

cannon

MKJ5 Series Connectors
Miniature Circular Catalog



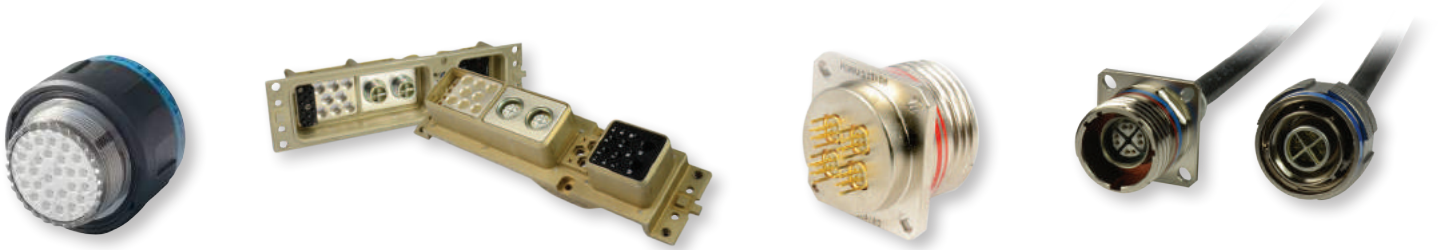
ITT

ENGINEERED FOR LIFE

Amazing things happen when great things connect

ITT's Interconnect Solutions' Cannon brand is a leading global manufacturer of connector products serving international customers in the aerospace and defense, medical, energy, transportation and industrial end markets. Whether delivering critical specs to aircraft pilots, streaming data through communications satellites or enabling ultrasound technology that gives an expectant mother the first glimpse of her unborn child, Cannon connects the world's most important information with the people who need it.

No one is more qualified to help meet mission-critical requirements and equip military personnel than ITT Cannon. With 100 years of interconnect excellence and seven decades of global presence in the Defense Industry, we are a committed partner among today's military equipment manufacturers. We continue to lead the market in interconnect solutions that support combat preparation and to meet the military's needs for adaptability, mobility and survivability. And we do so with one goal in mind: to get our soldiers back home safely.



A Century of Connections

In 2015, Cannon marked its 100th Anniversary of Innovation. Cannon products were used in the first "talking" movies and helped transmit the first messages back to earth when we landed on the moon. Today we proudly continue our legacy of innovating to connect the world and inspire the successes of the next century – because amazing things happen when great things connect.

Visit ittcannon.com to learn more.

About ITT

ITT is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for the energy, transportation and industrial markets. Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life. This work is made possible by the talent and innovation of committed ITT employees in more than 35 countries who create trusted products and brands such as Goulds Pumps, KONI shock absorbers, Cannon connectors and Enidine energy absorption devices. Founded in 1920, ITT is headquartered in White Plains, N.Y. and generated 2015 revenues of \$2.5 billion. For more information, visit itt.com

Our connector portfolio remains one of the most extensive in the industry, providing customers with a reliable and cost-effective range of interconnect solutions.

Visit ittcannon.com to learn more.



Medical Equipment



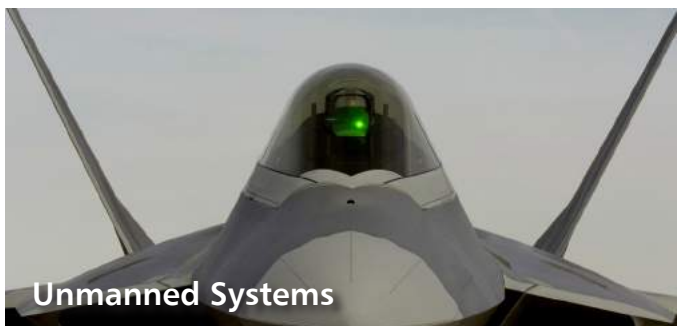
Marine Vessels



Rail



Soldier-Worn Systems



Unmanned Systems



Heavy Equipment



Commercial Aircraft



Oil & Gas

Table of Contents

MKJ Miniature Circular Connectors 5

Coupling Styles 6

Markets & Applications 7

We Connect Aerospace & Defense Industry with Mission Critical Data & Signal Transmission 8

Product Overview - MKJ5 Triple Start 9

MKJ5 Contact Arrangements & Layouts 10-11

MKJ5 Plug (Banded & Accessory Thread) 12-14

MKJ5 Receptacle In-Line, Box Mount/Square Flange, Jam Nut Rear Panel Mount 15-16

MKJ5 Receptacle In-Line (Banded & Accessory Thread) 17

MKJ5 Receptacle Box Mount/Square Flange (Banded & Accessory Thread) 18

MKJ5 Receptacle Jam Nut Rear Panel Mount (Banded & Accessory Thread). 19

**MKJ5 Receptacle Box Mount/Square Flange, Jam Nut Rear Panel Mount
(Potted, PCB & Solder Cup). 20-21**

MKJ5 Receptacle Box Mount/Square Flange (Potted, PCB & Solder Cup) 22

MKJ5 Receptacle Jam Nut Rear Panel Mount (Potted, PCB & Solder Cup) 23

MKJ5 Weight Charts 24

Cables to Outfit MKJ Connectors 25

About ITT Cannon 26

Product Safety Information 27

Meet Some of our Most Innovative Connectors 28

MKJ Series Connectors

71% weight and 52% size reduction in an industry-leading quick disconnect*

ITT Cannon continues its tradition of innovation with the MKJ line of miniature circular connectors. Bringing together a unique combination of design, functionality and flexibility, Cannon's MKJ Series offers proven, reliable and cost-effective interconnect solutions that enable critical communication, navigation and high speed data transmission—at half the size and weight of traditional ones. Choose from UNC thread, double start, triple start, bayonet and breakaway coupling methods in a cost-efficient, lightweight and highly engineered design.



MKJ0
UNC Thread



MKJ1
Double Start



MKJ3
Bayonet



MKJ4
Breakaway



MKJ5
Triple Start



Key Features

- 71% weight and 52% size reduction without the loss of reliability*
- Available in rear-release crimp, PC tail or solder cup contacts
- Shells and jam nuts available in aluminum alloy or corrosion resistant stainless steel
- Up to 2,000 mating cycles
- Environmentally sealed using fluorosilicone material for the front interfacial seal and rear wire sealing grommet
- RoHS Compliant

*When compared to the 38999 layouts with size 22 contacts

A Wide Range of Coupling Styles

The wide range of coupling options available for the MKJ Series allows compatible connectors to meet your demands even in the harshest environments.



Coupling	MKJ0 UNC Thread	MKJ1 Double Start	MKJ3 Bayonet	MKJ4 Breakaway	MKJ5 Triple Start
Markets & Segments	Defense, Aerospace, Medical, Industrial, Commercial				
Hardware	Aluminum/ Stainless Steel	Aluminum/ Stainless Steel	Aluminum/ Stainless Steel	Aluminum/ Stainless Steel	Aluminum/ Stainless Steel
EMI Shielding Effectiveness	40dB Attenuation, 100MHz to 1000MHz				
Mating Cycles	2000	2000	250 Aluminum 2000 Stainless Steel	2000	500
RoHS Compliant	Available				
Materials	Shells - Aluminum Alloy or Stainless Steel Insulators - Thermoplastic Seals - Fluorosilicone Contacts - Copper Alloy with gold over nickel plating				

Product Performance

MKJ Series Performance				
Contact Size	#23	#20HD	#16	#12
Spacing	.076"	.106"	.170"	.230"
Contact Type	Rear Crimp, Solder Cup, PCB Mount			
Current Rating	5 Amps	7.5 Amps	13 Amps	23 Amps
Wire Accommodation	#22 - #28 AWG	#20 - #24 AWG	#16 - #20 AWG	#12 - #14 AWG
DVV Voltage (VAC)	750 VAC	1000 VAC	1800 VAC	1800 VAC
Insulation Resistance	5000 Megaohms RMS Sea			
Operating Temperature	-65°C to +175°C			
Contact Resistance	8 Milliohms Maximum			
Shock/Vibration	300g / 37g			
Clocking Position	Master Key and 2 Secondary Keys. 6 Clocking Positions			
Housing Materials	Aluminum and Stainless Steel			
Receptacle Mounting	Jam Nut, Square Flange, In-Line			

Markets & Applications

Cannon MKJ Miniature Circular Connectors are designed for soldier-worn systems, military equipment, industrial and medical applications...and so much more.



