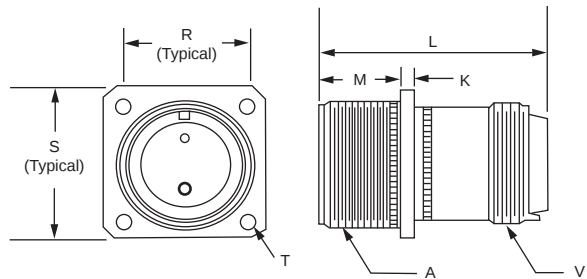
MS/CV345* MIL-C-5015 Rear Release Connectors

Circular
A

Wall Mounting Receptacle

MS3450

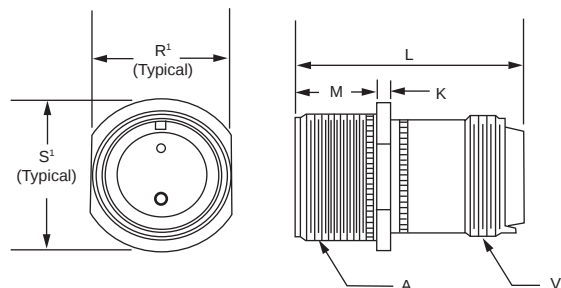
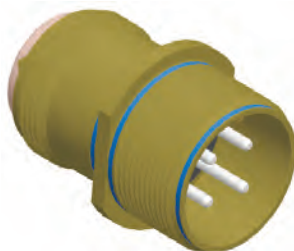
CV3450



Cable Connecting Receptacle

MS3451
(Class L and W only)

CV3451



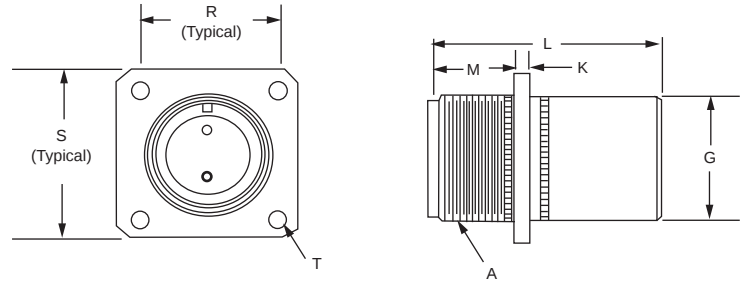
Shell Size	L Max.		K ±.015 (.38)	M		R ±.005 (.13)	R¹ Max.	S ±.031 (7.87)	S¹ ±.031 (7.87)	T Dia. +.015/-.000 (+.38/-0.00)	
	Contact #16,#12,#8,#4	Contact #0		±.015 (.38)	+.031 (.79) -.000 (.00)					Class L, W, LS	Class KT, KS
8S	1.750 (44.45)	--	.053 (2.11)	.562 (14.27)	.594 (12.09)	.504 (12.20)	.875 (22.22)	.729 (18.52)	.115 (2.92)	.145 (3.68)	
10S	1.750 (44.45)	--	.053 (2.11)	.562 (14.27)	.562 (14.27)	.629 (15.98)	1.000 (25.40)	.854 (21.69)	.115 (2.92)	.145 (3.68)	
10SL	1.750 (44.45)	--	.053 (2.11)	.562 (14.27)	.719 (18.26)	.629 (15.98)	1.000 (25.40)	.854 (21.69)	.115 (2.92)	.145 (3.68)	
12S	1.750 (44.45)	--	.053 (2.11)	.562 (14.27)	.812 (20.62)	.754 (19.15)	1.094 (27.79)	.974 (24.74)	.115 (2.92)	.145 (3.68)	
12	2.100 (53.34)	--	.053 (2.11)	.750 (19.05)	.812 (20.62)	.754 (19.15)	1.094 (27.79)	.974 (24.74)	.115 (2.92)	.145 (3.68)	
14S	1.750 (44.45)	--	.053 (2.11)	.562 (14.27)	.906 (23.01)	.879 (22.23)	1.188 (30.18)	1.099 (27.91)	.115 (2.92)	.145 (3.68)	
14	2.100 (53.34)	--	.053 (2.11)	.750 (19.05)	.906 (23.01)	.879 (22.23)	1.188 (30.18)	1.099 (27.91)	.115 (2.92)	.145 (3.68)	
16S	1.750 (44.45)	--	.053 (2.11)	.562 (14.27)	.969 (24.61)	1.005 (25.53)	1.281 (32.54)	1.224 (31.09)	.115 (2.92)	.145 (3.68)	
16	2.100 (53.34)	--	.053 (2.11)	.750 (19.05)	.969 (24.61)	1.005 (25.53)	1.281 (32.54)	1.224 (31.09)	.115 (2.92)	.145 (3.68)	
18	2.100 (53.34)	--	.125 (3.18)	.750 (19.05)	1.062 (26.97)	1.131 (28.73)	1.375 (34.92)	1.349 (34.26)	.115 (2.92)	.172 (4.37)	
20	2.100 (53.34)	2.250 (57.15)	.125 (3.18)	.750 (19.05)	1.156 (29.36)	1.256 (31.90)	1.500 (38.10)	1.474 (37.44)	.115 (2.92)	.172 (4.37)	
22	2.100 (53.34)	2.250 (57.15)	.125 (3.18)	.750 (19.05)	1.250 (31.75)	1.381 (35.08)	1.625 (41.28)	1.599 (40.61)	.115 (2.92)	.172 (4.37)	
24	2.100 (53.34)	2.250 (57.15)	.125 (3.18)	.812 (20.62)	1.375 (34.92)	1.506 (38.25)	1.750 (44.45)	1.715 (43.56)	.142 (3.61)	.172 (4.37)	
28	2.100 (53.34)	2.250 (57.15)	.125 (3.18)	.812 (20.62)	1.562 (39.67)	1.756 (44.60)	2.000 (50.80)	1.974 (50.14)	.142 (3.61)	.172 (4.37)	
32	2.100 (53.34)	2.250 (57.15)	.125 (3.18)	.875 (22.22)	1.750 (44.45)	2.007 (50.98)	2.250 (57.18)	2.224 (56.18)	.168 (4.27)	.204 (5.18)	
36	2.100 (53.34)	2.250 (57.15)	.125 (3.18)	.875 (22.22)	1.938 (49.23)	2.257 (57.33)	2.500 (63.50)	2.474 (56.36)	.168 (4.27)	.204 (5.18)	
40	2.100 (53.34)	2.250 (57.15)	.125 (3.18)	.875 (22.22)	2.188 (55.56)	2.511 (63.78)	2.750 (69.85)	2.724 (69.19)	.168 (4.27)	.204 (5.18)	
44	2.100 (53.34)	2.250 (57.15)	.125 (3.18)	.875 (22.22)	2.357 (60.32)	2.761 (70.13)	3.000 (76.20)	2.974 (75.54)	.168 (4.27)	.204 (5.18)	
48	2.100 (53.34)	2.250 (57.15)	.125 (3.18)	.875 (22.22)	2.625 (66.68)	3.011 (76.48)	3.250 (82.55)	3.224 (81.89)	.168 (4.27)	.204 (5.18)	

Shell Size	A Thread Class 2A	V Thread Class 2A
8S	1/2-28UNEF	1/2-20UNEF
10S	5/8-24UNEF	5/8-24UNEF
10SL	5/8-24UNEF	5/8-24UNEF
12S	3/4-20UNEF	3/4-20UNEF
12	3/4-20UNEF	3/4-20UNEF
14S	7/8-20UNEF	7/8-20UNEF
14	7/8-20UNEF	7/8-20UNEF
16S	1-20UNEF	1-20UNEF
16	1-20UNEF	1-20UNEF

Shell Size	A Thread Class 2A	V Thread Class 2A
18	1-1/8-18UNEF	1-1/16-18UNEF
20	1-1/4-18UNEF	1-3/16-18UNEF
22	1-3/8-18UNEF	1-5/16-18UNEF
24	1-1/2-18UNEF	1-7/16-18UNEF
28	1-3/4-18UNS	1-3/4-18UNS
32	2-UNS	2-UNS
36	2-1/4-16UN	2-1/4-16UN
40	2-1/2-16UN	2-1/2-16UN
44	2-3/4-16UN	2-3/4-16UN
48	3-16UN	3-16UN

Box Mounting Receptacle

CV3452



A

Circular

Shell Size	G Dia. ±.016 (0.41)	K ±.015 (0.38)	L Max.		M +.031 (.79) -.000 (.00)	R ±.005 (0.13)	S ±.031 (0.79)	T Dia. +.015/-.000 (+.38/-0.00) Class L, W	A Thread Class 2A
			Contact #16 & #12	Contact #8, #4, & #0					
8S	.500 (12.70)	.083 (2.11)	.1662 (42.21)	--	.562 (14.27)	.594 (15.09)	.875 (22.22)	.115 (2.92)	1/2-28UNEF
10S	.625 (15.88)	.083 (2.11)	.1662 (42.21)	--	.562 (14.27)	.719 (18.26)	1.000 (25.40)	.115 (2.92)	5/8-24UNEF
10SL	.625 (15.88)	.083 (2.11)	.1662 (42.21)	--	.562 (14.27)	.719 (18.26)	1.000 (25.40)	.115 (2.92)	5/8-24UNEF
12S	.750 (19.05)	.083 (2.11)	.1662 (42.21)	--	.562 (14.27)	.812 (20.62)	1.094 (27.79)	.115 (2.92)	3/4-20UNEF
12	.750 (19.05)	.083 (2.11)	.1662 (42.21)	--	.750 (19.05)	.812 (20.62)	1.094 (27.79)	.115 (2.92)	3/4-20UNEF
14S	.875 (22.22)	.083 (2.11)	.1662 (42.21)	--	.562 (14.27)	.906 (23.01)	1.188 (30.18)	.115 (2.92)	7/8-20UNEF
14	.875 (22.22)	.083 (2.11)	.1662 (42.21)	--	.750 (19.05)	.906 (23.01)	1.188 (30.18)	.115 (2.92)	7/8-20UNEF
16S	1.000 (25.40)	.083 (2.11)	.1662 (42.21)	--	.562 (14.27)	.969 (24.61)	1.281 (32.54)	.115 (2.92)	1-20UNEF
16	1.000 (25.40)	.083 (2.11)	.1662 (42.21)	1.937 (49.20)	.750 (19.05)	.969 (24.61)	1.281 (32.54)	.115 (2.92)	1-20UNEF
18	1.062 (26.67)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.750 (19.05)	1.062 (26.97)	1.375 (34.92)	.115 (2.92)	1-1/8-18UNEF
20	1.187 (30.15)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.750 (19.05)	1.156 (29.36)	1.500 (38.10)	.115 (2.92)	1-1/4-18UNEF
22	1.312 (33.32)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.750 (19.05)	1.250 (31.75)	1.625 (41.28)	.115 (2.92)	1-3/8-18UNEF
24	1.437 (36.50)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.812 (20.62)	1.375 (34.92)	1.750 (44.45)	.142 (3.61)	1-1/2-18UNEF
28	1.750 (45.44)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.812 (20.62)	1.562 (39.67)	2.000 (50.80)	.142 (3.61)	1-3/4-18UNS
32	2.000 (50.80)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.875 (22.22)	1.750 (44.45)	2.250 (57.18)	.168 (4.27)	2-18UNS
36	2.250 (57.15)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.875 (22.22)	1.938 (49.23)	2.500 (63.50)	.168 (4.27)	2-1/4-16UN
40	2.500 (63.50)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.875 (22.22)	2.188 (55.58)	2.750 (69.85)	.168 (4.27)	2-1/2-16UN
44	2.750 (69.85)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.875 (22.22)	2.375 (60.32)	3.000 (76.20)	.168 (4.27)	2-3/4-16UN
48	3.000 (76.20)	.125 (3.18)	.1662 (42.21)	1.937 (49.20)	.875 (22.22)	2.625 (66.68)	3.250 (82.55)	.168 (4.27)	3-16UN

MS/CV345* MIL-C-5015 Rear Release Connectors



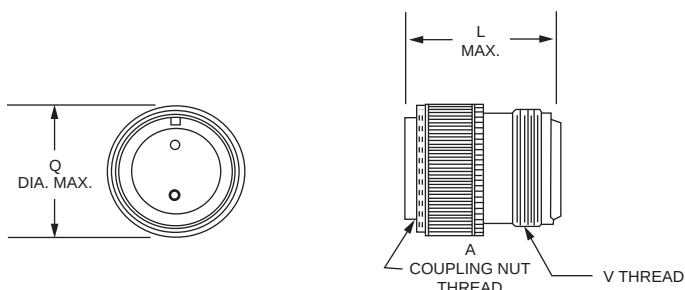
A

Circular

Cable Connecting Plug

MS3456

CV3456



Shell Size	L Max.		Q Dia. Max.	A Thread Class 2B	V Thread Class 2A
	Contact #16, #12, #8, #4	Contact #0			
8S	1.750 (44.45)	--	.844 (21.44)	1/2-28UNEF	1/2-20UNEF
10S	1.750 (44.45)	--	.969 (24.61)	5/8-24UNEF	5/8-24UNEF
10SL	1.750 (44.45)	--	.969 (24.61)	5/8-24UNEF	5/8-24UNEF
12S	1.750 (44.45)	--	1.062 (26.97)	3/4-20UNEF	3/4-20UNEF
12	2.100 (53.34)	--	1.062 (26.97)	3/4-20UNEF	3/4-20UNEF
14S	1.750 (44.45)	--	1.156 (29.36)	7/8-20UNEF	7/8-20UNEF
14	2.100 (53.34)	--	1.156 (29.36)	7/8-20UNEF	7/8-20UNEF
16S	1.750 (44.45)	--	1.250 (31.75)	1-20UNEF	1-20UNEF
16	2.100 (53.34)	--	1.250 (31.75)	1-20UNEF	1-20UNEF

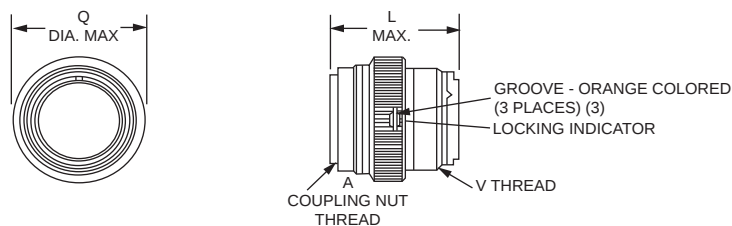
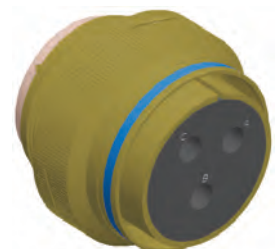
Shell Size	L Max.		Q Dia. Max.	A Thread Class 2B	V Thread Class 2A
	Contact #16, #12, #8, #4	Contact #0			
18	2.100 (53.34)	--	1.344 (34.14)	1-1/8-18UNEF	1-1/16-18UNEF
20	2.100 (53.34)	2.250 (57.15)	1.469 (37.31)	1-1/4-18UNEF	1-3/16-18UNEF
22	2.100 (53.34)	2.250 (57.15)	1.594 (40.49)	1-3/8-18UNEF	1-5/16-18UNEF
24	2.100 (53.34)	2.250 (57.15)	1.719 (43.66)	1-1/2-18UNEF	1-7/16-18UNEF
28	2.100 (53.34)	2.250 (57.15)	1.969 (50.01)	1-3/4-18UNS	1-3/4-18UNS
32	2.100 (53.34)	2.250 (57.15)	2.219 (56.36)	2-18UNS	2-18UNS
36	2.100 (53.34)	2.250 (57.15)	2.469 (62.71)	2-1/4-16UN	2-1/4-16UN
40	2.100 (53.34)	2.250 (57.15)	2.719 (69.06)	2-1/2-16UN	2-1/2-16UN
44	2.100 (53.34)	2.250 (57.15)	2.969 (75.41)	2-3/4-16UN	2-3/4-16UN
48	2.100 (53.34)	2.250 (57.15)	3.219 (81.76)	3-16UN	3-16UN

Cable Connecting Plug

MS3459

CV3459

Self-Locking Coupling Nut



Shell Size	L Max.		Q Dia. Max.	A Thread Class 2B	V Thread Class 2A
	Contact #16, #12, #8, #4	Contact #0			
8S	1.750 (44.45)	--	.963 (24.46)	1/2-28UNEF	1/2-20UNEF
10S	1.750 (44.45)	--	1.088 (27.64)	5/8-24UNEF	5/8-24UNEF
10SL	1.750 (44.45)	--	1.088 (27.64)	5/8-24UNEF	5/8-24UNEF
12S	1.750 (44.45)	--	1.213 (30.8)	3/4-20UNEF	3/4-20UNEF
12	2.100 (53.34)	--	1.213 (30.8)	3/4-20UNEF	3/4-20UNEF
14S	1.750 (44.45)	--	1.358 (34.49)	7/8-20UNEF	7/8-20UNEF
14	2.100 (53.34)	--	1.358 (34.49)	7/8-20UNEF	7/8-20UNEF
16S	1.750 (44.45)	--	1.463 (37.16)	1-20UNEF	1-20UNEF

Shell Size	L Max.		Q Dia. Max.	A Thread Class 2B	V Thread Class 2A
	Contact #16, #12, #8, #4	Contact #0			
16	2.100 (53.34)	--	1.463 (37.16)	1-20UNEF	1-20UNEF
18	2.100 (53.34)	--	1.588 (40.34)	1-1/8-18UNEF	1-1/16-18UNEF
20	2.100 (53.34)	2.250 (57.15)	1.713 (43.51)	1-1/4-18UNEF	1-3/16-18UNEF
22	2.100 (53.34)	2.250 (57.15)	1.788 (45.42)	1-3/8-18UNEF	1-5/16-18UNEF
24	2.100 (53.34)	2.250 (57.15)	1.963 (49.86)	1-1/2-18UNEF	1-7/16-18UNEF
28	2.100 (53.34)	2.250 (57.15)	2.213 (56.21)	1-3/4-18UNS	1-3/4-18UNS
32	2.100 (53.34)	2.250 (57.15)	2.463 (62.56)	2-18UNS	2-18UNS
36	2.100 (53.34)	2.250 (57.15)	2.713 (68.91)	2-1/4-16UN	2-1/4-16UN
40	2.100 (53.34)	2.250 (57.15)	2.963 (75.26)	2-1/2-16UN	2-1/2-16UN



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Contact Arrangements



A

Circular

Face view, Pin insert

Shell Size	8S-1	10S-2	10SL-4	10SL-3	12-5	12S-3	14S-9	14S-7
No. of Contacts	1 #16	1 #16	2 #16	3 #16	1 #12	2 #16	2 #16	3 #16
Service Rating	A	A	A	A	D	A	A	A

Shell Size	14S-2	14S-5	14S-6	16S-4	16-11	16-7	16-10	16-9
No. of Contacts	4 #16	5 #16	6 #16	2 #16	2 #12	2 #16 (A,B) 1 #8 (C)	3 #12 (A-C)	2 #16 (B,D) 2 #12 (A,C)
Service Rating	Inst.	Inst.	Inst.	D	A	A	A	A

Socket Only

Shell Size	16S-8	16S-1	18-22	18-4	18-10	18-11	18-12	18-9
No. of Contacts	5 #16	7 #16	3 #16	4 #16	4 #12	5 #12	6 #16	5 #16 (B,C,E-G) 2 #12 (A,D)
Service Rating	A	A	D	D	A	A	A	Inst.
					For new MIL equip. design, use 18-11		For new MIL equip. design, use 16S-1	

Shell Size	18-8	18-1	20-2	20-4	20-14	20-15	20-7	20-16
No. of Contacts	7 #16 (A-G) 1 #12 (H)	10 #16	1 #0	4 #12	3 #12 (C,D,E) 2 #8 (A,B)	7 #12	8 #16	7 #16 (A-G) 2 #12 (H,I)
Service Rating	A	A (B, C, F, G) Inst. (all others)	D	D	A	A	A (C-F) D (A,B,G,H)	A

Shell Size	20-18	20-27	20-29	22-2	22-22	22-13	22-5	22-18
No. of Contacts	6 #16 (A,C-E,G,H) 3 #12 (B,F,I)	14 #16	17 #16	3 #8	4 #8	1 #16 (E) 4 #12 (A-D)	4 #16 (A,C,D,F) 2 #12 (B,E)	8 #16
Service Rating	A	A	A	D	A	A (A-D), D (E)	D	A (C-E) D (all others)

Pin Only

Shell Size	22-16	22-19	22-14	24-4	24-22	24-10	24-11	24-20
No. of Contacts	6 #16 (A,B,F,J) 3 #12 (C-E)	14 #16	19 #16	3 #16 (B,C,D) 1 #0 (A)	4 #8	7 #8	6 #12 (A-C,G-I) 3 #8 (D-F)	9 #16 (A-D,G-L) 2 #12 (E-F)
Service Rating	A	A	A	D	D	A	A	D

MS/CV345* MIL-C-5015 Rear Release Connectors



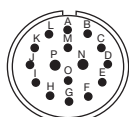
A

Circular

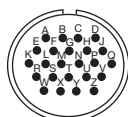
Contact Arrangements

Face view, Pin insert

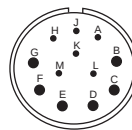
Shell Size
No. of Contacts
Service Rating



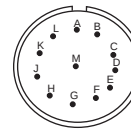
24-7
14 #16(A-M,O)
2 #12(P,N)
A



24-28
24 #16
Inst.

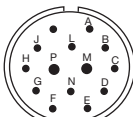


28-9
6 #16(A,H-M)
6 #12(B-G)
D

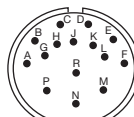


28-18
12 #
A (A,B) C (M)
D (G-L)
Inst. (C-F)

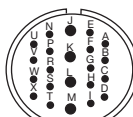
Shell Size
No. of Contacts
Service Rating



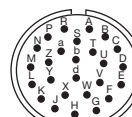
28-2
12 #16(A,L,N)
2 #12(M,P)
D



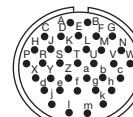
28-17
15 #16
A(A-L), B(R), D(M-P)



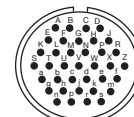
28-11
18 #16(A-I, N-X)
4 #12(J-M)
A



28-12
26 #16
A

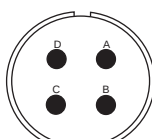


28-15
35 #16
A
For MIL equip
design, use 28-21

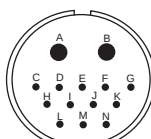


28-21
37 #16
A

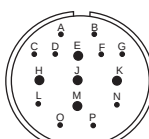
Shell Size
No. of Contacts
Service Rating



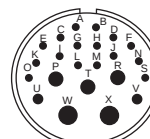
32-17
4 #4
D



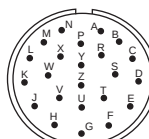
32-9
12 #16(C-N)
2 #4(A,B)
D



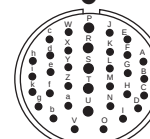
32-12
10 #16(A-D, F,G,L,N-P)
5 #12(E,H,J,K,M)
A (C-G), D (all others)



32-6
16 #16(A-O,S) 2 #12(U,V)
3 #8(P,R,T) 2 #4(W,X)
A

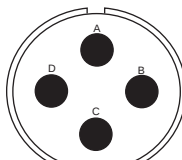


32-13
18 #16(A-D,K-Z)
5 #12(E-J)
D

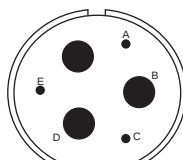


32-7
28 #16(A-N,W-Z,a-k)
7 #12(O-V)
Inst. (A,B,h,i)
A(all others)

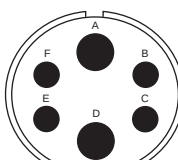
Shell Size
No. of Contacts
Service Rating



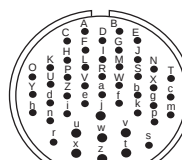
36-5
4 #10
36-5
4#0



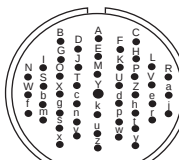
36-3
3 #12(A,C,E)
3 #0(B,D,F)
D



36-6
4 #4(B,C,E,F)
2 #0(A,D)
A

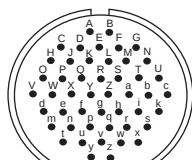


36-7
40 #16(A-Z,a-s)
7 #12(t-z)
A

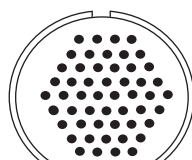


36-8
46 #16(A-X,Z-z)
1 #12(Y)
A

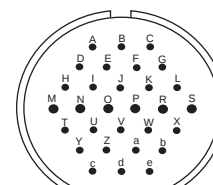
Shell Size
No. of Contacts
Service Rating



36-10
48 #16
A



36-52
52 #16
A



40-1
24 #16(A-L,T-e)
6 #12(M-S)
D



A

Circular

Contacts



Pin, MIL-C-39029/29

BIN Code	Military Part Number	Color Bands			Mating End Size	Wire Barrel Size	ITT Cannon Part Number
		1st	2nd	3rd			
212	M39029/29-212	Red	Brown	Red	16	16	980-0009-501
213	M39029/29-213	Red	Brown	Orange	12	12	980-0009-502
214	M39029/29-214	Red	Brown	Yellow	8	8	980-0009-503
215	M39029/29-215	Red	Brown	Green	4	4	980-0009-504
216	M39029/29-216	Red	Brown	Blue	0	0	980-0009-505

Socket, MIL-C-39029/30

BIN Code	Military Part Number	Color Bands			Mating End Size	Wire Barrel Size	ITT Cannon Part Number
		1st	2nd	3rd			
217	M39029/30-217	Red	Brown	Violet	16S	16	980-0009-495
218	M39029/30-218	Red	Brown	Gray	16	16	980-0009-496
219	M39029/30-219	Red	Brown	White	12	12	980-0009-497
220	M39029/30-220	Red	Red	Black	8	8	980-0009-498
221	M39029/30-221	Red	Red	Brown	4	4	980-0009-452
222	M39029/30-222	Red	Red	Red	0	0	980-0009-500

Wire Hole Fillers

Contact Size	ITT Cannon Part Number	Part Number	Color Code
16	225-0071-000	MS27488-16-3	Blue
12	225-0072-000	MS27488-12-3	Yellow
*8	225-1009-000	MS27488-8-3	Red
*4	225-1008-000	MS27488-4-3	Blue
*0	225-1007-000	MS27488-0-3	Yellow

* Consult factory for availability

Thermocouple

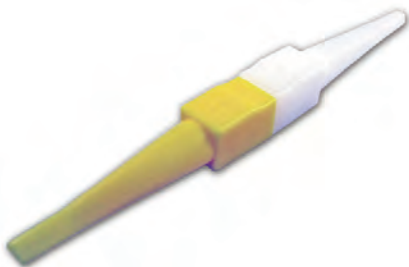
Alumel			Chromel	
Contact Size	Pin	Socket	Pin	Socket
16S*	030-3196-015	031-3113-011	030-3196-016	031-3113-012
16	030-3196-015	031-3114-014	030-3196-016	031-3114-015
12	030-3197-011	031-3115-009	030-3197-012	031-3115-010

* 16S type socket contacts are for use in 8S, 10S, 10SL, 12S, 14S, and 16S shell size connectors.

Tooling

A complete line of crimp, insertion and extraction tools is provided for MIL-C-5015 connectors. Crimp tools are made from high quality metal and are designed for long life and trouble-free service. Insertion and extraction tools are made of a durable plastic and are inexpensive and expendable.

Contact Size	Insertion/Extraction Tools						Crimp Tool	Unwired Contact
	MS No.	Plastic Part Number	ITT Cannon No.	MS No.	ITT Cannon No.			
16	M8 1969/14-03	274-7002-000	CIET-16-03	-	-		M22520/01 with Turret	274-7008-000
12	M8 1969/14-04	274-7003-000	CIET-12-04	-	-		CBT 520/530	274-7009-000
8	MS3165-8 M83723/32-8		CET 8-2	MS3483-1	CET-CVR-8		CBT 600B Power Unit CCH-8-1 Crimp Head CCHP-8-6 Locator	- - -
4	MS3165-4 M83723/32-4		CET 4-8	MS3483-2	CET-CVR-4		CBT 600B Power Unit CCH-4-1 Crimp Head CCHP-4-8 Locator	- - -
0	MS3165-0 M83723/32-0		CET 0-1	MS3483-3	CET-00-CV		CBT 600B Power Unit CCH-0-1 Crimp Head CCHP-0-8 Locator	- - -



CIET-16



CBT-520/530



M22520/1-01

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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MS-K MIL-DTL-5015 Firewall Connectors

MS-K firewall connectors have met and are qualified to the fireproof test of MIL-DTL-5015. This test requires that a connector mounted to a firewall will continue to operate for 5 minutes in case of fire and prevent the

passage of flame for 20 minutes. These connectors are not environmentally sealed but operate continuously at temperature up to +177° (350°F). MS-K connectors have crimp type contacts; thermocouple contacts must be

ordered separately and are solder type unless otherwise requested on order. Cavities that will contain the thermocouple contacts and contact material must be specified when ordering.

