

## Interconnect Solutions Cannon, VEAM, BIW

# Providing over 20 years

of shipboard navigational guidance and safety

## without a single failure

Photo courtesy of DOD



Engineered for life

### **Glass Sealed Hermetic Connectors**

Users around the world have found that ITT Cannon hermetic connectors function reliably under extreme environmental conditions. Hermetic connectors are impervious to most liquids and gases, including acids, alkalis, oils, gasoline, jet fuel and hydraulic fluids. They can take shock loads as high as 100 g's with no loss in hermeticity, and can take extremes of both heat and cold with no loss of performance.

### **Manufacturing Expertise**

Cannon compression glass seals are strong. A 50,000 psi compression stress generates a sealing force that can withstand up to 10,000 psi differential pressure (pressure varies with connector type). Since it is independent of adhesion, the seal has a temperature capability of -260° to +450° Fahrenheit. The seal has high radiation resistance and a leak rate of less than  $10^{-8}$  cc per second.

All ITT Cannon hermetic connectors are 100% tested after fabrication. A stringent examination ensures that all military specifications are met. The product is tested for leak performance, dielectric withstanding voltage and insulation resistance.



(35% of short time stress max)
 Failure due to shear
 (35% of short time stress max)





### **Compression Glass Seals**

Glass is an ideal electrical insulating material for connectors. Its mechanical strength readily supports contacts. The compression seal is achieved by placing a glass preform within the surrounding metal shell, heating the glass and shell to the glass melting temperature, and then cooling the assembly. As the assembly cools, the glass becomes rigid and the metal shell begins to compress the glass. This compression provides a very high strength, high reliability hermetic seal.

### **Custom Design Capabilities**

Custom hermetic connectors can be manufactured to meet special requirements. Hermetic connectors have been developed to withstand exposure to propellants, high pressure and high temperature conditions for missiles, "sub-safe" connectors for penetration feedthru on ships and submarines, connectors for aircraft engines and many more.

This catalog provides a sample of the standard hermetic connectors available from Cannon. If you don't immediately find the connector that is right for your application, we encourage you to call an ITT Cannon technical sales representative in your area or complete and mail the business reply card at the back of this catalog.



## Table of Contents

Miniature Circular KPTH / PVAH . . . . . . . Page J-7 to J-12

Subminiature Circular KJLY / KJY / KJAY. . . . . . . Page J-7 to J-12

Lightweight Sealed	Circular
KJAYAS	Page J- 28 to J-29

Standard Circular	
GS	. Page J-30 to J-38

Thru-Bulkhead Circular BFH / TBFH ..... Page J-39 to J-42

Microminiature D MDMH ..... Page J-43 to J-44

D Subminiature D D\*H..... Page J-45 to J-48



- High contact density
- 100% scoop proof Series I and III
- Lightweight Low Profile Series II
- Environment-resistant
- Operating temperature range from -85°F to +392°F (-65°C to +200°C)

ITT Cannon's KJLY, KJY and KJAY connectors are hermetically sealed and designed to meet the critical performance and design requirements of MIL-C-38999. Engineered for high density circuitry capabilities, these connectors are designed to operate at temperatures ranging from -85°F to +392°F (-65°C to +200°C).

They are readily adaptable to both commercial and space age requirements where size, weight, scoop proof/low-profile design and high reliability are key factors. The KJLY and KJAY are designed with a "scoopproof" feature which provides a safety factor in blind mating applications. The shells also feature five keyway shell polarization to assure alignment during engagement. Complete environment sealing is accomplished with an interfacial seal, with individual raised tapered sealing barriers around each pin contact, a peripheral seal, and hermetic sealing.

ITT Cannon's MIL-C-38999 KJLY, KJY and KJAY connector series offers these advanced features to meet the demands of present-day sophisticated engineering designs.

