

MKJ Series Connectors

The Challenge

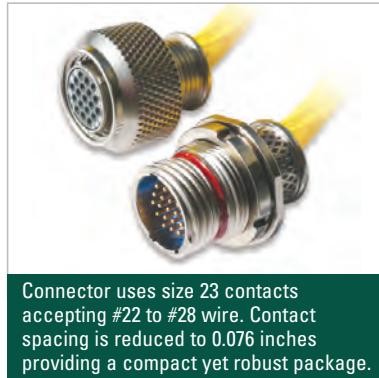
ITT has a long history of providing standard and custom MIL-DTL-38999 connectors which meet the most stringent military requirements. ITT's major military and commercial accounts recently approached us requesting that we take our proven high reliability designs and shrink them to decrease weight and size while maintaining the connectors robust environmental performance and high reliability. Along with these requests, ICS received substantial commentary from other markets including Medical, Industrial, and Space, requesting a similar, miniature circular product.

**B****Mini Circular**

MKJ connector provides significant size and weight reduction while providing electrical and mechanical characteristics of larger connectors



Split tine contact design provides proven reliability in harsh environments



Connector uses size 23 contacts accepting #22 to #28 wire. Contact spacing is reduced to 0.076 inches providing a compact yet robust package.



Master key and 2 secondary keys allow multiple clocking positions



Pogo pin/pad technology. Touch pad contacts increase ease of cleanability, highly desirable in harsh environments.



Integral band platform allows direct attachment of cable shield to connector.



Double start threads prevent thread damage and allow full connector mating in 1.5 turns. Durable design ideal for harsh shock and vibration environments.



Breakaway design incorporates a simple push/pull mating mechanism allowing quick connector disconnect.

The ITT Solution ...

ITT took on the challenge, driving innovation in mating capabilities and contacts to reduce size and weight while maintaining the high level of quality customers have come to expect from ITT over 90 years of engineering excellence. ITT collated a substantial amount of industry VOC from top tier military and commercial accounts. This feedback arrived from industry leading ICS customers, pioneering products in their fields including satellites & missiles, test and medical equipment, and tactical battlefield gear. Using this information and leveraging our historical product expertise, ITT engineered a product meeting our customers defined mix of Design, Functionality, and Flexibility. The result of this process represents our innovative new product line, Trinity. Offering three coupling methodologies {threaded, bayonet, and breakaway} and a highly engineered design, this innovative product reduces weight and size without sacrificing robust environmental performance or reliability. ITT ICS is proud to introduce our exciting new Trinity product line, engineered to the stringent quality standards for which ITT is world renown.

Technical overview

The Trinity MKJ family of mini circular connectors provides approximate electrical and mechanical characteristics of larger and heavier Military Standard Environmental connectors while reducing weight up to 71% and size up to 52%. All MKJ series connector's shells and jam nuts are available in high quality aluminum alloy or corrosion resistant steel per AMS-QQ-S 763. The MKJ series comes with rear accessory thread or integral band platform for direct attachment of cable shield and overmold. The MKJ series of connectors come with a variety of coupling mechanisms: threaded, breakaway, and bayonet. In addition, a Pogo Pin technology utilizing ITT's unique spring probe pin/touch pad contact system is available. The MKJ series receptacle comes with a variety of mounting options for both crimp and PCB contacts including in-line, jam nut, front mount, and square flange mount, and flange mount. The MKJ0, MKJ1, MKJ3, MKJ4, and MKJ5 feature a master key and 2 secondary keys for positive mating with 4 clocking positions available. The MKJ0 connector is ideal for everyday operations where size and weight are at a premium. The MKJ1 connector uses a double start thread coupling with 1/1/2 turns for a full mate and is ideal for harsh shock and vibration environments. The MKJ3 connector can be fully mated in a 1/4 turn. The MKJ4 connector provides a quick push to mate / pull to unmate disconnect mechanism for fast breakaway connections. The MKJ5 connector utilizes a triple start thread and is fully mated in 1 turn, and is an ideal connector for harsh shock and vibration environments and offers an internal coupling ratchet mechanism along with an EMI grounding spring.

Product Features

- High contact density: size 23 contacts accommodate #22 - #28 wire and allowing 0.076 inch contact spacing
- Available with 3-85 rear release crimp or PCB contacts
- Master key with 2 secondary keys. 4 clocking positions available
- Significant weight and size reduction compared to traditional Mil Standard environmental connectors
- Available in jam nut, in-line, and square flange rear crimp receptacle versions. Jam nut and square flange PCB receptacle versions
- Rear accessory thread or integral band platform for direct attachment of cable shield or overmold
- Wire seal grommet for rear environmental sealing. Pin fluorosilicone interfacial seal provides interface sealing
- Available with double start threads allowing full mating in 1.5 turns
- Available with quick push/pull breakaway mechanism utilizing canted retention spring for quicker mating and demating
- Available with bayonet 1/4 turn locking mechanism
- Available with Pogo Pin technology utilizing ITT's unique spring probe pin/pad contact system

Applications

- Medical equipment: test and diagnostic
- Industrial equipment
- Commercial and military aircraft electronics
- Unmanned aerial vehicles
- Missile systems
- Avionic systems
- Satellites
- Sensors
- Instrumentation
- Interconnections for helmets, weapons, battery packs, night vision goggles, aircraft headsets, etc.
- Navigation and Telemetry equipment
- Ruggedized computers and hand held communications equipment



B

Mini Circular



Dimensions shown in inches (mm)

Specifications and dimensions subject to change

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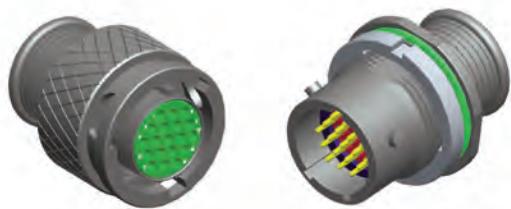
MKJ Connector Styles

MKJ0



UNC Thread Coupling

MKJ3



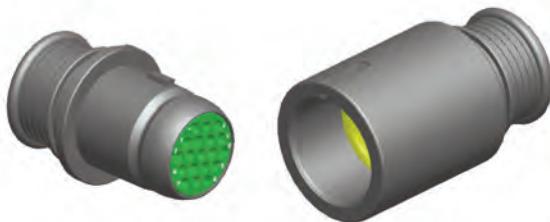
Bayonet Coupling

MKJ1



Double Start Thread Coupling

MKJ4



Breakaway Coupling

MKJ5



Triple Start Ratchet Locking

Multiple Styles for all applications!

Series MKJ Performance

| | |
|------------------------------------|--|
| Contact size / Spacing | #23 / 0.076 inches (1.9 mm) |
| Contact Type | Solder Cup, Rear Crimp or PCB Mount |
| Wire Accommodation | #22 - #28 AWG |
| Current Rating | 5 Amps Maximum |
| Voltage Rating | 500 VAC RMS Sea Level |
| Insulation Resistance | 5000 Megohms Minimum |
| Operating Temperature | -55 degrees C to +150 degrees C |
| Contact Resistance | 8 Milliohms Maximum |
| Vibration | 20 g's in Accordance with MIL-STD-1344 Method 2005, Condition IV |
| Shock | 300 g's (MKJ1) 50 g's (MKJ0 and MKJ4) in Accordance with MIL-STD-1344 Method 2004, Condition E |
| EMI Shielding Effectiveness | 40dB Attenuation, 100 MHz to 1000 MHz |
| Coupling | Threaded, Quick Disconnect Pogo Pin |
| Coding | Master key and 2 secondary keys. 4 clocking positions available |
| Housing material | Aluminum and Stainless Steel |
| Layouts | 31 layouts holding from 1 size 12 contact to 85 size 23 contacts |
| Usage | Medical, Military, Commercial, and Industrial |
| Receptacle Mounting | Jam Nut, Square Flange, In-line, PCB |



Electrical specifications for the connector

The MKJ series of products uses size 23 pin and socket contacts with equivalent electrical performance of size 22 contacts. These smaller contacts accept #22 - #28 AWG wire and allow the contact spacing to be reduced down to 0.076 inches. The connector's Fortron dielectric insulating material can accommodate from 3 to 85 contacts in various shell sizes. This high density packaging, along with a reduced wall thickness and scoop, allows a dramatic decrease in size and weight of the MKJ connector while retaining the approximate mechanical and electrical characteristics of heavier and larger Military Standard Environmental connectors. The connector is capable of operating between -55 degrees Celsius and +150 degrees Celsius and can be mated up to 2,000 cycles. Maximum electrical current is 5 Amps and maximum voltage at sea level is 500 VAC RMS.