Performance and Material Specifications

MATERIALS

Shell - Steel
Insulator - Glass-filled epoxy or glass-filled melamine or melamine glass cloth laminate
Contacts - Copper alloy

FINISHES

Shell - Olive drab over cadmium plate
Contacts - Silver plate

MECHANICAL FEATURES

Shell Size - In sixteenths of an inch
Coupling - Threaded
Contact Arrangements - See pages A-127

ELECTRICAL DATA

Number of Contacts - 1 thru 37

How to Order

SERIES PREFIX MS
SHELL TYPE 3106
CLASS K
SHELL SIZE 36
CONTACT ARRANGEMENT 8
CONTACT TYPE P

SERIES PREFIX
MS

SHELL STYLE
See pages A-114 thru A-116

CLASS
K per MIL-C-5015

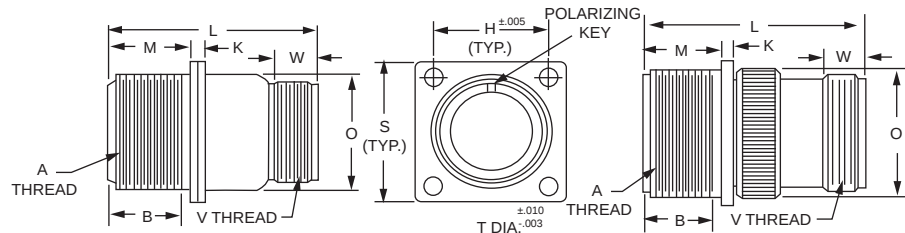
SHELL SIZE
8S to 36

CONTACT ARRANGEMENT
See page A-127

CONTACT TYPE
P for pin; S for socket

Wall Mounting Receptacle

MS3100K



Sizes 8s to 18 have junction shell

Sizes 20 to 36 have endbell

Part Number	B	K	L	M	O	R	S	T	W
MS3100K8S-†	.375 (9.52)	.125 (3.18)	1.453 (36.91)	.563 (14.30)	17/32	19/32	7/8	.150 (3.81)	.375 (9.92)
MS3100K10SL-†	.375 (9.52)	.125 (3.18)	1.109 (28.17)	.563 (14.30)	25/32	23/32	1	.150 (3.81)	.375 (9.92)
MS3100K12S-†	.375 (9.52)	.125 (3.18)	1.515 (38.48)	.563 (14.30)	25/32	13/16	1-3/32	.150 (3.81)	.375 (9.92)
MS3100K14S-†	.375 (9.52)	.125 (3.18)	1.515 (38.48)	.563 (14.30)	29/32	29/32	1-3/16	.150 (3.81)	.375 (9.92)
MS3100K16S-†	.375 (9.52)	.125 (3.18)	1.703 (43.26)	.563 (14.30)	1-1/32	31/32	1-9/32	.150 (3.81)	.375 (9.92)
MS3100K16-†	.625 (15.88)	.125 (3.18)	1.703 (43.26)	.750 (19.05)	1-1/32	31/32	1-9/32	.150 (3.81)	.375 (9.92)
MS3100K18-†	.625 (15.88)	.125 (3.18)	1.921 (48.79)	.750 (19.05)	1-5/32	1-1/16	1-3/8	.117 (4.50)	.375 (9.92)
MS3100K20-†	.625 (15.88)	.078 (1.98)	2.109 (53.57)	.750 (19.05)	1-21/64	1-5/32	1-1/2	.117 (4.50)	.375 (9.92)
MS3100K22-†	.625 (15.88)	.078 (1.98)	2.031 (51.59)	.750 (19.05)	1-25/64	1-1/4	1-5/8	.117 (4.50)	.375 (9.92)
MS3100K24-†	.625 (15.88)	.078 (1.98)	2.328 (59.13)	.813 (20.65)	1-37/64	1-3/8	1-3/4	.117 (4.50)	.375 (9.92)
MS3100K28-†	.625 (15.88)	.078 (1.98)	2.025 (51.44)	.813 (20.65)	1-49/64	1-9/16	2	.117 (4.50)	.375 (9.92)
MS3100K32-†	.625 (15.88)	.078 (1.98)	2.453 (62.31)	.875 (22.22)	2-1/64	1-3/4	2-1/4	.209 (5.31)	.438 (11.13)
MS3100K36-†	.625 (15.88)	.125 (3.18)	2.594 (65.89)	.875 (22.22)	2-17/64	1-15/16	2-1/2	.209 (5.31)	.500 (12.70)

• Receptacles in size 10SL are available with pin inserts only.

* Add contact arrangement. See page A-121

† Add contact type: P - pin; S - socket

Part Number	A Thread	V Thread
MS3100K8S-†	1/2-28UNEF-2A	1/2-28UNEF-2A
MS3100K10SL-†	5/8-24UNEF-2A	5/8-24UNEF-2A
MS3100K12S-†	3/4-20UNEF-2A	5/8-24UNEF-2A
MS3100K14S-†	7/8-20UNEF-2A	3/4-20UNEF-2A
MS3100K16S-†	1-20UNEF-2A	7/8-20UNEF-2A
MS3100K16-†	1-20UNEF-2A	7/8-20UNEF-2A
MS3100K18-†	1-1/8-18UNEF-2A	1-20UNEF-2A
MS3100K20-†	1-1/4-18UNEF-2A	1-3/16-18UNEF-2A
MS3100K22-†	1-3/8-18UNEF-2A	1-3/16-18UNEF-2A
MS3100K24-†	1-1/2-18UNEF-2A	1-7/16-18UNEF-2A
MS3100K28-†	1-3/4-18UNS-2A	1-7/16-18UNEF-2A
MS3100K32-†	2-18UNS-2A	1-3/4-18UNS-2A
MS3100K36-†	2-1/4-16UN-2A	2-18UNS-2A



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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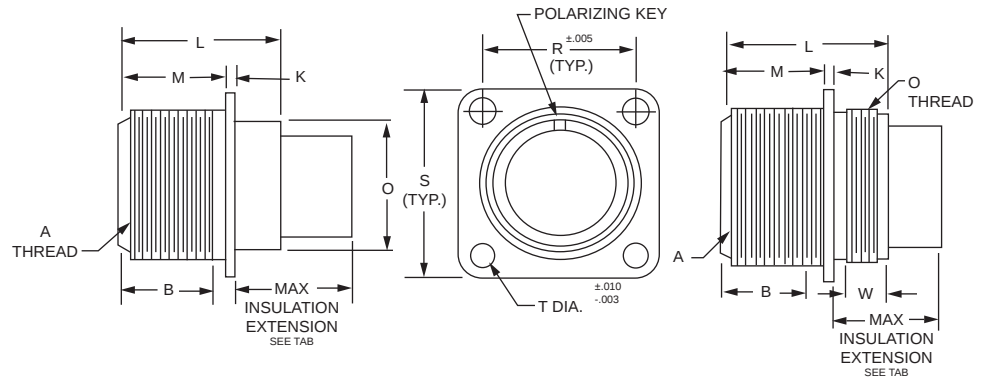
Box Mounting Receptacle

MS3102K



A

Circular



Sizes 8S to 18 have plain rear skirt

Sizes 20 to 36 have threaded rear skirt

Maximum Insulation Extensions

Shell Size	Contact Size				
	16	12	8	4	0
8S	11/16	—	—	—	—
10SL-16S	51/64	7/8	—	—	—
16-18	13/16	7/8	7/8	1-3/32	—
20-22	13/16	7/8	7/8	1-3/32	1-9/64
24	47/64	13/16	13/16	1-3/32	1-3/32
28	47/64	13/16	13/16	1-3/32	1-3/32
32	47/64	47/64	47/64	61/64	1-3/32
36	39/64	43/64	43/64	57/64	61/64

Part Number	A Thread	B	K	L	M	O Thread	R	S	T	W
MS3102K8S-†	1/2-28UNEF-2A	.375 (9.52)	.063 (1.90)	59/64	.563 (14.30)	7/16	19/32	7/8	.150 (3.81)	—
MS3102K10SL-†	5/8-24UNEF-2A	.375 (9.52)	.063 (1.90)	61/64	.563 (14.30)	39/64	23/32	1	.150 (3.81)	—
MS3102K12S-†	3/4-20UNEF-2A	.375 (9.52)	.063 (1.90)	61/64	.563 (14.30)	21/32	13/16	1-3/32	.150 (3.81)	—
MS3102K14S-†	7/8-20UNEF-2A	.375 (9.52)	.063 (1.90)	61/64	.563 (14.30)	23/32	29/32	1-3/16	.150 (3.81)	—
MS3102K16S-†	1-20UNEF-2A	.375 (9.52)	.063 (1.90)	61/64	.563 (14.30)	27/32	31/32	1-9/32	.150 (3.81)	—
MS3102K16-†	1-20UNEF-2A	.625 (15.88)	.063 (1.90)	1-9/64	.750 (19.05)	27/32	31/32	1-9/32	.150 (3.81)	—
MS3102K18-†	1-1/8-18UNEF-2A	.625 (15.88)	.063 (1.90)	1-9/64	.750 (19.05)	31/32	1-1/16	1-3/8	.177 (4.50)	—
MS3102K20-†	1-1/4-18UNEF-2A	.625 (15.88)	.078 (1.98)	1-15/64	.750 (19.05)	1-3/16-18UNEF-2A	1-5/32	1-1/2	.177 (4.50)	.141 (3.58)
MS3102K22-†	1-3/8-18UNEF-2A	.625 (15.88)	.078 (1.98)	1-18/64	.750 (19.05)	1-1/4-18UNEF-2A	1-1/4	1-5/8	.177 (4.50)	.141 (3.58)
MS3102K24-†	1-1/2-18UNEF-2A	.625 (15.88)	.078 (1.98)	1-18/64	.813 (20.65)	1-7/16-18UNEF-2A	1-3/8	1-3/4	.177 (4.50)	.141 (3.58)
MS3102K28-†	1-3/4-18UNS-2A	.625 (15.88)	.078 (1.98)	1-18/64	.813 (20.65)	1-5/8-18UNEF-2A	1-9/16	2	.177 (4.50)	.141 (3.58)
MS3102K32-†	2-18UNS-2A	.625 (15.88)	.078 (1.98)	1-3/8	.875 (22.22)	1-7/8-16UN-2A	1-3/4	2-1/4	.209 (5.31)	.313 (7.95)
MS3102K36-†	2-1/4-16UN-2A	.625 (15.88)	.125 (3.18)	1-29/64	.875 (22.22)	2-1/8-16UN-2A	1-15/16	2-1/2	.209 (5.31)	.344 (8.74)

• Receptacles in size 10SL are available with pin inserts only.

* Add contact arrangements. See page A-127

† Add contact type: P - pin; S - socket

MS-K MIL-DTL-5015 Firewall Connectors

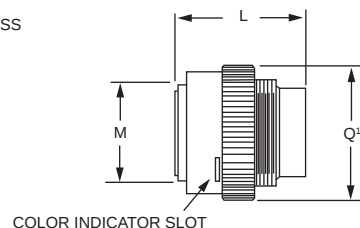
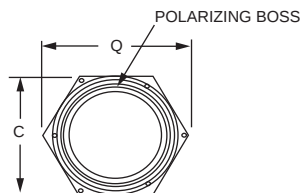
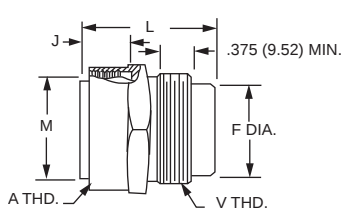


A

Circular

Straight Plug

MS3106K



Part Number	A Thread	J	L	Q	V Thread	W
MS3106K8S-†	1/2-28UNEF-2B	.531 (13.49)	1-1/4	3/4	1/2-28UNEF-2A	.375 (9.52)
MS3106K10SL-†	5/8-24UNEF-2B	.531 (13.49)	1-7/16	31/32	5/8-24UNEF-2A	.375 (9.52)
MS3106K12S-†	3/4-20UNEF-2B	.531 (13.49)	1-7/16	1	5/8-24UNEF-2A	.375 (9.52)
MS3106K14S-†	7/8-20UNEF-2B	.531 (13.49)	1-7/16	1-1/8	3/4-20UNEF-2A	.375 (9.52)
MS3106K16S-†	1-20UNEF-2B	.531 (13.49)	1-7/16	1-1/4	7/8-20UNEF-2A	.375 (9.52)
MS3106K16-†	1-20UNEF-2B	.719 (18.26)	1-5/8	1-1/4	7/8-20UNEF-2A	.375 (9.52)
MS3106K18-†	1-1/8-18UNEF-2B	.719 (18.26)	2-1/16	1-11/32	1-20UNEF-2A	.375 (9.52)
MS3106K20-†	1-1/4-18UNEF-2B	.719 (18.26)	2-11/64	1-15/32	1-3/16-18UNEF-2A	.375 (9.52)
MS3106K22-†	1-3/8-18UNEF-2B	.719 (18.26)	2-5/32	1-19/32	1-3/16-18UNEF-2A	.375 (9.52)
MS3106K24-†	1-1/2-18UNEF-2B	.719 (18.26)	2-21/64	1-23/32	1-7/16-18UNEF-2A	.375 (9.52)
MS3106K28-†	1-3/4-18UNS-2B	.719 (18.26)	2-5/16	1-31/32	1-7/16-18UNEF-2A	.375 (9.52)
MS3106K32-†	2-18UNS-2B	.719 (18.26)	2-25/64	2-7/32	1-3/4-18UNS-2A	.438 (11.13)
MS3106K36-†	2-1/4-16UN-2B	.719 (18.26)	2-17/32	2-15/32	2-18UNS-2A	.500 (12.70)

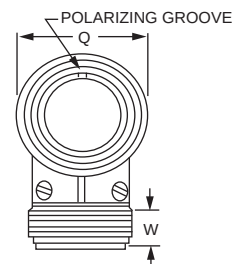
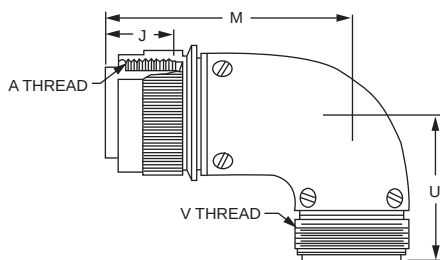
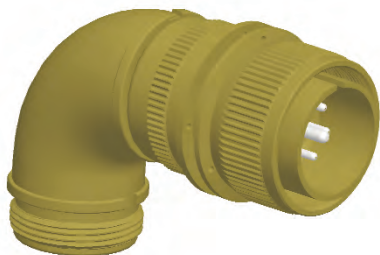
• Plugs 10SL are available with socket inserts only.

* Add contact arrangements. See page A-127.

† Add contact type: P - pin; S - socket

90° Angle Plug

MS3108K



Part Number	A Thread	J	M	Q	U	V Thread	W
MS3108K10SL-†	5/8-24UNEF-2B	.531 (13.49)	1-41/64	31/32	1-21/64	5/8-24UNEF-2A	.375 (9.52)
MS3108K12S-†	3/4-20UNEF-2B	.531 (13.49)	1-41/64	1	1-21/64	5/8-24UNEF-2A	.375 (9.52)
MS3108K14S-†	7/8-20UNEF-2B	.531 (13.49)	1-29/32	1-1/8	1-27/64	3/4-20UNEF-2A	.375 (9.52)
MS3108K16S-†	1-20UNEF-2B	.531 (13.49)	1-29/32	1-1/4	1-27/64	7/8-20UNEF-2A	.375 (9.52)
MS3108K16-†	1-20UNEF-2B	.719 (18.26)	2-3/32	1-1/4	1-27/64	7/8-20UNEF-2A	.375 (9.52)
MS3108K18-†	1-1/8-18UNEF-2B	.719 (18.26)	2-15/64	1-11/32	1-31/64	1-20UNEF-2A	.375 (9.52)
MS3108K20-†	1-1/4-18UNEF-2B	.719 (18.26)	2-19/32	1-15/32	1-21/32	1-3/16-18UNEF-2A	.375 (9.52)
MS3108K22-†	1-3/8-18UNEF-2B	.719 (18.26)	2-19/32	1-19/32	1-21/32	1-3/16-18UNEF-2A	.375 (9.52)
MS3108K24-†	1-1/2-18UNEF-2B	.719 (18.26)	2-49/64	1-23/32	1-63/64	1-7/16-18UNEF-2A	.375 (9.52)
MS3108K28-†	1-3/4-18UNS-2B	.719 (18.26)	2-49/64	1-31/32	1-63/64	1-7/16-18UNEF-2A	.375 (9.52)
MS3108K32-†	2-18UNS-2B	.719 (18.26)	3-1/4	2-7/32	2-7/32	1-3/4-18UNS-2A	.438 (11.13)
MS3108K36-†	2-1/4-16UN-2B	.719 (18.26)	3-1/4	2-15/32	2-9/32	2-18UNS-2A	.500 (12.70)

• Plugs in size 10SL are available with socket inserts only.

* Add contact arrangements. See page A-127.

† Add contact type: P - pin; S - socket



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

www.ittcannon.com

Assembly Instructions



A

Circular



Recommended Procedures

- *1. Remove Formica retaining ring (or the ceramic retaining ring) from contact (Figure 1).
2. Crimp contact to wire.
3. Slip endbell (or junction shell), retaining ring, and washer over the bundle.
4. Push contact thru rear insulator. (Contact should extend sufficiently to accomplish Step 5.)
5. Attach Formica retaining ring onto the contact (see Figure 1).
6. Seat each contact securely in rear insulator.
7. Assemble front insulator on engaging end of contact.
8. Slide insulator assembly into hardware.
9. Slide washer and insulator retaining ring into place, making sure that insulator retaining is fully seated in groove.
10. Slide endbell or junction shell down wire bundle and attach to shell (or barrel).

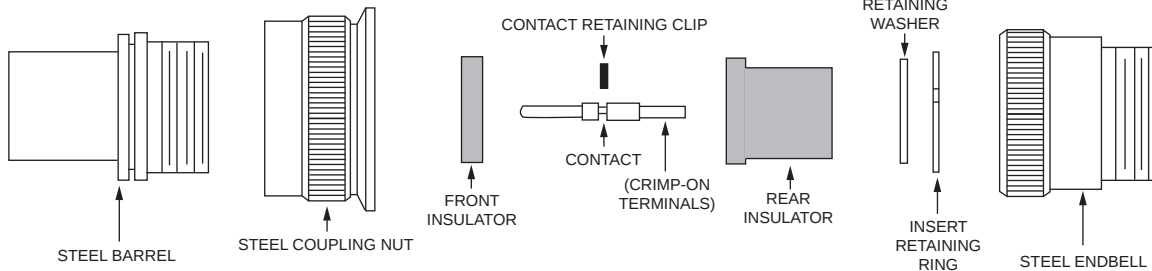


FIGURE 1

*NOTE: For MS-K Assembly it is not necessary to remove the ceramic retaining ring used on sizes 16 and 12 contacts for MS-K providing that the crimp tool M22520/1-01 is used with the TH119 turret. However, the formica ring must be removed if using the crimp tools listed below.

When using the MS3191-1 (or CCT-1612) crimp tool with proper locator, both the ceramic or formica retaining ring for sizes 16 and 12 contacts must be removed. For sizes 8, 4, and 0 contacts, the ceramic or formica retaining rings must be removed before crimping.

Contacts, Crimp Tools, Contact Kit Part Numbers

MS-K Contacts and Crimp Tools can be ordered separately

MS-K Contacts Assembly Kit with Contact and Retaining Ring

Contact Size	Part Number	Wire Accom.	Crimp Tool	Locator	Crimp Head†	Kit Part Number
16-Pin 8S-36	330-0187-000	16-18-20	MS22520/1-01 MS3191-1	TH119 Turret L16-3191-8	—	320-0002-000
16 Pin* 8S-36	030-1154-000	16-18-20	MS22520/1-01 MS3191-1	TH119 Turret L16-3191-8	—	320-0001-000
16 Socket 8S-16S	031-0497-000	16-18-20	MS22520/1-01 MS3191-1	TH119 Turret L16-3191-8	—	320-0013-000
16 Socket 12-36	031-0498-000	16-18-20	MS22520/1-01 MS3191-1	TH119 Turret L16-3191-7	—	320-0005-000
16 Socket* 12-36	031-0728-000	16-18-20	MS22520/1-01 MS3191-1	TH119 Turret L16-3191-7	—	320-0008-000
12 Pin	330-0188-000	12-14	MS22520/1-01 MS3191-1	TH119 Turret L12-3191-4	—	320-0009-000
12 Socket	031-0499-000	12-14	MS22520/1-01 MS3191-1	TH119 Turret L12-3191-4	—	320-0007-000
8 Pin	330-0189-000	8	CBT600B or CBT600	CCHP8	CCH8-1	320-0010-000
8 Socket	031-0500-000	8	CBT600B or CBT600	CCHP8	CCH8-1	320-0014-000
4 Pin	330-0190-000	4	CBT600B or CBT600	CCHP4	CCH4-1	320-0011-000
4 Socket	031-0501-000	4	CBT600B or CBT600	CCHP4	CCH4-1	320-0006-000
0 Pin	330-0191-000	0	CBT600B	CCHP0-6	CCH0-1	320-0012-000
0 Socket	031-0502-000	0	CBT600B	CCHP0-6	CCH0-1	320-0015-000

* These contacts must be used when ordering contact arrangements 24-28 pin or socket, 28-21 pin or socket, and 20-27 socket only.

†Crimp heads are only applicable for contact sizes 8, 4, and 0.

CA-KE
MIL-DTL-5015 Type Firewall Connectors

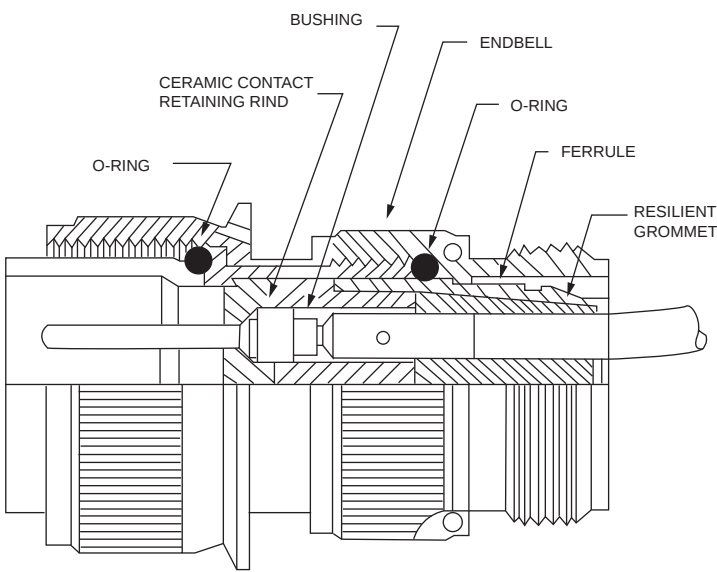


A

Circular

Washing, fuel spillage, and atmospheric variations are responsible for the development of firewall connectors that combine moisture resistance with fireproof characteristics. The CA-KE series provide environmental resistance to meet the moisture problems as well as emergency fire conditions defined by MIL-DTL-5015. CA-KE connectors are fully interchangeable and intermateable with other 5015 type of connectors. In order to maintain the moisture seal and fire resistance, however, they must mate with corresponding CA-KE connectors.

Continuous operating temperature of +177° C (+350° F) - crimp contacts. Moisture resistant connector for use with sealable wires. Modifications of MS31**K configuration.



Performance and Material Specifications

MATERIALS

- Shell - Steel
- Insulator - Glass-filled epoxy or glass-filled melamine
- Contacts - Copper alloy
- Grommet and O Ring - Fuel-resistant silicone rubber
- Accessory Hardware - Steel

FINISHES

- Shell - Olive drab over cadmium plate
- Contacts - Silver plate
- Accessory Hardware - Olive drab over cadmium plate

MECHANICAL FEATURES

- Shell Size - In sixteenths of an inch
- Coupling - Threaded
- Contact Arrangements - See page A-127

ELECTRICAL DATA

- Number of Contacts - 1 thru 47

How to Order

CA00KE2428S

SERIES PREFIX

SHELL STYLE

CLASS

SHELL SIZE

CONTACT ARRANGEMENT

CONTACT TYPE

SERIES PREFIX

- CA
- SHELL STYLE
 - 00 - Wall mounting receptacle (without conduit threads)
 - 06 - Straight plug (without conduit threads)
 - 3100 - Wall mounting receptacle
 - 3106 - Straight plug

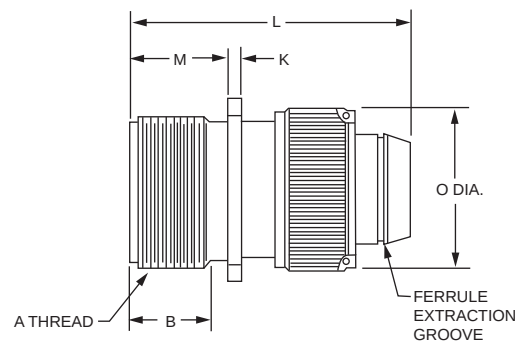
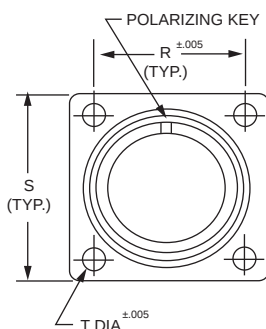
CLASS

- KE - Environment-resistant firewall connector
- SHELL SIZE
 - 8S to 36
- CONTACT ARRANGEMENT
 - See page A-127
- CONTACT TYPE
 - P for Pin; S for Socket



Wall Mounting Receptacle

CA00KE



Part Number	A Thread	B	K	L	M	O	R	S	T
CA00KE8S-†	1/2-28UNEF-2A	.375 (9.52)	.063 (1.60)	1.687 (42.85)	.578 (14.68)	.531 (13.49)	.594 (15.09)	.875 (22.22)	.150 (3.81)
CA00KE10S-†	5/8-24UNEF-2A	.375 (9.52)	.063 (1.60)	1.687 (42.85)	.578 (14.68)	.687 (17.45)	.719 (18.26)	1.000 (25.40)	.150 (3.81)
• CA00KE10S-†	5/8-24UNEF-2A	.375 (9.52)	.063 (1.60)	1.781 (45.24)	.578 (14.68)	.687 (17.45)	.719 (18.26)	1.000 (25.40)	.150 (3.81)
CA00KE12S-†	3/4-20UNEF-2A	.375 (9.52)	.063 (1.60)	1.687 (42.85)	.578 (14.68)	.781 (19.84)	.812 (20.62)	1.094 (27.79)	.150 (3.81)
CA00KE14S-†	7/8-20UNEF-2A	.375 (9.52)	.063 (1.60)	1.687 (42.85)	.578 (14.68)	.906 (23.01)	.906 (23.01)	1.188 (30.18)	.150 (3.81)
CA00KE16S-†	1-20UNEF-2A	.375 (9.52)	.063 (1.90)	1.687 (42.85)	.578 (14.68)	1.031 (26.19)	.969 (24.62)	1.281 (32.54)	.150 (3.81)
CA00KE16-†	1-20UNEF-2A	.625 (15.88)	.078 (1.98)	2.094 (53.19)	.766 (19.46)	1.031 (26.19)	.969 (24.62)	1.281 (32.54)	.150 (3.81)
CA00KE18-†	1-1/8-18UNEF-2A	.625 (15.88)	.078 (1.98)	2.250 (57.15)	.766 (19.46)	1.156 (29.36)	1.062 (26.97)	1.375 (34.92)	.117 (4.50)
CA00KE20-†	1-1/4-18UNEF-2A	.625 (15.88)	.078 (1.98)	2.250 (57.15)	.766 (19.46)	1.344 (34.14)	1.156 (29.36)	1.500 (38.10)	.117 (4.50)
CA00KE22-†	1-3/8-18UNEF-2A	.625 (15.88)	.078 (1.98)	2.250 (57.15)	.828 (21.03)	1.406 (35.71)	1.250 (31.75)	1.625 (41.28)	.117 (4.50)
CA00KE24-†	1-1/2-18UNEF-2A	.625 (15.88)	.078 (1.98)	2.250 (57.15)	.828 (21.03)	1.625 (41.28)	1.375 (34.92)	1.750 (44.45)	.117 (4.50)
CA00KE28-†	1-3/4-18UNS-2A	.625 (15.88)	.078 (1.98)	2.250 (57.15)	.891 (22.63)	1.781 (45.24)	1.562 (39.67)	2.000 (50.80)	.117 (4.50)
CA00KE32-†	2-18UNS-2A	.625 (15.88)	.078 (1.98)	2.250 (57.15)	.891 (22.63)	2.031 (51.59)	1.750 (44.45)	2.250 (57.15)	.209 (5.31)
CA00KE36-†	2-1/4-16UNS-2A	.625 (15.88)	.094 (2.39)	2.250 (57.15)	.891 (22.63)	2.281 (57.94)	1.938 (49.23)	2.500 (63.50)	.209 (5.31)

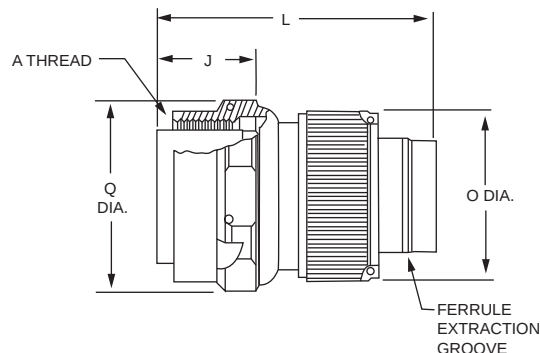
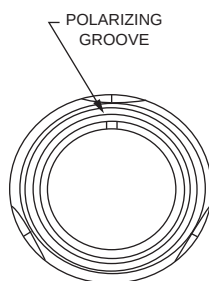
• Receptacles in size 10SL are available with pin inserts only

* Add contact arrangements. See page A-127.

† Add contact type: P - pin; S - socket

Straight Plug (without Conduit Threads)

CA06KE



Part Number	A Thread	J	L	O	Q
CA06KE8S-†	1/2-28UNEF-2B	.531 (13.49)	1.687 (42.85)	.531 (13.49)	.828 (21.03)
CA06KE10S-†	5/8-24UNEF-2B	.531 (13.49)	1.687 (42.85)	.687 (17.45)	.969 (24.62)
• CA06KE10S-†	5/8-24UNEF-2B	.531 (13.49)	1.687 (42.85)	.781 (19.84)	.969 (24.62)
CA06KE12S-†	3/4-20UNEF-2B	.531 (13.49)	1.687 (42.85)	.781 (19.84)	1.047 (26.59)
CA06KE14S-†	7/8-20UNEF-2B	.531 (13.49)	1.687 (42.85)	.906 (23.01)	1.125 (28.58)
CA06KE16S-†	1-20UNEF-2B	.531 (13.49)	1.687 (42.85)	1.031 (26.19)	1.250 (31.75)
CA06KE16-†	1-20UNEF-2B	.719 (18.26)	2.094 (53.19)	1.031 (26.19)	1.250 (31.75)
CA06KE18-†	1-1/8-18UNEF-2B	.719 (18.26)	2.250 (57.15)	1.156 (29.36)	1.344 (34.14)
CA06KE20-†	1-1/4-18UNEF-2B	.719 (18.26)	2.250 (57.15)	1.344 (34.14)	1.484 (37.69)
CA06KE22-†	1-3/8-18UNEF-2B	.719 (18.26)	2.250 (57.15)	1.406 (35.71)	1.609 (40.87)
CA06KE24-†	1-1/2-18UNEF-2B	.719 (18.26)	2.250 (57.15)	1.625 (41.28)	1.734 (44.04)
CA06KE28-†	1-3/4-18UNS-2B	.719 (18.26)	2.250 (57.15)	1.781 (45.24)	1.984 (50.39)
CA06KE32-†	2-18UNS-2B	.719 (18.26)	2.250 (57.15)	2.031 (51.59)	2.234 (56.74)
CA06KE36-†	2-1/4-16UNS-2B	.719 (18.26)	2.250 (57.15)	2.281 (57.94)	2.484 (63.09)

• Plugs in size 10SL are available with socket inserts only.

* Add contact arrangements. See page A-127.

† Add contact type: P - pin; S - socket

NOTE: Coupling nut has hex configuration on sizes 8S, 10S, 10SL, 12 and 24; knurled configuration on all others.