Key Applications

- Sensors
- Satellites
- Instrumentation
- Missile systems
- Avionic systems
- Soldier technology
- UAVs / unmanned systems
- Navigation & telemetry equipment
- Medical test & diagnostic equipment
- Ruggedized computers
- Hand-held communication equipment
- Commercial & military aircraft electronics
- Industrial equipment

Highlights

- Versatile and proven for use in **military, industrial and medical applications** where safety and reliability are critical
- A number connectors in the MKJ Series offer a **2,000 mating cycle**, making them the perfect solution for ruggedized computers and hand-held communications equipment
- **Multiple coupling mechanisms** enable connectivity for navigation and telemetry applications
- Plugs and receptacles are **environmentally sealed** for use in the harshest environments
- **Teflon nickel, black zinc nickel and olive drab cadmium** plating maintain robust reliability for 500 hours of salt spray
- **RoHS Compliant** plating and part numbers available

We Connect the Aerospace & Defense Industry with Mission Critical Data & Signal Transmission

At half the size and weight of traditional harsh environment connectors, Cannon's MKJ5 Triple Start miniature circular interconnect offers superior vibration resistance and EMI prevention, without the loss of reliability or performance. MKJ5 Triple Start meets mission critical requirements for extended cycles in robust shock and vibration environments and is fully intermateable with other miniature equivalents. As part of Cannon's proven and versatile MKJ product line, MKJ5 Triple Start shares many of the attributes that make it one of the most lightweight and reliable sets of miniature circular connectors on the market.

Why ITT Cannon

With more than 100 years of interconnect excellence and seven decades of global presence in the defense industry, no one is more qualified to support mission critical electronic, communication and control applications than ITT Cannon. We are a committed partner among today's military equipment manufacturers and continue to lead the market in connector reliability and performance, even in the harshest environments.



Product Overview

MKJ5 Triple Start

Part of the MKJ family of miniature circular connectors, ITT Cannon's innovative MKJ5 features threaded coupling with high density size 23 machined contacts for crimp and PCB. Its unique triple-start threaded coupling mechanism allows MKJ5 to quickly connect and disconnect, up to 500 cycles, while maintaining performance under sustained shock and vibration conditions. The MKJ5 also offers flexibility in configuration options for connectivity, multiple keying positions, and rear accessory threads or integral band platforms. It meets customer requirements for extended cycles in robust shock and vibration environments through its high-reliability internal ratchet mechanism system and is one of the most lightweight and reliable miniature circular connectors on the market.




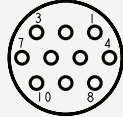
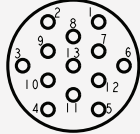
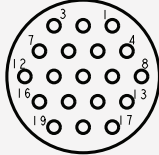
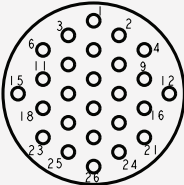
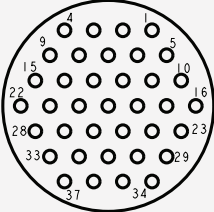
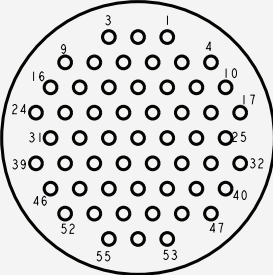
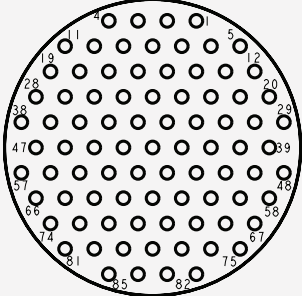



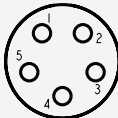
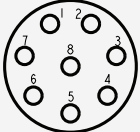
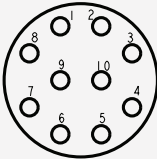
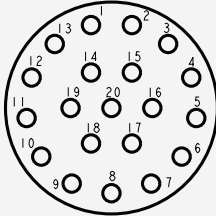
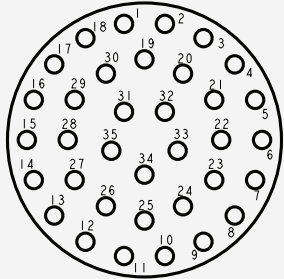
Smaller, lighter packaging and high reliability under vibration make Cannon's MKJ5 miniature circular connectors well-suited for a variety of electronic, communication and control applications for military and commercial aircraft, rotor craft, launch vehicles, unmanned vehicles, ground vehicles and heavy equipment.

		Specifications	
Contact Type	Rear Crimp, Solder Cup, PCB Mount	Insulation Resistance	5,000 Megaohms RMS Sea
Contact Spacing	Size 23 (0.076" spacing), Size 20HD (0.106" spacing), Size 16 (0.170" spacing), Size 12 (0.230" spacing)	Operating Temperature	-65°C to +175°C
		Contact Resistance	8 Milliohms Maximum
		Shock/Vibration	300g / 37g
		EMI Shielding Effectiveness	40dB Attenuation, 100MHz to 1000MHz
Wire Accommodation	Size 23 #22 - #28 AWG, Size 20HD #20 - #24 AWG, Size 16 #16 - #20 AWG, Size 12 #12 - #14 AWG	Coupling	Rotating Triple Start Coupling Nut
		Receptacle Mounting	Jam Nut, Flange, In-Line
		Durability	500 Mating Cycles
Contact Rating	Size 23 5 Amps, Size 20HD 7.5 Amps, Size 16 13 Amps, Size 12 23 Amps	Layouts	See Available Layout on Pages 10-11
		Materials	
	Insulators - Thermoplastic		
	Seals - Fluorosilicone		
	Contacts - Copper alloy with gold over nickel plating		
DWV Voltage (VAC)	Size 23 750 VAC, Size 20HD 1000 VAC, Size 16 1800 VAC, Size 12 1800 VAC		Canted Spring - Stainless Steel

*When compared to the 38999 layouts with size 22 contacts

MKJ5 Contact Arrangements & Layouts





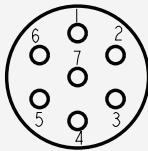
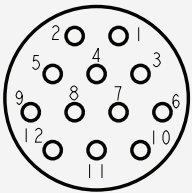
Contact Arrangements							
Layout	Contacts						
	Size 23						
8-4	4						
		8-4 Layout	8-6 Layout	8-7 Layout	9-10 Layout	10-13 Layout	11-19 Layout
8-6	6						
8-7	7						
9-10	10						
10-13	13						
11-19	19						
12-26	26						
		12-26 Layout	15-37 Layout	18-55 Layout	19-85 Layout		
15-37	37						
18-55	55						
19-85	85						

Contact Arrangements				
Layout	Contacts			
	Size 20HD			
8-23	3			
		8-23 Layout	9-25 Layout	10-28 Layout
9-25	5			
10-28	8			
11-210	10			
		11-210 Layout	15-220 Layout	18-235 Layout
15-220	20			
18-235	35			



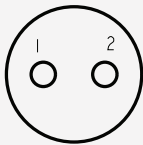
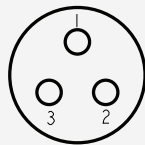
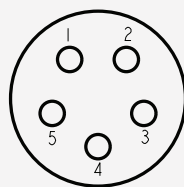
Note: Pin insert front side shown for reference only. Socket insert is a mirror image.