| Max. Voltage | Max. Current | Operating Temp | Durability |
|-----------------------|----------------|---------------------------------|--------------------|
| 500 VAC RMS Sea Level | 5 Amps Maximum | -55 degrees C to +150 degrees C | 2,000 mated cycles |

MKJ Product Line Talking Dog



MKJ1 SERIES

- MKJ0 - Threaded Coupling, UN Thread
- MKJ1 - Threaded Coupling, Double Start ACME Thread
- MKJ3 - Bayonet Coupling
- MKJ4 - Breakaway/Quick Disconnect
- MKJ5 - Threaded Coupling, Triple start ACME Thread

C CLASS

- A - Environmental Plug and Receptacle with Banding/Overmolding Platform
- B - Environmental Plug and Receptacle with Threaded Accessory Attachment
- C - Back- Potted Receptacle

2 SHELL STYLE

- 1 - In-Line Receptacle
- 2 - Square Flange Receptacle
- 6 - Straight Plug
- 7 - Jam Nut Receptacle

F MATERIAL/PLATING

- C - Aluminum/Anodize, Black
- F - Aluminum/Electroless Nickel
- W - Aluminum/OD Cad
- Z - Aluminum/Zinc Nickel, Black
- K - SS/Passivated
- Y - SS/Zinc Nickel, Black

9-19 SHELL SIZE/CONTACT ARRANGEMENT

| | | |
|-------|---------------------|-------------------------------|
| 5-3 | 3 Size 23 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 6-4 | 4 Size 23 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 6-6 | 6 Size 23 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 6-7 | 7 Size 23 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 7-10 | 10 Size 23 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 8-4 | 4 Size 23 Contacts | Series MKJ5 |
| 8-6 | 6 Size 23 Contacts | Series MKJ5 |
| 8-7 | 7 Size 23 Contacts | Series MKJ5 |
| 8-13 | 13 Size 23 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 9-4 | 4 Size 16 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 9-10 | 10 Size 23 Contacts | Series MKJ5 |
| 9-19 | 19 Size 23 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 10-13 | 13 Size 23 Contacts | Series MKJ5 |
| 10-26 | 26 Size 23 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 11-19 | 19 Size 23 Contacts | Series MKJ5 |
| 12-26 | 26 Size 23 Contacts | Series MKJ5 |
| 12-37 | 37 Size 23 Contacts | Series MKJ0, MKJ1, MKJ3, MKJ4 |
| 13-37 | 37 Size 23 Contacts | Series MKJ1 |
| 14-55 | 55 Size 23 Contacts | Series MKJ0, MKJ3, MKJ4 |
| 15-37 | 37 Size 23 Contacts | Series MKJ5 |
| 15-55 | 55 Size 23 Contacts | Series MKJ0, MKJ3, MKJ4 |
| 16-55 | 55 Size 23 Contacts | Series MKJ1 |
| 17-85 | 85 Size 23 Contacts | Series MKJ1 |
| 18-55 | 55 Size 23 Contacts | Series MKJ5 |
| 19-85 | 85 Size 23 Contacts | Series MKJ5 |

P CONTACT STYLE

- P - Pin, Crimp, Removable
- S - Socket, Crimp, Removable

- A - Pin, PC Tail, .062 Extension
- B - Pin, PC Tail, 0.109 Extension
- C - Socket, PC Tail, 0.062 Extension
- D - Socket, PC Tail, 0.109 Extension
- G - Pin, Pogo, Crimp, Removable
- O - Pad, Pogo, Crimp, Removable
- L - Pin, Solder Cup
- R - Socket, Solder Cup

N

SHELL CLOCKING (POSITION)

MKJ0 Series

- N - Normal
- X - Clocking Position X
- Y - Clocking Position Y
- Z - Clocking Position Z

MKJ1 Series

- A - Normal 150° 210°
- B - Clocking Position B 75° 210°
- C - Clocking Position C 95° 230°
- D - Clocking Position D 140° 275°

MKJ3 Series

- N - Normal 150° 210°
- X - Clocking Position X 75° 210°
- Y - Clocking Position Y 95° 230°
- Z - Clocking Position Z 140° 275°

MKJ4 Series

- Omit for Single Key/Keyway
- A - Normal 150° 210°
- B - Clocking Position B 75° 210°
- C - Clocking Position C 95° 230°
- D - Clocking Position D 140° 275°

MKJ5 Series

- A - Normal 150° 210°
- B - Clocking Position B 75° 210°
- C - Clocking Position C 95° 230°
- D - Clocking Position D 140° 275°

**

MODIFICATION CODES

- F0 - Less Contacts ("F0" not printed on connector)
- (No modification code required for standard product)
- Consult Factor for other codes



B

Mini Circular

Dimensions shown in inches (mm)

Specifications and dimensions subject to change

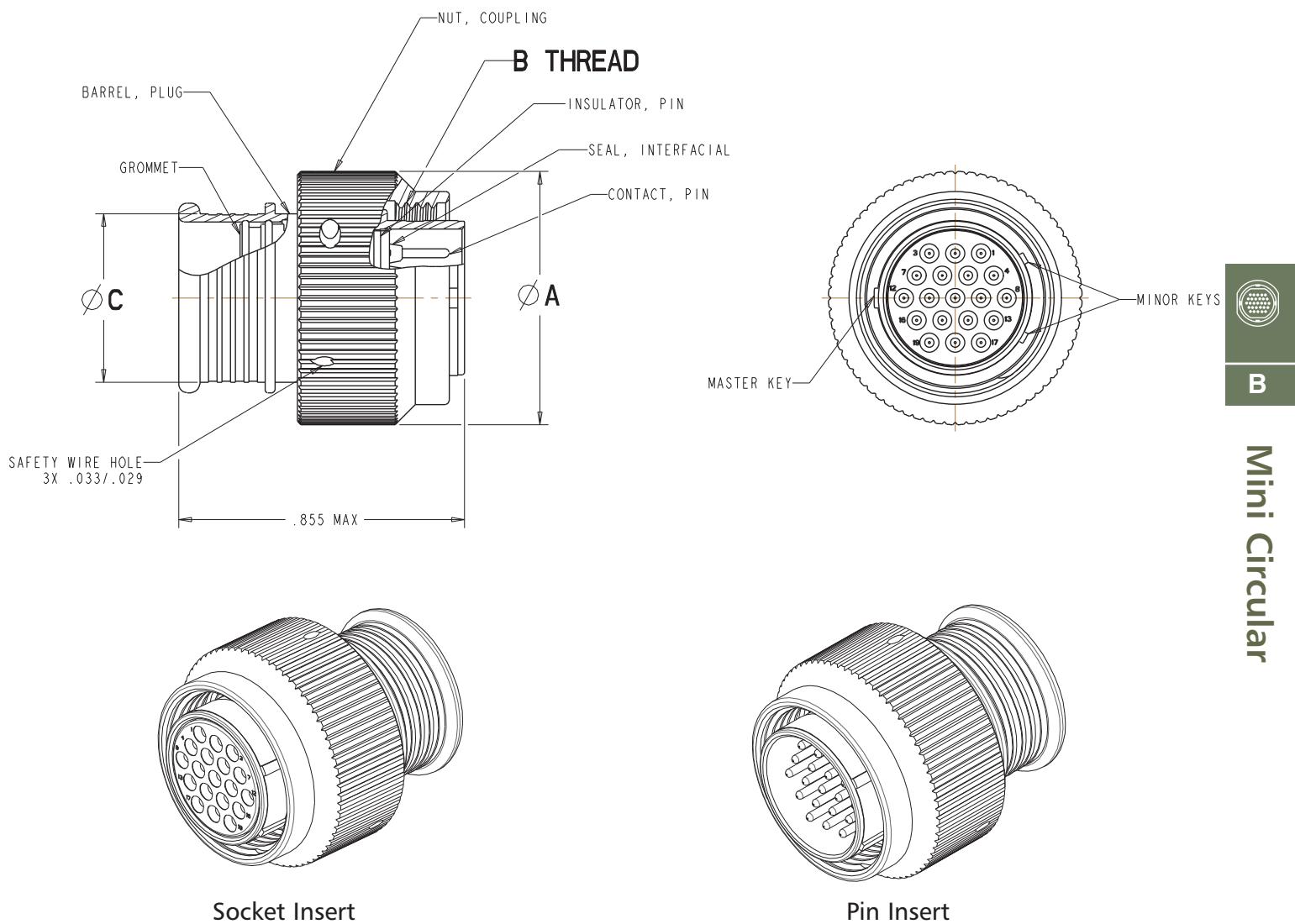


The MKJ0 is ideal for light duty applications where weight and cost take a precedence. The connector comes with 5 high density contact arrangements, multiple clocking positions, a banding platform, and rear grommets and pin interfacial seals. Used in avionics, aerospace, medical, and industrial applications.