### Standard Data

#### MATERIALS AND FINISHES

Shell	As noted in "How to Order" sections
nsulator	Compression Glass
Contacts	Nickel / Iron Alloy, Gold Plate
Seals	Silicone base elastomer
lam Nut	As noted in "How to Order" sections

#### MATERIALS AND FINISHES

### Contact Size 22D, 20, 16, and 12

### Contact Rating and Wire Size Accommodation

W	Wire Contact Size and Test amps								
Si	ze 22[	D *22M	*22	20	16	12			
2	.8 1.5	i 1.5	_	_	_	_			
2	6 2.0	2.0	2.0	_	_	_			
2	4 3.0	) 3.0	3.0	3.0	_	_			
2	2 5.0	) —	5.0	5.0	_	_			
2	0 —	· <u> </u>	_	7.5	7.5	_			
1	8 —	· _	—	—	10.0	—			
1	6 —	· _	—	—	13.0	—			
1	4 —	· _	—	_	_	7.0			
1	2 —	· _	—	_	_	23.0			

\*Inactive for new design

### Service Rating (unmated condition)

Test Voltages	Service Rating M	Service Rating I	Service Rating II	
Sea Level	1300	1800	2300	
110,000 ft.	200	200	200	

### MECHANICAL

THE CHIN HITCH LE		
	KJLY / KJAY	КЈҮ
Shell Styles	2 — Box mounting receptacle 1 — Solder mount receptacle 7 — Jam nut receptacle	0 – Wall mounting receptacle 1 – Solder mount receptacle 7 – Jam nut receptacle
Shell Sizes	9, 11, 13, 15, 17, 19, 21, 23, 25	8, 10, 12, 14, 16, 18, 20, 22, 24
Coupling	3 point bayonet, quick release/triple start Acme	3 point bayonet, quick release
Shell polarization	5 keyways	5 keyways
Design	Scoop-proof	Low-profile