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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CA-KE MIL-DTL-5015 Type Firewall Connectors

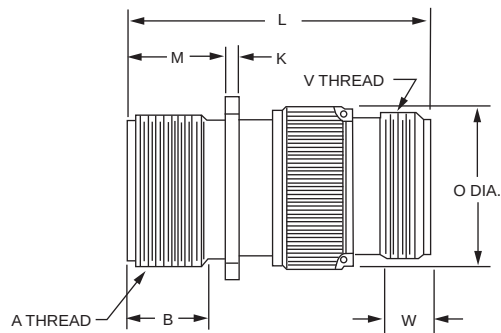
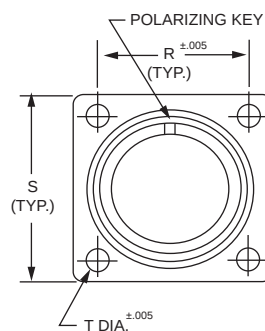


A

Circular

Wall Mounting Receptacle

CA3100KE



Part Number	A Thread	B	K	L	M	O	R	S	T	V Thread	W
CA3100KE8S-†	1/2-28UNEF-2A	.375 (9.52)	.063 (1.60)	2.000 (50.80)	.578 (14.68)	.531 (13.49)	.594 (15.09)	.875 (22.22)	.150 (3.81)	1/2-28UNEF-2A	.375 (9.52)
CA3100KE10S-†	5/8-24UNEF-2A	.375 (9.52)	.063 (1.60)	2.000 (50.80)	.578 (14.68)	.687 (17.45)	.719 (18.26)	1.000 (25.40)	.150 (3.81)	1/2-24UNEF-2A	.375 (9.52)
• CA3100KE10S-†	5/8-24UNEF-2A	.375 (9.52)	.063 (1.60)	2.000 (50.80)	.578 (14.68)	.687 (17.45)	.719 (18.26)	1.000 (25.40)	.150 (3.81)	5/8-24UNEF-2A	.375 (9.52)
CA3100KE12S-†	3/4-20UNEF-2A	.375 (9.52)	.063 (1.60)	2.000 (50.80)	.578 (14.68)	.781 (19.84)	.812 (20.62)	1.094 (27.79)	.150 (3.81)	5/8-20UNEF-2A	.375 (9.52)
CA3100KE14S-†	7/8-20UNEF-2A	.375 (9.52)	.063 (1.60)	2.000 (50.80)	.578 (14.68)	.906 (23.01)	.906 (23.01)	1.188 (30.18)	.150 (3.81)	3/4-20UNEF-2A	.375 (9.52)
CA3100KE16S-†	1-20UNEF-2A	.375 (9.52)	.063 (1.90)	2.000 (50.80)	.578 (14.68)	1.031 (26.19)	.969 (24.62)	1.281 (32.54)	.150 (3.81)	7/8-20UNEF-2A	.375 (9.52)
CA3100KE16-†	1-20UNEF-2A	.625 (15.88)	.078 (1.98)	2.188 (55.58)	.766 (19.46)	1.031 (26.19)	.969 (24.62)	1.281 (32.54)	.150 (3.81)	7/8-20UNEF-2A	.375 (9.52)
CA3100KE18-†	1-1/8-18UNEF-2A	.625 (15.88)	.078 (1.98)	2.250 (57.15)	.766 (19.46)	1.156 (29.36)	1.062 (26.97)	1.375 (34.92)	.177 (4.50)	1-20UNEF-2A	.375 (9.52)
CA3100KE20-†	1-1/4-18UNEF-2A	.625 (15.88)	.078 (1.98)	2.313 (58.75)	.766 (19.46)	1.344 (34.14)	1.156 (29.36)	1.500 (38.10)	.177 (4.50)	1-3/16-18UNEF-2A	.375 (9.52)
CA3100KE22-†	1-3/8-18UNEF-2A	.625 (15.88)	.078 (1.98)	2.313 (58.75)	.828 (21.03)	1.406 (35.71)	1.250 (31.75)	1.625 (41.28)	.177 (4.50)	1-3/16-18UNEF-2A	.375 (9.52)
CA3100KE24-†	1-1/2-18UNEF-2A	.625 (15.88)	.078 (1.98)	2.313 (58.75)	.828 (21.03)	1.625 (41.28)	1.375 (34.92)	1.750 (44.45)	.177 (4.50)	1-7/16-18UNEF-2A	.375 (9.52)
CA3100KE28-†	1-3/4-18UNS-2A	.625 (15.88)	.078 (1.98)	2.688 (68.28)	.891 (22.63)	1.781 (45.24)	1.562 (39.67)	2.000 (50.80)	.177 (4.50)	1-7/16-18UNS-2A	.375 (9.52)
CA3100KE32-†	2-18UNS-2A	.625 (15.88)	.078 (1.98)	2.375 (60.32)	.891 (22.63)	2.031 (51.59)	1.750 (44.45)	2.250 (57.15)	.209 (5.31)	1-3/4-18UNS-2A	.437 (11.10)
CA3100KE36-†	2-1/4-16UNS-2A	.625 (15.88)	.094 (2.39)	2.438 (61.93)	.891 (22.63)	2.281 (57.94)	1.938 (49.23)	2.500 (63.50)	.209 (5.31)	2-18UNS-2A	.500 (12.70)

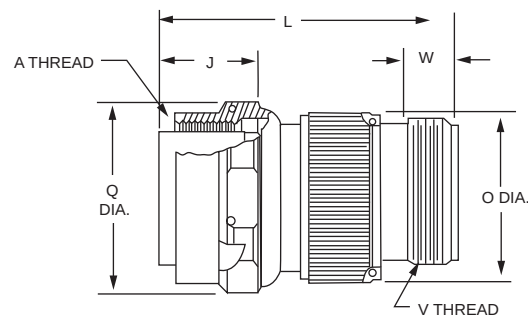
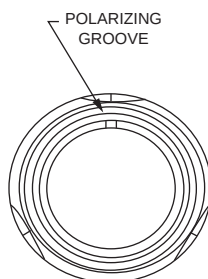
• Receptacles in size 10SL are available with pin inserts only.

* Add contact arrangements. See page A-127.

† Add contact type: P - pin; S - socket

Straight Plug

CA3106KE



Part Number	A Thread	J	L	O	Q	V Thread	W
CA3106KE8S-†	1/2-28UNEF-2B	.531 (13.49)	2.000 (50.80)	.531 (13.49)	.828 (21.03)	1/2-28UNEF-2A	.375 (9.52)
CA3106KE10S-†	5/8-24UNEF-2B	.531 (13.49)	2.000 (50.80)	.687 (17.45)	.969 (24.62)	1/2-24UNEF-2A	.375 (9.52)
• CA3106KE10S-†	5/8-24UNEF-2B	.531 (13.49)	2.000 (50.80)	.781 (19.84)	.969 (24.62)	5/8-24UNEF-2A	.375 (9.52)
CA3106KE12S-†	3/4-20UNEF-2B	.531 (13.49)	2.000 (50.80)	.781 (19.84)	1.047 (26.59)	5/8-20UNEF-2A	.375 (9.52)
CA3106KE14S-†	7/8-20UNEF-2B	.531 (13.49)	2.000 (50.80)	.906 (23.01)	1.125 (28.58)	3/4-20UNEF-2A	.375 (9.52)
CA3106KE16S-†	1-20UNEF-2B	.531 (13.49)	2.000 (50.80)	1.031 (26.19)	1.250 (31.75)	7/8-20UNEF-2A	.375 (9.52)
CA3106KE16-†	1-20UNEF-2B	.719 (18.26)	2.188 (55.58)	1.031 (26.19)	1.250 (31.75)	7/8-20UNEF-2A	.375 (9.52)
CA3106KE18-†	1-1/8-18UNEF-2B	.719 (18.26)	2.250 (57.15)	1.156 (29.36)	1.344 (34.14)	1-20UNEF-2A	.375 (9.52)
CA3106KE20-†	1-1/4-18UNEF-2B	.719 (18.26)	2.313 (58.75)	1.344 (34.14)	1.484 (37.69)	1-3/16-18UNEF-2A	.375 (9.52)
CA3106KE22-†	1-3/8-18UNEF-2B	.719 (18.26)	2.313 (58.75)	1.406 (35.71)	1.609 (40.87)	1-3/16-18UNEF-2A	.375 (9.52)
CA3106KE24-†	1-1/2-18UNEF-2B	.719 (18.26)	2.313 (58.75)	1.625 (41.28)	1.734 (44.04)	1-7/16-18UNEF-2A	.375 (9.52)
CA3106KE28-†	1-3/4-18UNS-2B	.719 (18.26)	2.688 (68.28)	1.781 (45.24)	1.984 (50.39)	1-7/16-18UNF-2A	.375 (9.52)
CA3106KE32-†	2-18UNS-2B	.719 (18.26)	2.375 (60.32)	2.031 (51.59)	2.234 (56.74)	1-3/4-18UNS-2A	.437 (11.10)
CA3106KE36-†	2-1/4-16UNS-2B	.719 (18.26)	2.438 (61.93)	2.281 (57.94)	2.484 (63.09)	2-18UNS-2A	.500 (12.70)

• Plugs in size 10SL are available with socket inserts only.

* Add contact arrangements. See page A-127.

† Add contact type: P - pin; S - socket

NOTE: Coupling nut has hex configuration on sizes 8S, 10S, 10SL, 12 and 24; knurled configuration on all others.



Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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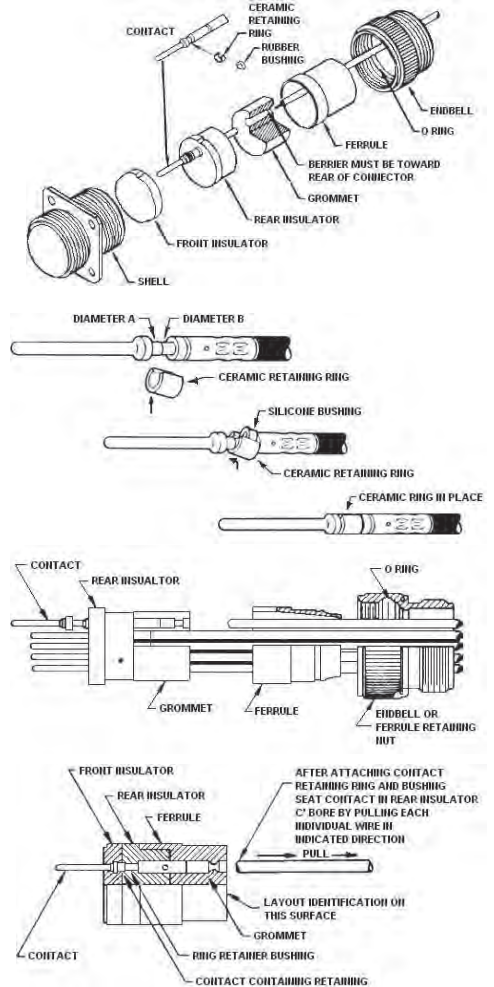
Assembly Instructions

1. Disassemble the connector. See Figure 1 for component parts relationship for reassembly after wiring.
2. Remove ceramic retaining ring from contact by sliding the retaining ring back, compressing the bushing until the ring can be slipped away from the contact (Figure 2).
3. Crimp pin or socket contact to wire.
4. Slip endbell or ferrule retaining nut (whichever is used) over wire bundle (see Figure 3).
5. Slip ferrule over wire bundle (see Figure 3).
6. Push contact (pin or socket) thru rear of grommet and rear insulator. (Note that the contact is inserted into the end of the grommet that shows the layout identification.) Contact should extend sufficiently to

7. accomplish Step 7.
7. After the wired contacts have been inserted thru the rear insulator and grommet, install the ceramic contact retaining ring (Figure 2). Slip on the small diameter of the contact (diameter B). Push the ceramic ring up and onto the larger diameter of the contact (diameter A). The ceramic ring should then be in place. The rubber bushing (which is already on the contact) compresses to allow this assembly, and also keeps the ceramic ring in place after assembly.
8. Set each contact individually in rear insulator (see Figure 4), pulling rear insulator so it is tight against the grommet.
9. Assemble front insulator onto engaging end of contacts.
10. Slide ferrule down wire bundle over grommet, making sure that grommet is lubricated per assembly drawing (see Figure 4).
11. Insert this assembly into shell or barrel (whichever is applicable) being careful to polarize correctly.
12. Slide endbell or ferrule retaining nut down wire bundle and screw onto shell/barrel. When properly assembled the layout identification will be visible.

*Note: for CA-KE Assembly it is not necessary to remove the ceramic retaining ring used on size 16 and 12 contacts for CA-KE providing that the crimp tool M22520/1-01 is used with the TH118 turret. However, the formica ring must be removed if using the crimping tools.

When using the MS3191-1 (or CCT-1612) crimp tool with property locator, both the ceramic or formica retaining ring for sizes 16 and 12 contacts must be removed. For sizes 8, 4, and 0 contacts, the ceramic or formica retaining rings must be removed before crimping.



Contacts, Crimp Tools, Contact Part Numbers

Contacts and Crimp Tools

Contact Size	Part Number	Wire Accom.	Crimp Tool	Locator	Crimp Head*	Contact Size	Kit Part Number
16 Pin/8S-16S	030-1133-000	16-18-20	M22520/1-01 or MS3191-1	TH118 Turret/L16-3191-2	—	16 Pin/8S-16S	038586-0000
16 Pin/12-36	030-1082-000	16-18-20	M22520/1-01 or MS3191-1	TH118 Turret/L16-3191-9	—	16 Pin/12-36	038588-0000
16 Socket/8S-16S	031-0731-000	16-18-20	M22520/1-01 or MS3191-1	TH118 Turret/L16-3191-2	—	16 Socket/8S-16S	038587-0000
16 Socket/12-36	031-0706-000	16-18-20	M22520/1-01 or MS3191-1	TH118 Turret/L16-3191-11	—	16 Socket/12-36	038589-0000
12 Pin	030-1134-000	12-14	M22520/1-01 or MS3191-1	TH118 Turret/L12-3191-5	—	12 Pin	038590-0000
12 Socket	031-0732-000	12-14	M22520/1-01 or MS3191-1	TH118 Turret/L12-3191-1	—	12 Socket	038591-0000
8 Pin	030-1135-000	8	CBT600B or CBT600	CCHP8-7	CCH8-1	8 Pin	038592-0000
8 Socket	031-0733-000	8	CBT600B or CBT600	CCHP8-7	CCH8-1	8 Socket	038593-0000
4 Pin	030-1212-000	4	CBT600B or CBT600	CCHP4-7	CCH4-1	4 Pin	038594-0000
4 Socket	031-0770-000	4	CBT600B or CBT600	CCHP4-7	CCH4-1	4 Socket	038595-0000
0 Pin	030-1734-000	0	6BT600B	CCHP0-7	CCH0-1	0 Pin	031-1176-000
0 Socket	031-0975-000	0	6BT600B	CCHP0-7	CCH0-1	0 Socket	031-1177-000

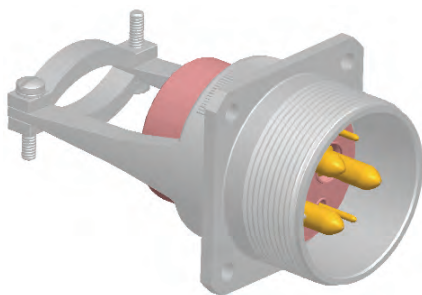
* Applicable for contact sizes 8, 4, and 0.

FRF/FVF/FRA/FVA MIL-DTL-5015 Type Firewall Connectors



A

Circular



FRF/FVF Fire wall connectors are designed to meet the requirements of MIL-DTL-5015 and prevent the passage of +1093°C (+2000°F) flames for 20 minutes. They incorporate the latest sophisticated design improvements necessary to meet the exacting demands of supersonic flight applications. Some of these features are temperature capabilities to +204°C (+392°F) for more than 1000 hours, lighter weight, smaller than other MIL-DTL-5015 firewall connectors, and crimp front release contacts.

Firewall connectors fulfill the very important application of providing a means to penetrate the engine firewall of military and commercial aircraft

with electrical circuits, and still maintain the integrity of the flame barrier requirements of the aircraft firewall. These connectors provide protection against high temperatures, emergency fire-retardant conditions, moisture, atmospheric changes, and are resistant to fuels, cleaning agents, coolants, and hydraulic fluids. Materials of connector arrangements are designed to meet the requirements of MIL-DTL-5015 class K connectors.

The maximum operating temperature noted for these connectors is the maximum internal hot spot resulting from any combination of electrical load and ambient conditions.

How to Order

	FRF	6	E	12S	3	P	X	-01
	FVF	0	A	12S	3	S	X	
	FRA	0	—	12S	3	P		
	FVA	0	—	12S	3	S		FO

SERIES PREFIX	_____
SHELL STYLE	_____
ACCESSORY HARDWARE	_____
SHELL SIZE	_____
CONTACT ARRANGEMENT	_____
CONTACT TYPE	_____
INSERT PLARIZATION	_____
MODIFIERS	_____
LESS CONTACTS	_____

SERIES PREFIX

FRF - Fluorosilicone elastomers, steel hardware with clear chromate (A105) finish
 FVF - Same as FRF except includes ferrule.
 FRA - Same as FRF except aluminum hardware
 FVA - Same as FVF except aluminum hardware

SHELL STYLE

6 - Plug
 0 - Receptacle, flange mounting

ACCESSORY HARDWARE (ALUMINUM)

E (FRF/FRA) - Endbell with cable clamp
 E (FVF/FVA) - Endbell with cable clamp with ferrules
 A (FRF/FRA) - Endbell adapter threaded for conduit
 A (FVF/FVA) - Endbell adapter threaded for conduit with ferrules
 - Use dash (-) for connectors less accessories (Dash must be included in description)

SHELL SIZE

10SL, 12S, 14S, 16S, 16, 18, 20, 22, 24, 28, 32 and 36

CONTACT ARRANGEMENT

See page A-127

CONTACT TYPE

P for Pin; S for Socket

INSERT POLARIZATION

W, X, Y or Z in accordance with MIL-DTL-5015.
 No designator required for normal

LESS CONTACTS

FO - (Will not be stamped on connectors)

MODIFIERS

- 01 - Ball, self-locking knurled coupling nut (see note 1 below)
- 02 - Size 16 contacts to accommodate size 20 wire
- 03 - Clinch nut mounting receptacles (F28)
- 04 - Obsolete
- 05 - Knurled coupling nut
- 06 - Combination 01 and 02 codes
- 07 - Ferrules only (see note 4 below)
- 08 - Combination 01 and 07 codes (see note 4 below)
- 09 - Combination 05 and 07 codes (see note 4 below)
- 10 - Anchor nut plates on receptacle shells
- 11 - MS3057 type "A" endbell clamp, less bushing

MODIFIERS (continued)

- 12 - Combination 07 and 10 codes
- 13 - 01 code, with safety wire holes on coupling nut
- 14 - 90° endbell (with saddle clamp and ferrule)
- 15 - Combination 01 and 14 codes
- 16 - 03 code plus ferrules (code 07)
- 17 - Obsolete
- 18 - 01 code and steel conduit adapter
- 19 - FRFO/FVFO receptacle with steel conduit adapter
- A72 - Black chromate finish (by customer request)

NOTES

1. Modifier 01: Used for high vibration/shock applications.
2. Less Contacts: Use the Modifier "-FO" or "L". The Modifier will not be stamped on the connector. Modifier "-FO" is preferred.
3. Numerical FRA/FRF modifiers are assigned consecutively as needed and there is no significance to numerical order.
4. The basic FRA and FRF connectors were designed for use without ferrules. Ferrules are suggested when undersized wire is used so that the grommet seals will not spread apart (i. e. opened) when the wires are flexed as the wire maybe too stiff for its bend to be completely damped out by the endbell cable clamp.



Dimensions shown in inches (mm)
 Specifications and dimensions subject to change

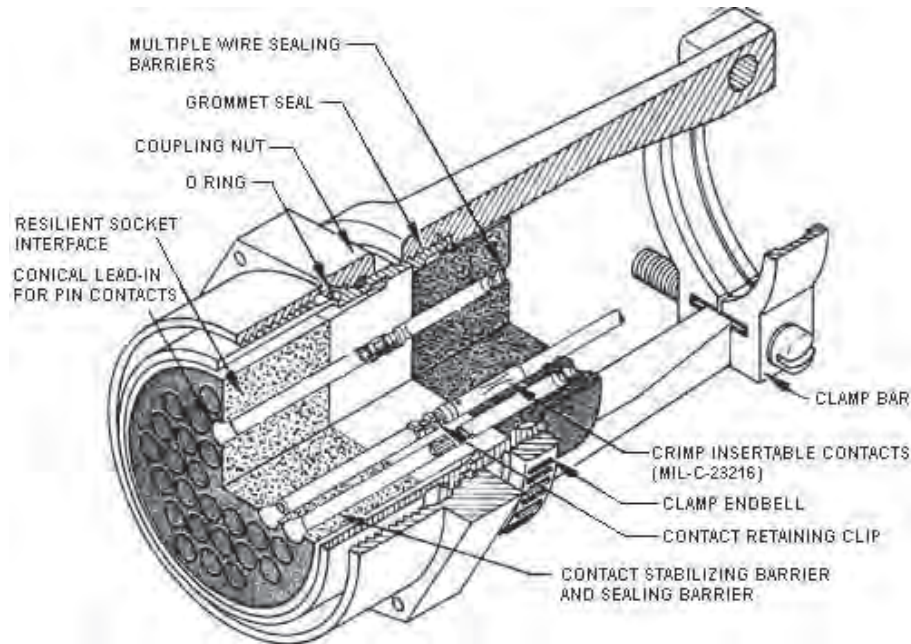
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Design Features



A

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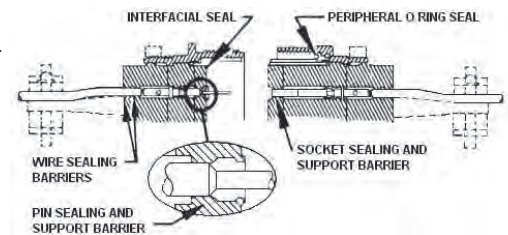


Complete Moisture Sealing

An improved shell-to-barrel O ring seals against pressure differential to 15 psi before and after exposure to +204°C (+392°F).

Positive interfacial sealing is accomplished with a pin and socket interlocking barrier design.

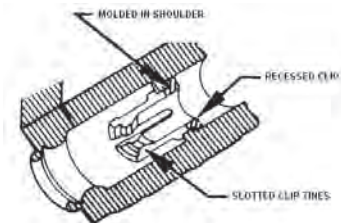
A highly reliable grommet sealing system incorporates multiple wire sealing barriers and a grommet-to-shell seal.



Rugged Metal Clip Retention System

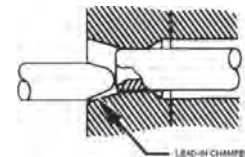
These clips are one-piece metal parts with slotted, inwardly deflected tines assuring positive contact retention. They are retained and positively located in the hard insulator contact cavities by a molded-in-shoulder providing strength where the greatest load from mating and unmating occurs.

Contacts are seated on the clip shoulder, and the contact retaining clip locks on the tape retention undercut of the contact.



Improved Contact Alignment and Stability

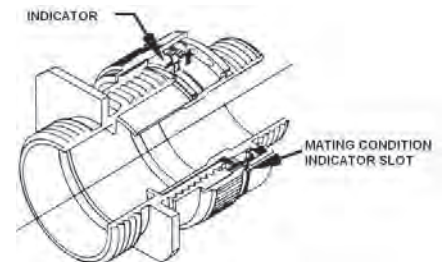
The large lead-in chamfer on the semi-resilient insert provides positive contact alignment by "guiding" the tip of the pin contact into the mating socket. This chamfer provides maximum contact centering without restricting contact float or tool insertion.



Optimal Self-Locking Coupling Nut

The mechanism employs a spring-loaded detent system that is free running until near full engagement. At this point torque values increase causing the mechanism to produce and audible clicking until full engagement. The mechanism is effective even when coupling stops at a position between detents.

When full mating is achieved, a color appears in the indicator window on the periphery of the coupling nut. The indicator is serrated so that full mating can be determined in a blind installation by feel, with a probe approximately .0312 (0.79) diameter.



FRF/FVF/FRA/FVA MIL-DTL-5015 Type Firewall Connectors



A

Circular

Performance and Material Specifications

ELECTRICAL DATA

Contact Size	Wire Size (MIL-W-5086)	Insulation OD min.	Limit max.
16	16 thru 20	.068(1.73)	.150 (3.81)
12	12 thru 14	.145 (3.68)	.200(5.08)
8	8 thru 10	.205 (5.21)	.300(7.62)
4	4 thru 6	.315 (8.00)	.425(10.80)
0	0 thru 2	.450 (11.43)	.590(14.99)

MATERIALS AND FINISHES

Shell - Machined cadmium plated steel (FRF/FVF) - Aluminum (FRA/FVA)
Insulator - Glass-filled epoxy
Contacts - Copper alloy
Grommet and Interfical Seals-FRF-Flourosilicone/FVF Silicone
Contacts - Copper alloy, gold plating per MIL-DTL- 39029
Clip- Copper alloy

MECHANICAL FEATURES

Coupling - Threaded
Polarization - Single keyway per MIL-DTL-5015
Contact Retention - Metal Clip

Test Data (FRF and FVF Only)

Moisture Resistance - Exceed MIL-STD-202E
Method 106D

Fire Test - Exceeds MIL-DTL-5015G, Para. 4.6.16

Fluid Emersion - Per MIL-DTL-5015G, Para. 4.6.15.3

Fluid	Use	Fluid	Use
JP-4	Aviation fuel	Navee 427	Alkaline cleaner
Kerosene	Aviation fuel	MIL-L-23699	Turbine lube oil
MIL-H-5606	Hydraulic fluid	Skydrol 500A	Hydraulic fluid
Ethylene Glycol	Synthetic coolant	MIL-L-7808D	Turbine lube oil
Cee-Bee A-693	Alkaline cleaner	Texaco 6256	Turbine lube oil

Contacts

Pin and Socket

Pin and socket contacts are machined from bar stock to assure precision operation. They are designed to resist severe vibration and repeated connection and disconnection. The average force to either engage or separate pin and socket contacts will not exceed the average values given in the latest revision MIL-DTL-39029.

Force in oz.	Contact Sizes				
	16	12	8	4	0
Maximum	30	30	160	240	320
Average	24	24	7	10.5	15
Minimum	2	3	5	10	14

Thermocouple Contacts

Size 12 and 16 contacts, machined from matching thermocouple lead wire alloys, can be supplied in ITT Cannon connectors. These thermocouple contacts maintain continuity from the thermal-sensor leads thru a bulkhead or other closures in temperature measuring applications.

These contacts for matching lead wires are detailed by the standards of the Instrument Society of America (I.S.A.).

I.S.A. Standards	Material
J	Iron and constantan
K	Chromel and alumel
T	Copper and constantan

Service Data

Maximum current ratings of contacts and maximum allowable voltage drop under test conditions when assembled as in service are shown. Maximum total current to be carried per connector is the same as that allowable in wire bundles as specified in MIL-W-5088.

CURRENT RATING WITH SILVER PLATED WIRE

Contact Size	Test Current (amps)	Potential Drop (millivolts)
16	13	49
12	23	42
8	46	26
4	80	23
0	150	21

High Potential Test Data

These connectors show no evidence of breakdown when the test voltage indicated is applied between the two closest contacts and between the shell and the contacts closest to the shell for a period of one minute.

MS Service Rating	TEST Voltage (RMS) 60 cps	Operating Voltages Suggested		Air Spacing nom. inches	Creepage Distance nom. inches
		DC	AC (rms)		
Inst.	1000	250	200	—	1/16
A	2000	700	500	1/16	1/8
D	2800	1250	900	1/8	3/16
E	3500	1750	1250	3/16	1/4
B	4500	2450	1750	1/4	5/16
C	7000	4200	3000	5/16	1

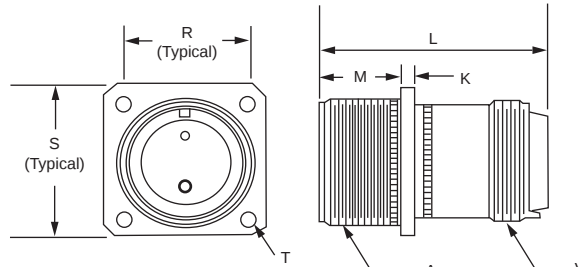


Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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Wall Mounting Receptacle

FRF0/FVF0

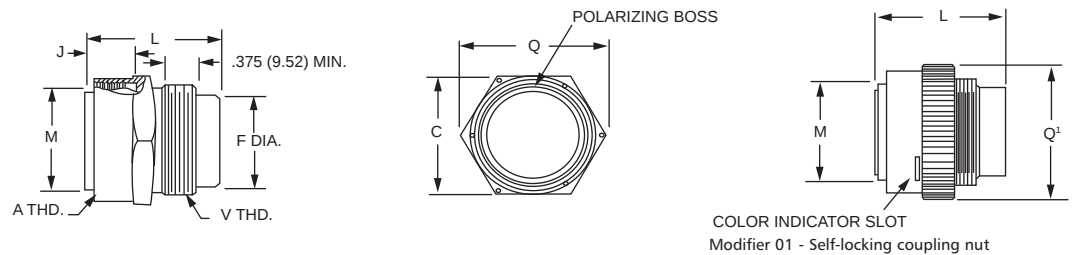


Shell Size	A Thread	L Max.			F Max.	K Max.	M +.031 -.000	R ±.005	S Max.	T +.010 -.005	T ¹ +.010 -.005	V Thread	Z Min
		#16 #12	#8 #4	#0									
10SL	5/8-24UNEF-2A	1.685 (42.80)*	-	-	.455 (11.30)	.098 (2.49)	.562 (14.27)	.719 (18.26)	1.031 (26.19)	.150 (3.81)	.120 (3.04)	5/8-24UNEF-2A	.375 (9.52)
12S	3/4-20UNEF-2A	1.875 (47.62)	-	-	.455 (11.30)	.098 (2.49)	.562 (14.27)	.812 (20.62)	1.125 (28.58)	.150 (3.81)	.120 (3.04)	5/8-24UNEF-2A	.375 (9.52)
14S	7/8-20UNEF-2A	1.875 (47.62)	-	-	.522 (13.26)	.098 (2.49)	.562 (14.27)	.906 (23.01)	1.219 (30.96)	.150 (3.81)	.120 (3.04)	3/4-20UNEF-2A	.375 (9.52)
16S	1-20UNEF-2A	1.875 (47.62)	-	-	.647 (16.43)	.098 (2.49)	.562 (14.27)	.969 (24.61)	1.312 (30.96)	.150 (3.81)	.120 (3.04)	7/8-20UNEF-2A	.375 (9.52)
16	1-20UNEF-2A	1.922 (48.82)	2.141 (54.38)	-	.647 (16.43)	.098 (2.49)	.750 (19.05)	.969 (24.61)	1.312 (30.96)	.150 (3.81)	.120 (3.04)	7/8-20UNEF-2A	.625 (15.86)
20	1-1/4-18UNEF-2A	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	.921 (23.39)	.140 (3.56)	.750 (19.05)	1.156 (29.36)	1.531 (38.89)	.177 (4.50)	.120 (3.04)	1-1/8-18UNEF-2A	.625 (15.86)
22	1-3/8-18UNEF-2A	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	1.016 (25.81)	.140 (3.56)	.750 (19.05)	1.250 (31.75)	1.656 (42.06)	.177 (4.50)	.120 (3.04)	1-1/4-18UNEF-2A	.625 (15.86)
24	1-1/2-18UNEF-2A	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	1.141 (28.98)	.140 (3.56)	.812 (20.62)	1.375 (34.92)	1.781 (45.24)	.177 (4.50)	.147 (3.73)	1-3/8-18UNEF-2A	.625 (15.86)
28	1-3/4-18UNS-2A	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	1.361 (34.57)	.140 (3.56)	.812 (20.62)	1.562 (39.67)	2.031 (51.59)	.177 (4.50)	.147 (3.73)	1-5/8-18UNEF-2A	.625 (15.86)
32	2-18UNS-2A	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	1.611 (40.92)	.140 (3.56)	.875 (22.22)	1.750 (44.45)	2.281 (57.94)	.290 (5.31)	.173 (4.39)	1-7/8-16UN-2A	.625 (15.86)
36	2-1/4-16UN-2A	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	1.826 (46.38)	.140 (3.56)	.875 (22.22)	1.938 (49.23)	2.531 (64.29)	.290 (5.31)	.173 (4.39)	2-1/8-16UN-2A	.625 (15.86)

*Available with pin inserts only.