Specifications

| | |
|------------------------------|--|
| Contact Type | Rear crimp or PCB mount |
| Contacts | Size 23 (0.076" spacing), Size 16 (.177" spacing) |
| Wire Size | #22 - #28 AWG (Size 23 Contacts), #16 - #20 AWG (Size 16 Contacts) |
| Contact Rating | 5 Amps Maximum |
| Voltage Rating | 500 VAC RMS sea level |
| Insulation Resistance | 5,000 Megohms minimum |
| Operating Temperature | -55°C to +150°C |
| Contact Resistance | 8 Milliohms maximum |
| Vibration | 20 g's in accordance with MIL-STD-1344 Method 2005, Condition IV |
| Shock | 50 g's in accordance with MIL-STD-1344 Method 2004, Condition E |
| Durability | 2,000 mating cycles |
| Receptacle Mounting | Jam nut, PCB mount or Wall mount |
| EMI Shielding | 40db attenuation, 100Mhz to 1000Mhz |
| Coupling | UN Threaded |
| Materials | Shells - Aluminum Alloy or Stainless Steel Insulators - Thermoplastic Seals - Flurosilicone Contacts - Copper alloy with gold over nickel plating |

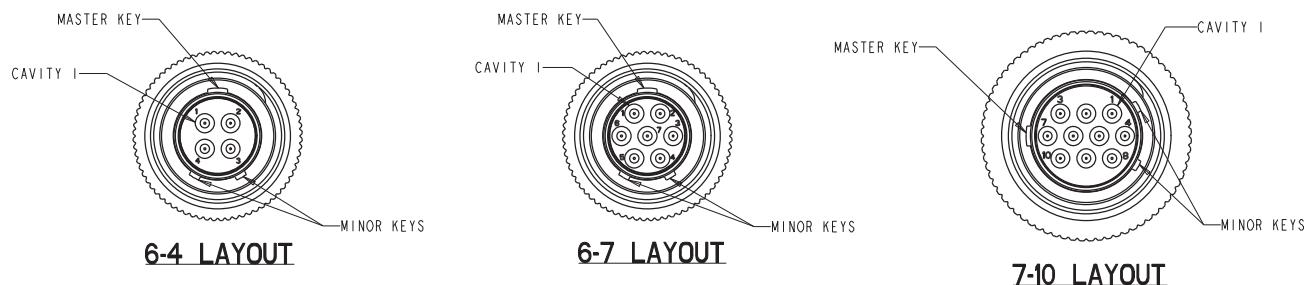
MKJ0 Plug (Banding Platform)



| MKJ0 PLUG DIMENSIONS | | | | | |
|----------------------|------|-------------------|------|---------------------|--------|
| LAYOUT | Ø A | B THREAD UN-2B | Ø C | MAX WEIGHT IN GRAMS | |
| | | | | PIN | SOCKET |
| 6-4 | .500 | .3750-28 | .290 | 3.6 | 4.1 |
| 6-7 | .500 | .3750-28 | .290 | 3.8 | 4.2 |
| 7-10 | .620 | .4375-28 | .390 | 5.8 | 6.6 |
| 9-19 | .750 | .5625-32 | .500 | 8.4 | 9.8 |
| 12-37 | .880 | .7500-28 | .650 | 11.7 | 14.2 |

MKJ0 Connectors

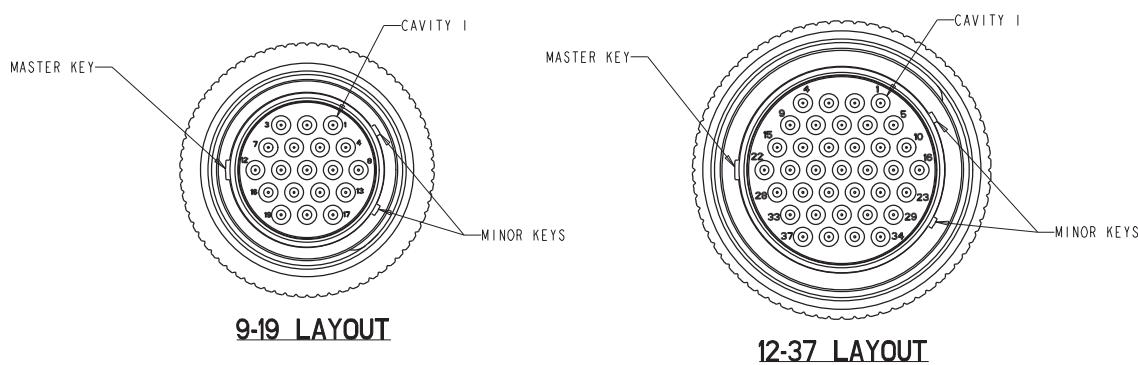
Plug Connector Orientation Front Side



A circular logo consisting of a ring of dots around a central grid of dots, resembling a stylized sun or a logo for a scientific or technical organization.

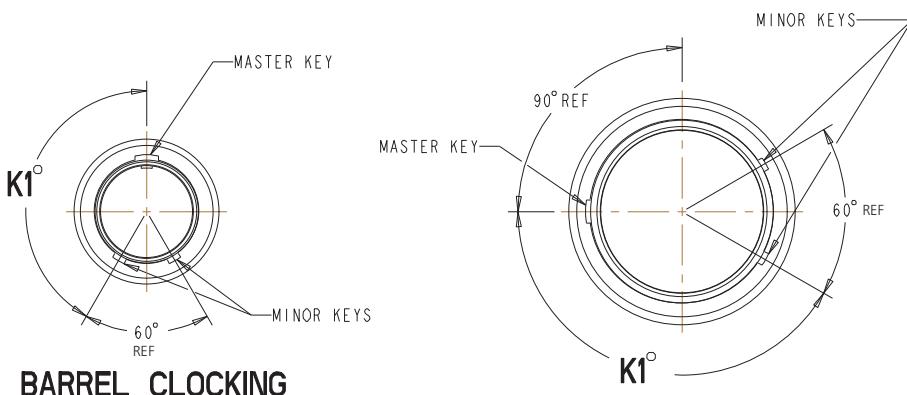
2

Mini Circular



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

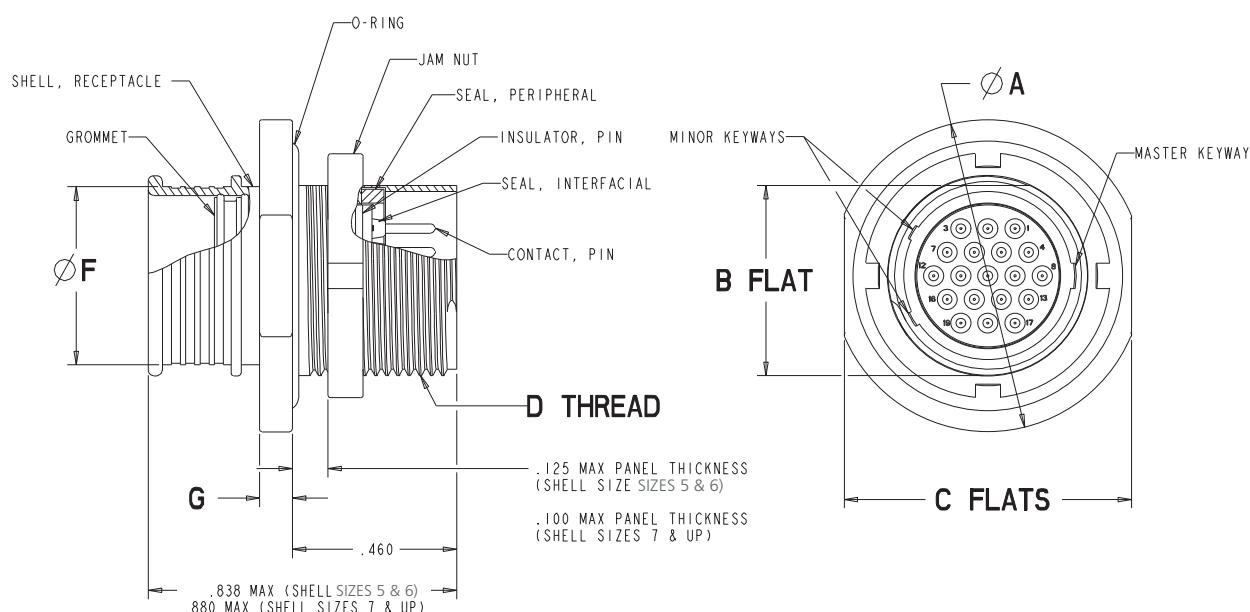
MKJ0 Plug Barrel Clocking Positions



For Shell Sizes 5 and 6, the Master Key is at top dead center. For Shell Sizes 7 and up, the Master and Minor keys are rotated 90° counter-clockwise. Minor keys remain stationary, with the Master key rotating to achieve alternate clocking positions for all Shell Sizes.