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

## MIL-C-38999 Series I, II, III Miniature Circular KJLY / KJY / KJAY

					Test Dat	a					
TEST DESCRIPTION	PARAGRAPH REFERENCE	REQUIREMENTS									
Thermal Shock	4.7.3	Unmated receptacle	es shall be su	bjected to 1	10 cycles of th	ermal shoc	k per Step 1 ar	nd Step 2 of	MIL-C-38999.		
Air Leakage	4.7.5	The connector shall able means to deter shall be employed v	be mounted rmine the lea while the spe	in a suitab kage throug cified press	le test appara gh the connec ure is applied	tus. A pres tor of air or . There shal	sure differentia other pressuria II be no eviden	ll of 1 atmos zing gas, coi ce of leakag	sphere shall be a ntaining not less le in excess of 0.	applied ac s than 10 p .01 micror	ross the connector. A suit- percent helium by volume, n ft <sup>3</sup> /h ( x 10 <sup>-7</sup> cm <sup>3</sup> /s).
Coupling Torque	4.7.6	For qualification tes uncoupling shall be pling torque for ma	ting, mating measured ar ting and unm	halves shal nd recorded nating of co	l be coupled a l. For quality co unterpart con	and uncoup onformance nectors sha	oled; the forces e, suitable gage Il meet the req	or torques v es may be us uirements o	which must be a sed instead of th f Table III, parag	applied to e appropri Iraph 4.7.6	facilitate full coupling and ate counterparts. The cou- 5 MIL-C-38999.
Insulation Resistance	4.7.9.2	Insulation Resistar shall be mated whe tact and the shell sh tion resistance after	<b>Insulation Resistance at ambient temperature</b> — Unmated connectors shall be tested as specified in method 3003 of MIL-STD-1344. Connectors shall be mated when testing after altitude immersion and humidity. The insulation resistance between any pair of contacts and between any contact and the shell shall be greater than 5,000 megohms. Insulation resistance after altitude immersion shall be 10,000 megohms minimum. Insulation resistance after humidity shall be 100 megohms minimum.								
	4.7.9.2	Insulation Resistance at elevated temperature — Unmated connectors shall be tested as specified in method 3003 of MIL-STD-1344. Applica elevated temperature for 30 minutes:							MIL-STD-1344. Applicable		
		Finish D, $150^{\circ} + 5/$	-0°C; E; 200	° +5/ -0°C							
		Measurements shal pair of contacts and	l be made w I between an	hile the con y contact a	nectors are st nd the shell sh	ill in the channel in the greater in the second s In the second s	amber at the sp ter than 200 m	pecified tem negohms.	perature. The in	sulation re	esistance between any
Dielectric Withstanding voltage	4.7.6	Dielectric withstan Connectors shall be The test voltage sha	ding voltage mated wher all be maintai	e at sea lev testing aft ned at the	rel — Wired, er altitude imr specified valu	unmated co mersion and e for 2 secc	onnectors shall d humidity. The onds minimum.	be tested in magnitude	accordance wit of the test volta	th Method Ige shall b	3001 of MIL-STD-1344. e as specified in Table XIV.
				TABLE	XIV — TEST	VOLTAGES,	, ac RMS, 60 H	lz			-
		Altitude	Serv Mated	ice Rating/ Unr	M mated	Service Mated	Rating I Unmated	Ser Mate	rvice Rating II d            Unmat	ted	
		Sea Level	1300	1	300	1800	1800	2300	) 2300	)	-
		50,000 feet	800		550	1000	600	1000	) 800	)	
		70,000 feet 100,000 feet	800 800		350 200	1000	400 200	1000	) 500	)	
	4.7.10.2	Dielectric withstanding voltage at altitude — Mated connectors and unmated connector halves with pin contacts shall be tested in accordar with method 3001 of MIL-STD-1344. The magnitude of the test voltage shall be as specified in Table XIV. The test voltage shall be maintained the specified value for 2 seconds minimum. Only the engaging faces of hermetics shall be subject to the high altitude. The rear face shall be suita protected. The chamber shall be evacuated to each of the specified altitude pressure equivalents listed below.							II be tested in accordance age shall be maintained at rear face shall be suitably		
			A	ltitude		Ec	quivalent Press	sure			
			50 70	,000 feet			87.5 torr				
			100	,000 feet			5.74 torr				
		When tested as spe	cified in 4.7.	10.1 or 4.7	.10.2 connect	ors shall sh	now no evidend	ce of flashov	ver or breakdow	n.	
Contact Resistance	4.7.13	Contacts of mated contact resistance re	connectors sł equirements	nall be teste of Table IV,	ed in accordar paragraph 4.3	nce with me 7.13 MIL-C-	ethod 3004 of -38999. Lead r	MIL-STD-13 esistance ma	344. Contacts in ay be included i	the mated n the mea	d condition shall meet the surement.
				T/	ABLE IV — C	ontact re	ESISTANCE				_
						M	illivolt	Maximum	Resistance		
						arop i	maximum After	in mil	llionms After		
							corrosion		corrosion		
		Class	Contact	Wire	Test	Initial	or temp	Initial	or temp		
			12	12	17	85	100	5	6		-
		Y	16	16	10	85	100	8	10		
		a N	20 220	20 22	5	60 85	75 95	12 28	15 32		
Vibration	4.7.22	For qualification only, wired and mated connectors shall be subjected to the applicable test(s) specified. Connectors shall be mounted on the vibra- tion table by normal means. All contacts shall be wired in a series circuit with 100 milliamperes maximum current flow through the series circuit dur- ing vibration. Connectors shall be continuously monitored for all discontinuities. A detector capable of detecting any discontinuities in excess of 1 microsecond shall be used.									
Shock	4.7.23	Wired and mated c by normal coupling ing shock. Connector	onnectors sh means. All co ors shall be m	all be subje ontacts sha onitored fo	ected to the ap Il be wired in r any discontin	oplicable tes a series circ nuities. A de	st specified. Co uit with 100 m etector capable	nnectors sha illiamperes r of detecting	all be mounted maximum currer g any discontinu	by normal nt flow thre ities in exc	means and held together ough the series circuit dur- tess of 1 microsecond shall





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



🔶 ІТТ

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

### **Polarizing Positions**



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.