MKJ5 Contact Arrangements & Layouts

Contact Arrangements							
Layout	Contacts						
	Size 16						
8-1	1						
10-2	2						
11-4	4						
12-5	5						
15-7	7						
18-12	12						

					
8-1 Layout	10-2 Layout	11-4 Layout	12-5 Layout	15-7 Layout	18-12 Layout

Contact Arrangements						
Layout	Contacts					
	Size 12					
9-1	1					
12-2	2					
15-2	2					
15-3	3					
18-5	5					

				
9-1 Layout	112-2 Layout	15-2 Layout	15-3 Layout	18-5 Layout

Note: Pin insert front side shown for reference only. Socket insert is a mirror image.

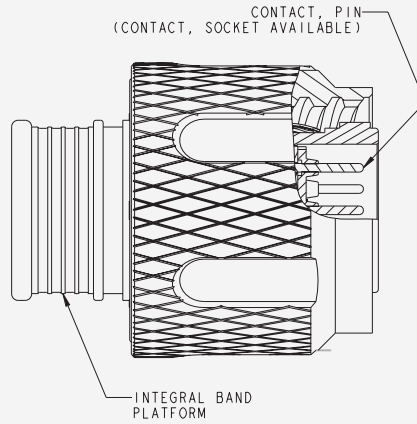
MKJ5 Plug

Banded & Accessory Thread

MKJ5 Plug (Shown with Banding/Overmolding Attachment)



MKJ5 Plug with Pin Insert (Banding Version)

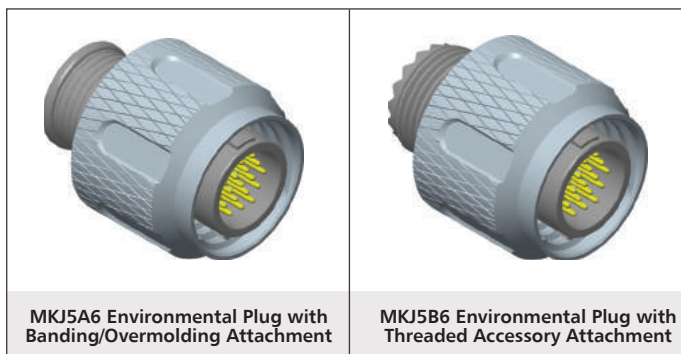


How to Order – MKJ5 Plug

Banded & Accessory Thread

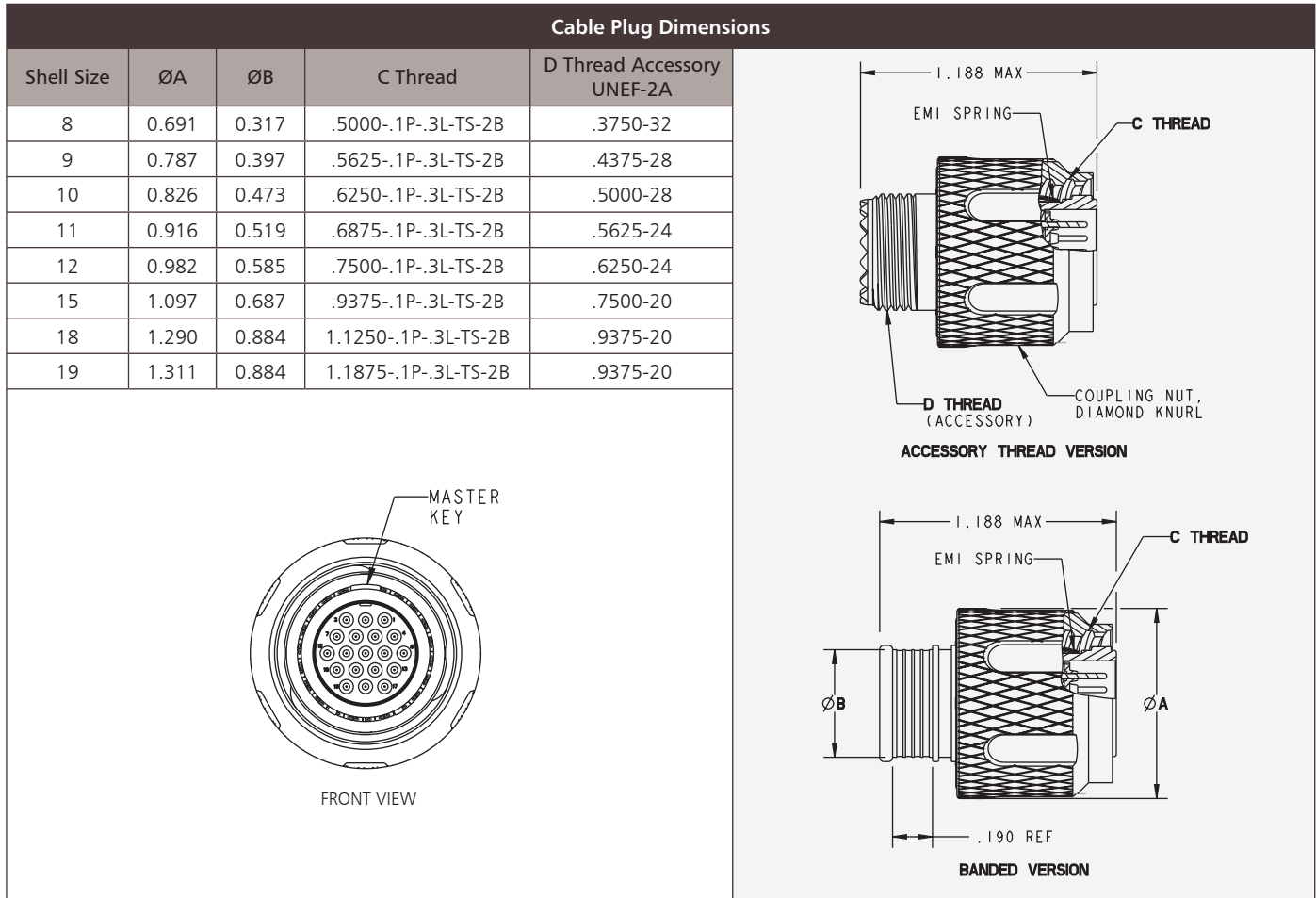
Product	MKJ5 (Triple Start)								
	MKJ5	A	6	F	11-19	P	A	**	
Class:	A -	Environmental Plug with Banding/Overmolding Attachment							
	B -	Environmental Plug with Threaded Accessory Attachment							
Shell Style:	6 -	Straight Plug							
Material/Plating:	C -	Aluminum/Anodize, Black							
	F -	Aluminum/Electroless Nickel (RoHS)							
	K -	Stainless Steel/Passivated (RoHS)							
	T -	Aluminum/Teflon Nickel (RoHS)							
	W -	Aluminum/Olive Drab Cadmium							
	Y -	Stainless Steel/Electroless Nickel, Black (RoHS)							
	Z -	Aluminum/Zinc Nickel, Black (RoHS)							
	N -	Stainless Steel/Electroless Nickel (RoHS)							
Shell Size/Contact Arrangement:		See Available Layouts on Pages 10–11							
Contact Style:	P -	Pin, Crimp, Removable							
	S -	Socket, Crimp, Removable							
	E -	Pin, Solder Cup, Potted, Non-removable							
	F -	Socket, Solder Cup, Potted, Non-removable							
Shell Clocking	A -	Normal							
	B, C, D, E, F	Alternatives							
Modification Codes:	- F0	Less Contacts ("F0" not stamped on the connector, but must be included on the P.O.)							
	- F256	Stainless Steel Hood (Socket contact only)							
	- 518	Potted connectors with water immersion testing (10 ⁻⁴ Helium leak tested)							