| BARREL CLOCKING | |
|-----------------|------|
| POSITION | K1° |
| N (normal) | 150° |
| X | 140° |
| Y | 130° |
| Z | 120° |

MKJ0 Jam Nut Receptacle (Banding Platform)

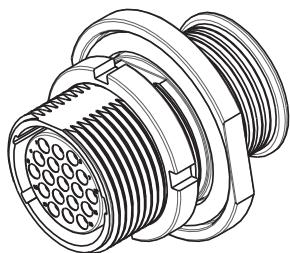


B

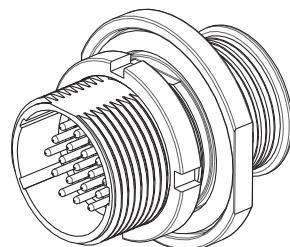
Mini Circular

MKJ0 JAM NUT RECEPTACLE DIMENSIONS

| LAYOUT | Ø A FLANGE DIA. | B FLAT | C FLAT | D THREAD UN-2A | Ø F | G | MAX WEIGHT IN GRAMS | |
|--------|--------------------|--------|--------|-------------------|------|------|------------------------|--------|
| | | | | | | | PIN | SOCKET |
| 6-4 | .610 | .356 | .562 | .3750-28 | .290 | .051 | 3.3 | 3.8 |
| 6-7 | .610 | .356 | .562 | .3750-28 | .290 | .051 | 3.4 | 3.8 |
| 7-10 | .670 | .420 | .635 | .4375-28 | .390 | .093 | 4.9 | 5.7 |
| 9-19 | .875 | .534 | .806 | .5625-32 | .500 | .093 | 7.3 | 8.7 |
| 12-37 | 1.062 | .714 | .986 | .7500-28 | .650 | .093 | 11.6 | 14.4 |

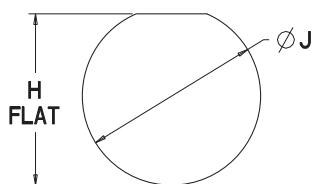


Socket Insert



Pin Insert

Panel Cutouts

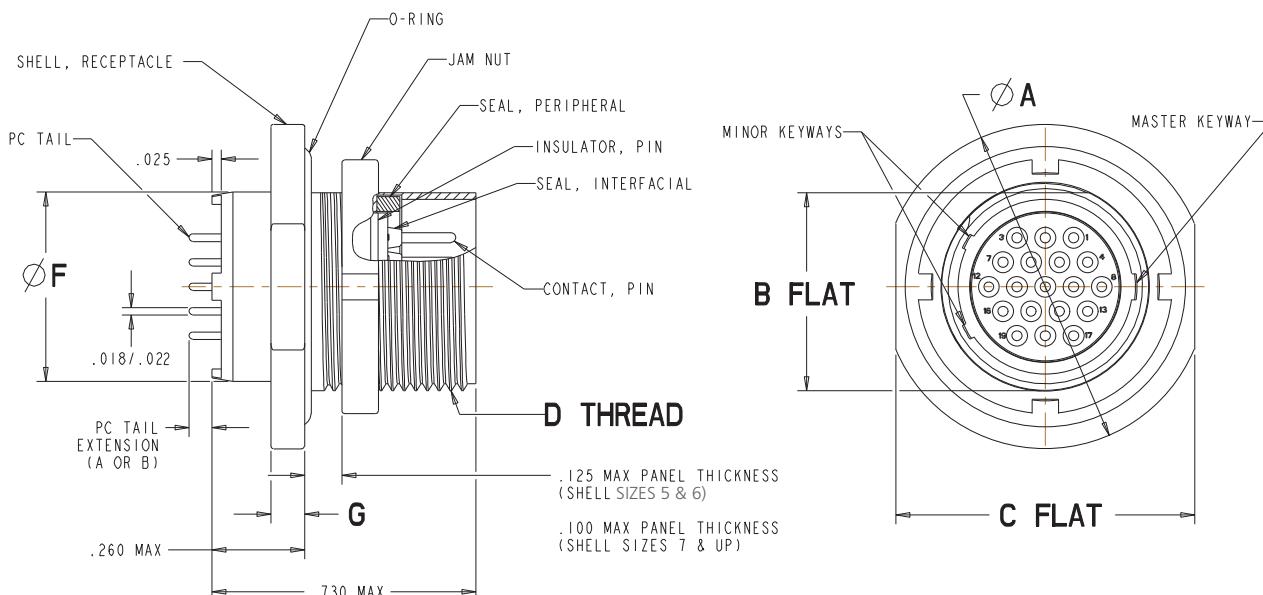


| LAYOUT | H FLAT ±.002 | Ø J |
|---------|-----------------|------|
| 6 - 4 | .363 | .386 |
| 6 - 7 | .363 | .386 |
| 7 - 10 | .426 | .449 |
| 9 - 19 | .540 | .574 |
| 12 - 37 | .722 | .760 |

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

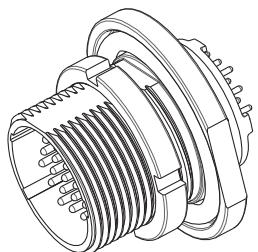
MKJ0 Connectors

MKJ0 Jam Nut Receptacle (PCB Mount)

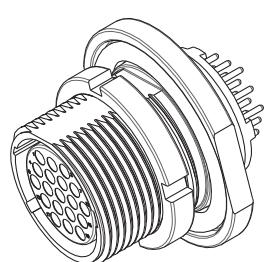


Mini Circular

| LAYOUT | Ø A FLANGE DIA. | B FLAT | C FLAT | D THREAD UN-2A | Ø F | G | MAX WEIGHT IN GRAMS | |
|--------|--------------------|--------|--------|-------------------|------|------|------------------------|--------|
| | | | | | | | PIN | SOCKET |
| 6-4 | .610 | .356 | .562 | .3750-28 | .322 | .051 | 3.5 | 4.0 |
| 6-7 | .610 | .356 | .562 | .3750-28 | .322 | .051 | 3.8 | 4.2 |
| 7-10 | .670 | .420 | .635 | .4375-28 | .432 | .093 | 5.3 | 6.2 |
| 9-19 | .875 | .534 | .806 | .5625-32 | .512 | .093 | 8.1 | 9.7 |
| 12-37 | 1.062 | .714 | .986 | .7500-28 | .677 | .093 | 13.7 | 16.6 |

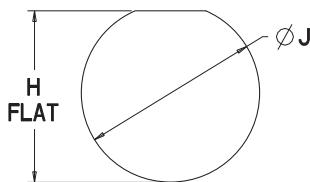


Pin Insert



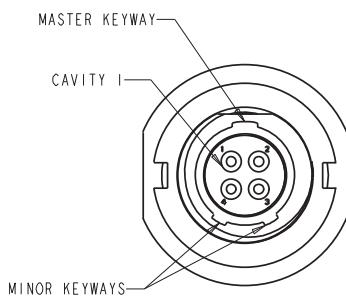
Socket Insert

Panel Cutouts

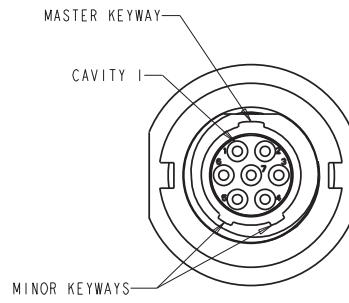


| LAYOUT | H FLAT ±.002 | Ø J |
|---------|-----------------|------|
| 6 - 4 | .363 | .386 |
| 6 - 7 | .363 | .386 |
| 7 - 10 | .426 | .449 |
| 9 - 19 | .540 | .574 |
| 12 - 37 | .722 | .760 |