Straight Plug

FRF6/FVF6



COLOR INDICATOR SLOT
Modifier 01 - Self-locking coupling nut

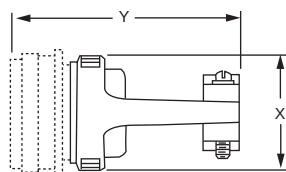
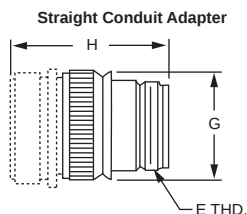
Shell Size	A Thread	L Max.			C Hex.	F Max.	J Max.	M Max.	Q Max.	Q ¹ Max	V Thread
		#16 #12	#8 #4	#0							
10SL	5/8-24UNEF-2B	1.819 (46.20)	-	-	.812 (20.62)	.455 (11.30)	.564 (14.33)	.446 (11.33)	.950 (24.13)	.970 (24.64)	5/8-24UNEF-2A
12S	3/4-20UNEF-2B	1.875 (47.62)	-	-	.937 (23.80)	.455 (11.30)	.564 (14.33)	.555 (14.10)	1.094 (27.79)	1.092 (27.74)	5/8-24UNEF-2A
14S	7/8-20UNEF-2B	1.875 (47.62)	-	-	1.000 (25.40)	.522 (13.26)	.564 (14.33)	.675 (17.14)	1.167 (29.64)	1.240 (31.50)	3/4-20UNEF-2A
16S	1-20UNEF-2B	1.875 (47.62)	-	-	1.125 (28.58)	.647 (16.43)	.564 (14.33)	.805 (20.45)	1.311 (33.30)	1.386 (35.20)	7/8-20UNEF-2A
16	1-20UNEF-2B	1.922 (48.82)	2.141 (54.38)	-	1.125 (28.58)	.647 (16.43)	.754 (19.15)	.805 (20.45)	1.311 (33.30)	1.386 (35.20)	7/8-20UNEF-2A
20	1-1/4-18UNEF-2B	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	1.375 (34.92)	.921 (23.39)	.754 (19.15)	1.050 (26.67)	1.600 (40.64)	1.650 (41.91)	1-1/8-18UNEF-2A
22	1-3/8-18UNEF-2B	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	1.500 (38.10)	1.016 (25.81)	.754 (19.15)	1.175 (29.84)	1.744 (44.30)	1.745 (44.32)	1-1/4-18UNEF-2A
24	1-1/2-18UNEF-2B	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	1.625 (41.28)	1.141 (28.98)	.754 (19.15)	1.300 (33.02)	1.833 (446.56)	1.962 (49.83)	1-3/8-18UNEF-2A
28	1-3/4-18UNS-2B	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	1.875 (47.62)	1.361 (34.57)	.754 (19.15)	1.520 (38.61)	2.177 (55.30)	2.125 (53.98)	1-5/8-18UNEF-2A
32	2-18UNS-2B	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	2.125 (43.96)	1.611 (40.92)	.754 (19.15)	1.770 (44.96)	2.466 (62.64)	2.385 (60.58)	1-7/8-16UN-2A
36	2-1/4-16UN-2B	1.922 (48.82)	2.141 (54.38)	2.422 (61.52)	2.375 (60.33)	1.826 (46.38)	.754 (19.15)	1.980 (50.29)	2.754 (69.95)	2.585 (65.66)	2-1/8-16UN-2A

*Available with socket inserts only.

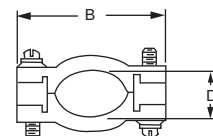
FRF/FVF/FRA/FVA MIL-DTL-5015 Type Firewall Connectors

Accessory Hardware

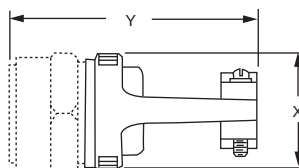
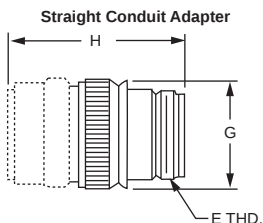
FRF0/FVF0



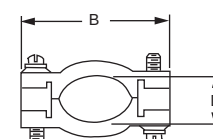
Straight Cable Clamp



FRF6/FVF6



Straight Cable Clamp



Shell Size	E Thread	B Max.	"D" Cable Diameter Max.	"D" Cable Diameter Min.	H G Max.	H Max.	X Max.	Y Max.
10SL	5/8-24UNEF-2A	1.00 (25.40)	.312 (7.92)	.188 (4.78)	.883 (22.43)	2.350 (59.69)	.953 (24.21)	2.940 (74.68)
12S	5/8-24UNEF-2A	1.00 (25.40)	.312 (7.92)	.188 (4.78)	.883 (22.43)	2.350 (59.69)	.953 (24.21)	2.940 (74.68)
14S	3/4-20UNEF-2A	1.190 (30.23)	.438 (11.12)	.282 (7.16)	1.003 (25.48)	2.350 (59.69)	1.078 (27.38)	3.090 (78.49)
16S	7/8-20UNEF-2A	1.280 (32.51)	.561 (14.25)	.344 (8.74)	1.133 (28.78)	2.350 (59.69)	1.203 (30.56)	3.410 (86.61)
16	7/8-20UNEF-2A	1.280 (32.51)	.561 (14.25)	.344 (8.74)	1.133 (28.78)	2.500 (63.50)	1.203 (30.56)	3.560 (90.42)
20	1-3/16-18UNEF-2A	1.530 (38.86)	.750 (19.05)	.438 (11.13)	1.430 (36.32)	3.000 (76.20)	1.453 (36.91)	3.560 (90.42)
22	1-3/16-18UNEF-2A	1.630 (41.40)	.750 (19.05)	.438 (11.13)	1.497 (38.02)	3.260 (82.80)	1.578 (40.08)	3.560 (90.42)
24	1-7/16-18UNEF-2A	1.775 (45.08)	.937 (23.80)	.562 (14.27)	1.573 (39.95)	3.260 (82.80)	1.703 (43.26)	3.900 (99.06)
28	1-7/16-18UNEF-2A	2.025 (51.44)	1.187 (30.15)	.750 (19.05)	1.792 (45.52)	3.260 (82.80)	1.953 (49.61)	3.900 (99.06)
32	1-3/4-18UNS-2A	2.265 (57.53)	1.250 (31.75)	.750 (19.05)	2.121 (53.87)	3.260 (82.80)	2.203 (55.96)	4.400 (111.76)
36	2-18UNS-2A	2.525 (64.14)	1.375 (34.92)	.782 (19.86)	2.308 (58.62)	3.300 (83.82)	2.453 (62.31)	4.650 (118.11)

Tooling

Contact Size	Crimp Tool	Crimp Head	Locator Number	Insertion Tool	Extraction Tool
16	M22520/1-01	M22520/1-02		MS90455-16 or MIL-I-81969/17-01	CET-FRF-16-22A
12				MS90455-12 or MIL-I-81960/17-02	CET-FRF-12
8	CBT-600B	CCH-8-1	CCHP-8-6	Not Req'd	CET-FRF-8
4	CBT-600B	CCH-4-1	CCHP-4-8	Not Req'd	CET-FRF-4
0	CBT-600B	CCH-0-1	CCHP-0-8	Not Req'd	CET-FRF-0

Contact/ Wire Seal Plugs

Contact Size	Pin	Part Number Socket	Wire Seal Plugs	Colors
16	980-2002-334	980-2002-339	225-0071-000	Blue
12	980-2002-335	980-2002-340	225-0072-000	Yellow
8	980-2002-336	980-2002-341	225-1009-000	Red
4	980-2002-337	980-2002-342	225-1008-000	Blue
0	980-2002-338	980-2002-343	225-1007-000	Yellow

Availability Status

Layout	MS-K	CA-KE	FRF
8S-1P	X	X	
8S-1S	X	X	
10SL-3P	X	X	X
10SL-3S	X	X	X
10SL-4P	X	X	
10SL-4S	X	X	X
12S-3P	X	X	X
12S-3S	X	X	X
12S-4P	X	X	
12S-4S	X	X	
14S-2P	X	X	
14S-2S	X	X	X
14S-5P	X	X	X
14S-5S	X	X	X
14S-6P		X	
14S-6S		X	X
14S-7P	X	X	X
14S-7S	X	X	X
14S-9P	X		X
14S-9S	X		X
16S-1P	X	X	X
16S-1S	X	X	X
16S-8P	X	X	
16S-8S	X	X	X
16-11P	X		
16-11S	X		
16-12P	X	X	
16-12S	X	X	
16-13P	X	X	X
16-13S	X	X	X
18-1P	X	X	
18-1S	X	X	
18-4P	X	X	
18-4S	X	X	X
18-8P	X	X	
18-8S	X	X	
18-11P	X		X
18-11S	X		X
20-4P	X	X	X
20-4S	X	X	X
20-7P	X	X	
20-7S	X	X	
20-15P	X	X	
20-15S	X	X	
20-18P	X	X	
20-18S	X	X	
20-22P		X	
20-22S		X	
20-27P	X	X	X
20-27S	X	X	X
22-2P	X		X
22-2S	X		X
22-14P	X	X	X
22-14S	X	X	X

Layout	MS-K	CA-KE	FRF
22-19P	X	X	
22-19S	X	X	
22-22P	X	X	
22-22S	X	X	X
24-5P	X	X	
24-5S	X	X	
24-7P	X	X	
24-7S	X	X	
24-9P	X		X
24-9S	X		X
24-10P		X	X
24-10S		X	X
24-11P			X
24-11S			X
24-22P	X		X
24-22S	X		X
24-28P	X	X	
24-28S	X	X	
28-2P	X	X	
28-2S	X	X	
28-11P	X	X	X
28-11S	X	X	X
28-12P	X	X	X
28-12S	X	X	X
28-15P	X		
28-15S	X		X
28-20P	X	X	
28-20S	X	X	
28-21P	X	X	X
28-21S	X	X	X
28-22P			X
28-22S			X
32-1P	X		X
32-1S	X		X
32-5P		X	
32-5S		X	
32-6P	X	X	
32-6S	X	X	X
32-7P	X	X	X
32-7S	X	X	X
32-8P	X		X
32-8S	X		X
32-17P	X	X	X
32-17S	X	X	X
32A63P	X		
32A63S	X		
36-3P	X		
36-3S	X		
36-5P		X	X
36-5S		X	X
36-8P	X	X	
36-8S	X	X	
36-10P	X	X	
36-10S	X	X	

For Configuration drawings, see pages A-85 to A-88.



A

Circular

DSH Series

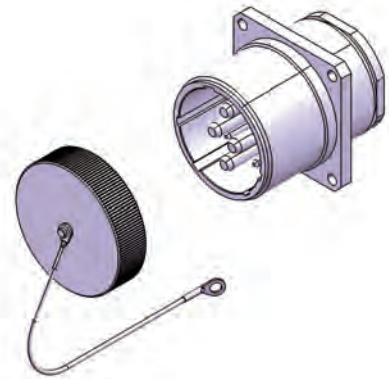


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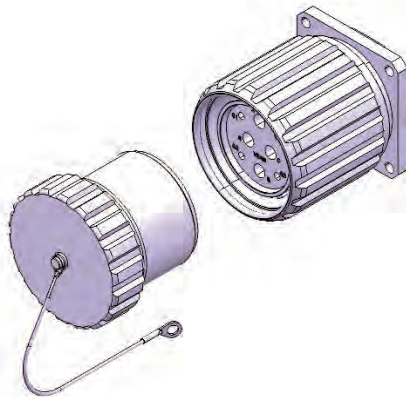
Circular

DSH Series derives from MIL-C-22992L standard and is typically used for military application. DSH connectors have a double coupling thread ensure coupling-uncoupling operations, with safe mating due to 5 polarization keys.

The main characteristic of these connectors is that they minimize interference radiated by electromagnetic fields and by any impulsive electromagnetic fields (EMP)



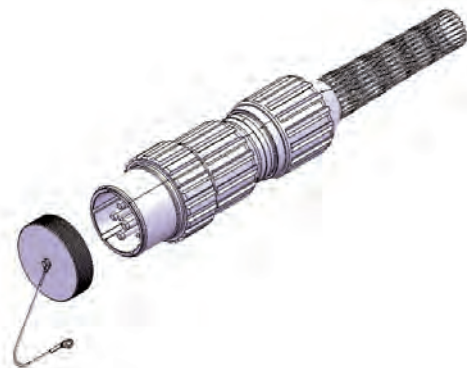
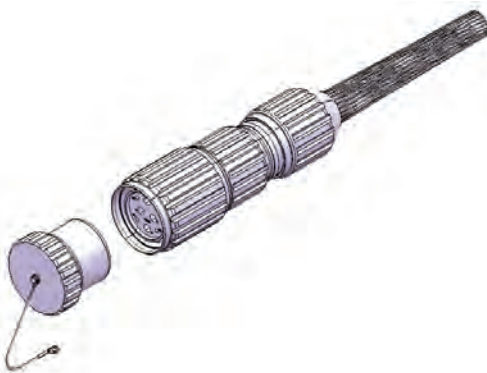
DSH-026
Receptacle for in-line plug



Product Features

- 4 power contacts earth-neutral-3 phases
- Tested to 500 complete mating/unmating cycles minimum
- RFI protection from 10 to 200 MHz. according to MIL-STD-285
- Backshell with cord grip

- Waterproof: IP67
- Daisy Chain: available
- Size arrangements available 44 & 52



Technical Overview



A

Circular



- Operating temperature : -55°C to + 125°C (-131°F to + 257°F)
- Gaskets: Special conductive compound
- Inserts: Material in accordance with MIL-C-22992 spec class L
- Contacts: Copper alloy silver plated. Available till size 4/0.
- Shells for DSH version: Aluminum Alloy with nickel under plating and olive drab cadmium free plating.
High conductivity
- Special NATO green color varnish to protect all the shells
- RFI protection from 10 to 200 MHz. according to MIL- STD -285
- Attenuation in magnetic field:
 - A = 56 dB to 10 kHz
 - A = 90 dB to 1 MHz
- Attenuation value in electric field
 - A = 157 dB to 1 MHz
 - A = 140 dB to 200 MHz

Applications

- Power shelter distribution
- Military application with shielded cables for power
- Environmental applications in the military field



A

Circular

Introduction

Cannon CA-Bayonet series was designed in accordance with the VG95234 specification. This versatile and highly reliable connector series is an improvement on the well established MIL-C-5015 series. CA-Bayonet has a proven "reverse bayonet" coupling design that offers exceptional vibration protection, by a simple 120° turn.

Initially designed for aircraft and airborne applications, these rugged connectors are used in the electrical equipment of various off-road vehicles, construction machinery, industrial devices, railroad and military wheelers.

Connectors in accordance with VG95234 are interchangeable with the corresponding MIL-C-5015 connectors. Both connector lines feature the same shell dimensions and contacts layouts. However, due to the different coupling systems (MIL-C-5015 threaded coupling, VG95234 bayonet coupling) they are not intermateable.

Advantages

- rugged shell design
- environmental
- bayonet coupling for easy mating and unmating
- vibration proof
- waterproof up to 1 bar (35 feet of water)

Cannon has the complete VG95234 program available and, in addition, many other types which exceed the requirements of VG95234 and MIL-C-5015.

Attention:

Metal shell connectors which may be touched are not suitable for mains power.

Restrictions:

- * European Community "Old Car" directive (2000/53/EG)
- * European Community Waste Electrical and Electronic Equipment (WEEE) 2000/0158
- * European Community restrictions of use of certain hazardous substances in WEEE (ROS) (2000/0159)

Connector Design

Due to the rugged shell made of an aluminium alloy, these connectors withstand most severe conditions. Olive drab chromate coating over cadmium plating protects the surface of the shell.

Cannon offers two plating solutions to customers refusing cadmium plating. Zinc cobalt green offers similar properties like cadmium plating while zinc cobalt black is RoHS compliant.

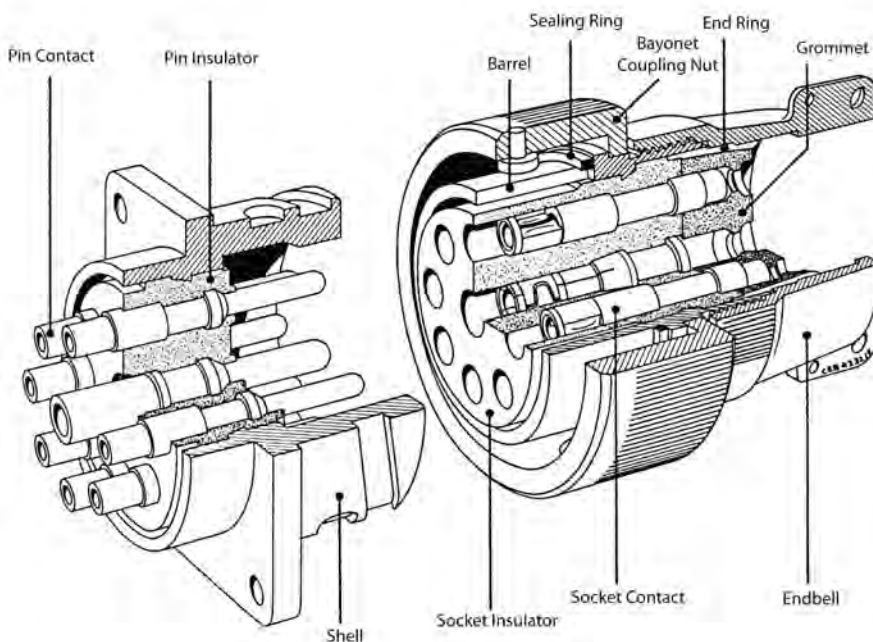
Over 180 contact arrangements are available for 1 to 65 circuits and up to 245 A per unit.

The insulators are made of high quality polychloroprene and withstand temperatures from -67°/+257°F (-55/125°C). This material is self-extinguishing, resistant against hydraulic fluids, jet fuel, diesel fuel, gasolines, lubricants, brake and fire extinguisher fluids (short wetting only). In case of lifetime moistening ITT Cannon offers FKM insulators as an alternative.

The contacts are made of copper alloy plated with a hard silver finish guarantee at least 500 mating cycles. There are solder, crimp and PCB contacts in place. The crimp contacts offer a comprehensive range of termination reductions. All solder contacts feature a special passivation to comply with ROHS requirements. The crimp contacts allow highly reliable crimping with wires when using the recommended tools according to VG95234. Crimp contacts can be exchanged at least five times still preserving specified contact retention.

The coupling unit is featured by the Cannon roller bolts made of stainless steel actually rolling down the mating ramps, thus reducing coupling force by the operator. In addition, the Cannon design employs two coupling nut versions for different application cases, with and without wavespring and washer. The version without wavespring guarantees perfect sealing while the other version stands up to high vibration levels. The bayonet design allows fast and easy coupling and uncoupling. An audible control by metallic sound and visual control by colour-marked snap-in position offer additional coupling security.

VG connectors are basically designed for single wire harnessing. For full environmental sealing each conductor is sealed completely within the grommet. However, Cannon offers as an alternative O-ring sealed PG and metric gland adaptors for faster harnessing standing up to the same sealing level than the VG types.



Electrical Data



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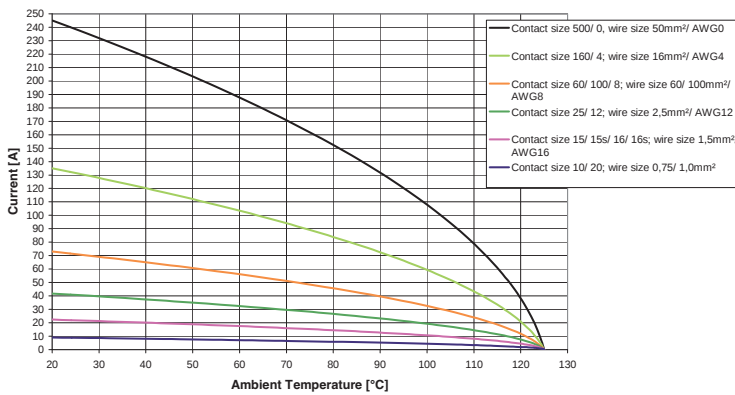
Circular

Contact rating at 68 °F (+20 °C)

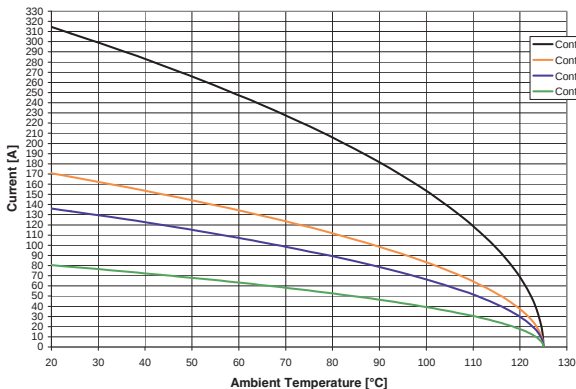
Contact size	max. current A
10	8
16S/15S	22
16/15	22
12/25	41
8/60/100	74
4/160	135
0/500	245

Current rating
depending on ambient temperature

Derating Curves according to VG 95234



Derating Curves ITT-Cannon

Contact resistance
(Millivolt test)

The contact resistance has to be tested according to VG95234 part 2, test no. 5.10.1 and VG 95210, part 37. The measuring points are indicated in the illustration.

--Contact size		Max. contact resistance mΩ
metric	AWG	
10	–	12
15S/15	16S/16	6
25	12	3
60/100	8	1
160	4	0,5
500	0	0,2

Insulation resistance

Acc. to VG95319, part 2, test no. 5.12 and VG95210, part 32, test condition B

Standard insulator material > 1000 MΩ
FKM insulator material (upon request) > 5000 MΩ

Test voltage

Acc. to VG95319, part 2, test no. 5.13 and VG 95210, part 31

Test voltage for service rating:

Service rating	Test voltage V_{rms}
Instruments	1050
A	1600
B	4000
D	2500
E	3000

Air and creepage paths (min.)

Voltage class	Instr.	A	D	E
Air and creepage paths mm	0,7	1,1	2,8	4,8

Operating voltage and connector usage

Connectors in equipments must not be separated or mated under load when used per specifications.

As according to specification the connectors are suitable for an operating voltage of 50 V (see Product Safety Information). However, this is only valid, when the connectors are freely accessible during operation and consequently might be touchable. When the connectors will be operated with line voltage, please contact ITT Customer Service for an alternative connector solution.



Circular

A

Ambient temperature

Standard insulator material
–55°/125°C (–67/257°F)

FKM insulator material*
–30°/200°C (–22/392°F)

Safety provisions**

IP 67 acc. to DIN 40 050
(1 bar pressure after 16 hrs.)

Vibration test

200 m/s² at 10 to 2000 Hz

Mating cycles

500 min.

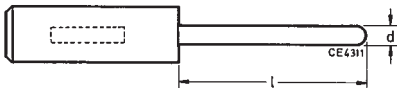
Withdrawal force per contact.

The corresponding withdrawal force has to be measured according to VG95319, part 2, test no. 5.7. and DIN EN60512-16-5 using the required test gage.

Contact size metric	AWG	Separating force min. N	Gage
10	–	0,3	G 0,99
15S/15	16S/16	1,0	G 1,56
25	12	1,5	G 2,36
60/100	8	3,0	G 3,58
160	4	4,0	G 5,69
500	0	8,5	G 9,04

Gage

(see also VG 95234, Part 1)



Gage	Contact diameter d +0,01	L –1
G 0,99	0,99	7
G 1,56	1,56	9
G 2,36	2,36	12
G 3,58	3,58	13
G 5,69	5,69	13
G 9,04	9,04	13

Mechanical Features

Coupling torque

The allowable coupling torques have to be tested under full bundle conditions of the connectors to VG95319, part 2, test no. 5.8.2.

Shell size	Allowable coupling torque closing and opening Nm max.	Opening Nm min.
10SL	1,7	0,15
12S	2,5	0,23
14S	3,6	0,35
16S/16	5,5	0,46
18	8	0,58
20	9	0,7
22	11	0,8
24	14	0,8
28	17	0,92
32	19	1,03
36	23	1,03

Contact retention

The contact retention has to be tested according to VG95319, part 2, test no. 5.4. Test force direction = Mating direction.

Contact size	AWG	Test force N
10	–	30
15S/15	16S/16	35
25	12	55
60/100	8	80
160	4	90
500	0	95

Materials**Shell**

Standard finish

Aluminum alloy

Olive drab chromate coating over cadmium plating

Alternative finish

Zinc cobalt (see page A-134 Modification)

Insulator

and grommets

Polychloroprene (Standard)
FKM (High temperature and aggressive oils)*

Contacts

Standard finish

Special finish

Copper alloy

Hard silver

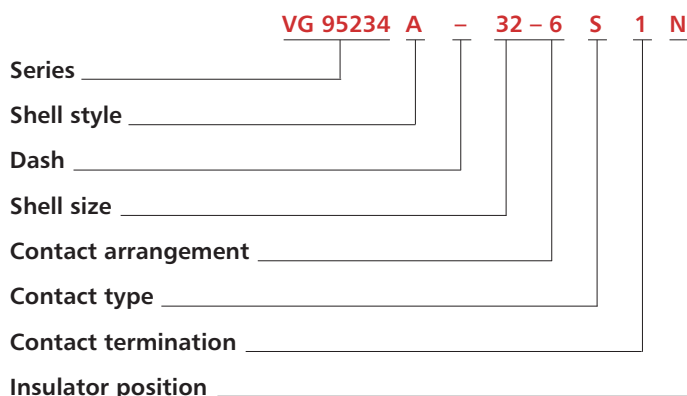
A176 nickel and hard gold plating

* upon request

** **Longitudinal sealing:** The connector is not sealed against fluids entering through the cable, as the sealing lips of the single wire sealing are pressing against the jacket of the individual conductors.

How to order

VG Order reference



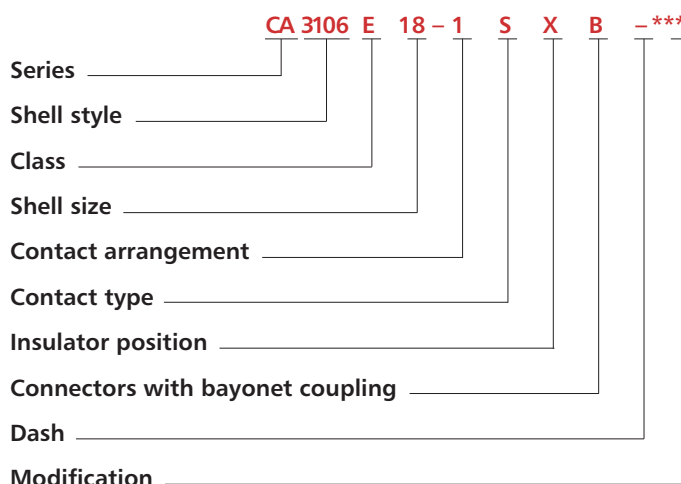
Explanation

Series	VG 95234
Shell style	N1, N2 – wall mounting receptacle A, B1, B2 – box mounting receptacle D, G, H, M – straight plug
Shell size	10SL, 14S, 16S, 16, 18, 20, 22, 24, 28, 32 and 36
Contact arrangement	see pages A-135 and A-136
Contact type	P – Pin contact S – Socket contact
Contact termination	without identification – contacts for metric wire sizes identification 1* – contact for AWG wire sizes
Insulator position	See CA-Bayonet Catalog

Accessories acc. to VG

Dummy receptacles	VG95234 BOD
Gaskets, front mount	VG95234 DA
Gaskets, rear mount	VG95234 DH
Protecting caps	VG95234 KR
Protecting caps	VG95234 KB
Cabel caps	VG95234 KK
Bushing	VG95234 KT

Cannon Order reference



Explanation

Series	CA – Circular connectors with bayonet coupling
Shell style	3100 – Waall mounting receptacle 3101 – Cable connecting plug 3102 – Box mounting receptacle 3105 – Dummy receptacle for front and panel mounting 3106 – Plug, straight 3108 – Plug, 90° TBF – Bulkhead receptacle
Class	E – environmental with resilient insulators and endbell with clamp and bushing F – environmental with resilient insulator and endbell for flex tube R – environmental with resilient insulator and shortened light-weight endbell without cable clamp
Shell size	10SL, 12S, 14S, 16S, 16, 18, 20, 22, 24, 28, 32 and 36
Contact arrangement	See 5015 section plus full CA-B catalog
Contact type	P – Pin S – Socket PS – one side pin, one side socket (only for TBF)
Insulator position	Besides the normal position further insulator positions are possible for Cannon connectors (see CA-Bayonet Catalog) to prevent mismatching. Polarization is achieved by turning the pin contact insulator clockwise towards the shell, the socket insulator, however, in opposite clockwise direction. This information refers to the mating side of the contact insulator.
Modification	see next page A-134



A

Circular



A

Circular

Modification	01	– metric crimp contacts
(only for CA.....-B)	02	– adapter for heat shrink boots AWG crimp contacts
	03	– adapter for heat shrink boots, metric contacts
	04	– rear mount, thread in flange, metric crimp contacts (CA3102)
	05	– rear mount, through holes in flange, (CA3100, CA 3102, CA 20, TBF)
	06	– shrink boot adapter, thread holes in flange, solder pot contacts
	08	– angular endbell, through holes in flange (for CA3100 only)
	09	– angular endbell, through holes in flange (for CA3100 only)
	13	– shielded version, solder contacts
	14	– shielded version, metric crimp con- tacts
	15	– shielded version, AWG crimp contacts
	41	– shielded version, heat shrink boot adapter
	109	– rear mount, F80 contacts, threaded holes (CA3102 only)
	111	– rear mount, solder pot contacts, threaded holes, (CA3102 only)
	A176	– gold plated contacts
	A232	– Zinc cobalt black
	A233	– Zinc cobalt green
	F0	– less contacts, contacts to be ordered separately see pages A-146, A147
	F42	– less grommet and backshell
	F80	– AWG crimp contacts

With Spring Washer and Friction Ring

These connectors feature a spring washer and a friction ring under the coupling nut.