Consult factory for other modification codes

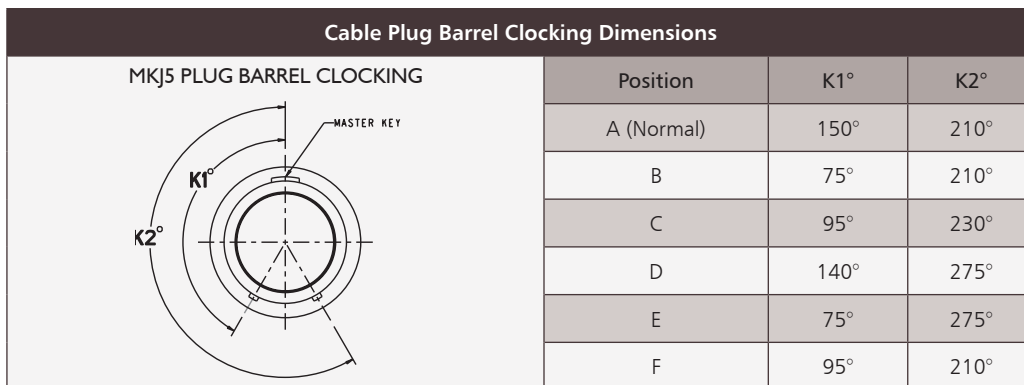


MKJ5 Plug

Banded & Accessory Thread



For all Shell Sizes and Clockings, the Master Keyway remains stationary at top dead center, with minor keys rotating to achieve alternate clocking positions.



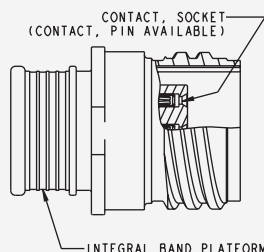
MKJ5 Receptacle

In-Line, Box Mount (Square Flange), Jam Nut Rear Panel Mount Banded & Accessory Thread

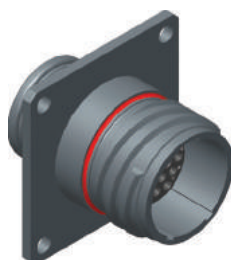
MKJ5 In-Line Receptacle (Shown with Banding/Overmolding Attachment)



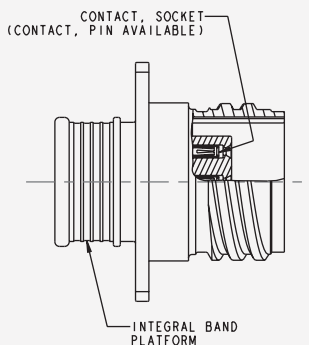
MKJ5 In-Line Receptacle with Socket Insert (Banding Version)



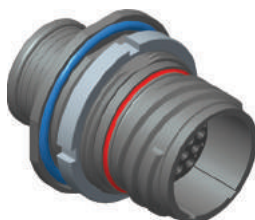
MKJ5 Box Mount Receptacle – Square Flange (Shown with Banding/Overmolding Attachment)



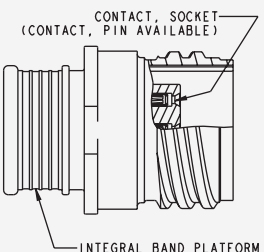
MKJ5 Box Mount Receptacle (Square Flange) with Socket Insert (Banding Version)



MKJ5 Jam Nut Receptacle – Rear Panel Mount (Shown with Banding/Overmolding Attachment)



MKJ5 Jam Nut Receptacle with Socket Insert (Banding Version)

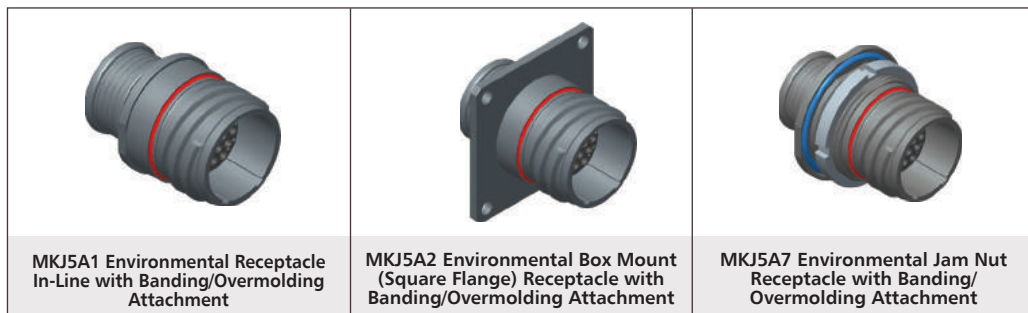


How to Order – MKJ5 Receptacle

In-Line, Box Mount (Square Flange), Jam Nut Rear Panel Mount Banded & Accessory Thread

Product	MKJ5 (Triple Start)								
	MKJ5	A	7	F	11-19	P	A	**	
Class:	A -	Environmental Receptacle with Banding/Overmolding Attachment							
	B -	Environmental Receptacle with Threaded Accessory Attachment							
Shell Style:	1 -	In-Line Receptacle							
	2 -	Box Mount Receptacle (Square Flange)							
	7 -	Jam Nut Receptacle-Rear Panel Mount							
Material/Plating:	C -	Aluminum/Anodize, Black							
	F -	Aluminum/Electroless Nickel (RoHS)							
	K -	Stainless Steel/Passivated (RoHS)							
	T -	Aluminum/Teflon Nickel (RoHS)							
	W -	Aluminum/Olive Drab Cadmium							
	Y -	Stainless Steel/Electroless Nickel, Black (RoHS)							
	Z -	Aluminum/Zinc Nickel, Black (RoHS)							
	N -	Stainless Steel/Electroless Nickel (RoHS)							
Shell Size/Contact Arrangement:	See Available Layouts on Pages 10–11								
Contact Style:	P -	Pin, Crimp, Removable							
	S -	Socket, Crimp, Removable							
	E -	Pin, Solder Cup, Potted, Non-removable							
	F -	Socket, Solder Cup, Potted, Non-removable							
Shell Clocking:	A -	Normal							
	B, C, D, E, F	Alternatives							
Modification Codes:	- F0	Less Contacts ("F0" not stamped on the connector, but must be included on the P.O.)							
	- F256	Stainless Steel Hood (Socket contact only)							
	- 518	Potted connectors with water immersion testing (10 ⁻⁴ Helium leak tested)							

Consult factory for other modification codes



MKJ5 Receptacle

In-Line

Banded and Accessory Thread

Cable Receptacle In-Line Dimensions					
Shell Size	ØA	B Flat	C Thread	ØD	F Thread Accessory UNEF-2A
8	0.540	0.510	.5000-.1P-.3L-TS-2A	0.317	.3750-32
9	0.605	0.575	.5625-.1P-.3L-TS-2A	0.397	.4375-32
10	0.668	0.638	.6250-.1P-.3L-TS-2A	0.473	.5000-28
11	0.730	0.700	.6875-.1P-.3L-TS-2A	0.519	.5625-24
12	0.793	0.763	.7500-.1P-.3L-TS-2A	0.585	.6250-24
15	0.980	0.950	.9375-.1P-.3L-TS-2A	0.687	.7500-20
18	1.165	1.135	1.1250-.1P-.3L-TS-2A	0.884	.9375-20
19	1.235	1.205	1.1875-.1P-.3L-TS-2A	0.884	.9375-20

FRONT VIEW

ACCESSORY THREAD VERSION

BANDED VERSION

For all Shell Sizes and Clockings, the Master Keyway remains stationary at top dead center, with minor keys rotating to achieve alternate clocking positions.