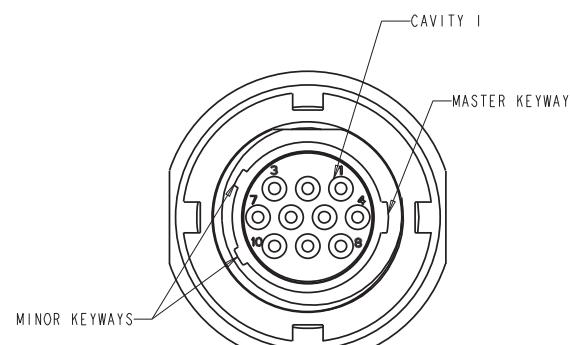
Receptacle Connector Orientation Front Side



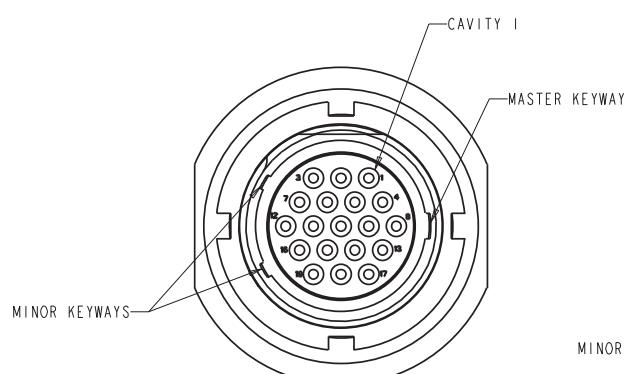
6-4 LAYOUT



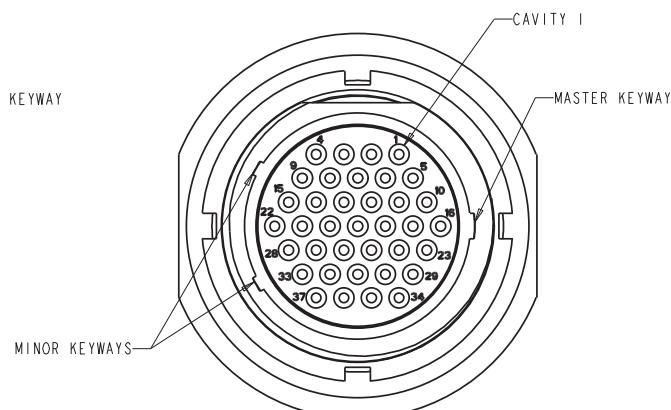
6-7 LAYOUT



7-10 LAYOUT



9-19 LAYOUT



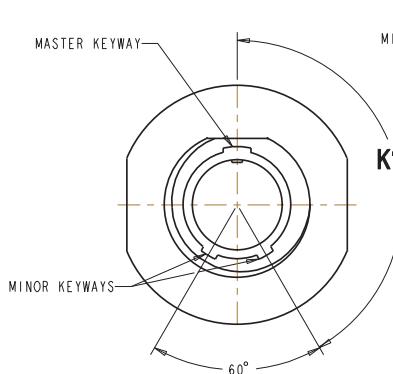
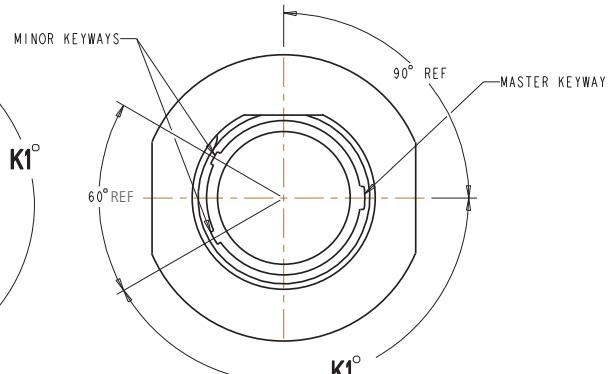
12-37 LAYOUT

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

MKJ0 Receptacle Shell Clocking Positions

For Shell Sizes 5 and 6, the Master Key is at top dead center. For Shell Sizes 7 and up, the Master and Minor keys are rotated 90° clockwise. Minor keys remain stationary, with the Master rotating to achieve alternate clocking positions for all Shell Sizes.

| SHELL CLOCKING | |
|----------------|------|
| POSITION | K1° |
| N (normal) | 150° |
| X | 140° |
| Y | 130° |
| Z | 120° |

SHELL CLOCKING
ORIENTATION FOR SIZES 5 & 6
(N - CLOCKING SHOWN)SHELL CLOCKING
ORIENTATION FOR SIZES 7 & UP
(N-CLOCKING SHOWN)

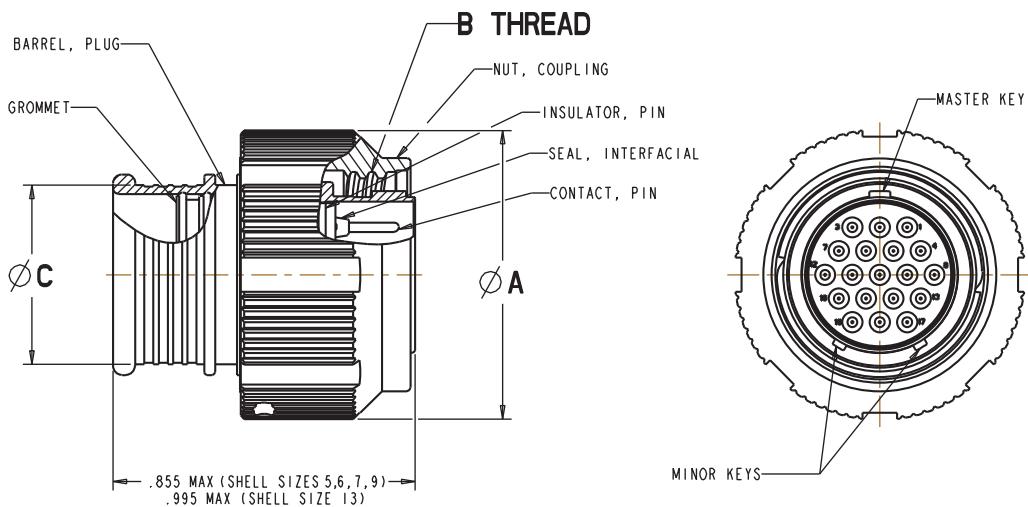


The MKJ1 is a robust connector meeting MIL-DTL-38999 shock and vibration requirements. Plug connector comes with an anti-decoupling spring for vibration resistance. Ideal for harsh environments where a robust electrical connection is required under the most demanding shock and vibration conditions. Proven design for avionics, satellites, and missile systems.

Specifications

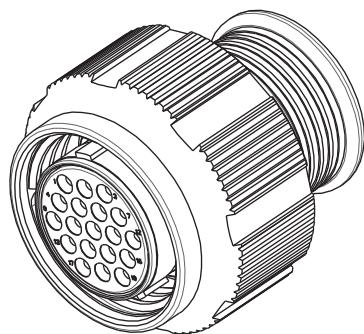
| | |
|------------------------------|---|
| Contact Type | Rear crimp or PCB mount |
| Contacts | Size 23 (0.076" spacing), Size 16 (.177" spacing) |
| Wire Size | #22 - #28 AWG (Size 23 Contacts), #16 - #20 AWG (Size 16 Contacts) |
| Contact Rating | 5 Amps Maximum |
| Voltage Rating | 500 VAC RMS sea level |
| Insulation Resistance | 5,000 Megaohms minimum |
| Operating Temperature | -55°C to +150°C |
| Contact Resistance | 8 Milliohms maximum |
| Vibration | 40 g's in accordance with MIL-STD-1344 Method 2005, Condition IV |
| Shock | 300 g's in accordance with MIL-STD-1344 Method 2004, Condition E |
| Durability | 2,000 mating cycles |
| Receptacle Mounting | Jam nut or Wall Mount |
| EMI Shielding | 40db attenuation, 100Mhz to 1000Mhz |
| Coupling | Double Start Threaded |
| Materials | Shells - Aluminum Alloy or Stainless Steel Insulators - Thermostatic Seals - Flurosilicone Contacts - Copper alloy with gold over nickel plating |

MKJ1 Plug (Banding Platform)