Advantage	Vibrations are being compensated
Ordering example	according performance class insert „W“ after Class E, F or R
CA06EW	– connector with spring washer, endbell with cable and bushing
CA06FW	– connector with spring washer, endbell for flex tube
CA06RW	– connector with spring washer and short endbell
CA08EW/FW	– connector with spring washer and 90° endbell

The connectors acc. to **VG95234** are generally delivered **with spring washer**.

Other Shell Styles (see full CA-B catalog)

CA3100E-B-02/03/06	– adapter for heat shrink boot
CA3100F-B-08/09	– 90° endbell for flex tube
CA3100E-B-08/09	– 90° endbell, cable clamp and bushing
CA06PG-B	– adapter for PG glands
CA06ME-B	– adapter for metric glands
CA3101F-B-08/09	– 90° endbell flex tube
CA02L-B	– receptacle with pcb solder contacts
CA20L-B	– rear mount receptacle with pcb solder contacts
CA07A-B	– jam nut receptacle

Important!

When connectors are requested according to VG 95234 modification, e.g. with another finish, with other contact arrangements and solder contacts, they are to be ordered only with the ITT Cannon order reference.

Connectors acc. to VG95234 are generally available with insert positions X and Y only.

VG order reference with modification is not possible (except F0-less contacts).



A

Circular

Contact Arrangements

Contact arrangement	No. of contacts	Contact size					
		0 500	4 160	8 100 60	12 25	16 15	20 10
12S4	1					1	
14S4	1					1	
16-12	1		1				
18-6	1		1				
18-7	1			1			
20-2	1	1					
22-7	1	1					
10SL4	2					2	
14S9	2					2	
16S4	2					2	
16-11	2				2		
16A11	2				2		
18-3	2				2		
20-23	2			2			
22-1	2			2			
22-8	2				2		
24-9	2		2				
32-5	2	2					
10SL3	3					3	
14S1	3					3	
14S7	3					3	
16S5	3					3	
16-7	3			1		2	
16-10	3				3		
18-5	3				2	1	
18-21	3				3		
18-22	3					3	
20-6	3					3	
20-19	3			3			
22-2	3			3			
22-9	3			3			
22-21	3	1				2	
12SA10	4					4	
14S2	4					4	
16-9	4				2	2	
18-4	4					4	
18-10	4				4		
18-13	4			1	3		
20-4	4				4		
20-24	4			2		2	
22-4	4			2	2		
22-10	4					4	
22-22	4			4			
22B22	4			4			
24-4	4	1				3	
24-22	4			4			
32-17	4		4				
36-5	4	4					

Contact arrangement	No. of contacts	Contact size					
		0 500	4 160	8 100 60	12 25	16 15	20 10
14S5	5					5	
16S8	5					5	
18-11	5				5		
18-20	5					5	
22-12	5			2		3	
24-12	5		2		3		
28-5	5		2		1	2	
32-1	5	2			3		
14S6	6					6	
18-12	6					6	
20-8	6			2		4	
20-22	6			3		3	
22-5	6				2	4	
22-15	6				5	1	
28-22	6		3			3	
36-3	6	3			3		
36-6	6	2	4				
14SA7	7					7	
16S1	7					7	
18-9	7				2	5	
18-17	7				2	5	
20-15	7				7		
22-28	7				7		
24-2	7				7		
24-10	7			7			
24-27	7					7	
28-10	7		2	2	3		
18-8	8				1	7	
20-7	8					8	
22-23	8				8		
32-15	8	2			6		
36A35	8	4				4	
20-16	9				2	7	
20-18	9				3	6	
20A9	9				9		
22-16	9				3	6	
22-20	9					9	
22-27	9			1		8	
24-11	9			3	6		
28A16	9		4			5	
18-1	10					10	
18-19	10					10	
28-19	10				4	6	
20-33	11					11	
24-20	11				2	9	



A

Circular

Contact Arrangements

Contact arrangement	No. of contacts	Contact size					
		0 500	4 160	8 100 60	12 25	16 15	20 10
24-19	12					12	
24A24	12				12		
28-9	12				6	6	
28-51	12				12		
20-11	13					13	
20-27	14					14	
22-19	14					14	
28-2	14				2	12	
28-20	14				10	4	
32-9	14	2				12	
24-5	16					16	
24-7	16				2	14	
36-14	16			5	5	6	
20-29	17					17	
20A48	19					19	
22-14	19					19	
28-16	20					20	
28-11	22				4	18	
32-6	23		2	3	2	16	
32-13	23				5	18	
24-28	24					24	
28-12	26					26	
36A46	27				27		
24A28	28					28	
28A63	28				9	19	
32-8	30				6	24	
36-9	31		1	2	14	14	
28-15	35					35	
32-7	35				7	28	
36-15	35					35	
28-21	37					37	
36A98	39			8		31	

Contact arrangement	No. of contacts	Contact size					
		0 500	4 160	8 100 60	12 25	16 15	20 10
28A51	43					43	
32A47	47					47	
36-7	47				7	40	
36-8	47				1	46	
36-10	48					48	
36A34	52					52	
32A10	54					54	
32A55	55					55	
32A69	61					20	41
36A99	65					15	50

Most layout illustrations are shown in the MIL-C-5015 section on pages A-85 to A-88 or in the full CA-B catalog.

Box Mounting Receptacle



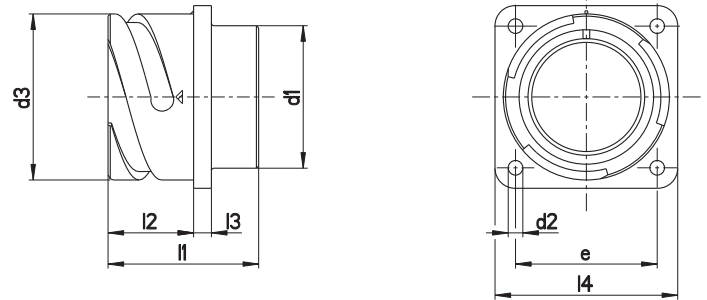
A

Circular

VG 95234 – Style A

CA 3102E-B and Modifications, see page A-134

Receptacle for front panel mounting with square flange.
Threaded holes in flange not possible.

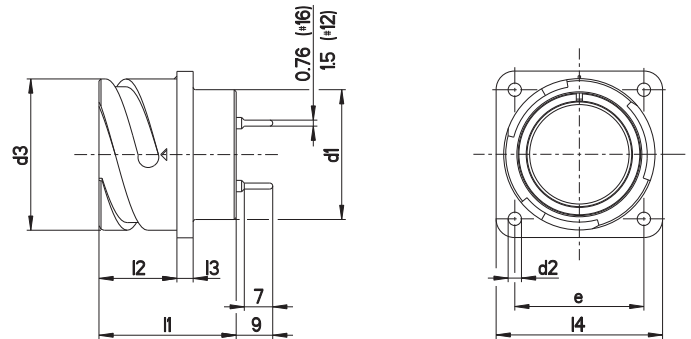


VG95234 Part no.	Cannon Part no.	d ₁ max.	d ₂ H13	d ₃ -0,15	e ±0,1	l ₁ ±0,3	l ₂ +0,4	l ₃ ±0,2	l ₄ ±0,3	Weight ¹⁾ g max.
VG95234A-10SL	CA3102E10SL**-B	0.64 (16,2)	0.13 (3,2)	0.72 (18,2)	18,2	0.97 (24,7)	0.56 (14,2)	0.11 (2,8)	1.00 (25,4)	12
–	CA3102E12S**-B	0.64 (16,2)	0.13 (3,2)	0.84 (21,4)	20,6	0.97 (24,7)	0.56 (14,2)	0.13 (3,2)	1.10 (28,0)	15
VG95234A-14S	CA3102E14S**-B	0.75 (19,2)	0.13 (3,2)	0.97 (24,6)	23,0	0.97 (24,7)	0.56 (14,2)	0.13 (3,2)	1.18 (30,0)	17
VG95234A-16S	CA3102E16S**-B	0.88 (22,4)	0.13 (3,2)	1.03 (27,4)	24,6	0.97 (24,7)	0.56 (14,2)	0.13 (3,2)	1.28 (32,5)	19
VG95234A-16	CA3102E16**-B	0.88 (22,4)	0.13 (3,2)	1.03 (27,4)	24,6	1.33 (33,8)	0.75 (19,0)	0.13 (3,2)	1.28 (32,5)	22
VG95234A-18	CA3102E18**-B	1.01 (25,6)	0.13 (3,2)	1.21 (30,8)	27,0	1.33 (33,8)	0.75 (19,0)	0.16 (4,0)	1.38 (35,0)	28
VG95234A-20	CA3102E20**-B	1.14 (29,0)	0.13 (3,2)	1.35 (34,2)	29,4	1.33 (33,8)	0.75 (19,0)	0.16 (4,0)	1.50 (38,0)	33
VG95234A-22	CA3102E22**-B	1.27 (32,2)	0.13 (3,2)	1.47 (37,4)	31,8	1.33 (33,8)	0.75 (19,0)	0.16 (4,0)	1.61 (41,0)	38
VG95234A-24	CA3102E24**-B	1.34 (35,3)	0.14 (3,7)	1.61 (40,9)	34,9	1.33 (33,8)	0.81 (20,6)	0.16 (4,0)	1.75 (44,5)	46
VG95234A-28	CA3102E28**-B	1.63 (41,4)	0.14 (3,7)	1.83 (46,7)	39,7	1.33 (33,8)	0.81 (20,6)	0.16 (4,0)	2.00 (50,8)	52
VG95234A-32	CA3102E32**-B	1.88 (47,8)	0.17 (4,3)	2.10 (53,4)	44,5	1.33 (33,8)	0.87 (22,2)	0.16 (4,0)	2.24 (57,0)	64
VG95234A-36	CA3102E36**-B	2.07 (52,6)	0.17 (4,3)	2.35 (59,6)	49,2	1.33 (33,8)	0.87 (22,2)	0.16 (4,0)	2.50 (63,5)	80

¹⁾ Weight without insulator

CA02L-B designates a receptacle for front panel mounting with solder pin contacts to solder into printed circuits. All pattern drawings upon request. For all other dimensions see above table.

For contact arrangements with #16S and #16 contacts only.

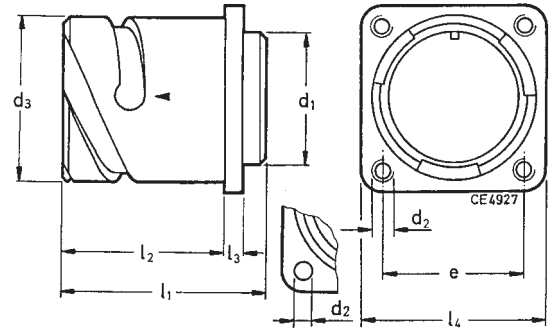


Box Mounting Receptacle



A
Circular

- VG95234 Style B1** (with threaded holes in flange)
CA3102-B and Modifications, e g -04, -109 or -111; 05
CA3102-B designates a receptacle with square flange for rear panel mounting.
VG95234 Style B2 (with through holes in flange)
CA3102E-B and Modifications, see page A-134



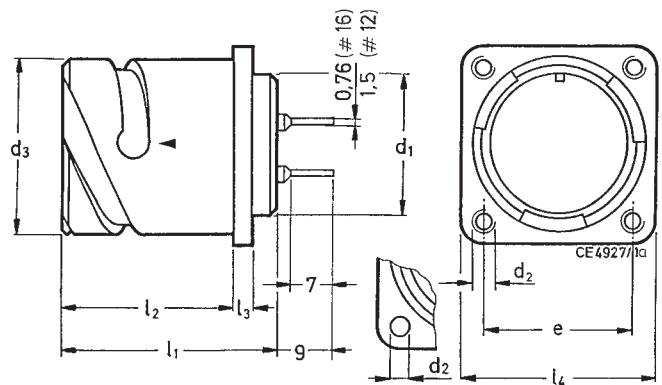
Style B2

VG95234 Part no.	Cannon Part no.	d ₁ max.	d ₂ B1 H13	B2	d ₃ -0,15	e ±0,1	l ₁ ±0,3	l ₂ +0,4	l ₃ ±0,2	l ₄ ±0,3	Weight ¹⁾ g max.
VG95234XX-10SL*	CA3102E10SL*B-***	0.64 (16,2)	M4	0.13 (3,2)	0.72 (18,2)	18,2	0.97 (24,7)	0.72 (18,2)	0.11 (2,8)	1.00 (25,4)	14
—	CA3102E12S*B-***	0.64 (16,2)	M4	0.13 (3,2)	0.84 (21,4)	20,6	0.97 (24,7)	0.72 (18,2)	0.13 (3,2)	1.10 (28,0)	18
VG95234XX-14S*	CA3102E14S*B-***	0.75 (19,2)	M4	0.13 (3,2)	0.97 (24,6)	23,0	0.97 (24,7)	0.72 (18,2)	0.13 (3,2)	1.18 (30,0)	21
CG95234XX-16S*	CA3102E16S*B-***	0.88 (22,4)	M4	0.13 (3,2)	1.08 (27,4)	24,6	0.97 (24,7)	0.72 (18,2)	0.13 (3,2)	1.28 (32,5)	22
VG95234XX-16*	CA3102E16*B-***	0.88 (22,4)	M4	0.13 (3,2)	1.08 (27,4)	24,6	1.33 (33,8)	0.85 (21,5)	0.13 (3,2)	1.28 (32,5)	27
VG95234XX-18*	CA3102E18*B-***	1.01 (25,6)	M4	0.13 (3,2)	1.21 (30,8)	27,0	1.33 (33,8)	0.91 (23,05)	0.16 (4,0)	1.38 (35,0)	33
VG95234XX-20*	CA3102E20*B-***	1.14 (29,0)	M4	0.13 (3,2)	1.35 (34,2)	29,4	1.33 (33,8)	0.91 (23,05)	0.16 (4,0)	1.50 (38,0)	37
VG95234XX-22*	CA3102E22*B-***	1.27 (32,2)	M4	0.13 (3,2)	1.47 (37,4)	31,8	1.33 (33,8)	0.91 (23,05)	0.16 (4,0)	1.61 (41,0)	42
VG95234XX-24*	CA3102E24*B-***	1.34 (35,3)	M4	0.14 (3,7)	1.61 (40,9)	34,9	1.33 (33,8)	0.91 (23,05)	0.16 (4,0)	1.75 (44,5)	48
VG95234XX-28*	CA3102E28*B-***	1.63 (41,4)	M5	0.14 (3,7)	1.83 (46,7)	39,7	1.33 (33,8)	0.95 (24,05)	0.16 (4,0)	2.00 (50,8)	58
VG95234XX-32*	CA3102E32*B-***	1.88 (47,8)	M5	0.17 (4,3)	2.10 (53,4)	44,5	1.33 (33,8)	0.95 (24,05)	0.16 (4,0)	2.24 (57,0)	72
VG95234XX-36*	CA3102E36*B-***	2.07 (54,1)	M5	0.17 (4,3)	2.35 (59,6)	49,2	1.33 (33,8)	0.95 (24,05)	0.16 (4,0)	2.50 (63,5)	84

¹⁾ Weight without insulator

CA20L-B designates a receptacle for rear panel mounting with solder pin contacts to solder into printed circuits. All pattern drawings upon request. For all other dimensions see above table.

For contact arrangements with #16S and #16 contacts only.



Mod. -05

Straight Plug



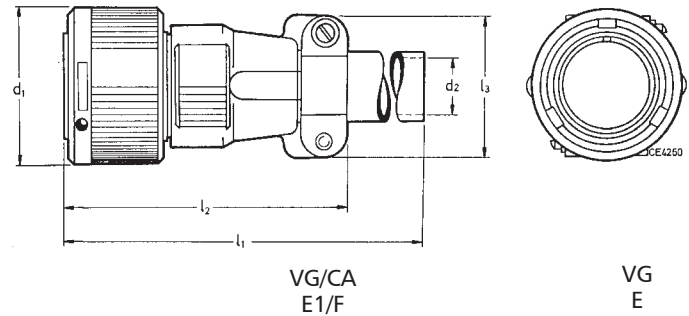
A

Circular

CA3106E-B designates a straight plug with endbell, cable clamp and telescoping bushing

VG 95234 Style D resp.

CA3106E-B and Modifications, see page A-134



VG/CA
E1/F

VG
E

VG95234 Part no.	Cannon Part no.	d ₁ max.	d ₂ ²⁾ max.	l ₁ max.	l ₂ max.	l ₃ max.	Weight ¹⁾ g max.
VG95234D-10SL-*	CA3106E10SL-**-***	0.90 (22,8)	0.26 (6,5)	4.53 (115)	2.16 (55)	0.89 (22,7)	30
	CA3106E12S-**-***	1.02 (26,0)	0.26 (6,5)	4.53 (115)	2.16 (55)	0.89 (22,7)	37
VG95234D-14S-*	CA3106E14S-**-***	1.15 (29,2)	0.350(9,0)	4.53 (115)	2.36 (60)	1.08 (27,5)	44
VG95234D-16S-*	CA3106E16S-**-***	1.26 (32,0)	0.43 (11,0)	4.53 (115)	2.36 (60)	1.18 (30,0)	54
VG95234D-16-*	CA3106E16-**-***	1.26 (32,0)	0.43 (11,0)	4.72 (120)	2.76 (70)	1.18 (30,0)	62
VG95234D-18-*	CA3106E18-**-***	1.44 (36,5)	0.56 (14,2)	4.72 (120)	2.95 (75)	1.30 (33,0)	70
VG95234D-20-*	CA3106E20-**-***	1.57 (39,9)	0.62 (15,8)	4.72 (120)	2.95 (75)	1.48 (37,5)	85
VG95234D-22-*	CA3106E22-**-***	1.70 (43,1)	0.62 (15,8)	4.72 (120)	2.95 (75)	1.48 (37,5)	92
VG95234D-24-*	CA3106E24-**-***	1.83 (46,6)	0.84 (21,4)	4.72 (120)	3.54 (90)	1.70 (43,3)	127
VG95234D-28-*	CA3106E28-**-***	2.10 (53,4)	0.84 (21,4)	4.72 (120)	3.54 (90)	1.89 (48,0)	154
VG95234D-32-*	CA3106E32-**-***	2.37 (60,1)	1.05 (26,7)	4.72 (120)	3.54 (90)	2.16 (55,0)	199
VG95234D-36-*	CA3106E36-**-***	2.61 (66,3)	1.25 (31,7)	5.12 (130)	3.94 (100)	2.28 (58,0)	260

¹⁾ Weight without insulator, grommets and contacts.

²⁾ For max. cable entry.

Plug 90°

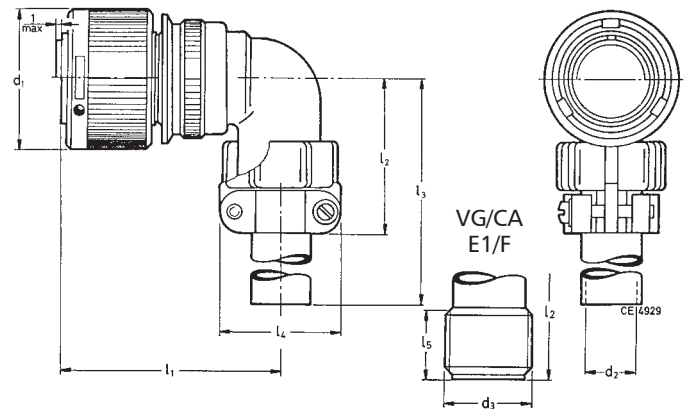
VG 95234 Style E1 (with flex tube)

CA 3108 F-B and Modifications, see page A-134

CA3108E/F designates a plug 90°, which is available with cable clamp and bushing (E) or with flex tube termination (F)

VG 95234 Style E (with cable clamp and telescoping bushing)

CA 3108E-B and Modifications, see page A-134



VG/CA
E1/F

CE14929

VG 95 234 Part no.	Cannon Part no.	d ₃ -Thread Style E1 CA3108F	d ₁ max.	d ₂ ²⁾ max.	l ₁ max.	l ₂ max. E	l ₃ max. E1	l ₃ max. E	l ₄ max.	l ₅	Weight ¹⁾ g max. E	Weight ¹⁾ g max. E1
VG95234XX-10SL-*	CA3108X10SL-**-***	5/8-24NEF-2A	0.90 (22,8)	0.25 (6,5)	1.77 (45)	1.65 (42)	1.18 (30)	3.94 (100)	0.89 (22,7)	0.37 (9,4)	37	27
—	CA3108X12S-**-***	5/8-24NEF-2A	1.02 (26,0)	0.25 (6,5)	1.77 (45)	1.65 (42)	1.18 (30)	3.94 (100)	0.89 (22,7)	0.37 (9,4)	45	35
VG95234XX-14S-*	CA3108X14S-**-***	3/4-20UNEF-2A	1.15 (29,2)	0.35 (9,0)	1.85 (47)	1.65 (42)	1.18 (30)	3.94 (100)	1.08 (27,5)	0.37 (9,4)	58	43
VG95234XX-16S-*	CA3108X16S-**-***	7/8-20UNEF-2A	1.26 (32,0)	0.43 (11,0)	1.89 (48)	1.77 (45)	1.18 (30)	3.94 (100)	1.18 (30,0)	0.37 (9,4)	68	48
VG95234XX-16-*	CA3108X16-**-***	7/8-20UNEF-2A	1.26 (32,0)	0.43 (11,0)	2.24 (57)	1.77 (45)	1.18 (30)	3.94 (100)	1.18 (30,0)	0.37 (9,4)	78	58
VG95234XX-18-*	CA3108X18-**-***	1-20UNEF-2A	1.44 (36,5)	0.56 (14,2)	2.28 (58)	2.09 (53)	1.38 (35)	3.94 (100)	1.30 (33,0)	0.37 (9,4)	90	58
VG95234XX-20-*	CA3108X20-**-***	1 3/16-18UNEF-2A	1.57 (39,9)	0.62 (15,8)	2.40 (61)	2.09 (53)	1.38 (35)	3.94 (100)	1.48 (37,5)	0.37 (9,4)	109	74
VG95234XX-22-*	CA3108X22-**-***	1 3/16-18UNEF-2A	1.70 (43,1)	0.62 (15,8)	2.40 (61)	2.09 (53)	1.38 (35)	3.94 (100)	1.48 (37,5)	0.37 (9,4)	113	78
VG95234XX-24-*	CA3108X24-**-***	1 7/16-18UNEF-2A	1.83 (46,6)	0.84 (21,4)	2.60 (66)	2.28 (58)	1.57 (40)	3.94 (100)	1.70 (43,3)	0.37 (9,4)	159	104
VG95234XX-28-*	CA3108X28-**-***	1 7/16-18UNEF-2A	2.10 (53,4)	0.84 (21,4)	2.60 (66)	2.28 (58)	1.57 (40)	3.94 (100)	1.70 (43,3)	0.37 (9,4)	181	126
VG95234XX-32-*	CA3108X32-**-***	1 3/4-18UNS-2A	2.37 (60,1)	1.05 (26,7)	2.83 (72)	2.60 (66)	1.77 (45)	4.33 (110)	2.04 (51,7)	0.43 (11,0)	245	160
VG95234XX-36-*	CA3108 36-**-***	2-18UNS-2A	2.61 (66,3)	1.25 (31,7)	2.95 (75)	2.71 (69)	1.97 (50)	4.33 (110)	2.28 (58,0)	0.50 (12,6)	300	190

¹⁾ Weight without insulator, grommets and contacts.

²⁾ For max. cable entry.

Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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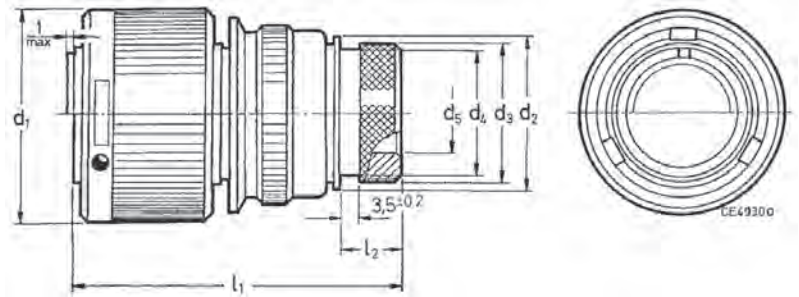


Straight Plug

VG95234 – Style G

CA3106E-B, -02, -03 or -06 designates a straight plug with adapter for heat shrinkable boots

CA3106E-B and Modifications, see page A-134



VG 95234 Part no.	Cannon Part no.	d ₁ max.	d ₂ ±0,2	d ₃ ±0,2	d ₄ max.	d ₅ min.	l ₁ max.	l ₂ ±0,5	Weight ¹⁾ g max.
VG95234G-10SL-*	CA3106E10SL-**-***	0.90 (22,8)	0.67 (17,0)	0.61 (15,5)	0.52 (13,3)	0.30 (7,7)	1.97 (50)	0.46 (11,7)	24
–	CA3106E12S-**-***	1.02 (26,0)	0.70 (17,8)	0.61 (15,5)	0.52 (13,3)	0.31 (7,9)	1.97 (50)	0.46 (11,7)	35
VG95234G-14S-*	CA3106E14S-**-***	1.15 (29,2)	0.79 (20,1)	0.75 (19,1)	0.67 (17,0)	0.42 (10,6)	1.97 (50)	0.46 (11,7)	41
VG95234G-16S-*	CA3106E16S-**-***	1.26 (32,0)	0.93 (23,5)	0.94 (23,9)	0.86 (21,9)	0.53 (13,5)	1.97 (50)	0.46 (11,7)	51
VG95234G-16-*	CA3106E16-**-***	1.26 (32,0)	0.93 (23,5)	0.94 (23,9)	0.86 (21,9)	0.53 (13,5)	2.36 (60)	0.46 (11,7)	58
VG95234G-18-*	CA3106E18-**-***	1.44 (36,5)	1.04 (26,5)	0.94 (23,9)	0.86 (21,9)	0.57 (14,6)	2.36 (60)	0.46 (11,7)	65
VG95234G-20-*	CA3106E20-**-***	1.57 (39,9)	1.19 (30,2)	1.17 (29,6)	1.03 (26,2)	0.74 (18,7)	2.56 (65)	0.50 (12,7)	75
VG95234G-22-*	CA3106E22-**-***	1.70 (43,1)	1.32 (33,6)	1.17 (29,6)	1.03 (26,2)	0.82 (20,8)	2.56 (65)	0.50 (12,7)	80
VG95234G-24-*	CA3106E24-**-***	1.83 (46,6)	1.50 (38,1)	1.49 (37,8)	1.36 (34,5)	0.97 (24,6)	2.56 (65)	0.50 (12,7)	95
VG95234G-28-*	CA3106E28-**-***	2.10 (53,4)	1.63 (41,4)	1.49 (37,8)	1.36 (34,5)	1.06 (27,0)	2.56 (65)	0.50 (12,7)	120
VG95234G-32-*	CA3106E32-**-***	2.37 (60,1)	1.91 (48,6)	1.88 (47,8)	1.72 (43,6)	1.31 (33,3)	2.76 (70)	0.60 (15,2)	165
VG95234G-36-*	CA3106E36-**-***	2.61 (66,3)	2.16 (54,8)	1.88 (47,8)	1.72 (43,6)	1.52 (38,5)	3.15 (80)	0.60 (15,2)	180

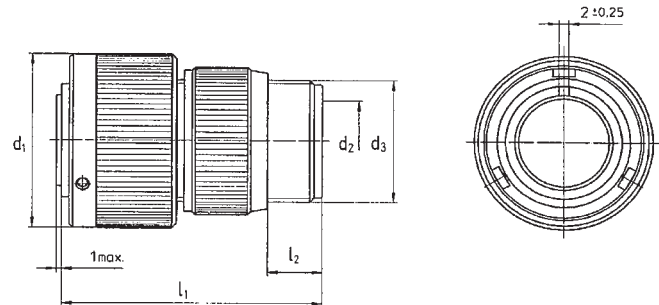
¹⁾ Weight without insulator, grommets and contacts.

Straight Plug

VG95234 Style H

CA3106-F-B designates a straight plug for flex tube

CA3106-B and Modifications, see page A-134



VG 95234 Part no.	Cannon Part no.	d ₃ -Thread	d ₁ max.	d _{2a} ²⁾	l ₁ max.	l ₂ min.	Weight ¹⁾ g max.
VG95234H-10SL-*	CA3106F10SL-**-***	5/8-24NEF-2A	0.90 (22,8)	0.32 (8,2)	1.97 (50)	0.37 (9,5)	21
–	CA3106F12S-**-***	5/8-24NEF-2A	1.02 (26,0)	0.32 (8,2)	1.97 (50)	0.37 (9,5)	29
VG95234H-14S-*	CA3106F14S-**-***	3/4-20UNEF-2A	1.15 (29,2)	0.44 (11,1)	1.97 (50)	0.37 (9,5)	33
VG95234H-16S-*	CA3106F16S-**-***	7/8-20UNEF-2A	1.18 (32,0)	0.56 (14,3)	1.97 (50)	0.37 (9,5)	42
VG95234H-16-*	CA3106F16-**-***	7/8-20UNEF-2A	1.18 (32,0)	0.56 (14,3)	2.36 (60)	0.37 (9,5)	51
VG95234H-18-*	CA3106F18-**-***	1-20UNEF-2A	1.44 (36,5)	0.66 (16,7)	2.36 (60)	0.37 (9,5)	59
VG95234H-20-*	CA3106F20-**-***	1 3/16-18UNEF-2A	1.57 (39,9)	0.78 (19,8)	2.36 (60)	0.37 (9,5)	59
VG96234H-22-*	CA3106F22-**-***	1 3/16-18UNEF-2A	1.70 (43,1)	0.78 (19,8)	2.36 (60)	0.37 (9,5)	62
VG95234H-24-*	CA3106F24-**-***	1 7/16-18UNEF-2A	1.83 (46,6)	1.00 (25,4)	2.56 (65)	0.37 (9,5)	84
VG95234H-28-*	CA3106F28-**-***	1 7/16-18UNEF-2A	2.10 (53,4)	1.06 (27,0)	2.56 (65)	0.37 (9,5)	100
VG95234H-32-*	CA3106F32-**-***	1 3/4-18UNS-2A	2.37 (60,1)	1.28 (32,5)	2.56 (65)	0.43 (11,0)	116
VG95234H-36-*	CA3106F36-**-***	2-18UNS-2A	2.61 (66,3)	1.40 (35,7)	3.15 (80)	0.46 (11,8)	142

¹⁾ Weight without insulator, grommets and contacts. ²⁾ For max. cable entry.