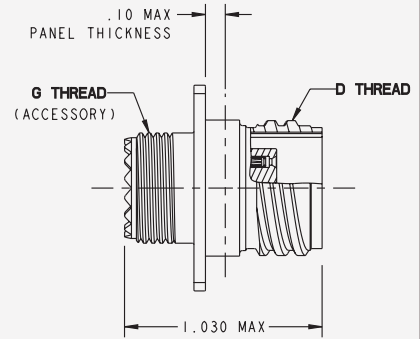
Cable Receptacle In-Line Shell Clocking Dimensions			
MKJ5 SHELL CLOCKING	Position	K1°	K2°
		A (Normal)	150°
B		75°	210°
C		95°	230°
D		140°	275°
E		75°	275°
F		95°	210°

MKJ5 Receptacle

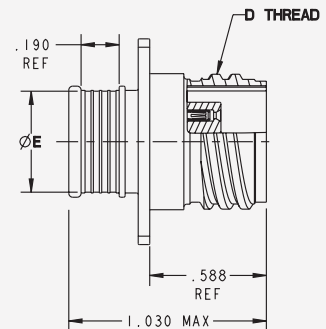
Box Mount (Square Flange)

Banded and Accessory Thread

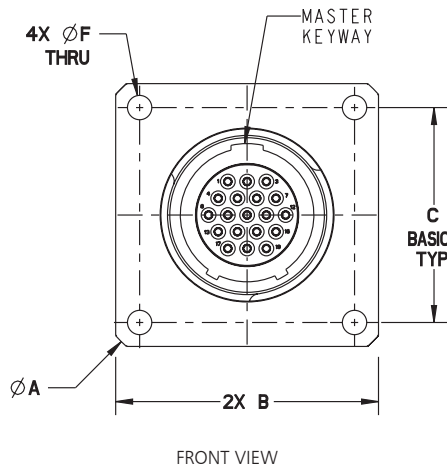
Receptacle Box Mount Dimensions										
Shell Size	ØA	B	C, Basic Typ	D Thread	ØE	ØF +.003	G Thread, Accessory (UNEF-2A)	H, Basic	ØJ	ØK
8	1.150	0.850	0.660	.5000-.1P-.3L-TS-2A	0.317	0.094	.3750-32	0.660	0.520	0.094
9	1.230	0.913	0.723	.5625-.1P-.3L-TS-2A	0.397	0.094	.4375-28	0.723	0.584	
10	1.330	0.975	0.785	.6250-.1P-.3L-TS-2A	0.473	0.094	.5000-28	0.785	0.653	
11	1.410	1.039	0.848	.6875-.1P-.3L-TS-2A	0.519	0.094	.5625-24	0.848	0.718	
12	1.500	1.099	0.909	.7500-.1P-.3L-TS-2A	0.585	0.094	.6250-24	0.909	0.775	0.128
15	1.750	1.288	1.058	.9375-.1P-.3L-TS-2A	0.687	0.128	.7500-20	1.058	0.961	
18	2.000	1.475	1.255	1.1250-.1P-.3L-TS-2A	0.884	0.128	.9375-20	1.255	1.140	
19	2.094	1.537	1.327	1.1875-.1P-.3L-TS-2A	0.884	0.128	.9375-20	1.327	1.230	



ACCESSORY THREAD VERSION



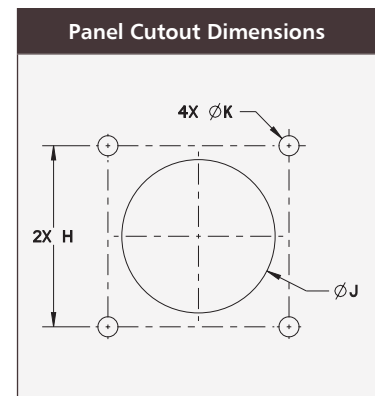
BANDED VERSION



FRONT VIEW

For all Shell Sizes and Clockings, the Master Keyway remains stationary at top dead center, with minor keys rotating to achieve alternate clocking positions.

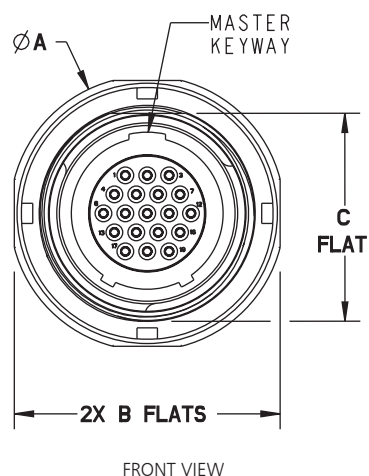
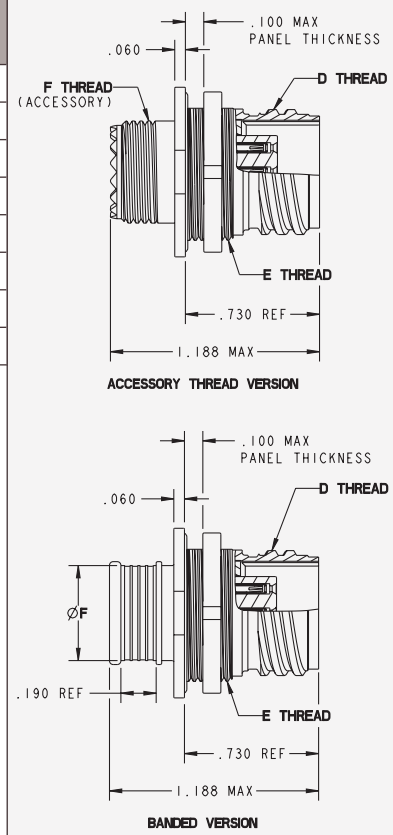
Receptacle Box Mount Shell Clocking Dimensions			
MKJ5 SHELL CLOCKING	Position	K1°	K2°
		A (Normal)	150°
B		75°	210°
C		95°	230°
D		140°	275°
E		75°	275°
F		95°	210°



MKJ5 Receptacle

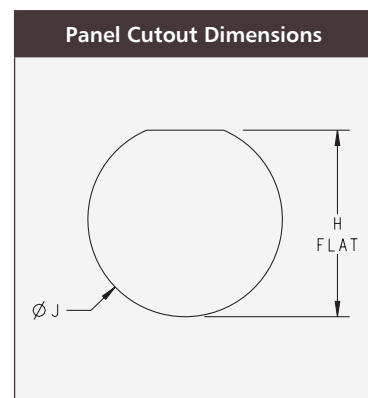
Jam Nut – Rear Panel Mount Banded and Accessory Thread

Cable Receptacle Jam Nut Dimensions									
Shell Size	DIA. ØA	ØB FLATS	C Flat	D Thread	E THREAD (UN-2A)	ØF	G THREAD ACCESSORY (UNEF-2A)	H Flat	ØJ
8	0.760	0.730	0.535	.5000-.1P-.3L-TS-2A	.5625-32	0.317	.3750-32	0.543	0.572
9	0.880	0.850	0.661	.5625-.1P-.3L-TS-2A	.6875-28	0.397	.4375-28	0.669	0.698
10	0.880	0.850	0.661	.6250-.1P-.3L-TS-2A	.6875-28	0.473	.5000-28	0.669	0.698
11	0.955	0.925	0.721	.6875-.1P-.3L-TS-2A	.7500-28	0.519	.5625-24	0.729	0.760
12	1.060	1.035	0.784	.7500-.1P-.3L-TS-2A	.8125-28	0.585	.6250-24	0.792	0.822
15	1.203	1.173	0.970	.9375-.1P-.3L-TS-2A	1.0000-28	0.687	.7500-20	0.978	1.010
18	1.389	1.359	1.147	1.1250-.1P-.3L-TS-2A	1.1875-28	0.884	.9375-20	1.155	1.198
19	1.450	1.420	1.221	1.1875-.1P-.3L-TS-2A	1.2500-28	0.884	.9375-20	1.223	1.385



For all Shell Sizes and Clockings, the Master Keyway remains stationary at top dead center, with minor keys rotating to achieve alternate clocking positions.