Series II							
C III			Angle of Rot	ation (Degrees)			
0	Shell						
	Size	Normal	А	В	D	D	
N B	8	100°	82°			118°	
	10	100°	86°	72°	128°	114°	
Luit 3	12	100°	80°	68°	132°	120°	
10"	14	100°	79°	66°	134°	121°	
AL.	16	100°	82°	70°	130°	118°	
Front face of receptacle (plug opposite). Insert	18	100°	82°	70°	130°	118°	
arrangement does not rotate with main	20	100°	82°	70°	130°	118°	
key/keyway. The master key is rotated to provide	22	100°	85°	74°	126°	115°	
shell polarization; the minor keys remain fixed.	24	100°	85°	74°	126°	115°	

		Kev &		Key Loc	ations	
		Keyway	AR°	BR°	CR°	DR°
		Arrangement	or	or	or	or
Corries III	Shell	Identification	AP°	BP°	CP°	DP°
Series III	Size	Letter	BSC	BSC	BSC	BSC
		N	105	140	215	265
MAIN		Α	102	132	248	320
RECEPTACLE	0	В	80	118	230	312
(front face shown)	5	С	35	140	205	275
114.7-		D	64	155	234	304
BR" BSC		E	91	131	197	240
DR'		Ν	95	141	208	236
CR. A COL	11	Α	113	156	182	292
BSC	13	В	90	145	195	252
	and	С	53	156	220	255
PILIG	15	D	119	146	176	298
(front face shown)		E	51	141	184	242
(ITOIR TACE SHOWIN) MAIN		N	80	142	196	293
KEY []]	17	A	135	170	200	310
AP'	17 and	В	49	169	200	244
(J.)	10	C	66	140	200	257
T X BP	19	D	62	145	180	280
DP*		E	79	153	197	272
BSC CP		N	80	142	196	293
BSC	21	Α	135	170	200	310
NOIES:	23	B	49	169	200	244
1. All angles are BSC	and	C	66	140	200	257
2. The insert arrangement does not rotate with	25	D	62	145	180	280
main key/keyway		E	79	153	197	272

- 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

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



J

**Hermetic Connectors** 

	How to Order	
ITT Cannon Nomenclature	SERIES PREFIX	KJ 7 Y 18 D 35 P N
SERIES PREFIX	CLASS — SHELL SIZE — SHELL/HARDWARE FINISH — CONTACT ARRANGEMENT — CONTACT STYLE — SHELL POSITION — SHELL PO	
SHELL STYLE 1 — Solder mounting 2 — Box mounting receptacle 7 — Jam nut receptacle CLASS	<ul> <li>SHELL / HARDWARE FINISH STANDARD</li> <li>D — Fused tin -85°F to +302°F (-65°C to +150°C). Jam Nut finish is cadmium/nickel.</li> <li>E — Stainless Steel -85°F to +392°F (-65°C to +200°C). Jam Nut finish is passivated.</li> </ul>	CONTACT ARRANGEMENT See pages J-15 to J-16. CONTACT TYPE P — Pin; all contacts are gold plated. ALTERNATE SHELL POSITION N (normal), A, B, C, D. See page J-17.
SHELL SIZE 8, 10, 12, 14, 16, 18, 20, 22 and 24		
ITT Cannon Nomenclature	MS NUMBER SHELL STYLE CLASS SHELL SIZE SHELL / HARDWARE FINISH CONTACT ARRANGEMENT CONTACT STYLE	MS27*** Y 18 D 35 P A
MS27477 – Jam Nut Receptacle MS27476 – Box Mounting Receptacle MS27478 – Solder Mounting CLASS Y — Hermetic SHELL SIZE 8, 10, 12, 14, 16, 18, 20, 22 and 24	ALTERNATE SHELL POSITION HARDWARE FINISH STANDARD D — Fused tin -85°F to +302°F (-65°C to +150°C). Jam Nut finish is cadmium/nickel. E — Stainless Steel -85°F to +392°F (-65°C to +200°C). Jam Nut finish is passivated.	CONTACT ARRANGEMENT See pages J-15 to J-16. CONTACT TYPE P — Pin; all contacts are gold plated. ALTERNATE SHELL POSITION A, B, C and D (not required for normal). See page J-17.