Wall Mounting Receptacle



A

Circular

For rear mounting

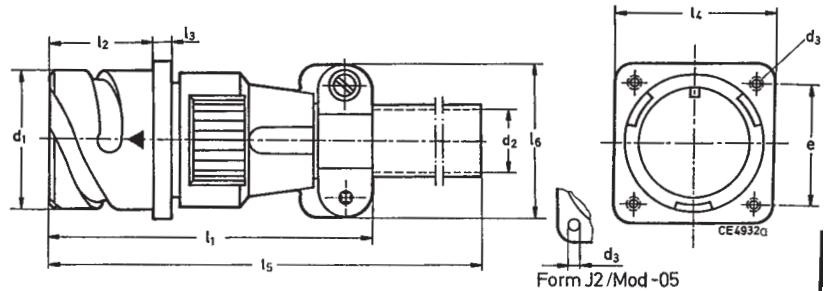
VG95234 Style J₁ (with threaded holes in flange)

VG95234 Style J₂ (with through holes in flange)

CA3100E-B and Modifications e g -05
(with through holes)

CA3100E-B designates a wall mounting
receptacle with cable clamp and telescoping
bushing

CA3100E-B and Modifications e g -01, -F80
(for ordered contacts)



VG95234 Part no.	Cannon Part no.	d ₁ -0,15	d ₂ ¹⁾	d ₃	J1	J2	e ±0,1	L ₁ max.	L ₂ +0,4	L ₃ ±0,2	L ₄ ±0,3	L ₅ max.
VG95234*XX-10SL*	CA3100E10SL**B***	0.72 (18,2)	0.26 (6,5)	M4	0.13 (3,2)	18,2	2.24 (57)	0.72 (18,2)	0.11 (2,8)	1.00 (25,4)	4.72 (120)	4.72 (120)
—	CA3100E12S**B***	0.84 (21,4)	0.26 (6,5)	M4	0.13 (3,2)	20,6	2.24 (57)	0.72 (18,2)	0.13 (3,2)	1.10 (28,0)	4.72 (120)	4.72 (120)
VG95234*XX-14S*	CA3100E14S**B***	0.97 (24,6)	0.35 (9,0)	M4	0.13 (3,2)	23,0	2.32 (59)	0.72 (18,2)	0.13 (3,2)	1.18 (30,0)	4.72 (120)	4.72 (120)
VG95234*XX-16S*	CA3100E16S**B***	1.08 (27,4)	0.43 (11,0)	M4	0.13 (3,2)	24,6	2.36 (60)	0.72 (18,2)	0.13 (3,2)	1.28 (32,5)	4.72 (120)	4.72 (120)
VG95234*XX-16*	CA3100E16**B***	1.08 (27,4)	0.43 (11,0)	M4	0.13 (3,2)	24,6	2.68 (68)	0.85 (21,5)	0.13 (3,2)	1.28 (32,5)	4.92 (125)	4.92 (125)
VG95234*XX-18*	CA3100E18**B***	1.21 (30,8)	0.56 (14,2)	M4	0.13 (3,2)	27,0	2.83 (72)	0.91 (23,05)	0.16 (4,0)	1.38 (35,0)	4.92 (125)	4.92 (125)
VG95234*XX-20*	CA3100E20**B***	1.35 (34,2)	0.62 (15,8)	M4	0.13 (3,2)	29,4	2.83 (72)	0.91 (23,05)	0.16 (4,0)	1.50 (38,0)	4.92 (125)	4.92 (125)
VG95234*XX-22*	CA3100E22**B***	1.47 (37,4)	0.62 (15,8)	M4	0.13 (3,2)	31,8	2.83 (72)	0.91 (23,05)	0.16 (4,0)	1.61 (41,0)	4.92 (125)	4.92 (125)
VG95234*XX-24*	CA3100E24**B***	1.61 (40,9)	0.84 (21,4)	M4	0.15 (3,7)	34,9	3.07 (78)	0.91 (23,05)	0.16 (4,0)	1.75 (44,5)	4.92 (125)	4.92 (125)
VG95234*XX-28*	CA3100E28**B***	1.84 (46,7)	0.84 (21,4)	M5	0.15 (3,7)	39,7	3.11 (79)	0.95 (24,05)	0.16 (4,0)	2.00 (50,8)	4.92 (125)	4.92 (125)
VG95234*XX-32*	CA3100E32**B***	2.10 (53,4)	1.05 (26,7)	M5	0.17 (4,3)	44,5	3.07 (78)	0.95 (24,05)	0.16 (4,0)	2.24 (57,0)	4.92 (125)	4.92 (125)
VG95234*XX-36*	CA3100E36**B***	2.35 (59,6)	1.25 (31,7)	M5	0.17 (4,3)	49,2	3.07 (78)	0.95 (24,05)	0.16 (4,0)	2.50 (63,5)	5.31 (135)	5.31 (135)

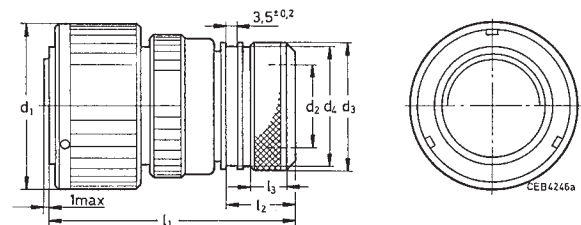
¹⁾ For max. cable entry.

Straight Plug, Shielded

VG95234 Style M

CA3106E-B-13, -14 or -15 designates a straight,
shielded plug with endbell for shielded braids, and
heat shrinkable boots

CA3106E-B and Modifications, see page A-134



VG95234 Part no.	Cannon Part no.	d ₁ max.	d ₂ ²⁾ min.	d ₃ ±0,5	d ₄ max.	l ₁ max.	l ₂ +1	l ₃ ±0,5	Weight ¹⁾ g max.
VG95234M-10SL*	CA3106E10SL**B***	0.90 (22,8)	0.30 (7,7)	0.73 (18,5)	0.64 (16,3)	2.17 (55,0)	0.67 (17,0)	0.28 (7,0)	40
—	CA3106E12S**B***	1.02 (26,0)	0.37 (9,3)	0.79 (20,0)	0.67 (17,0)	2.17 (55,0)	0.67 (17,0)	0.28 (7,0)	42
VG95234M-14S*	CA3106E14S**B***	1.15 (29,2)	0.42 (10,6)	0.87 (22,0)	0.79 (20,0)	2.17 (55,0)	0.67 (17,0)	0.28 (7,0)	45
VG95234M-16S*	CA3106E16S**B***	1.26 (32,0)	0.53 (13,5)	0.98 (25,0)	0.91 (23,0)	2.36 (60,0)	0.71 (18,0)	0.31 (8,0)	55
VG95234M-16*	CA3106E16**B***	1.26 (32,0)	0.53 (13,5)	0.98 (25,0)	0.91 (23,0)	2.76 (70,0)	0.71 (18,0)	0.31 (8,0)	65
VG95234M-18*	CA3106E18**B***	1.44 (36,5)	0.57 (14,6)	1.10 (28,0)	0.96 (24,5)	2.76 (70,0)	0.71 (18,0)	0.31 (8,0)	75
VG95234M-20*	CA3106E20**B***	1.57 (39,9)	0.73 (18,5)	1.26 (32,0)	1.12 (28,5)	2.76 (70,0)	0.71 (18,0)	0.39 (10,0)	85
VG95234M-22*	CA3106E22**B***	1.70 (43,1)	0.82 (20,8)	1.34 (34,0)	1.20 (30,5)	2.76 (70,0)	0.71 (18,0)	0.39 (10,0)	100
VG95234M-24*	CA3106E24**B***	1.88 (46,6)	0.97 (24,6)	1.50 (38,0)	1.36 (34,5)	2.76 (70,0)	0.71 (18,0)	0.39 (10,0)	115
VG95234M-28*	CA3106E28**B***	2.10 (53,4)	1.06 (27,0)	1.61 (41,0)	1.48 (37,5)	2.76 (70,0)	0.71 (18,0)	0.39 (10,0)	130
VG95234M-32*	CA3106E32**B***	2.37 (60,1)	1.31 (33,3)	1.89 (48,0)	1.73 (44,0)	2.76 (70,0)	0.71 (18,0)	0.39 (10,0)	170
VG95234M-36*	CA3106E36**B***	2.61 (66,3)	1.52 (38,5)	2.17 (55,0)	2.00 (51,0)	3.15 (80,0)	0.71 (18,0)	0.39 (10,0)	190

¹⁾ Weight without insulator, grommets and contacts. ²⁾ For max. cable entry.

Wall Mounting Receptacle

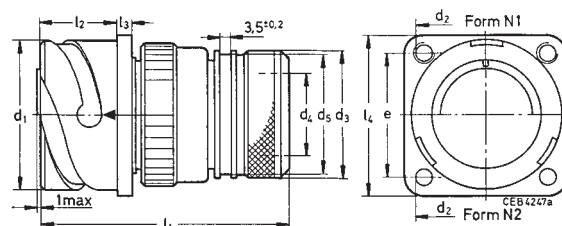
Circular

A

VG95234 Style N1 (with threaded holes in flange)
VG95234 Style N2 (with through holes in flange)

CA3100E-B, -13, -14 or -15, -05-13, -05-14 or -05-15
 designates a shielded receptacle with endbell for
 shielded braids, and also for heat shrinkable boots

CA3100E-B and Modifications, see page A-134



VG95234 Part no.	Cannon Part no.	d ₁ -0,15	d ₂ Thread H13 N1 N2	d ₃ ±0,5	d ₄ ²⁾ min.	d ₅ max.	e ±0,1	l ₁ max.	l ₂ +0,4	l ₃ ±0,2	l ₄ +0,3	Weight ¹⁾ g max.
VG95234*XX-10SL*	CA3100E10SL**-B-***	0.72 (18,2)	M4 0.13 (3,2)	0.73 (18,5)	0.30 (7,7)	0.64 (16,3)	0.72 (18,2)	2.17 (55)	0.72 (18,2)	0.11 (2,8)	1.00 (25,4)	45
VG95234*XX-14S*	CA3100E14S**-B-***	0.97 (24,6)	M4 0.13 (3,2)	0.87 (22,0)	0.42 (10,6)	0.79 (20,0)	0.91 (23,0)	2.28 (58)	0.72 (18,2)	0.13 (3,2)	1.18 (30,0)	55
VG95234*XX-16S*	CA3100E16S**-B-***	1.08 (27,4)	M4 0.13 (3,2)	0.98 (25,0)	0.53 (13,5)	0.91 (23,0)	0.97 (24,6)	2.76 (70)	0.72 (18,2)	0.13 (3,2)	1.28 (32,5)	65
VG95234*XX-16*	CA3100E16**-B-***	1.08 (27,4)	M4 0.13 (3,2)	0.98 (25,0)	0.53 (13,5)	0.91 (23,0)	0.97 (24,6)	2.76 (70)	0.85 (21,5)	0.13 (3,2)	1.28 (32,5)	75
VG95234*XX-18*	CA3100E18**-B-***	1.21 (30,8)	M4 0.13 (3,2)	1.10 (28,0)	0.57 (14,6)	0.96 (24,5)	1.06 (27,0)	2.76 (70)	0.91 (23,05)	0.16 (4,0)	1.38 (35,0)	85
VG95234*XX-20*	CA3100E20**-B-***	1.35 (34,2)	M4 0.13 (3,2)	1.26 (32,0)	0.73 (18,5)	1.12 (28,5)	1.16 (29,4)	2.76 (70)	0.91 (23,05)	0.16 (4,0)	1.51 (38,4)	95
VG95234*XX-22*	CA3100E22**-B-***	1.47 (37,4)	M4 0.13 (3,2)	1.34 (34,0)	0.82 (20,8)	1.20 (30,5)	1.25 (31,8)	2.76 (70)	0.91 (23,05)	0.16 (4,0)	1.61 (41,0)	105
VG95234*XX-24*	CA3100E24**-B-***	1.61 (40,9)	M4 0.15 (3,7)	1.50 (38,0)	0.97 (24,6)	1.36 (34,5)	1.37 (34,9)	2.76 (70)	0.91 (23,05)	0.16 (4,0)	1.75 (44,5)	120
VG95234*XX-28*	CA3100E28**-B-***	1.84 (46,7)	M5 0.15 (3,7)	1.61 (41,0)	1.06 (27,0)	1.48 (37,5)	1.56 (39,7)	2.76 (70)	0.95 (24,05)	0.16 (4,0)	2.00 (50,8)	150
VG95234*XX-32*	CA3100E32**-B-***	2.10 (53,4)	M5 0.17 (4,3)	1.89 (48,0)	1.31 (33,3)	1.73 (44,0)	1.75 (44,5)	2.95 (75)	0.95 (24,05)	0.16 (4,0)	2.24 (57,0)	190
VG95234*XX-36*	CA3100E36**-B-***	2.35 (59,6)	M5 0.17 (4,3)	2.17 (55,0)	1.52 (38,5)	2.00 (51,0)	1.94 (49,2)	3.35 (85)	0.95 (24,05)	0.16 (4,0)	2.50 (63,5)	220

¹⁾ Weight without insulator, grommets and contacts.

²⁾ For max. cable entry.

Jam Nut Receptacle

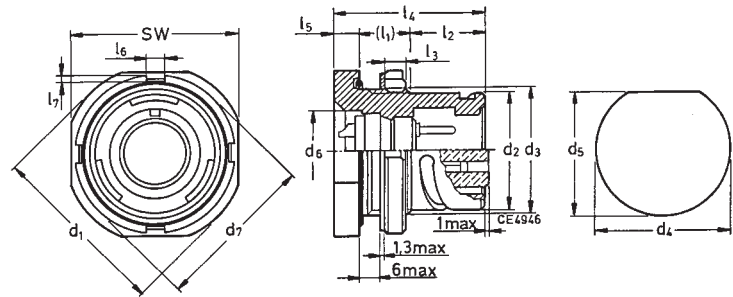


A

Circular

CA07A-B designates a rear mounting jam nut receptacle

CA07A-B and Modifications, see page A-134



Cannon Part no.	d ₁	d ₂	d ₃ Thread	(l ₁)	l ₂	l ₃	l ₄	d ₄	d ₅	d ₆	d ₇	sw	d ₈	l ₅	l ₆	l ₇
CA07A10SL-**-B-***	1.38 (35,0)	0.72 (18,2)	7/8-20UNEF-2A	0.53 (13,5)	0.49 (12,5)	0.16 (4,0)	1.15 (29,2)	0.89 (22,7)	0.82 (20,9)	0.52 (13,5)	1.24 (31,5)	1.25 (31,8)	0.81 (20,6)	0.13 (3,2)	0.20 (5,0)	0.10 (2,5)
CA07A14S-**-B-***	1.63 (41,3)	0.97 (24,6)	1 1/8-18UNEF-2A	0.53 (13,5)	0.49 (12,5)	0.16 (4,0)	1.15 (29,2)	1.13 (28,8)	1.07 (27,2)	0.70 (17,9)	1.49 (37,9)	1.50 (38,1)	1.06 (26,9)	0.13 (3,2)	0.24 (6,0)	0.10 (2,5)
CA07A16S-**-B-***	1.75 (44,4)	1.08 (27,4)	1 1/4-18UNEF-2A	0.53 (13,5)	0.49 (12,5)	0.16 (4,0)	1.15 (29,2)	1.26 (32,0)	1.20 (30,4)	0.83 (21,1)	1.61 (41,0)	1.62 (41,2)	1.19 (30,1)	0.13 (3,2)	0.24 (6,0)	0.10 (2,5)
CA07A16-**-B-***	1.75 (44,4)	1.08 (27,4)	1 1/4-18UNEF-2A	0.53 (13,5)	0.83 (21,0)	0.16 (4,0)	1.48 (37,7)	1.26 (32,0)	1.20 (30,4)	0.83 (21,1)	1.61 (41,0)	1.62 (41,2)	1.19 (30,1)	0.13 (3,2)	0.24 (6,0)	0.10 (2,5)
CA07A18-**-B-***	1.90 (48,2)	1.21 (30,8)	1 3/8-18UNEF-2A	0.59 (15,0)	0.83 (21,0)	0.20 (5,0)	1.57 (40,0)	1.38 (35,1)	1.32 (33,6)	0.95 (24,2)	1.76 (44,8)	1.77 (45,0)	1.31 (33,3)	0.16 (4,0)	0.28 (7,0)	0.12 (3,0)
CA07A20-**-B-***	2.06 (52,4)	1.35 (34,2)	1 1/2-18UNEF-2A	0.59 (15,0)	0.83 (21,0)	0.20 (5,0)	1.57 (40,0)	1.50 (38,2)	1.45 (36,8)	1.11 (28,2)	1.93 (49,0)	1.94 (49,2)	1.44 (36,5)	0.16 (4,0)	0.28 (7,0)	0.12 (3,0)
CA07A22-**-B-***	2.19 (55,5)	1.47 (37,4)	1 5/8-18UNEF-2A	0.59 (15,0)	0.83 (21,0)	0.20 (5,0)	1.57 (40,0)	1.65 (42,0)	1.57 (39,9)	1.24 (31,4)	2.06 (52,2)	2.06 (52,4)	1.56 (39,6)	0.16 (4,0)	0.28 (7,0)	0.12 (3,0)
CA07A24-**-B-***	2.32 (59,0)	1.61 (40,9)	1 3/4-18UNEF-2A	0.59 (15,0)	0.83 (21,0)	0.20 (5,0)	1.57 (40,0)	1.76 (44,7)	1.70 (43,1)	1.36 (34,5)	2.17 (55,0)	2.06 (55,2)	1.62 (41,2)	0.16 (4,0)	0.28 (7,0)	0.12 (3,0)
CA07A28-**-B-***	2.60 (66,0)	1.84 (46,7)	2-18UNEF-2A	0.59 (15,0)	0.83 (21,0)	0.20 (5,0)	1.57 (40,0)	2.01 (51,1)	1.94 (49,2)	1.58 (40,1)	2.44 (62,0)	2.45 (62,2)	1.87 (47,5)	0.16 (4,0)	0.28 (7,0)	0.12 (3,0)
CA07A32-**-B-***	2.83 (72,0)	2.10 (53,4)	2 1/4-16UN-2A	0.59 (15,0)	0.83 (21,0)	0.20 (5,0)	1.57 (40,0)	2.26 (57,4)	2.19 (55,7)	1.83 (46,5)	2.68 (68,0)	2.69 (68,2)	2.13 (54,1)	0.16 (4,0)	0.28 (7,0)	0.12 (3,0)
CA07A36-**-B-***	3.15 (80,0)	2.35 (59,6)	1/2-16UN-2A	0.59 (15,0)	0.83 (21,0)	0.20 (5,0)	1.57 (40,0)	2.51 (63,8)	2.44 (62,0)	2.02 (51,2)	2.95 (75,0)	2.96 (75,2)	2.38 (60,5)	0.16 (4,0)	0.31 (8,0)	0.12 (3,0)

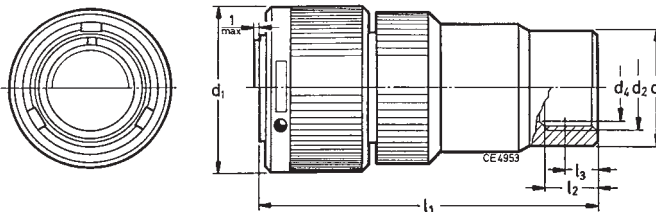
Straight Plug with PG Adapter

CA06PG-B designates a straight plug featured by an adaptor for PG glands.

Enlarged PG glands upon request.

CA06ME-B¹ designates a straight plug featured by an adaptor for metric glands.

CA06PG-B; CA06ME-B and Modifications see page A-134.



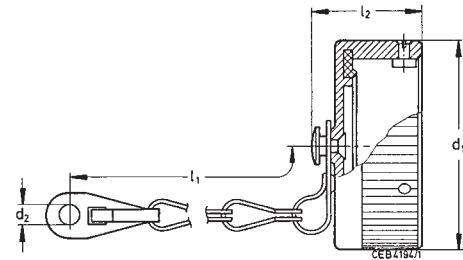
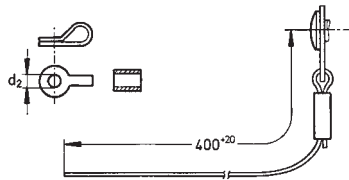
¹Alternative enlarged PG glands upon request

Cannon Part no.	d ₁	d ₃	d ₄	l ₁	l ₂	l ₃	d ₂ PG-Thread
CA06PG10SL-**-B-***	0.90 (22,8)	0.71 (18,0)	0.38 (9,7)	2.05 (52)	0.37 (9,5)	0.28 (7,0)	PG 9
CA06PG12S-**-B-***	1.02 (26,0)	0.74 (18,8)	0.41 (10,4)	2.05 (52)	0.37 (9,5)	0.28 (7,0)	PG 9
CA06PG14S-**-B-***	1.15 (29,2)	0.87 (22,0)	0.49 (12,5)	2.05 (52)	0.39 (10,0)	0.28 (7,0)	PG11
CA06PG16S-**-B-***	1.26 (32,0)	0.93 (23,6)	0.59 (15,0)	2.13 (54)	0.39 (10,0)	0.28 (7,0)	PG13,5
CA06PG16-**-B-***	1.26 (32,0)	0.94 (24,0)	0.59 (15,0)	2.52 (64)	0.39 (10,0)	0.28 (7,0)	PG13,5
CA06PG18-**-B-***	1.44 (36,5)	0.96 (24,4)	0.67 (17,0)	2.72 (69)	0.45 (11,5)	0.30 (7,5)	PG13,5
CA06PG20-**-B-***	1.57 (39,9)	1.06 (26,8)	0.67 (17,0)	2.76 (70)	0.45 (11,5)	0.30 (7,5)	PG16
CA06PG22-**-B-***	1.66 (42,1)	1.04 (26,4)	0.67 (17,0)	2.87 (73)	0.45 (11,5)	0.30 (7,5)	PG16
CA06PG24-**-B-***	1.83 (46,6)	1.06 (26,8)	0.73 (18,5)	2.91 (74)	0.49 (12,5)	0.30 (7,5)	PG16
CA06PG28-**-B-***	2.10 (53,4)	1.26 (32,0)	0.73 (18,5)	2.91 (74)	0.49 (12,5)	0.30 (7,5)	PG21
CA06PG32-**-B-***	2.37 (60,1)	1.61 (40,8)	0.94 (24,0)	2.99 (76)	0.53 (13,5)	0.33 (8,5)	PG29
CA06PG36-**-B-***	2.61 (66,3)	1.61 (40,8)	1.26 (32,0)	3.43 (87)	0.59 (15,0)	0.35 (9,0)	PG29

Cannon Part no.	d ₁	d ₃ max	d ₄	l ₁	l ₂	l ₃	d ₂ Metric
CA06ME10SL-**-B-***	0.90 (22,8)	0.85 (21,5)	0.38 (9,7)	2.05 (52)	0.37 (9,5)	0.28 (7,0)	M16 X 1,5
CA06ME12S-**-B-***	1.02 (26,0)	0.89 (22,5)	0.41 (10,4)	2.05 (52)	0.37 (9,5)	0.28 (7,0)	M16 X 1,5
CA06ME14S-**-B-***	1.15 (29,2)	0.98 (25,0)	0.49 (12,5)	2.05 (52)	0.39 (10,0)	0.28 (7,0)	M20 X 1,5
CA06ME16S-**-B-***	1.26 (32,0)	1.04 (26,5)	0.59 (15,0)	2.13 (54)	0.39 (10,0)	0.28 (7,0)	M20 X 1,5
CA06ME16-**-B-***	1.26 (32,0)	1.04 (26,5)	0.59 (15,0)	2.52 (64)	0.39 (10,0)	0.28 (7,0)	M20 X 1,5
CA06ME18-**-B-***	1.44 (36,5)	1.22 (31,0)	0.67 (17,0)	2.72 (69)	0.45 (11,5)	0.30 (7,5)	M25 X 1,5
CA06ME20-**-B-***	1.57 (39,9)	1.34 (34,0)	0.67 (17,0)	2.76 (70)	0.45 (11,5)	0.30 (7,5)	M25 X 1,5
CA06ME22-**-B-***	1.66 (42,1)	1.59 (40,5)	0.67 (17,0)	2.87 (73)	0.45 (11,5)	0.30 (7,5)	M32 X 1,5
CA06ME24-**-B-***	1.83 (46,6)	1.59 (40,5)	0.73 (18,5)	2.91 (74)	0.49 (12,5)	0.30 (7,5)	M32 X 1,5
CA06ME28-**-B-***	2.10 (53,4)	1.61 (41,0)	0.73 (18,5)	2.91 (74)	0.49 (12,5)	0.30 (7,5)	upon request
CA06ME32-**-B-***	2.37 (60,1)	1.91 (48,5)	0.94 (24,0)	2.99 (76)	0.53 (13,5)	0.33 (8,5)	upon request
CA06ME36-**-B-***	2.61 (66,3)	1.91 (48,5)	1.26 (32,0)	3.43 (87)	0.59 (15,0)	0.35 (9,0)	upon request

Metal Protecting Caps

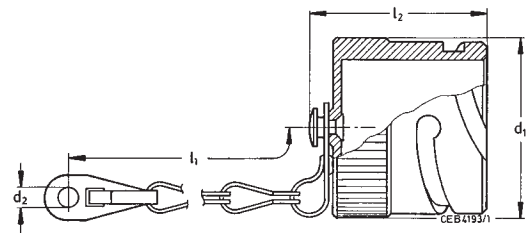
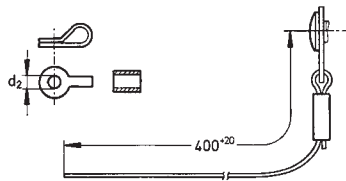
For receptacles, shell style
3100, 3101 und 3102
Material: Aluminum alloy



Shell size	VG95234 Part no. with chain	VG95234 Part no. with cord	Cannon Part no. with chain	Cannon Part no. with cord	d ₁ max.	d ₂ +0,6	l ₁ min. f. chain	l ₂ max.	Weight g max.
10SL	VG95234KR10SL	VG95234KA10SL	CA121003-1	CAB81-10SL-D	0.93 (23,5)	0.17 (4,3)	3.54 (90)	0.79 (20)	16
12S	–	–	CA121003-2	CAB81-12S-D	1.06 (27,0)	0.17 (4,3)	3.54 (90)	0.79 (20)	17
14S	VG95234KR14S	VG95234KA14S	CA121003-3	CAB81-14S-D	1.20 (30,5)	0.17 (4,3)	3.54 (90)	0.79 (20)	18
16S	VG95234KR16S	VG95234KA16S	CA121003-4	CAB81-16S-D	1.30 (33,0)	0.17 (4,3)	3.54 (90)	0.79 (20)	19
16	VG95234KR16	VG95234KA16	CA121003-5	CAB81-16-D	1.30 (33,0)	0.17 (4,3)	3.94 (100)	0.98 (25)	23
18	VG95234KR18	VG95234KA18	CA121003-6	CAB81-18-D	1.48 (37,5)	0.17 (4,3)	3.94 (100)	0.98 (25)	27
20	VG95234KR20	VG95234KA20	CA121003-7	CAB81-20-D	1.61 (41,0)	0.17 (4,3)	4.53 (115)	0.98 (25)	30
22	VG95234KR22	VG95234KA22	CA121003-8	CAB81-22-D	1.73 (44,0)	0.17 (4,3)	4.53 (115)	0.98 (25)	33
24	VG95234KR24	VG95234KA24	CA121003-9	CAB81-24-D	1.87 (47,5)	0.17 (4,3)	4.53 (115)	0.98 (25)	37
28	VG95234KR28	VG95234KA28	CA121003-10	CAB81-28-D	2.15 (54,5)	0.22 (5,5)	6.30 (160)	0.98 (25)	42
32	VG95234KR32	VG95234KA32	CA121003-11	CAB81-32-D	2.40 (61,0)	0.22 (5,5)	6.30 (160)	0.98 (25)	48
36	VG95234KR36	VG95234KA36	CA121003-12	CAB81-36-D	2.66 (67,5)	0.22 (5,5)	6.30 (160)	0.98 (25)	55

Metal Protecting Caps

For plugs, shell style
3106 and 3108
Material: Aluminum alloy



Shell size	VG95234 Part no. with chain	VG95234 Part no. with cord	Cannon Part no. with chain	Cannon Part no. with cord	d ₁ max.	d ₂	l ₁	l ₂ max.	Weight g max.
10SL	VG95234KB10SL	VG95234KC10SL	CA121004-1	CAB80-10SL-D	0.83 (21,0)	0.17 (4,3)	3.54 (90)	1.14 (29)	19
12S	–	–	CA121004-2	CAB80-12S-D	0.94 (24,0)	0.17 (4,3)	3.94 (100)	1.14 (29)	23
14S	VG95234KB14S	VG95234KC14S	CA121004-3	CAB80-14S-D	1.08 (27,5)	0.17 (4,3)	3.94 (100)	1.14 (29)	26
16S	VG95234KB16S	VG95234KC16S	CA121004-4	CAB80-16S-D	1.18 (30,0)	0.17 (4,3)	3.94 (100)	1.14 (29)	28
16	VG95234KB16	VG95234KC16	CA121004-5	CAB80-16-D	1.18 (30,0)	0.17 (4,3)	4.53 (115)	1.46 (37)	33
18	VG95234KB18	VG95234KC18	CA121004-6	CAB80-18-D	1.32 (33,5)	0.17 (4,3)	4.53 (115)	1.46 (37)	36
20	VG95234KB20	VG95234KC20	CA121004-7	CAB80-20-D	1.46 (37,0)	0.19 (4,7)	5.12 (130)	1.46 (37)	43
22	VG95234KB22	VG95234KC22	CA121004-8	CAB80-22-D	1.57 (40,0)	0.19 (4,7)	5.12 (130)	1.46 (37)	47
24	VG95234KB24	VG95234KC24	CA121004-9	CAB80-24-D	1.71 (43,5)	0.19 (4,7)	5.12 (130)	1.46 (37)	53
28	VG95234KB28	VG95234KC28	CA121004-10	CAB80-28-D	1.95 (49,5)	0.19 (4,7)	7.48 (190)	1.46 (37)	63
32	VG95234KB32	VG95234KC32	CA121004-11	CAB80-32-D	2.20 (56,0)	0.22 (5,5)	7.48 (190)	1.46 (37)	75
36	VG95234KB36	VG95234KC36	CA121004-12	CAB80-36-D	2.46 (62,5)	0.22 (5,5)	7.48 (190)	1.46 (37)	88