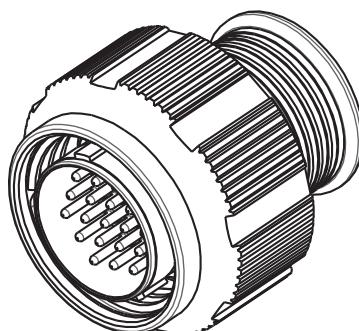


B

Mini Circular



Socket Insert



Pin Insert

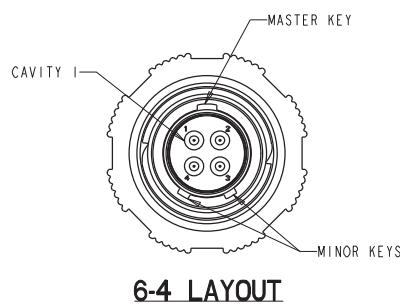
| MKJ1 PLUG DIMENSIONS | | | | | |
|----------------------|-------|---------------------------------|------|---------------------|--------|
| LAYOUT | Ø A | B THREAD (ACME DOUBLE START) | Ø C | MAX WEIGHT IN GRAMS | |
| | | | | PIN | SOCKET |
| 6-4 | .600 | .375-.05P .1L -2B | .290 | 5.0 | 5.5 |
| 6-7 | .600 | .375-.05P .1L -2B | .290 | 5.1 | 5.5 |
| 7-10 | .680 | .4375-.05P .1L -2B | .390 | 6.9 | 7.7 |
| 9-19 | .810 | .5625-.05P .1L -2B | .500 | 9.4 | 10.9 |
| 13-37 | 1.050 | .8125-.05P .2L -2B | .650 | 18.9 | 21.7 |

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

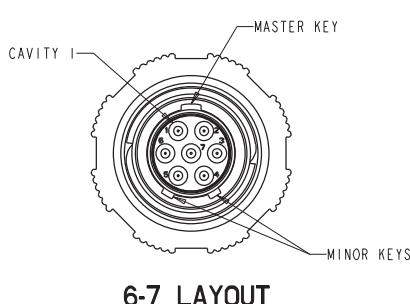
www.ittcannon.com

MKJ1 Connectors

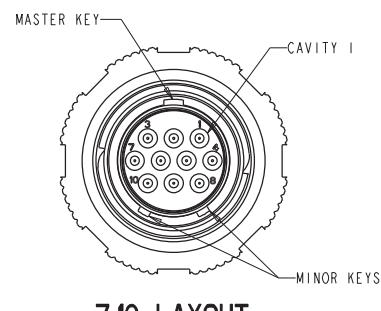
Plug Connector Orientation Front Side



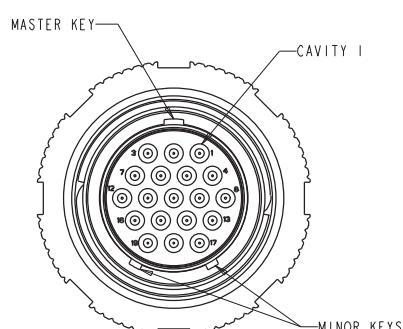
6-4 LAYOUT



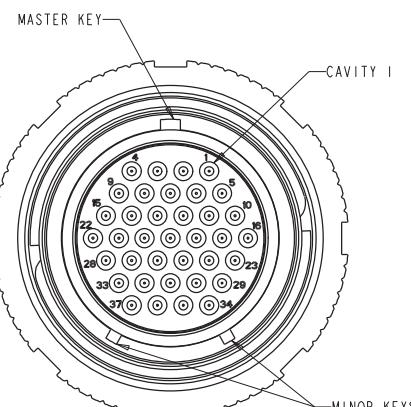
6-7 LAYOUT



7-10 LAYOUT



9-19 LAYOUT



13-37 LAYOUT

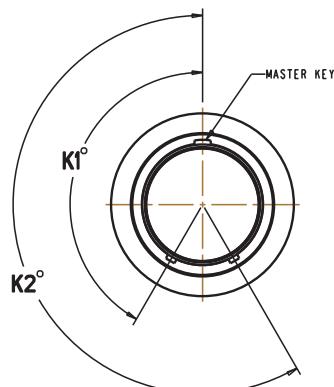
Mini Circular



B

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

MKJ1 Plug Barrel Clocking Positions

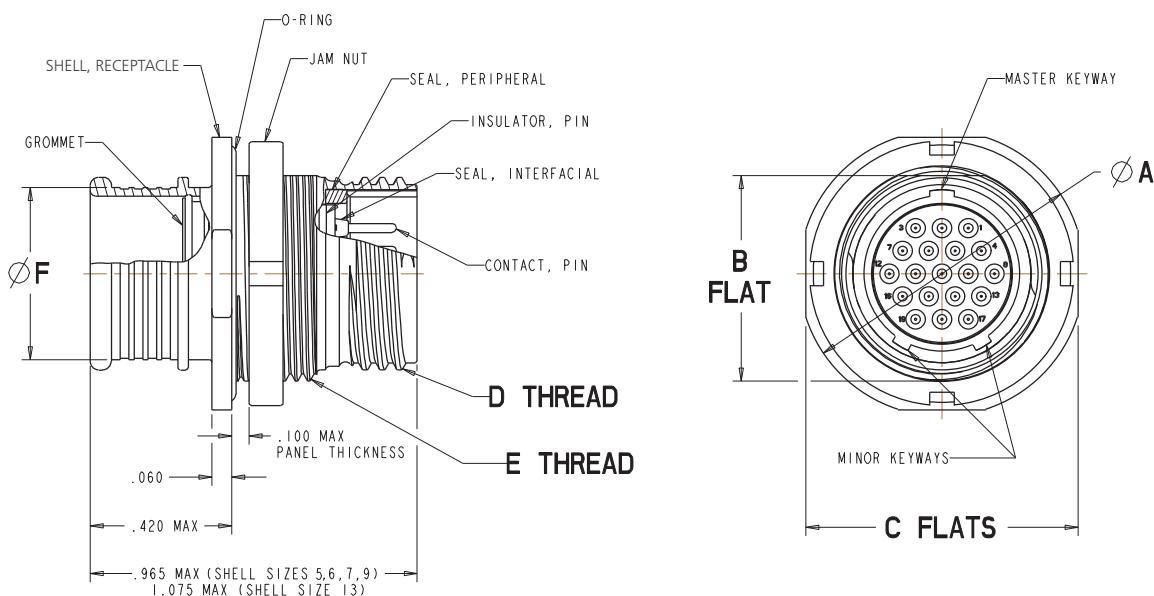


**Barrel Clocking
(A- Clocking Shown)**

Master keyway remains stationary at top dead center for all sizes and clocking.

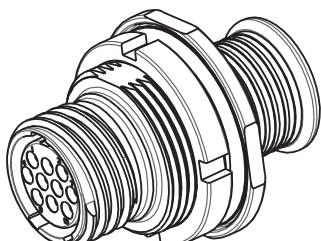
| BARREL CLOCKING | | |
|-----------------|------|------|
| POSITION | K1° | K2° |
| A (NORMAL) | 150° | 210° |
| B | 75° | 210° |
| C | 95° | 230° |
| D | 140° | 275° |

MKJ1 Jam Nut Receptacle (Banding Platform)

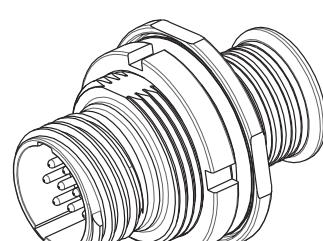


Mini Circular

| LAYOUT | Ø A FLANGE DIA. | B FLAT | C FLATS | D THREAD (ACME DOUBLE START) | E THREAD UN-2A | Ø F | MAX WEIGHT IN GRAMS | |
|--------|--------------------|--------|---------|---------------------------------|-------------------|------|------------------------|--------|
| | | | | | | | PIN | SOCKET |
| 6-4 | .635 | .410 | .595 | .375-.05P.1L-2A | .4375-2B | .290 | 4.1 | 4.6 |
| 6-7 | .635 | .410 | .595 | .375-.05P.1L-2A | .4375-2B | .290 | 4.2 | 4.6 |
| 7-10 | .755 | .536 | .723 | .4375-.05P.1L-2A | .5625-2B | .390 | 6.2 | 7.0 |
| 9-19 | .830 | .596 | .790 | .5625-.05P.1L-2A | .625-2B | .500 | 7.8 | 9.3 |
| 13-37 | 1.078 | .845 | 1.044 | .8125-.1P.2L-2A | .875-2B | .650 | 14.6 | 17.3 |