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

### Solder Mounting Receptacle

MS27478

KJ1Y





		Г	POLARIZIN
T	6	A	A
D	(({	}	))
+	16	J	/

Shell	D	F		F — Contae		G	Ν	
Size	Dia. Max.	Dia. Max.	#16	#20	#22D	#22M	Max.	Dia. Max.
8	.698 (17.73)	.563 (14.30)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.089 (2.26)	.474 (12.04)
10	.808 (20.52)	.673 (17.09)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.089 (2.26)	.591 (15.01)
12	.917 (23.29)	.782 (19.86)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.089 (2.26)	.751 (19.08)
14	1.042 (26.47)	.907 (23.04)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.089 (2.26)	.876 (22.25)
16	1.167 (29.64)	1.032 (26.21)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.089 (2.26)	1.001 (25.43)
18	1.292 (32.82)	1.157 (29.39)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.089 (2.26)	1.126 (28.60)
20	1.386 (35.20)	1.251 (31.78)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.089 (2.26)	1.251 (31.78)
22	1.511 (38.38)	1.376 (34.95)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.118 (3.00)	1.376 (34.95)
24	1.636 (41.55)	1.501 (38.13)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.375 (9.52)	.118 (3.00)	1.501 (38.13)

### **Box Mounting Receptacle**



KJ2Y





								V		
Shell	А	В		C — Conta	ct Extension		Ν	+ .005	Х	Х
Size	Dia. Max.	Max.	#16	#16	#16	#16	Dia. Max.	+ .010	Max.	Max.
8	.563 (14.30)	.057 (1.45)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.474 (12.04)	.125 (3.18)	.828 (21.03)	.594 (15.09)
10	.673 (17.09)	.057 (1.45)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.591 (15.01)	.125 (3.18)	.954 (24.23)	.719 (18.26)
12	.782 (19.86)	.057 (1.45)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.751 (19.08)	.125 (3.18)	1.047 (26.59)	.812 (20.62)
14	.907 (23.04)	.057 (1.45)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.876 (22.25)	.125 (3.18)	1.141 (28.98)	.906 (23.01)
16	1.032 (26.21)	.057 (1.45)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.344 (8.74)	1.001 (25.43)	.125 (3.18)	1.234 (31.24)	.969 (24.61)
18	1.157 (29.39)	.057 (1.45)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.344 (8.74)	1.126 (28.60)	.125 (3.18)	1.328 (33.73)	1.062 (26.97)
20	1.251 (31.78)	.057 (1.45)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.344 (8.74)	1.251 (31.78)	.125 (3.18)	1.453 (36.91)	1.156 (29.36)
22	1.376 (34.95)	.086 (2.18)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.344 (8.74)	1.376 (34.95)	.125 (3.18)	1.578 (40.08)	1.250 (31.75)
24	1.501 (38.13)	.086 (2.18)	.344 (8.74)	.344 (8.74)	.344 (8.74)	.344 (8.74)	1.501 (38.13)	.152 (3.86)	1.703 (43.66)	1.375 (34.92)