Cable Receptacle Jam Nut Shell Clocking Dimensions			
MKJ5 SHELL CLOCKING	Position	K1°	K2°
		A (Normal)	150°
B		75°	210°
C		95°	230°
D		140°	275°
E		75°	275°
F		95°	210°



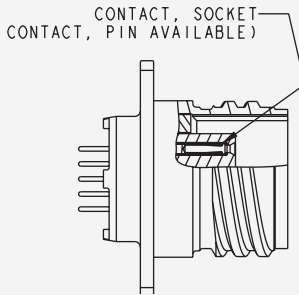
MKJ5 Receptacle

Box Mount (Square Flange), Jam Nut Rear Panel Mount
 Potted, PCB & Solder Cup

MKJ5 Box Mount Receptacle – Square Flange – PCB Mount



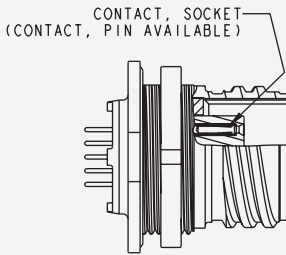
MKJ5 Box Mount Receptacle (Square Flange)
 with PCB Mount Socket Insert



MKJ5 Jam Nut Receptacle – Rear Panel Mount – PCB Mount



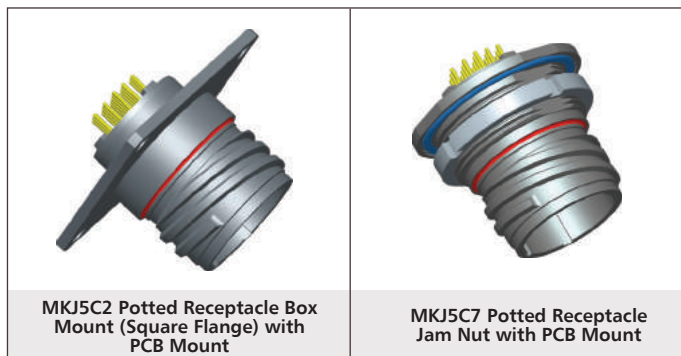
MKJ5 Jam Nut Receptacle
 with PCB Mount Socket Insert



How to Order – MKJ5 Receptacle

Box Mount (Square Flange), Jam Nut Rear Panel Mount
Potted, PCB & Solder Cup

Product	MKJ5 (Triple Start)								
	MKJ5	C	2	F	11-19	B	A	**	
Class:	C -	Potted Receptacle-PC/Flex/Solder							
Shell Style:	2 -	Box Mount Receptacle (Square Flange)							
	7 -	Jam Nut Receptacle-Rear Panel Mount							
Material/Plating:	C -	Aluminum/Anodize, Black							
	F -	Aluminum/Electroless Nickel (RoHS)							
	K -	Stainless Steel/Passivated (RoHS)							
	T -	Aluminum/Teflon Nickel (RoHS)							
	W -	Aluminum/Olive Drab Cadmium							
	Y -	Stainless Steel/Electroless Nickel, Black (RoHS)							
	Z -	Aluminum/Zinc Nickel, Black (RoHS)							
N -	Stainless Steel/Electroless Nickel (RoHS)								
Shell Size/Contact Arrangement:		See Available Layouts on Pages 10–11							
Contact Style:	B -	Pin, PC Tail, .109 Extension, Potted, Non-removable							
	D -	Socket, PC Tail, .109 Extension, Potted, Non-removable							
	E -	Pin, Solder Cup, Potted, Non-removable							
	F -	Socket, Solder Cup, Potted, Non-removable							
Shell Clocking:	A -	Normal							
	B, C, D, E, F	Alternatives							
Modification Codes:	- F256	Stainless Steel Hood (Socket contact only)							
	- 518	Potted connectors with water immersion testing (10 ⁻⁴ Helium leak tested) Consult factory for other modification codes							



MKJ5 Receptacle

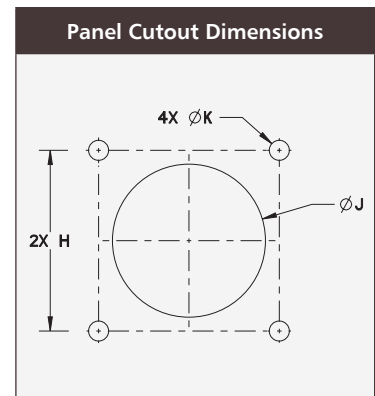
Box Mount (Square Flange)

Potted, PCB & Solder Cup

Receptacle Box Mount Dimensions										
Shell Size	ØA	B	C, Basic Typ	D Thread	ØE	ØF	ØG	H, Basic	ØJ	ØK
8	1.150	0.850	0.660	.5000-.1P-.3L-TS-2A	0.330	0.094	.SIZE 23 .018/.022	0.660	0.520	0.094
9	1.230	0.913	0.723	.5625-.1P-.3L-TS-2A	0.432	0.094		0.723	0.584	
10	1.330	0.975	0.785	.6250-.1P-.3L-TS-2A	0.493	0.094	SIZE 20HD .024/.028	0.785	0.653	
11	1.410	1.039	0.848	.6875-.1P-.3L-TS-2A	0.551	0.094		0.848	0.718	
12	1.500	1.099	0.909	.7500-.1P-.3L-TS-2A	0.620	0.094	SIZE 16 .060/.064	0.909	0.775	0.128
15	1.750	1.288	1.058	.9375-.1P-.3L-TS-2A	0.703	0.128		1.058	0.961	
18	2.000	1.475	1.255	1.1250-.1P-.3L-TS-2A	0.863	0.128	SIZE 12 .092/.096	1.255	1.140	
19	2.094	1.537	1.327	1.1875-.1P-.3L-TS-2A	0.912	0.128		1.327	1.230	

For all Shell Sizes and Clockings, the Master Keyway remains stationary at top dead center, with minor keys rotating to achieve alternate clocking positions.

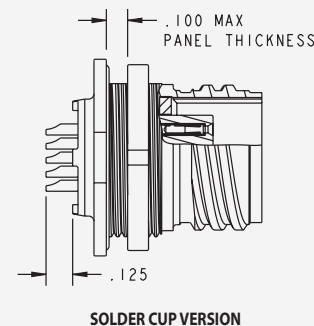
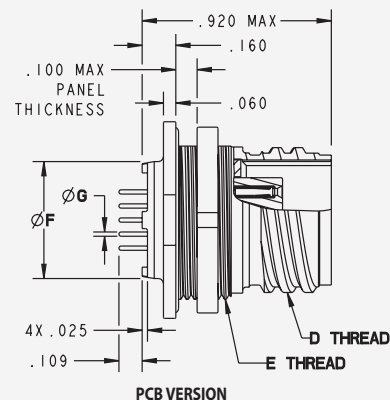
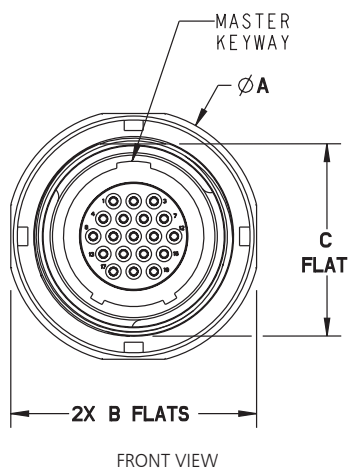
Receptacle Box Mount Shell Clocking Dimensions			
MKJ5 SHELL CLOCKING	Position	K1°	K2°
		A (Normal)	150°
B		75°	210°
C		95°	230°
D		140°	275°
E		75°	275°
F		95°	210°