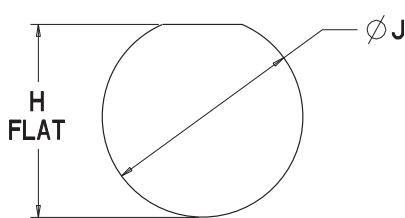


Socket Insert



Pin Insert

Panel Cutouts

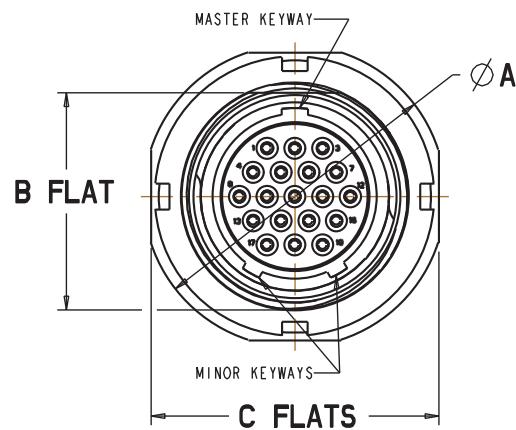
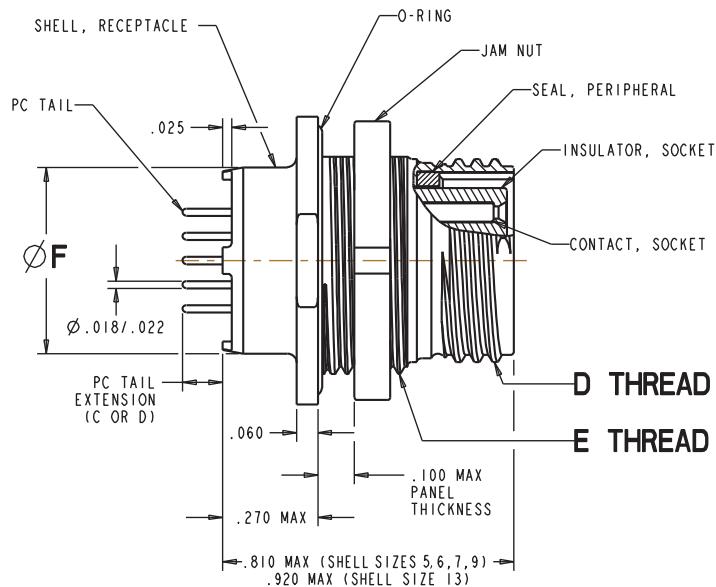


| LAYOUT | H FLAT ±.002 | Ø J |
|---------|-----------------|------|
| 6 - 4 | .420 | .448 |
| 6 - 7 | .420 | .448 |
| 7 - 10 | .551 | .573 |
| 9 - 19 | .609 | .635 |
| 13 - 37 | .859 | .885 |

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

MKJ1 Connectors

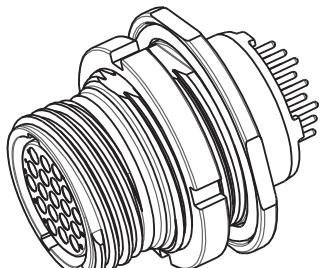
MKJ1 PCB Jam Nut Receptacle (PCB Mount)



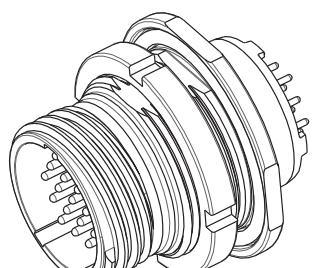
Mini Circular

MKJ1 JAM NUT RECEPTACLE DIMENSIONS

| LAYOUT | Ø A FLANGE DIA. | B FLAT | C FLATS | D THREAD (ACME DOUBLE START) | E THREAD UN-2A | Ø F | MAX WEIGHT IN GRAMS | |
|--------|-----------------------|--------|---------|---------------------------------|-------------------|------|------------------------|--------|
| | | | | | | | PIN | SOCKET |
| 6-4 | .635 | .410 | .595 | .375-.05P .1L -2A | .4375-28 | .322 | 4.4 | 4.9 |
| 6-7 | .635 | .410 | .595 | .375-.05P .1L -2A | .4375-28 | .322 | 4.7 | 5.1 |
| 7-10 | .755 | .536 | .723 | .4375-.05P .1L -2A | .5625-28 | .432 | 6.9 | 7.7 |
| 9-19 | .830 | .596 | .790 | .5625-.05P .1L -2A | .625-28 | .512 | 9.2 | 10.7 |
| 13-37 | 1.078 | .845 | 1.044 | .8125-.1P .2L -2A | .875-28 | .677 | 17.1 | 19.9 |

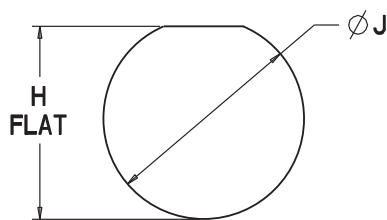


Socket Insert



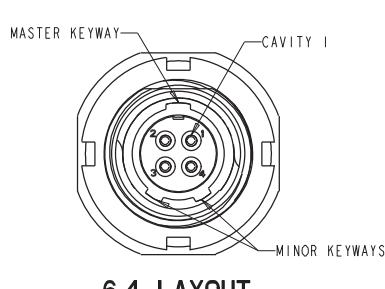
Pin Insert

Panel Cutouts

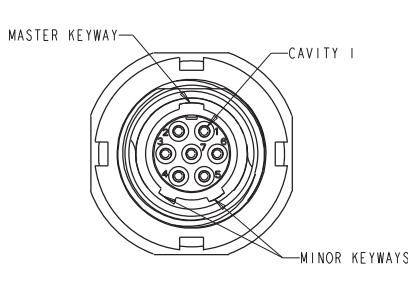


| LAYOUT | H FLAT $\pm .002$ | Ø J |
|---------|----------------------|------|
| 6 - 4 | .420 | .448 |
| 6 - 7 | .420 | .448 |
| 7 - 10 | .551 | .573 |
| 9 - 19 | .609 | .635 |
| 13 - 37 | .859 | .885 |

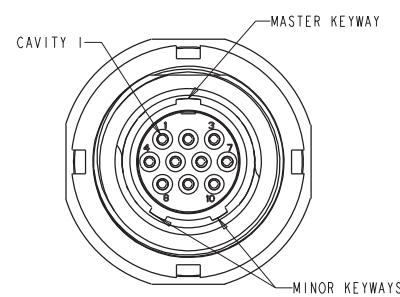
Receptacle Connector Orientation Front Side



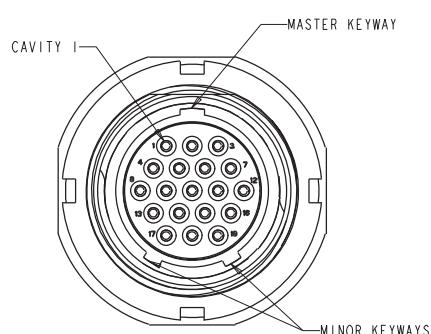
6-4 LAYOUT



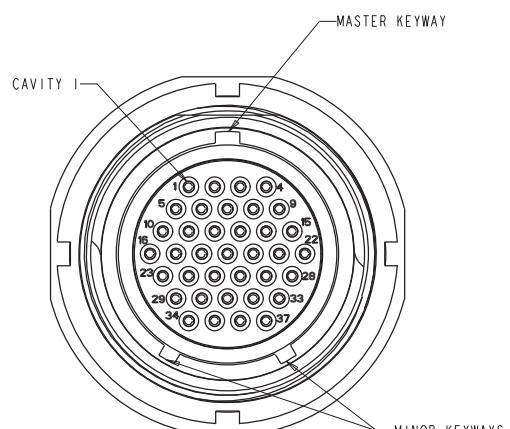
6-7 LAYOUT



7-10 LAYOUT



9-19 LAYOUT



13-37 LAYOUT

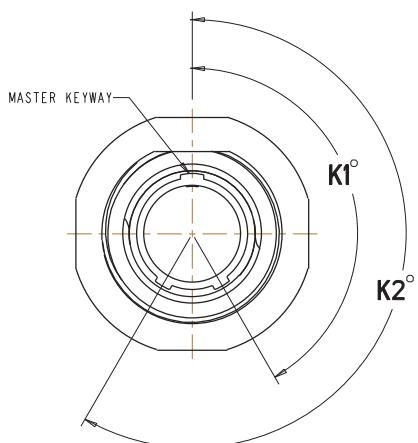
Note: Socket insert front side shown for reference only. Pin insert is a mirror image.