Cannon VG/CA-Bayonet

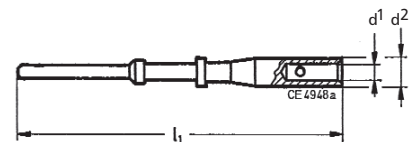
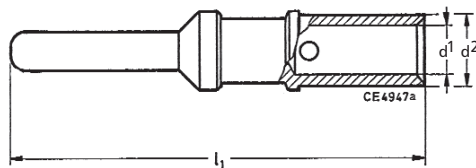
Contacts

Standard contacts and contacts with reduced termination diameter

Size 15S/16S, 15/16, 25/12, 60/100/8, 160/4, 500/0

Size 10/20

Pin contacts



Finish

- A36 – 5 m silver plated and passivated
- A176 – 2 m nickel plated, min. 0,5 m gold

Contact size	VG95234 Part no.	Wire size mm ²	AWG	Part no. with finish Standard: A36 silver plated	Part no. with finish Mod. Code: A176 gold plated	d ₁	d ₂	l ₁ ±0,15	Color Code
10/20	VG95234P10-002	0,5-1,0	20/18	030-8585-000	030-8585-006	1,5 +0,05	2,4 -0,05	28,4	–
	VG95234P10-001	0,2-0,4	26/22	030-8585-010	–	0,9 +0,05	2,4 -0,05	28,4	blue
15S/16S	VG95234P15S-003	0,75-1,5	18/16	030-8586-000	030-8586-006	1,75 +0,08	2,75 -0,05	27,4	–
	VG95234P15S-002	0,3-0,6	22/20	330-8744-000	330-8744-006	1,2 +0,1	2,75 -0,05	27,4	red
	VG95234P15S-001	0,14-0,38	22/26	030-8586-010	–	0,9 +0,05	2,75 -0,05	27,4	blue
15/16	VG95234P15-003	0,75-1,5	18/16	030-8587-000	030-8587-006	1,75 +0,08	2,75 -0,05	31,4	–
	VG95234P15-002	0,3-0,6	22/20	330-8659-000	330-8659-006	1,2 +0,1	2,75 -0,05	31,4	red
	VG95234P15-001	0,14-0,38	22/26	030-8587-030	030-8587-036	0,9 +0,05	2,75 -0,05	31,4	blue
25/12	VG95234P25-002	2,0-3,0	14/12	030-8588-000	030-8588-006	2,5 +0,1	3,8 -0,1	37,0	–
	VG95234P25-001	0,75-1,5	18/16	030-8588-010	030-8588-016	1,75 +0,08	3,4 -0,1	37,0	black
		4,0	–	030-8588-054	–	2,8 +0,1	3,8 -0,1	37,0	
60/100/8	VG95234P8-001	–	8	030-8612-000	030-8612-006	4,55 +0,1	6,8 -0,1	39,6	–
	VG95234P60-002	6,0	10	030-8589-000	–	3,5 +0,1	6,8 -0,1	39,6	yellow
	VG95234P100-001	10,0	–	030-8590-000	–	4,8 +0,1	6,8 -0,1	39,6	–
	VG95234P60-001	2,0-3,0	14/12	030-8612-010	–	2,5 +0,05	6,8 -0,1	39,6	green
160/4	VG95234P4-001	–	4	030-8613-000	–	7,1 +0,15	9,55 -0,1	39,6	–
	VG95234P160-002	16,0	–	030-8591-000	–	6,2 +0,15	9,55 -0,1	39,6	–
		10,0	–	030-8591-020	–	4,8 +0,1	9,55 -0,1	39,6	–
	VG95234P160-001	–	6	030-8613-010	–	5,7 +0,1	9,55 -0,1	39,6	brown
500/0	VG95234P0-001	–	0	030-8614-000	–	11,5 +0,15	14,35 -0,1	41,0	–
	VG95234P500-003	50,0	–	030-8592-000	–	10,7 +0,15	14,35 -0,1	41,0	–
	VG95234P500-001	25,0	4	030-8614-010	–	7,6 +0,15	14,35 -0,1	41,0	white
	VG95234P500-002	35,0	2	030-8614-020	–	9,1 +0,15	14,35 -0,1	41,0	grey
		16,0	–	030-8614-030	–	6,2 +0,15	14,35 -0,1	41,0	–

Contacts

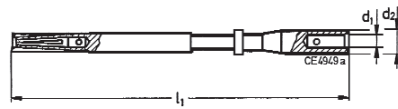
Standard contacts and
contacts with reduced
termination diameter

Socket contacts

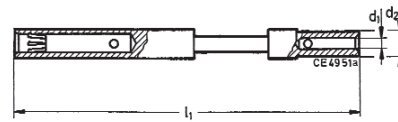
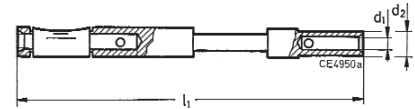
Finish

- A36** – 5 m silver plated
and passivated
A176 – 2 m nickel plated,
min. 0,5 m gold plated

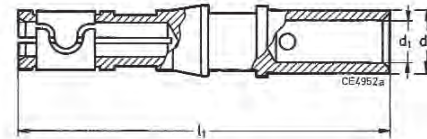
Size 10/20



Size 25/12



Size 15S/16S, 15/16



Size 60/100/8, 160/4, 500/0

Contact size	VG95234 Part no.	Wire size mm ²	AWG	Part no. with finish Standard: A36 silver plated	Part no. with finish Mod.Code A176 gold plated	d ₁	d ₂	l ₁ ±0,2	Color Code
10/20	VG95234S10-002	0,5-1,0	20/18	031-8554-000	031-8554-006	1,5 +0,05	2,4 -0,05	36,8±0,3	–
	VG95234S10-001	0,2-0,4	26/22	031-8554-010	–	0,9 +0,05	2,4 -0,05	36,8±0,3	blue
15S/16S	VG95234S15S-003	0,75-1,5	18/16	031-8555-110	031-8555-115	1,75 +0,08	2,75 -0,05	29,1	–
	VG95234S15S-002	0,3-0,6	22/20	031-8688-110	031-8688-115	1,20 +0,1	2,75 -0,05	29,1	red
	VG95234S15S-001	0,14-0,38	22/26	031-8555-130	–	0,90 +0,05	2,75 -0,05	29,1	blue
15/16	VG95234S15-003	0,75-1,5	18/16	031-8556-110	031-8556-115	1,75 +0,08	2,75 -0,05	37,8	–
	VG95234S15-002	0,3-0,6	22/20	031-8639-120	031-8639-115	1,2 +0,1	2,75 -0,05	37,8	red
	VG95234S15-001	0,14-0,38	22/26	031-8556-130	–	0,9 +0,05	2,75 -0,05	37,8	blue
25/12	VG95234S25-002	2,0-3,0	14/12	031-8557-000	031-8557-006	2,5 +0,1	3,8 -0,1	37,0	–
	VG95234S25-001	0,75-1,5	18/16	031-8557-020	031-8557-026	1,75 +0,08	3,4 -0,1	37,0	black
		4,0	–	031-8557-010	–	2,8 +0,1	3,8 -0,1	37,0	–
		0,3-0,6	22/20	031-8557-040	–	1,2 +0,1	2,75 -0,1	37,0	–
60/100/8	VG95234S8-001	–	8	031-8519-000	031-8519-006	4,55 +0,1	6,8 -0,1	40,1	–
	VG95234S60-002	6,0	10	031-8558-000	–	3,5 +0,1	6,8 -0,1	40,1	yellow
	VG95234S100-001	10,0	–	031-8559-000	–	4,8 +0,1	6,8 -0,1	40,1	–
	VG95234S60-001	2,0-3,0	14/12	031-8519-010	–	2,5 +0,05	6,8 -0,1	40,1	green
160/4	VG95234S4-001	–	4	031-8520-000	–	7,1 +0,15	9,55 -0,1	40,1	–
	VG95234S160-002	16,0	–	031-8560-000	–	6,2 +0,15	9,55 -0,1	40,1	–
		10,0	–	031-8560-020	–	4,8 +0,1	9,55 -0,1	40,1	–
	VG95234S160-001	–	6	031-8520-010	–	5,7 +0,15	9,55 -0,1	40,1	brown
500/0	VG95234S0-001	–	0	031-8521-000	–	11,5 +0,15	14,35 -0,1	41,6	–
	VG95234S500-003	50,0	–	031-8561-000	–	10,7 +0,15	14,35 -0,1	41,6	–
	VG95234S500-001	25,0	4	031-8521-010	–	7,6 +0,15	14,35 -0,1	41,6	white
	VG95234S500-002	35,0	2	031-8521-020	–	9,1 +0,15	14,35 -0,1	41,6	grey
		16,0	–	031-8521-030	–	6,2 +0,15	14,35 -0,1	41,6	–



A

Circular



Contacts

Termination Tools

for pin and socket contacts according VG95234 and for Cannon contacts with reduced termination size.

Contact size	Wire size mm ²	AWG	Hand crimp tool Type	Crimp die for M22520-1-01	Pneumatic crimp tool ⁽¹⁾ Standard type*	Order Number	Description	Turret for pneumatic crimp tool
10/20	0,2 – 1,0	20 – 24	M22520-1-01 Hand crimp tool (eight indent crimp) Order Number 995-0001-585	600 325 600 325	WA27F-CE	121586-5067	pneumatic crimp tool (AWG12-20)	608 325 608 325
15S/16S	0,14 – 1,5	16 – 26		TH 452 TH 452	WA22-CE	121586-5070	pneumatic crimp tool (AWG20-32)	TH 452 TH 452
15/16	0,14 – 1,5	16 – 26		TH 452 TH 452	BM-2	121586-5068	Bench mount	TH 452 TH 452
25/12	0,75 – 4,0	12 – 18		TH 452 TH 452 TH 452	WA10	121586-5069	Foot pedal	TH 452 TH 452
					M22520-3-1	995-0001-684	Gauge	TH 452

Contact size	Wire size mm ²	AWG	Hydraulic basic equipment	Crimp tool (2 of each required) hex Crimp die	Wrench #	Crimp Locator
60/8 100/	10,0 – 2,0	8 – 14	Electro-hydraulic tool * HK12EL (order number: 121586-5075) Alternative	CT 121586-5231 Label: 01	5,2 mm	Optional device to be mounted on left hand crimp tools CT121586-5232
160/4	16,0 – 10,0	4 – 6	Hand operated hydraulic tool HK120 (order number: 121586-5077)	CT 121586-5230 Label: 02	7,25 mm	
500/0	50,0 – 16,0	0 – 4		CT 121586-5229 Label: 03	11,40 mm	

To insert the socket contact of size 15S/16S, 15/16/25 and 12, the following guiding pins are essential:

Part Nr.	Contact size AWG	metric
226-1017-000	16S/16	15S/15
226-1018-000	12	25

Order #s for Insertion Tools:

for contact size	Insertion tool	Insertion pliers
10	CIT-20*	CIT-F80-20
15S/16S/15/16	CIT-16*	CIT-F80-16
25/12	CIT-12*	CIT-F80-12
60/100/8	CIT-8*	
160/4	CIT-4*	
500/0	CIT-0*	

Insertion Tool Kit

CIT-F80-Kit (Contains full set of all #, plus handle)

Order #s for Extraction Tools:

for contact size	Extraction tool
10	CET-F80-20*
15S/16S/15/16	CET-F80-16*
25/12	CET-F80-12*
60/100/8	CET-8*
160/4	CET-4*
500/0	CET-0*

Extraction Tool Kit

CET-F80-Kit (Contains full set of all #, plus handle)

Notes

- For large series production, semi-automatic crimp machine Type HACS-IV-MSXX upon request
- For insertion and extraction of the contacts and for connector assembly, see Assembly Instructions MIL-C-5015/VG95234
- Standard contacts acc. to MIL-C-5015/VG95234

* Datasheet available upon request



Introduction

ITT, Interconnect Solutions connections series CA-COM and CA-COM-B are derivations of connectors according to MIL-C-5015 or VG95234. They were developed especially for industrial applications. Connectors of both CA-COM series are interchangeable with the corresponding types as per MIL-C-5015 and VG95234, as they offer the same mounting dimensions and contact arrangements.

The entire CA-COM connector line is RoHS compliant.

The CA-COM and CA-COM-B connector series offer:

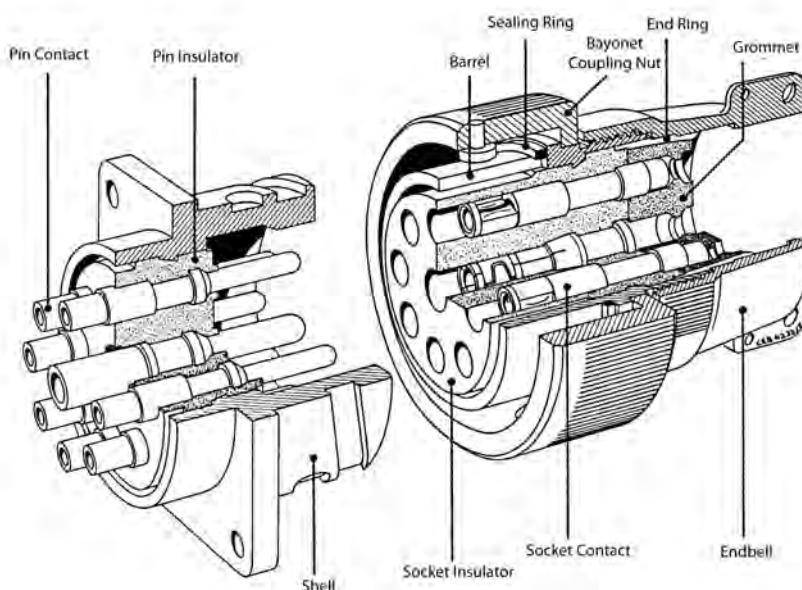
- Wall mounting receptacles
- Cable connecting plugs
- Box mounting receptacles
- Straight plugs
- Plugs 90°

Wall mounting receptacles and cable connecting plugs (straight and 90°) are available with:

- Endbell with cable clamp
- Endbell for flex tubes
- Adapter combined for PG and metric terminations acc. To DIN 46320
- Adapter for heat shrink boots

Furthermore Cannon also provides the appropriate accessories, like:

- Protective metal caps
- Cable clamps
- Cable bushings
- Sealing gaskets



CA-COM

- Thread coupling
- Mateable with all connectors according to MIL-C-5015 and series CA respectively
- Either solder or crimp contacts
- Contact arrangements with 1 to 37 contacts
- Wire sizes from 0, 14 up to 2,5 mm²
- Shells made of aluminum alloy enable to withstand high mechanical strain*
- Resilient insulator (polychloroprene) for wide temperature range (-55/125°C)
- Resistant against aggressive fluids like fuel, oil, etc.
- Environmental by means of an adaptor for PG termination, universal endbell and heat shrink boots
- Min 500 mating cycles
- Spray-waterproof IP65 (with grommet)

CA-COM-B

- Bayonet coupling
- Mateable with all connectors according to VG95234 and series CA-B respectively
- Either solder or crimp contacts
- Contact arrangements with 1 to 37 contacts
- Wire sizes from 0,14 to 2,5 mm²
- Resilient insulator (polychloroprene) for wide temperature range (-55/125°C)
- Resistant against aggressive fluids like fuel, oil, etc.
- Environmental by means of an adaptor for PG termination, universal endbell and heat shrink boots
- Min 500 mating cycles
- Waterproof IP67 (with grommet)

NOTE: *Receptacle size 14S and barrel size 18 + 20 are made of Zinc diecast material. Aluminum versions available upon request



A

Circular

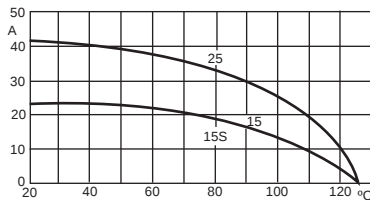
Electrical Data

Rated Current 20°C ambient temperature

Contact size AWG/metric	Rated Current A max ¹⁾
15S	22
15	22
25	41
100	74

¹⁾ This applies only to the max. rated current for one contact. If several contacts in one contact arrangement are loaded with higher current the specific heat and the ambient temperature may not exceed + 125°C.

Rated Current vs ambient temperature



Contact Resistance (Millivolt test)

Contact size metric	Contact Resistance Ω max
15S	6
15	6
25	3
100	1

Insulation resistance > 1000 MΩ

Air and Creepage paths (min)

Voltage class	Instr.	A	D
Air path mm	0,7	1,1	2,8
Creepage path mm	0,7	1,1	2,8

Operating Voltage and connector usage

When the connectors in this catalog are used for voltages greater than 50 Volts and have touchable conductive shell parts they must be used in accordance with the safety regulations DIN VDE Part 410; IEC 60364-4-41. This regulation basically dictates that the power source should be turned off before any mating and unmating of the connector. This regulation does not provide protection against electrical shock when mating and unmating the connectors in live condition.

Mechanical Data

Max Operating Temperature

-67°/257°F (-55/125°C)

Mating Cycles min 500

Min separating force per contact

Contact size AWG/metric	Separating force N
15S	1,0
15	1,0
25	1,5
100	3,0

Contact Retention

Test force to be applied in mating direction.

Contact size metric	Test force N
15S	35
15	35
25	55
100	80

Coupling Torque

The allowable coupling torque has to be tested under harnessed conditions.

Shell size	Allowable coupling torque Closing and opening (N max)		Opening (N min) CA-COM, CA-COM-B
	CA-COM	CA-COM-B	
10SL	3,0	2,6	0,15
12S	2,8	2,8	0,23
14S	5,9	3,0	0,35
16S/16	7,0	3,5	0,46
18	8,0	4,0	0,58
20	9,0	4,5	0,7
22	10,6	5,0	0,8
24	12,9	6,0	0,8
28	16,7	7,0	0,92
32	18,1	8,5	1,02
36	23,9	10,0	1,05

Materials

Shell	Aluminum alloy Zinc diecast nickel plated
Contacts	Copper alloy, silver plated, solder lead free
Insulator	Polychloroprene
Grommet	Polychloroprene

How to Order



A

Circular

	CA	06	COM-E	18-1	P	W		XX
	CA	06	COM-E	18-1	P	W	B	XX
Series _____								
CA - Cannon designation								
Shell style _____								
02 - Box mount receptacle								
06 - Plug, straight								
08 - Plug 90°								
Class _____								
COM-E - Endbell with cable clamp ¹⁾								
COM-PG - Adapter for PG termination,								
COM-ME - Adapter for metric thread termination								
Shell size _____								
10SL, 12S, 14S, 16, 16S, 18								
20, 22, 24, 28, 32*, 36* (* = upon request)								
Contact arrangement _____								
see MIL-C-5015 section								
Contact type _____								
P - Pin contact								
S - Socket contact								
For contact dimensions please see page A-146 and A-147 of the VG/CA-B section ²⁾								
Alternate insert position _____								
Insert insulator position – see MIL-C-5015 section								
Coupling _____								
B - Bayonet coupling								
without designation: threaded coupling								
Modification _____								
01 - Metric crimp contacts								
03 - Adapter for heat shrink boots and metric crimp contacts (only for bayonet coupling by shell style 01 + 06 class-E)								
06 - Adapter for heat shrink boots and solder contacts (only for bayonet coupling by shell style 01 + 06 class-E)								
44 - With end ring and grommet (for class E and F only)								
48 - F-Endbell with O-ring								
F42 - Without rear accessories								
DN - Adapter for heat shrink boots and solder contacts (Mod. for threaded coupling)								
F0 - Without contacts (to be ordered separately)								
A176 - Gold plated contacts								

¹⁾ except shell style 02/20

²⁾ for relevant tools please see page A-148
of VG/CA-B section



A

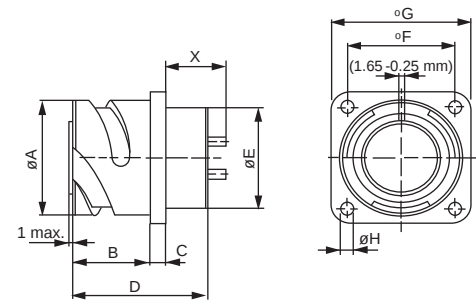
Circular

Box Mounting Receptacle, Class E

CA02COM-E-B

with bayonet coupling

CA02COM-E-B is a box mounting receptacle for front panel mounting. It mates with plugs CA06COM-B and CA08COM-B.

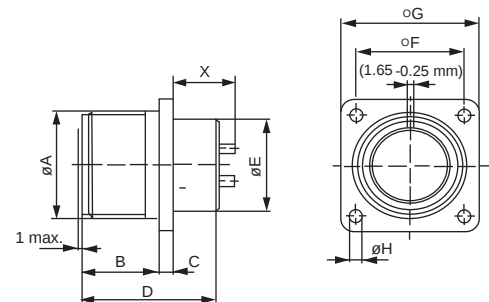


Part No. Pin Insert*	A (-0,15)	B (+0,4)	C (±0,2)	D (±0,3)	E max.	F (±0,1)	G (±0,3)	H H ₁₃	X 15	/ Contact size 25 100	
CA02COM-E10SL-**-P*-B	0.72 (18.2)	0.56 (14.2)	0.11 (2.8)	0.97 (24.7)	0.64 (16.2)	0.72 (18.2)	1.00 (25.4)	0.13 (3.2)	0.54 (13.6)	—	—
CA02COM-E12S-**-P*-B	0.84 (21.4)	0.56 (14.2)	0.13 (3.2)	0.97 (24.7)	0.64 (16.2)	0.81 (20.6)	1.10 (28.0)	0.13 (3.2)	0.52 (13.2)	—	—
CA02COM-E14S-**-P*-B	0.97 (24.6)	0.56 (14.2)	0.13 (3.2)	0.97 (24.7)	0.76 (19.2)	0.91 (23.0)	1.18 (30.0)	0.13 (3.2)	0.52 (13.2)	—	—
CA02COM-E16S-**-P*-B	1.08 (27.4)	0.56 (14.2)	0.13 (3.2)	0.97 (24.7)	0.88 (22.4)	0.97 (24.6)	1.28 (32.5)	0.13 (3.2)	0.52 (13.2)	—	—
CA02COM-E16-**-P*-B	1.08 (27.4)	0.75 (19.0)	0.13 (3.2)	1.33 (33.8)	0.88 (22.4)	0.97 (24.6)	1.28 (32.5)	0.13 (3.2)	0.70 (17.9)	0.70 (17.9)	0.77 (19.5)
CA02COM-E18-**-P*-B	1.21 (30.8)	0.75 (19.0)	0.16 (4.0)	1.33 (33.8)	1.01 (25.6)	1.06 (27.0)	1.38 (35.0)	0.13 (3.2)	0.67 (17.1)	0.67 (17.1)	0.74 (18.7)
CA02COM-E20-**-P*-B	1.35 (34.2)	0.75 (19.0)	0.16 (4.0)	1.33 (33.8)	1.14 (29.0)	1.16 (29.4)	1.49 (38.0)	0.13 (3.2)	0.67 (17.1)	0.67 (17.1)	0.74 (18.7)
CA02COM-E22-**-P*-B	1.47 (37.4)	0.75 (19.0)	0.16 (4.0)	1.33 (33.8)	1.27 (32.2)	1.25 (31.8)	1.16 (41.0)	0.13 (3.2)	0.67 (17.1)	0.67 (17.1)	0.74 (18.7)
CA02COM-E24-**-P*-B	1.61 (40.9)	0.81 (20.6)	0.16 (4.0)	1.33 (33.8)	1.40 (35.3)	1.37 (34.9)	1.75 (44.5)	0.15 (3.7)	0.61 (15.5)	0.61 (15.5)	0.67 (17.1)
CA02COM-E28-**-P*-B	1.84 (46.7)	0.81 (20.6)	0.16 (4.0)	1.33 (33.8)	1.63 (41.4)	1.56 (39.7)	2.00 (50.8)	0.15 (3.7)	0.61 (15.5)	0.61 (15.5)	0.67 (17.1)
CA02COM-E32-**-P*-B	2.10 (53.4)	0.87 (22.2)	0.16 (4.0)	1.33 (33.8)	1.88 (47.8)	1.75 (44.5)	2.24 (57.0)	0.17 (4.3)	0.55 (13.9)	0.61 (15.5)	0.61 (15.5)
CA02COM-E36-**-P*-B	2.35 (59.6)	0.87 (22.2)	0.16 (4.0)	1.33 (33.8)	2.07 (52.6)	1.94 (49.2)	2.50 (63.5)	0.17 (4.3)	0.55 (13.9)	0.61 (15.5)	0.61 (15.5)

CA02COM-E

with threaded coupling

CA02COM-E is a box mounting receptacle for front panel mounting. It mates with plugs CA06COM and CA08COM.



Part No. Pin Insert*	A Thread	B (+0,4)	C (±0,3)	D max.	E max.	F (±0,1)	G (±0,3)	H (+0,2)	X 15	/ Contact size 25 100	
CA02COM-E10SL-**-P*	5/8-24UNEF-2A	0.56 (14.2)	0.11 (2.8)	0.99 (25.1)	0.63 (15.9)	0.72 (18.2)	1.00 (25.4)	0.12 (3.1)	0.54 (13.6)	—	—
CA02COM-E12S-**-P*	3/4-20UNEF-2A	0.56 (14.2)	0.13 (3.2)	0.99 (25.1)	0.63 (15.9)	0.81 (20.6)	1.10 (28.0)	0.12 (3.1)	0.52 (13.2)	—	—
CA02COM-E14S-**-P*	7/8-20UNEF-2A	0.56 (14.2)	0.13 (3.2)	0.99 (25.1)	0.75 (19.0)	0.91 (23.0)	1.18 (30.0)	0.12 (3.1)	0.52 (13.2)	—	—
CA02COM-E16S-**-P*	1-20UNEF-2A	0.56 (14.2)	0.13 (3.2)	0.99 (25.1)	0.87 (22.2)	0.97 (24.6)	1.28 (32.5)	0.12 (3.1)	0.52 (13.2)	—	—
CA02COM-E16-**-P*	1-20UNEF-2A	0.75 (19.0)	0.13 (3.2)	1.35 (34.2)	0.87 (22.2)	0.97 (24.6)	1.28 (32.5)	0.12 (3.1)	0.70 (17.9)	0.70 (17.9)	0.77 (19.5)
CA02COM-E18-**-P*	1-1/8-18UNEF-2A	0.75 (19.0)	0.16 (4.0)	1.35 (34.2)	1.00 (25.4)	1.06 (27.0)	1.38 (35.0)	0.12 (3.1)	0.67 (17.1)	0.67 (17.1)	0.74 (18.7)
CA02COM-E20-**-P*	1-1/4-18UNEF-2A	0.75 (19.0)	0.16 (4.0)	1.35 (34.2)	1.14 (29.0)	1.16 (29.4)	1.49 (38.0)	0.12 (3.1)	0.67 (17.1)	0.67 (17.1)	0.74 (18.7)
CA02COM-E22-**-P*	1-3/8-18UNEF-2A	0.75 (19.0)	0.16 (4.0)	1.35 (34.2)	1.27 (32.2)	1.25 (31.8)	1.61 (41.0)	0.12 (3.1)	0.67 (17.1)	0.67 (17.1)	0.74 (18.7)
CA02COM-E24-**-P*	1-1/2-18UNEF-2A	0.81 (20.6)	0.16 (4.0)	1.35 (34.2)	1.39 (35.3)	1.37 (34.9)	1.75 (44.5)	0.15 (3.7)	0.61 (15.5)	0.61 (15.5)	0.67 (17.1)
CA02COM-E28-**-P*	1-3/4-18UNEF-2A	0.81 (20.6)	0.16 (4.0)	1.35 (34.2)	1.62 (41.2)	1.56 (39.7)	2.00 (50.8)	0.15 (3.7)	0.61 (15.5)	0.61 (15.5)	0.67 (17.1)
CA02COM-E32-**-P*	2-18UNS-2A	0.87 (22.2)	0.16 (4.0)	1.35 (34.2)	1.87 (47.6)	1.75 (44.5)	2.24 (57.0)	0.17 (4.4)	0.55 (13.9)	0.55 (13.9)	0.61 (15.5)
CA02COM-E36-**-P*	2-1/4-16UN-2A	0.87 (22.2)	0.16 (4.0)	1.35 (34.2)	2.06 (52.4)	1.94 (49.2)	2.50 (63.5)	0.17 (4.4)	0.55 (13.9)	0.55 (13.9)	0.61 (15.5)

* For socket inserts substitute "S" for "P"

** Add contact arrangement number (see pages A-135 and A-136)

Straight Plug, Class PG/ME



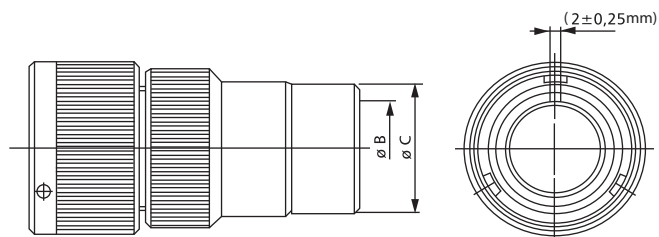
A

Circular

CA06COM-PG/ME-B

with bayonet coupling

CA06COM-PG/ME-B is a straight plug for usage of PG and metric terminations. It mates with receptacles **CA00COM-B**, **CA01COM-B** and **CA02COM-E-B**.