MKJ5 Receptacle

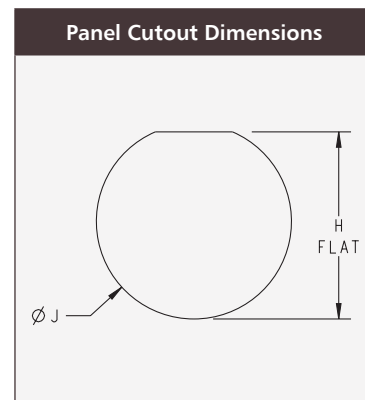
Jam Nut Rear Panel Mount
Potted, PCB & Solder Cup

Receptacle Jam Nut Rear Mount Dimensions									
Shell Size	ØA	B FLATS	C Flat	D Thread	E THREAD (UN-2A)	ØF	ØG	H Flat	ØJ
8	0.760	0.730	0.535	.5000-.1P-.3L-TS-2A	.5625-32	0.330	.SIZE 23 .018/.022	0.543	0.572
9	0.880	0.850	0.661	.5625-.1P-.3L-TS-2A	.6875-28	0.432		0.669	0.698
10	0.880	0.850	0.661	.6250-.1P-.3L-TS-2A	.6875-28	0.493	SIZE 20HD .024/.028	0.669	0.698
11	0.955	0.925	0.721	.6875-.1P-.3L-TS-2A	.7500-28	0.551		0.729	0.760
12	1.060	1.035	0.784	.7500-.1P-.3L-TS-2A	.8125-28	0.620	SIZE 16 .060/.064	0.792	0.822
15	1.203	1.173	0.970	.9375-.1P-.3L-TS-2A	1.0000-28	0.703		0.978	1.010
18	1.389	1.359	1.147	1.1250-.1P-.3L-TS-2A	1.1875-28	0.863	SIZE 12 .092/.096	1.155	1.198
19	1.450	1.420	1.221	1.1875-.1P-.3L-TS-2A	1.2500-28	0.912		1.223	1.385



For all Shell Sizes and Clockings, the Master Keyway remains stationary at top dead center, with minor keys rotating to achieve alternate clocking positions.

Receptacle Jam Nut Shell Clocking Dimensions			
MKJ5 SHELL CLOCKING	Position	K1°	K2°
	A (Normal)	150°	210°
	B	75°	210°
	C	95°	230°
	D	140°	275°
	E	75°	275°
	F	95°	210°



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

MKJ5 Weight Charts

MKJ5 Connector Weight in Grams					
Pin Layout	Plug	Jam Nut Receptacle Crimp	Jam Nut Receptacle PCB	Square Flange Receptacle Crimp	Square Flange Receptacle PCB
8-1P	8.4	6.9	7.0	6.7	5.7
8-23P	8.3	6.7	6.6	6.7	5.5
8-4P	8.1	6.8	6.7	6.8	5.6
8-6P	8.2	6.9	7.0	6.9	5.7
8-7P	8.2	7.0	6.9	7.0	5.8
9-1P	10.7	9.2	9.2	7.0	7.9
9-25P	10.8	9.3	9.2	7.1	8.0
9-10P	11.1	9.2	9.2	7.0	7.9
10-2P	12.9	9.8	9.9	8.7	9.2
10-28P	13.2	9.9	10.1	9.2	9.9
10-13P	12.4	9.6	9.7	8.2	8.6
11-4P	15.1	11.0	12.0	10.2	11.2
11-210P	15.0	11.5	12.2	9.7	10.7
11-19P	15.3	11.2	12.0	9.4	10.4
12-2P	17.1	13.7	15.2	11.6	12.0
12-5P	17.4	13.7	16.1	12.1	13.0
12-26P	17.3	13.2	13.2	10.4	11.2
15-2P	20.5	20.2	21.8	16.9	19.5
15-3P	21.6	21.3	22.9	17.9	20.6
15-7P	22.0	21.6	23.1	18.5	20.9
15-220P	20.9	21.1	23.9	18.4	21.8
15-37P	20.2	20.2	20.4	17.0	19.6
18-12P	30.8	32.4	32.6	27.8	31.5
18-5P	32.2	33.8	33.2	29.4	32.9
18-235P	30.3	31.1	29.3	28.8	30.8
18-55P	27.5	28.0	28.0	25.3	27.0
19-85P	31.0	29.8	29.5	28.4	30.9

MKJ5 Connector Weight in Grams					
Socket Layout	Plug	Jam Nut Receptacle Crimp	Jam Nut Receptacle PCB	Square Flange Receptacle Crimp	Square Flange Receptacle PCB
8-1S	8.8	7.2	7.0	6.2	6.4
8-23S	8.8	7.2	7.2	7.4	6.1
8-4S	8.7	7.1	7.4	7.6	6.3
8-6S	8.7	7.1	7.5	6.1	6.4
8-7S	8.8	7.2	7.0	7.2	5.9
9-1S	11.7	9.8	9.8	7.6	8.5
9-25S	11.4	9.5	9.6	7.5	8.2
9-10S	11.3	9.4	9.4	7.2	8.1
10-2S	13.0	9.8	9.9	9.6	10.0
10-28S	15.8	10.3	10.4	10.0	10.5
10-13S	12.7	10.2	9.8	8.9	9.4
11-4S	15.4	13.0	13.4	11.2	12.2
11-210S	15.3	12.8	13.7	11.1	12.0
11-19S	15.7	12.0	13.0	10.2	11.2
12-2S	18.1	14.8	16.8	13.3	13.5
12-5S	17.7	15.2	17.6	13.1	14.0
12-26S	17.4	13.5	14.4	10.3	11.2
15-2S	22.1	21.8	23.3	18.6	21.0
15-3S	22.3	22.9	24.4	19.7	22.1
15-7S	22.9	24.0	25.5	21.1	23.5
15-220S	23.5	23.5	26.0	21.4	23.7
15-37S	21.4	22.4	23.9	19.2	21.6
18-12S	32.4	34.1	32.6	29.6	32.5
18-5S	33.2	34.9	33.4	30.4	33.3
18-235S	32.1	33.6	32.8	28.1	31.7
18-55S	30.2	30.4	29.0	26.0	28.5
19-85S	32.1	32.6	35.7	28.8	35.6

Cables to Outfit Your MKJ Connector

Value-Added MKJ Series Cabling Solutions from ITT Cannon



Let ITT Cannon complete your MKJ solution with our custom cable products. A complement to the reduction in size of the connectors is the reduction in weight and thickness in cabling. Choose from several available options to help customize your application. Improving on our high reliability connectors, we offer overmolds that are suitable for military requirements in harsh environments.



About ITT Cannon

ITT Inc. is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for industrial end-markets in energy infrastructure, electronics, aerospace and transportation. Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life. Founded in 1920, ITT is headquartered in White Plains, N.Y., with employees in more than 35 countries and sales from a total of 125 countries, which generated 2015 revenues of \$2.5 billion.