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

$\sim$	_		
$\sim$		Т	Т



									L — Contact Extension				
Shell	A	В	С	D	F	G	Н	J	#16	#20	#22D	#22M	Ν
Size	Dia. Max.	Max.	Max.	Max. Hex.	Dia. Min.	Max.	Max.	Thread	Max.	Max.	Max.	Max.	Dia. Max.
8	1.390 (35.31)	1.266 (32.16)	.818 (20.78)	1.079 (27.41)	.678 (17.22)	.145 (3.68)	.443 (11.25)	.875-20 UNEF-2A	.280 (7.11)	.280 (7.11)	.280 (7.11)	.280 (7.11)	.474 (12.04)
10	1.515 (38.48)	1.391 (35.33)	.942 (23.93)	1.205 (30.61)	.780 (19.81)	.145 (3.68)	.443 (11.25)	1.000-20 UNEF-2A	.280 (7.11)	.280 (7.11)	.280 (7.11)	.280 (7.11)	.591 (15.01)
12	1.640 (41.66)	1.516 (38.51)	1.066 (27.08)	1.329 (33.76)	.963 (24.46)	.145 (3.68)	.443 (11.25)	1.125-18 UNEF-2A	.280 (7.11)	.280 (7.11)	.280 (7.11)	.280 (7.11)	.751 (19.08)
14	1.765 (44.83)	1.641 (41.68)	1.191 (30.25)	1.455 (36.96)	1.088 (27.64)	.145 (3.68)	.443 (11.25)	1.250-18 UNEF-2A	.280 (7.11)	.280 (7.11)	.280 (7.11)	.280 (7.11)	.876 (22.25)
16	1.953 (49.61)	1.797 (45.64)	1.321 (33.55)	1.579 (40.11)	1.222 (31.04)	.145 (3.68)	.443 (11.25)	1.375-18 UNEF-2A	.280 (7.11)	.280 (7.11)	.280 (7.11)	.280 (7.11)	1.001 (25.43)
18	2.031 (51.59)	1.906 (48.41)	1.441 (36.60)	1.705 (43.31)	1.333 (33.86)	.145 (3.68)	.443 (11.25)	1.500-18 UNEF-2A	.280 (7.11)	.280 (7.11)	.280 (7.11)	.280 (7.11)	1.126 (28.60)
20	2.156 (54.76)	2.032 (51.61)	1.566 (39.78)	1.829 (46.46)	1.458 (37.03)	.171 (4.34)	.469 (11.91)	1.625-18 UNEF-2A	.250 (6.35)	.250 (6.35)	.250 (6.35)	.250 (6.35)	1.251 (31.78)
22	2.280 (57.91)	2.157 (54.79)	1.691 (42.95)	2.017 (51.23)	1.583 (40.21)	.171 (4.34)	.469 (11.91)	1.750-18 UNS -2A	.250 (6.35)	.250 (6.35)	.250 (6.35)	.250 (6.35)	1.376 (34.95)
24	2.405 (61.09)	2.281 (57.84)	1.816 (46.13)	2.142 (54.41)	1.708 (43.38)	.171 (4.34)	.469 (11.91)	1.875-18 UN -2A	.250 (6.35)	.250 (6.35)	.250 (6.35)	.250 (6.35)	1.501 (38.13)

### **Panel Cutouts**

Jam Nut Receptacles

Flange Mounted Receptacle (Front Mounted)

P ±.005 4 HOLES 4 4 (T,P) ф +.010 \* A





Solder Mount Receptacles (Front Mounted)

Shell	Α	Р	R	Mta	Shell	Δ		Shell	Δ
Size	Dia.	Dia.	Dia.	Screw	Size	Dia.	В	Size	Dia.
8	.565 (14.35)	.125 (3.18)	.594 (15.09)	#4	8	.885 (17.70)	.828 (21.03)	8	.568 (14.43)
10	.675 (17.14)	.125 (3.18)	.719 (18.26)	#4	10	1.010 (25.65)	.952 (24.18)	10	.678 (17.22)
12	.789 (20.04)	.125 (3.18)	.812 (20.62)	#4	12	1.135 (28.83)	1.076 (27.33)	12	.787 (19.99)
14	.909 (23.09)	.125 (3.18)	.906 (23.01)	#4	14	1.260 (32.00)	1.201 (30.51)	14	.912 (23.16)
16	1.034 (26.26)	.125 (3.18)	.969 (24.61)	#4	16	1.385 (35.18)	1.331 (33.81)	16	1.037 (26.34)
18	1.159 (29.44)	.125 (3.18)	1.062 (26.97)	#4	18	1.510 (38.35)	1.451 (36.86)	18	1.162 (29.51)
20	1.253 (31.83)	.125 (3.18)	1.156 (29.36)	#4	20	1.635 (41.53)	1.576 (40.03)	20	1.256 (31.90)
22	1.378 (35.00)	.125 (3.18)	1.250 (31.75)	#4	22	1.760 (44.70)	1.701 (43.21)	22	1.381 (35.08)
24	1.503 (36.68)	.152 (3.86)	1.375 (34.93)	#6	24	1.885 (47.88)	1.826 (46.38)	24	1.506 (38.25)