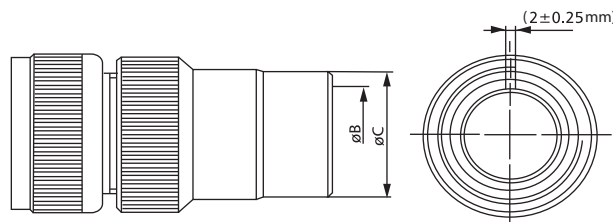
Part No. Pin Insert*	B PG Thread	C max.	B Metric thread dim.	C max. metric
CA06COM-XX-10SL-**-P*-B	PG9	0.71 (18)	M16x1,5	0.85 (21.5)
CA06COM-XX-12S-**-P*-B	PG9	0.75 (19)	M16x1,5	0.89 (22.5)
CA06COM-XX-14S-**-P*-B	PG11	0.87 (22)	M20x1,5	0.98 (25.0)
CA06COM-XX-16S-**-P*-B	PG13,5	0.94 (24)	M20x1,5	1.04 (26.5)
CA06COM-XX-16-**-P*-B	PG13,5	0.94 (24)	M20x1,5	1.04 (26.5)
CA06COM-XX-18-**-P*-B	PG13,5	0.98 (25)	M20x1,5	1.22 (31.0)
CA06COM-XX-20-**-P*-B	PG16	1.06 (27)	M25x1,5	1.34 (34.0)
CA06COM-XX-22-**-P*-B	PG16	1.06 (27)	M25x1,5	1.57 (40.0)
CA06COM-XX-24-**-P*-B	PG16	1.06 (27)	M32x1,5	1.57 (40.0)
CA06COM-XX-28-**-P*-B	PG21	1.26 (32)	M32x1,5	1.61 (41.0)
CA06COM-XX-32-**-P*-B	PG29	1.61 (41)	M40x1,5	1.91 (48.5)
CA06COM-XX-36-**-P*-B	PG29	1.61 (41)	upon request	upon request

For other dimensions see CA6COM-EB

CA06COM-PG/ME

with threaded coupling

CA06COM-PG/ME is a straight plug for usage of PG and metric terminations. It mates with receptacles **CA00COM**, **CA01COM** and **CA02COM-E**.



Part No. Pin Insert*	B PG Thread	C max.	B Metric thread dim.	C max. metric
CA06COM-XX-10SL-**-P*	PG9	0.71 (18)	M16x1,5	0.85 (21.5)
CA06COM-XX-12S-**-P*	PG9	0.75 (19)	M16x1,5	0.89 (22.5)
CA06COM-XX-14S-**-P*	PG11	0.87 (22)	M20x1,5	0.98 (25.0)
CA06COM-XX-16S-**-P*	PG13,5	0.94 (24)	M20x1,5	1.04 (26.5)
CA06COM-XX-16-**-P*	PG13,5	0.94 (24)	M20x1,5	1.04 (26.5)
CA06COM-XX-18-**-P*	PG13,5	0.98 (25)	M20x1,5	1.22 (31.0)
CA06COM-XX-20-**-P*	PG16	1.06 (27)	M25x1,5	1.34 (34.0)
CA06COM-XX-22-**-P*	PG16	1.06 (27)	M25x1,5	1.57 (40.0)
CA06COM-XX-24-**-P*	PG16	1.06 (27)	M32x1,5	1.57 (40.0)
CA06COM-XX-28-**-P*	PG21	1.26 (32)	M32x1,5	1.61 (41.0)
CA06COM-XX-32-**-P*	PG29	1.61 (41)	M40x1,5	1.91 (48.5)
CA06COM-XX-36-**-P*	PG29	1.61 (41)	upon request	upon request

* For socket inserts substitute "S" for "P"

** Add contact arrangement number (see pages A-135 and A-136)

XX: Please choose PG or ME

For other dimensions see CA6COM-E

Straight Plug, Class E



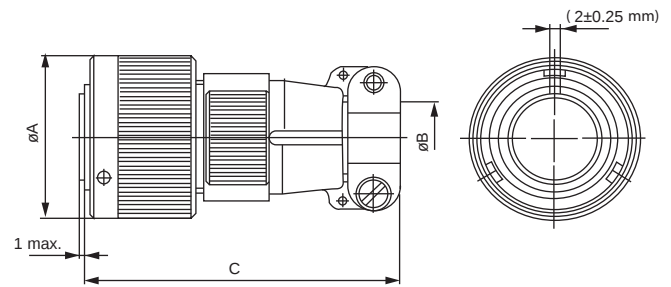
A

Circular

CA06COM-E-B

with bayonet coupling

CA06COM-E-B is a straight plug with endbell and cable clamp. It mates with receptacles **CA00COM-B**, **CA01COM-B** and **CA02COM-E-B**.

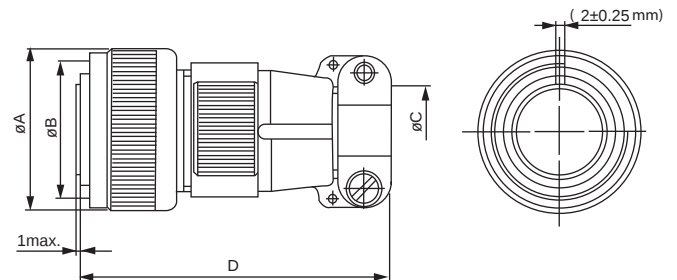


Part No. Pin Insert*	A max.	B ¹⁾	C max.
CA06COM-E10SL-**-P*-B	0.90 (22.8)	0.31 (7.9)	2.09 (53)
CA06COM-E12S-**-P*-B	1.02 (26.0)	0.31 (7.9)	2.09 (53)
CA06COM-E14S-**-P*-B	1.15 (29.2)	0.44 (11.1)	2.17 (55)
CA06COM-E16S-**-P*-B	1.26 (32.0)	0.56 (14.2)	2.20 (56)
CA06COM-E16-**-P*-B	1.26 (32.0)	0.56 (14.2)	2.60 (66)
CA06COM-E18-**-P*-B	1.44 (36.5)	0.62 (15.8)	2.68 (68)
CA06COM-E20-**-P*-B	1.57 (39.9)	0.75 (19.0)	2.68 (68)
CA06COM-E22-**-P*-B	1.70 (43.1)	0.75 (19.0)	2.68 (68)
CA06COM-E24-**-P*-B	1.83 (46.6)	0.93 (23.7)	2.99 (76)
CA06COM-E28-**-P*-B	2.10 (53.4)	0.93 (23.7)	2.99 (76)
CA06COM-E32-**-P*-B	2.37 (60.1)	1.25 (31.8)	2.99 (76)
CA06COM-E36-**-P*-B	2.61 (66.3)	1.36 (34.6)	2.99 (76)

CA06COM-E

with threaded coupling

CA06COM-E is a straight plug with endbell and cable clamp. It mates with receptacles **CA00COM**, **CA01COM** and **CA02COM-E**.



Part No. Pin Insert*	A max.	B Thread	C ¹⁾ max.	D max.
CA06COM-E10SL-**-P*	0.95 (24.1)	5/8-24UNEF-2B	0.31 (7.9)	2.09 (53)
CA06COM-E12S-**-P*	1.02 (25.8)	3/4-20UNEF-2B	0.31 (7.9)	2.09 (53)
CA06COM-E14S-**-P*	1.13 (28.8)	7/8-20UNEF-2B	0.44 (11.1)	2.17 (55)
CA06COM-E16S-**-P*	1.25 (31.8)	1-20UNEF-2B	0.56 (14.2)	2.20 (56)
CA06COM-E16-**-P*	1.25 (31.8)	1-20UNEF-2B	0.56 (14.2)	2.60 (66)
CA06COM-E18-**-P*	1.34 (34.1)	1-1/8-18UNEF-2B	0.62 (15.8)	2.68 (68)
CA06COM-E20-**-P*	1.47 (37.4)	1-1/4-18UNEF-2B	0.75 (19.0)	2.68 (68)
CA06COM-E22-**-P*	1.59 (40.5)	1-3/8-18UNEF-2B	0.75 (19.0)	2.68 (68)
CA06COM-E24-**-P*	1.72 (43.8)	1-1/2-18UNEF-2B	0.93 (23.7)	2.99 (76)
CA06COM-E28-**-P*	1.98 (50.2)	1-3/4-18UNS-2B	0.93 (23.7)	2.99 (76)
CA06COM-E32-**-P*	2.22 (56.4)	2-18UNS-2B	1.25 (31.8)	2.99 (76)
CA06COM-E36-**-P*	2.47 (62.8)	2-1/4-16UN-2B	1.36 (34.6)	2.99 (76)

* For socket inserts substitute "S" for "P"

** Add contact arrangement number (see pages A-135 and A-136)

¹ Max Cable Diameter

90° Plug, Class PG



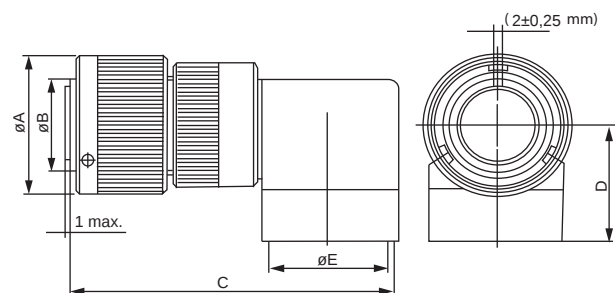
A

Circular

CA08COM-PG-B

with bayonet coupling

CA08COM-PG-B designates a 90° plug for usage of PG terminations. It mates with receptacles **CA01COM-B** and **CA02COM-B**.



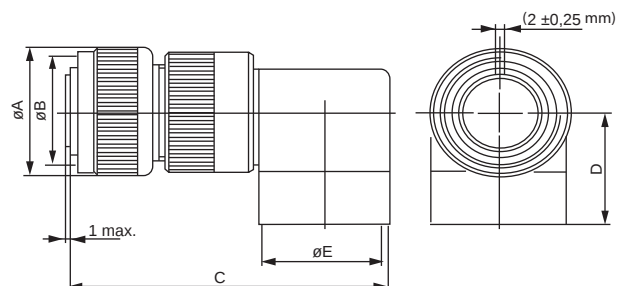
Part No. Pin Insert*	A max.	B -0,3	C max	D	E
CA08COM-E10SL-**-P*-B	0.90 (22.8)	0.44 (11.3)	2.24 (57)	0.73 (18.5)	PG9
CA08COM-E12S-**-P*-B	1.02 (26.0)	0.55 (14.0)	2.24 (57)	0.73 (18.5)	PG9
CA08COM-E14S-**-P*-B	1.15 (29.2)	0.67 (17.1)	2.32 (59)	0.77 (19.5)	PG11
CA08COM-E16S-**-P*-B	1.26 (32.0)	0.80 (20.4)	2.48 (63)	0.87 (22.0)	PG13,5
CA08COM-E16-**-P*-B	1.26 (32.0)	0.80 (20.4)	2.83 (72)	0.87 (22.0)	PG13,5
CA08COM-E18-**-P*-B	1.44 (36.5)	0.93 (23.6)	3.03 (77)	1.04 (26.3)	PG16
CA08COM-E20-**-P*-B	1.57 (39.9)	1.05 (26.7)	3.23 (82)	1.14 (29.0)	PG21
CA08COM-E22-**-P*-B	1.70 (43.1)	1.17 (29.8)	3.23 (82)	1.16 (29.5)	PG21

Metric thread option not available.

CA08COM-PG

with threaded coupling

CA08COM-PG designates a 90° plug for usage of PG terminations. It mates with receptacles **CA01COM** and **CA02COM**.



Part No. Pin Insert*	A max.	B Thread	C max.	D	E
CA08COM-E10SL-**-P*	0.95 (24.1)	5/8-24UNEF-2B	2.24 (57)	0.73 (18.5)	PG9
CA08COM-E12S-**-P*	1.02 (25.8)	3/4-20UNEF-2B	2.24 (57)	0.73 (18.5)	PG9
CA08COM-E14S-**-P*	1.13 (28.8)	7/8-20UNEF-2B	2.32 (59)	0.77 (19.5)	PG11
CA08COM-E16S-**-P*	1.25 (31.8)	1-20UNEF-2B	2.48 (63)	0.87 (22.0)	PG13,5
CA08COM-E16-**-P*	1.25 (31.8)	1-20UNEF-2B	2.83 (72)	0.87 (22.0)	PG13,5
CA08COM-E18-**-P*	1.34 (34.1)	1-1/8-20UNEF-2B	3.03 (77)	1.04 (26.3)	PG16
CA08COM-E20-**-P*	1.47 (37.4)	1-1/4-20UNEF-2B	3.23 (82)	1.14 (29.0)	PG21
CA08COM-E22-**-P*	1.59 (40.5)	1-3/8-20UNEF-2B	3.23 (82)	1.16 (29.5)	PG21

* For socket inserts substitute "S" for "P"

** Add contact arrangement number (see pages A-135 and A-136)

Metric thread option not available.

Accessories

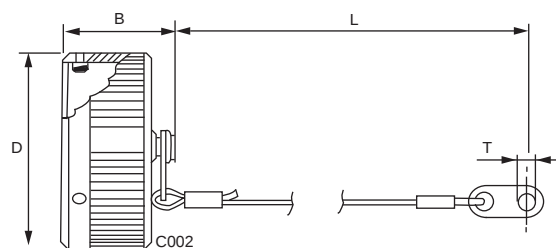


A

Circular

Protective caps

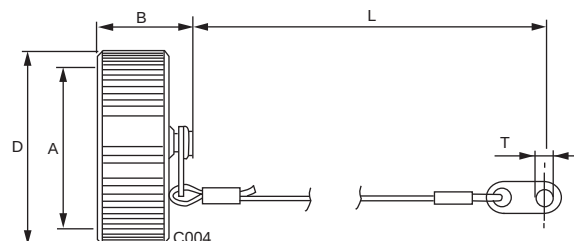
for receptacles with bayonet coupling

CA00COM-B, CA02COM-E-B and**CA20COM-E-B**

Part No.	Shell size	B ±0,3	D max	L ±0,25	T +0,25
CA121003-1701	10 SL	(19.5)	(22.4)	(107)	(4.3)
CA121003-1702	12S	(19.5)	(25.6)	(107)	(4.3)
CA121003-1703	14S	(19.5)	(28.8)	(107)	(4.3)
CA121003-1704	16S	(19.5)	(31.6)	(107)	(4.3)
CA121003-1705	16	(24.5)	(31.6)	(120)	(4.3)
CA121003-1706	18	(24.5)	(35.7)	(120)	(4.3)
CA121003-1707	20	(24.5)	(39.1)	(134)	(4.3)
CA121003-1708	22	(24.5)	(42.3)	(134)	(4.3)
CA121003-1709	24	(24.5)	(45.8)	(134)	(4.3)
CA121003-1710	28	(24.5)	(51.6)	(176)	(5.5)
CA121003-1711	32	(24.5)	(58.3)	(176)	(5.5)
CA121003-1712	36	(24.5)	(64.5)	(176)	(5.5)

Protective caps

for receptacles with threaded coupling

CA00COM, CA02COM-E and**CA20COM**

Part No.	Shell size	A Thread	B max	D max.	L max.	T +0,2
CA121003-1601	10 SL	5/8-24UNEF-2B	0.63 (16,0)	0.80 (20.2)	4.49 (114)	0.14 (3.6)
CA121003-1602	12S	3/4-20UNEF-2B	0.63 (16,0)	0.92 (23,4)	5.00 (127)	0.14 (3.6)
CA121003-1603	14S	7/8-20UNEF-2B	0.63 (16,0)	1.05 (26.6)	5.00 (127)	0.14 (3.6)
CA121003-1604	16S, 16	1-20UNEF-2B	0.63 (16,0)	1.17 (29.8)	5.00 (127)	0.14 (3.6)
CA121003-1606	18	1-1/8-18UNEF-2B	0.63 (16,0)	1.30 (32.9)	5.00 (127)	0.14 (3.6)
CA121003-1607	20	1-1/4-18UNEF-2B	0.63 (16,0)	1.42 (36.1)	5.55 (141)	0.14 (3.6)
CA121003-1608	22	1-3/8-18UNEF-2B	0.63 (16,0)	1.55 (39.4)	5.55 (141)	0.14 (3.6)
CA121003-1609	24	1-1/2-18UNEF-2B	0.63 (16,0)	1.68 (42.6)	6.06 (154)	0.17 (4.4)
CA121003-1610	28	1-3/4-18UNEF-2B	0.71 (18,0)	1.93 (48.9)	8.83 (214)	0.17 (4.4)
CA121003-1611	32	2-18UNS-2B	0.71 (18,0)	2.18 (55.3)	8.83 (214)	0.19 (4.8)
CA121003-1612	36	2-1/4-16UN-2B	0.71 (18,0)	2.43 (61.6)	8.83 (214)	0.19 (4.8)

These connectors are used to transmit very high current at low voltage, as for example in the electrical equipment of military land and sea-borne vehicles and in industrial facilities. The connectors meet the mating dimensions, mechanical features and rear panel installation requirements of VG 95234. These CGE connectors are in accordance with VG 96929 spec and CVG95218.

These high power connectors feature one contact in a two-piece rigid insulator. The aluminum shell has a chrome finish over cadmium. The operating temperature ranges from -55°C to $+125^{\circ}\text{C}$ (-67°F to $+257^{\circ}\text{F}$). The contacts of copper or copper alloy with hard silver finish are designed for crimping* or termination to solid copper conductors with threaded bolts. The mechanical durability is a minimum of 500 mating cycles. The crimp contacts accept wires per DIN 46438 (25-240 sq. mm).

Contact retention is achieved by the two-piece insulator, which is fixed to the shell with a snap-in ring. This allows unlimited exchange of the crimp contacts. The bayonet coupling assures fast coupling and uncoupling. Color-coded snap-in points indicate positive mating. Plugs and receptacles are waterproof in mated conditions up to 1 bar (35 feet of water).

* Of untraflexible shielded cables

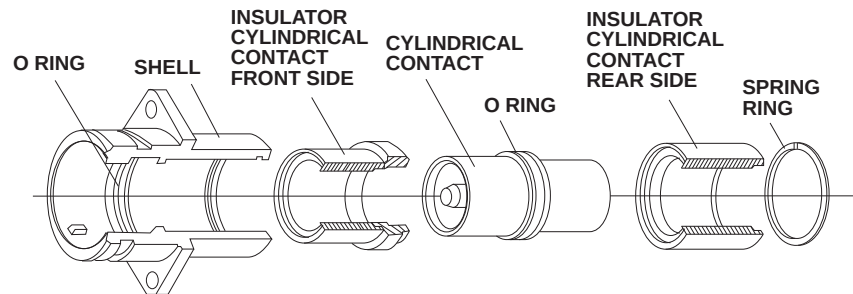


A

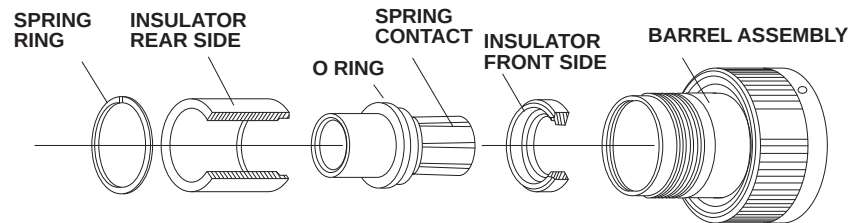
Circular

Connector Design

Receptacle CGE2...B-04



Plug CGE6...B-03





How to Order

	CGE	6	E	32	H	24	F	-	B	*
Series _____										
Cannon Designation										
Shell style _____										
0 - wall mounting receptacle with flange										
1 - cable connecting plug										
2 - box mounting receptacle with flange										
6 - straight plug										
8 - plug 90°										
9 - bulkhead										
Class _____										
E - environmental, JP67 acc to DIN 40050										
Shell size _____										
16 - 18 - 22 - 28 - 32										
Contact arrangement _____										
16H2 - shell size 16, 1 contact H2										
18H5 - shell size 18, 1 contact H5										
22H9 - shell size 22, 1 contact H9										
28H15 - shell size 28, 1 contact H15										
32H24 - shell size 32, 1 contact H24										
Contact size _____										
H2 - 25 mm ²										
H5 - 50 mm ²										
H9 - 95 mm ²										
H15 - 150 mm ²										
H24 - 240 mm ²										
Contact type _____										
F - spring contact										
X - CYL - Spring cont. (CGE9)										
Z - cylindrical contact										
Keyway polarization										
Standard - 180°										
W - 120°										
Bayonet coupling										
B - Bayonet Coupling										
Modification										
05 - through-holes in flange										
03 - adapter for heat-shrink boots										
04 - rear panel mounting, threaded holes										
05 - same as -04, however, with through-holes										
14 - shielded version										
16 - thread bolt termination, front panel mounting, O ring for sealing between wall and receptacle (for CGE2EB only)										

How to Order



Circular

	VG96929	F	28	F	N
Series					
Basic Part Number					
Connector Style					
A1 -Wall mounting receptacle; rear mounting flange with through holes					
A2 -Wall mounting receptacle ; rear mounting flange with threaded contact terminal					
B1 - Wall mounting bulkhead receptacle					
C - Wall mounting receptacle; rear mounting square flange with heat shrink boot adaptor					
E - Plug with 90; shielded with heat shrink boot adaptor					
F - Straight plug with heat shrink book adaptor					
G - Straight plug; shielded with heat shrink book adaptor					
Connector Size					
16					
18					
22					
28					
32					
Contact Number					
F - Socket					
Z - Pin					
Keyway Position					
N - 180°					
W - 120°					

Note: For detailed contact info please see page B-3





A

Circular

Performance and Material Specifications

Mechanical Data

Admissible ambient temperature	-55° C to +125° C
Class	JP 67 according to DIN 40050 Test pressure: 1 bar over pressure Test duration: 16 hours
Vibration	200 m/s ² for 16 to 2000 Hz
Mechanical Durability	500 mating cycles

Electrical Data

Contact Rating

Shell Size	16	18	22	28	32
Contact Size	H2	H5	H9	H15	H24
Max Current rating (amps at 125° C ambient temperature)	250	300	500	650	1000
Max short-time load approximate 0,5 - 1 sec. (amps)	750	1000	2000	3000	5000

Air and Creepage Paths

Air path	.118 (3.00) min.
Creepage path	.197 (5.00) min.

Contact Resistance

Contact Size	H2	H5	H9	H15	H24
Contact Resistance (mOhm max)	0,6	0,3	0,15	0,1	0,07

Insulator Resistance

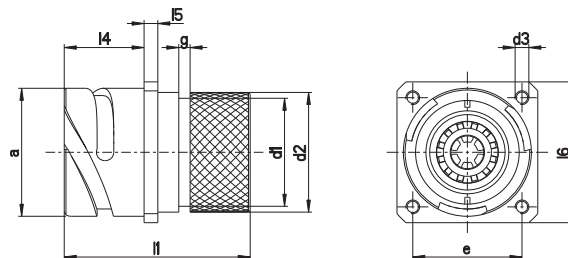
min 5000 MOhm

Materials and Finishes

Shell	Aluminum Alloy
Finish	Olive Chromate over cadmium
Insulator	PTFE
Contact	Copper and copper alloy
Finish	Hard Silver
O-Rings	Viton

CGE0E – B-03

Acc. to VG 96929B1

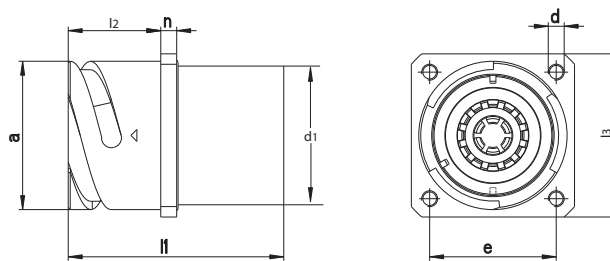
Threaded holes in flange,
adapter for heat shrink boot

Shell size	a	d ₁	d ₂	d ₃	e	g	l ₁	l ₄	l ₅	l ₆
	-0,15	±0,15	±0,3		±0,1	±0,1	±0,3	±0,3	±0,15	±0,3
16	27,4	20,3	22,7	M4	24,6	3,5	41,0	20,0	3,2	32,5
18	30,8	25,8	28,4	M4	27,0	3,5	50,0	23,05	4,0	35,0
22	37,4	33,0	35,3	M4	31,8	3,5	55,0	23,05	4,0	41,0
28	46,6	41,3	44,8	M5	39,7	3,5	65,3	24,05	4,0	50,8
32	53,4	46,1	49,6	M5	44,5	3,5	29,0	4,0	57,0	

CGE2E – B-04 / CGE2E – B-04 / -05

Box Mounting Receptacle

Acc. to VG 96929A1

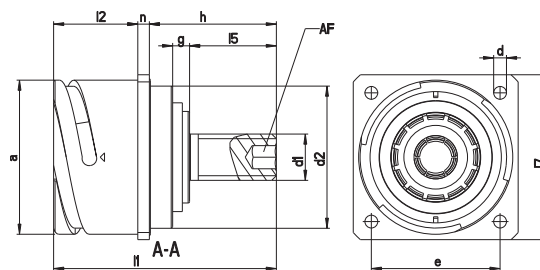
Box mounting receptacle,
rear panel mounting,
-04 - Threaded holes in flange,
-05- Through holes in flange

Shell size	a	d ₁	d		e	l ₁	l ₂	l ₃	n
	-0,15	±0,15	Mod 04	Mod 05	±0,1	±0,3	±0,2	±0,3	±0,1
16	27,4	22,1	M4	4,3	24,6	41,0	20,0	32,5	3,2
18	30,8	27,0	M4	4,3	27,0	50,0	23,15	35,0	4,0
22	37,4	34,9	M4	4,3	31,8	54,0	23,15	41,0	4,0
28	46,6	44,4	M5	4,3	39,7	65,3	24,15	50,8	4,0
32	53,4	49,2	M5	5,3	44,5	66,8	29,0	57,0	4,0

CGE2E – B-16

Box Mounting Receptacle

Acc. to VG 96929A2

Front panel mounting,
Through holes in flange,
threaded bolt termination for
solid copper rail

Shell size	a	d ₁	d ₂	d	e	g	h	l ₁	l ₂	l ₅	l ₇	n	AF
	-0,15		-0,15	+0,2	±0,1	±0,3		max	±0,3	±0,5	±0,3	±0,15	
18	30,8	M8	26,9	4,3	27,0	4,0	27,5	55,0	23,15	15,0	35,0	4,0	3
22	37,4	M12	33,2	4,3	31,8	4,4	38,0	66,0	23,25	25,3	41,0	4,0	6
28	46,6	M12	42,8	4,3	39,7	4,0	32,0	62,0	24,15	20,0	50,8	4,0	6
32	53,4	M16	49,2	4,3	44,5	6,0	44,5	78,0	29,0	22,0	57,0	4,0	8



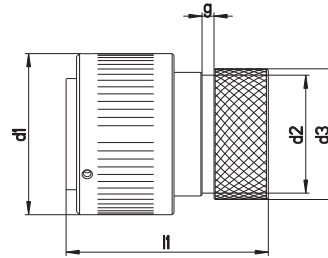
A

Circular

CGE6E – B-03

Straight PlugAcc. to **VG 96929G**

Adapter for heat shrink boots

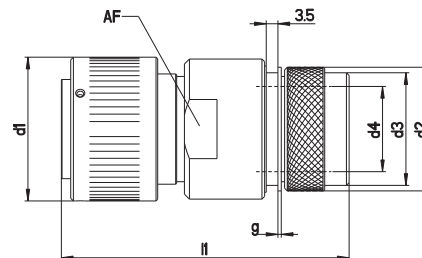


Shell size	d1 max	d2 -0,1	d3 max	g	l1 max
16	32,2	20,2	22,7	3,5	44,0
18	36,5	25,8	28,4	3,5	53,0
22	43,1	31,5	35,3	3,5	57,0
28	53,5	41,3	44,8	3,5	65,0
32	60,1	46,1	49,6	3,5	65,0

CGE6E – B-14

Straight PlugAcc. to **VG 96929F**360° HG shielding by
grounding fingers,

Shielded endbell for heat shrink boots



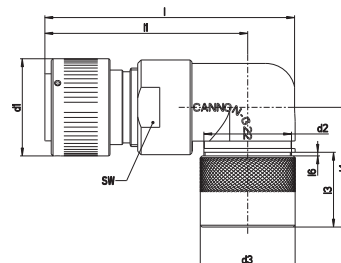
Shell size	d1 max	d2 ±0,15	d3 max	d4 ±0,1	g ±0,1	l1 max	AF
16	32,0	24,0	26,0	15,5	1,0	70,0	26
18	36,5	28,7	32,0	20,0	1,0	76,0	32
22	43,1	34,1	37,0	25,5	1,0	86,0	38
28	53,5	40,7	44,0	32,0	1,0	98,0	50
32	60,1	47,3	51,6	38,0	2,0	98,0	54

CGE8E – B-03 / CGE8E – B-14

90° Plug Acc to **VG 96929 E**With grounding fingers,
shielded 90° adapter,
for heat shrink boots

-14 - same as VG96929 E

-03 - Adapter for heat shrink boots



Shell size	d1 max	d2 max	d3 max	l1 ±1,0	l3 max	l4 max	l6 ±0,2	l max	AF
22	43,1	39,0	42,5	81,0	41,5	57	2,9	101,0	38
28	53,0	43,7	48,0	79,0	41,5	58	3,2	102,0	50
32	60,1	48,6	52,5	84,0	41,5	65	3,2	112,0	52

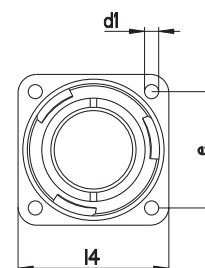
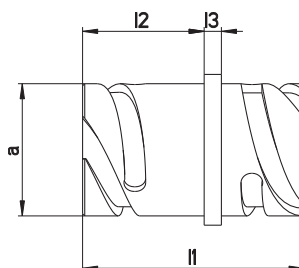
CGE9E – X-B-04

Bulkhead

acc to VG 96929C1, C2

C1- threaded holes in flange

C2 - with through holes in flange



Shell size	a	d ₁	d ₁	e	l ₁	l ₂	l ₃	l ₄
	-0,15	c2	c1	±0,1	max	±0,3	±0,1	±0,3
22	37,4	4,3	M4	31,8	52,1	24,0	4,0	41,0
28	46,6	5,3	M5	39,7	52,1	23,6	4,0	50,8
32	53,4	5,3	M5	44,5	60,5	25,2	4,0	57,0

Accessories

Metal Dust caps for CGE plugs and receptacles

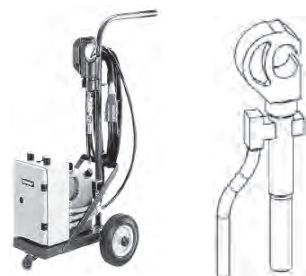
Please see page 1147 in the CA-Bayonet section

Dust caps of CA-B can be utilized for CGE in accordance iwth the relevant size

Sealing Gaskets

Shell Size	Order Reference Neoprene	Order reference shielded
16	075-8504-000	075-8504-001
18	075-8505-000	075-8505-001
22	075-8507-000	075-8507-001
28	075-8509-000	075-8509-001
32	075-8510-000	075-8510-001

Contact Crimp Tools



Crimp Tool	Designation	Order No.
Hydraulic, hand operated:	HK120	CT121586-5077
Electro-hydraulic, 230 V AC operated	HK12-EL	CT121586-5075

Crimp dies	Designation	Order Number
H2	CCT-HEX-K-CGE-25mm ²	121586-5243
H5	CCT-HEX-K-CGE-50mm ²	121586-5245
H9	CCT-HEX-K-CGE-95mm ²	121586-5246
H15	CCT-HEX-K-CGE-150mm ²	121586-5247
H24	CCT-HEX-K-CGE-240m ²	121586-5248