Our connector portfolio remains the most extensive in the industry, offering a reliable and cost effective range of interconnect solutions with the brands of Cannon, VEAM and BIW Connector Systems. Continuous investment in technology and research & development have enabled ITT to provide new, innovative products and solutions to markets including:

- Commercial Aviation
- Defense
- Oil & Gas
- Transportation & Industrial
- Medical
- Space Exploration

When you specify a Cannon, VEAM or BIW Connector Systems connector, you can rely on products that are designed, developed, and manufactured to the highest quality and reliability standards. This tradition of excellence is based on ITT's corporate culture of operating its businesses under the principles of Six Sigma. At ITT, Six Sigma is not just a quality philosophy but a complete corporate culture that drives the entire business. Our Value Based Management and Value Based Product Development systems are two cornerstones that allow for the development of both leadership and product engineering principles, ensuring our industry leading products are developed to the accepted market driven lead times. These principles have allowed ITT to become the market leader in all of our business portfolios.

Six Sigma Manufacturing

ITT Cannon operates manufacturing facilities in the United States, Germany, Italy, Mexico, China and Japan, allowing ITT to offer global capabilities to our customers. Our fully-integrated, world class facilities use the latest manufacturing technologies including automated and robotic machining centers, Super Market manufacturing cells, Kanban pull systems, and automated, electrical, mechanical and optical test and inspection equipment. The combination of our manufacturing

strength and our advanced manufacturing facilities allows ITT to offer products at market driven prices. Our capabilities, especially in robotics, computerized precision tooling, Kaizen Project Management, Six Sigma tools and testing, give ITT the most optimized global manufacturing footprint in the interconnect industry.

The Custom Difference

As the industry leader in harsh environment interconnect applications, ITT's world class engineering teams will work directly with our customers to design and develop cost effective solutions for their applications. In many cases we may modify one of our standard designs to ensure a highly reliable solution where timing is critical. When custom connectors are required, we collaborate with clients and partners with a goal to design the most reliable, cost-effective solution possible. As professional consultants, our Engineering teams will provide a thorough systems and mechanical analysis of any proposed solution. These analyses provide our customers with sophisticated electrical signal and mechanical characterizations to determine the best solution for their application.

RoHS Compliance Information

ITT has implemented a strict parts control plan for all ITT electronics plants worldwide that allows the Cannon, VEAM, and BIW Connector Systems product portfolios to meet the requirements of the European Union Directive 2002/95/EC better known as the Reduction of Hazardous Substances initiative. As appropriate, specific Cannon, VEAM, and BIW Connector Systems products may be ordered with an R prefix number which insures our customers will receive RoHS compliant parts for their commercial electronics applications and equipment. Since most RoHS hazardous substances center around specific metal plating and lead solder coatings, ITT's products for RoHS compliance are available in the following plating finishes: electroless nickel, stainless steel, anodize over aluminum and gold plating. It should be noted that gold plating would be recommended as the replacement for tin-lead solder when ordering board mount connectors.



Product Safety

1. Material Content and Physical Form

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.

- a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.
- b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials. Contact materials vary with type of connector and also application and are usually manufactured from either: Copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

CAUTION

2. Fire Characteristics And Electric Shock Hazard

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionization and burning. Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the product Data Sheet/ Catalog are exceeded and can cause breakdown of insulation and hence electric shock. If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires and leakage currents through carbonization of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

3. Handling

Care must be taken to avoid damage to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers. Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

4. Disposal

Incineration of certain materials may release noxious or even toxic fumes.

5. Application

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector. Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages cannot be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators,

Dimensions shown in inches (mm)

Specifications and dimensions subject to change

no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Circuit resistance and continuity check should be made to make certain that there are no high resistance joints or spurious conducting paths. Always use the correct application tools as specified in the Data Sheet/Catalog. Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

Important General Information

(i) Air and creepage paths/Operating voltage. The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations. For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

(ii) Temperature

All information given are temperature limits. The operation temperature depends on the individual application.

(iii) Other important information

ITT Cannon continuously endeavors to improve their products. Therefore, Cannon products may deviate from the description, technical data and shape as shown in this catalog and data sheets.

ITT Cannon, is a division of ITT Inc. who manufactures the highest quality products available in the marketplace; however these products are intended to be used in accordance with the specifications in this publication. Any use or application that deviates from the stated operating specifications is not recommended and may be unsafe. No information and data contained in this publication shall be construed to create any liability on the part of ITT Cannon. Any new issue of this publication shall automatically invalidate and supersede any and all previous issues.

Product Warranty

Please refer to www.ittcannon.com (General Terms of Sale) for the complete text of ITT Cannon's applicable Terms and Conditions, including Warranty.

This publication is not to be construed as an offer. It is intended merely as an invitation to make an offer. By this publication, ITT Cannon does not assume responsibility or any liability for any patent infringements or other rights of third parties which may result from its use.

Reprinting this publication is generally permitted, indicating the source. However, ITT Cannon's prior consent must be obtained in all cases. "Engineered for life" is a registered trademark of ITT Inc. All other trademarks or registered trademarks are property of their respective owners. All data subject to change without notice.

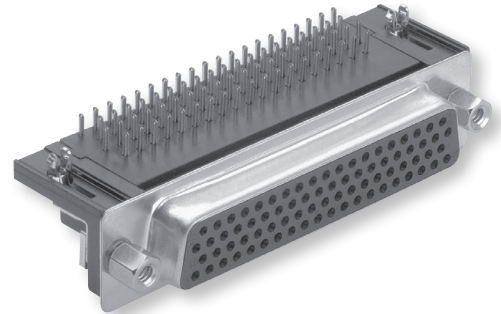
This document does not contain technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., App 2401 et. Seq.)



Meet Some of Our Most Innovative Connectors

D-Subminiature Connectors

Originally designed for aircraft radio systems, Cannon's D-Subminiature Connector became the first multi-purpose interconnect solution of its kind, ideal for multiple markets and applications. From rocket launches and satellite systems, to rugged military transports and commercial avionics, the D-Subminiature's versatility has made this Cannon invention the most widely used connector in the world.



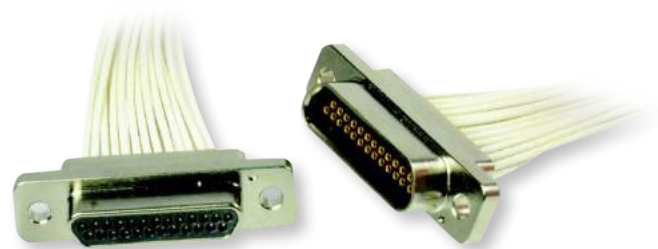
Rack & Panel Connectors

Pioneered by Cannon during the 1930s, our Rack & Panel Connectors offer an unmatched variety of shell configurations and insert arrangements, as well as materials, plating and contact options. Many of our standard and custom designs meet the stringent requirements of ARINC 600, ARINC 404 (MIL-C-81659) and MIL-DTL-83733 standards.



Microminiature Connectors

Developed first by Cannon in the 1960s, Microminiature Connectors offer high performance and reliability with exceptional versatility. Available in rectangular, circular and strip configurations for countless applications, many of our Microminiature Interconnects meet or exceed applicable requirements of the MIL-DTL-83513 specification (MIL-C-81659) and MIL-DTL-83733 standards.



Notes:

Notes:

Notes:

Connect with your ITT Cannon
representative today or visit us at
www.ittcannon.com

Connect with the experts.

Whether communicating with our soldiers in the field or with first responders saving lives, ITT Cannon connects vital information with those who need it.



CHINA—Shenzhen City

+86.755.2726.7888

JAPAN—Kanagawa

+81.462.57.2010

USA—Watertown, CT

+1.860.274.9681

GERMANY—Weinstadt

+49.7151.699.0

KOREA—Seoul

+82.2.7027111

HONG KONG

+852.2732.2720

TAIWAN—Taipei

+886.2.25452020

ITALY—Lainate

+39.02938721

UK—Basingstoke

+44.1256.311200

USA—Irvine, CA

+1.800.854.3028