J-24



Dimensions shown in inches (mm)

J

## When off-the-shelf won't do... ... turn to ITT for custom-engineered interconnect solutions

### Unmatched design, development, experience - for nearly 90 years

Whether it's land, sea, air, or space – ITT experience and innovation helps provide customers with high-performance, high-reliability, high-quality interconnect solutions. Specializing in harsh environment and mission-critical applications, ITT custom products are specified on major Aerospace and Hydrospace programs including:

- Patriot missile
- Tomahawk missile
- Trident missile
- Trident submarine
- Sidewinder missile
- Harpoon missile
- CVN-78 aircraft carrier
- Mark 48 torpedo
- Vertical Launch System
- Delta Rocket systems
- Titan Launch Vehicle
- Apache Helicopter
- International Space Station
- Space Shuttle

## Aerospace

ITT is the worldwide leader in the development of special separation connector systems required by today's high performance missile and rocket vehicles:

- Custom umbilical interconnect systems and cabling for system launch applications
- Special connectors for rocket interstage separation
- Lanyard and ring lock connectors for pylon and weapons stores jettison
- Spring loaded connectors where blind mating is required
- Connectors designed to couple and uncouple in a Zero-G space environment.

## Hydrospace

For more than 40 years, ITT has been designing special bulkhead connector headers and interconnect systems for harsh undersea applications including:

- High pressure hull and missile tube penetrators
- Wet mateable connectors and custom headers for submarine sonar arrays
- Umbilical cable assemblies for torpedo tube-launched missiles systems
- Custom interface connectors for ship launch applications

## Your Space and Special interconnect needs are covered

When a mil-spec product just won't do, count on ITT to develop the right special-purpose connector or cable harness for your military or commercial, aerospace, and hydrospace applications. From special-release connectors found in missile and launch vehicles to special highpressure bulkhead connectors found in submarine- and ship-based systems, ITT will meet your special connector needs. From blind mating applications to special coupling requirements, our custom designs are backed by our comprehensive capability to test and certify to DOD and customer specifications.

### Special release connectors

The supplier of choice for major launch vehicles and weapons systems programs, ITT's family of special release connectors feature special umbilical and lanyard release functions that automatically disconnect at the time of system launch. Ideal for interstage separation, weapons

store, and pylon applications, these connectors can incorporate both pneumatic and electrical

lines in the same assembly.

### Special bulkhead and hull penetrating connectors

ITT's wide range of special ship and SUB-SAFE bulkhead connectors provide the critical electrical interface required to penetrate and carry signals through the hull or bulkhead of military ships or submarine vehicles. Our header assemblies utilize compression glass sealing to stainless steel shells. This innovative assembly provides a very strong and highly reliable hermetic seal that will operate at extreme temperatures and pressures up to 20,000 P.S.I.



ITT continues to be the first choice for the design and development of unique and customer specific applications. Our representatives will work with your engineering team to develop a set of solutions that meet your performance, schedule, and cost requirements. With rapid prototype

service from our comprehensive model shop, and DVT qualification testing from our complete in house PEL (Product Eval-

uation Lab), ITT will deliver your custom solution on time from concept to production.



### **RoHS and DFARS Compliant**

ITT remains committed to supporting our customers with full compliance to the DFARS directives relating to specialty metals. Further, ITT continues to develop RoHS compliant products that are lead-free. As appropriate, we will continue to offer leaded product for those applications requiring it. For more information on ITT's RoHS initiative, visit www.ittcannon.com/RoHS.