B

Mini Circular

MKJ1 Receptacle Shell Clocking Positions

Shell Clocking
(A- Clocking Shown)

Master keyway is perpendicular with B Flat for all sizes and remains stationary at top dead center for all clockings.

| SHELL CLOCKING | | |
|----------------|------|------|
| POSITION | K1° | K2° |
| A (NORMAL) | 150° | 210° |
| B | 75° | 210° |
| C | 95° | 230° |
| D | 140° | 275° |

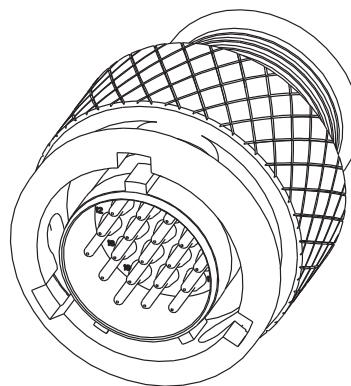
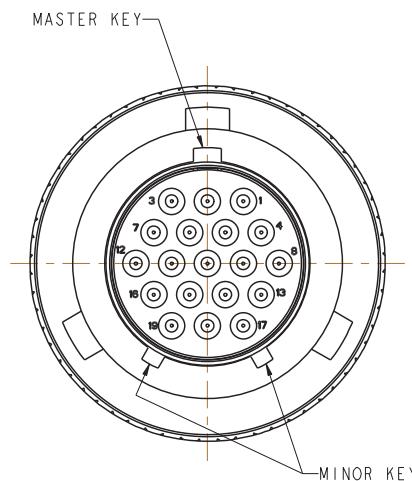
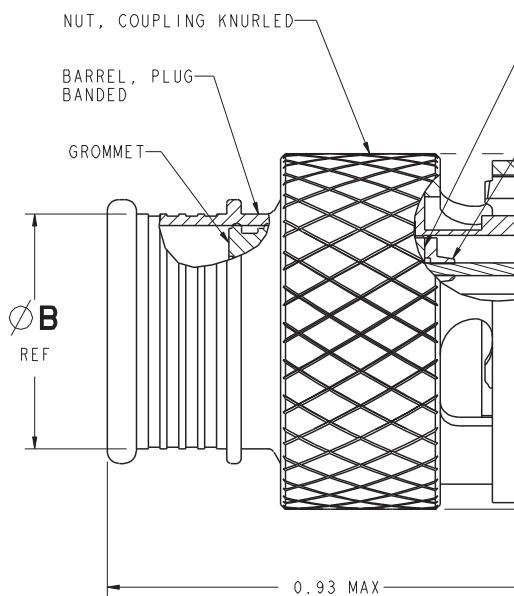


The MKJ3 is ideal for quick mating, light duty applications where weight and cost take a precedence. The connector comes with 7 high density contact arrangements, multiple clocking positions and a rear banding platform or accessory threads for backshell applications, and a rear grommet and pin interfacial seals. Used in avionics, aerospace, medical, and industrial applications.

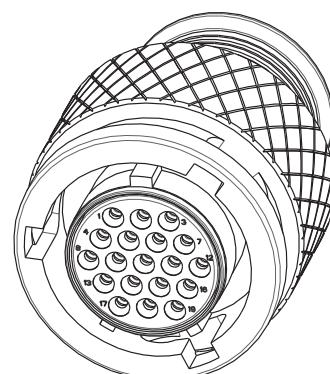
Specifications

| | |
|------------------------------|---|
| Contact Type | Rear crimp or PCB mount |
| Contacts | Size 23 (0.076" spacing), Size 16 (.177" spacing) |
| Wire Size | #22 - #28 AWG (Size 23 Contacts), #16 - #20 AWG (Size 16 Contacts) |
| Contact Rating | 5 Amps Maximum |
| Voltage Rating | 500 VAC RMS sea level |
| Insulation Resistance | 5,000 Megaohms minimum |
| Operating Temperature | -55°C to +150°C |
| Contact Resistance | 8 Milliohms maximum |
| Vibration | 37 g's in accordance with MIL-STD-1344 Method 2005, Condition IV |
| Shock | 300 g's in accordance with MIL-STD-1344 Method 2004, Condition E |
| Durability | 250 mating cycles (Aluminum) or 2,000 mating cycles (Stainless Steel) |
| Receptacle Mounting | Jam nut or Wall Mount |
| EMI Shielding | 40db attenuation, 100Mhz to 1000Mhz |
| Coupling | Bayonet |
| Materials | Shells - Aluminum Alloy or Stainless Steel Insulators - Thermostatic Seals - Flurosilicone Contacts - Copper alloy with gold over nickel plating |

MKJ3 Plug (Banding Platform)



Socket Insert



Pin Insert



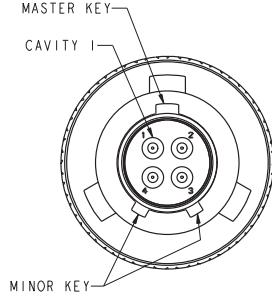
Mini Circular

| MKJ3 PLUG DIMENSIONS | | |
|----------------------|------|------|
| LAYOUT | Ø A | Ø B |
| 6-4 | .565 | .290 |
| 6-7 | .565 | .290 |
| 7-10 | .650 | .390 |
| 8-13 | .750 | .440 |
| 9-19 | .790 | .500 |
| 10-26 | .875 | .562 |
| 12-37 | .944 | .650 |

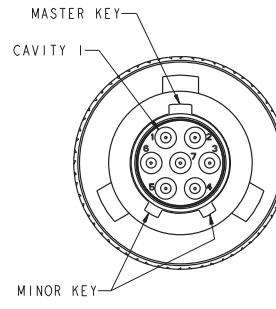
Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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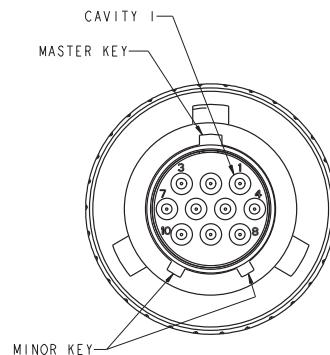
Connector Orientation Front Side



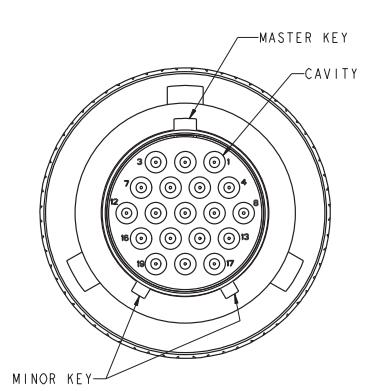
6-4 LAYOUT



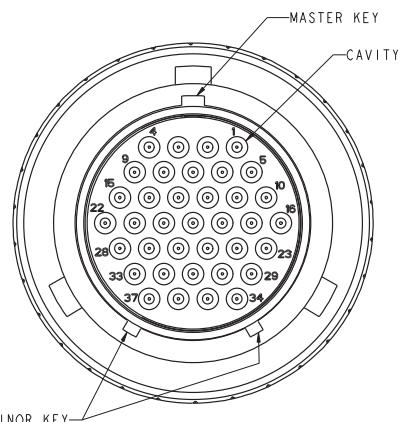
6-7 LAYOUT



7-10 LAYOUT



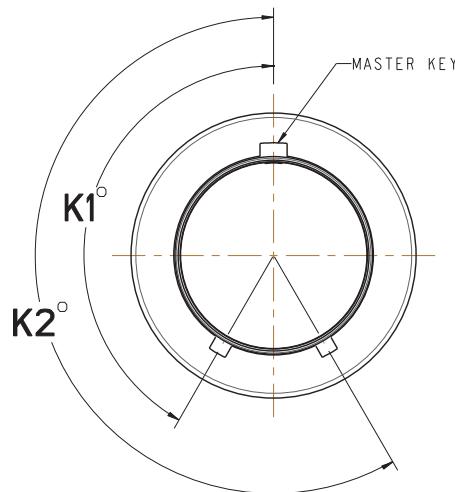
9-19 LAYOUT



12-37 LAYOUT

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

MKJ4 Receptacle Shell Clocking Positions

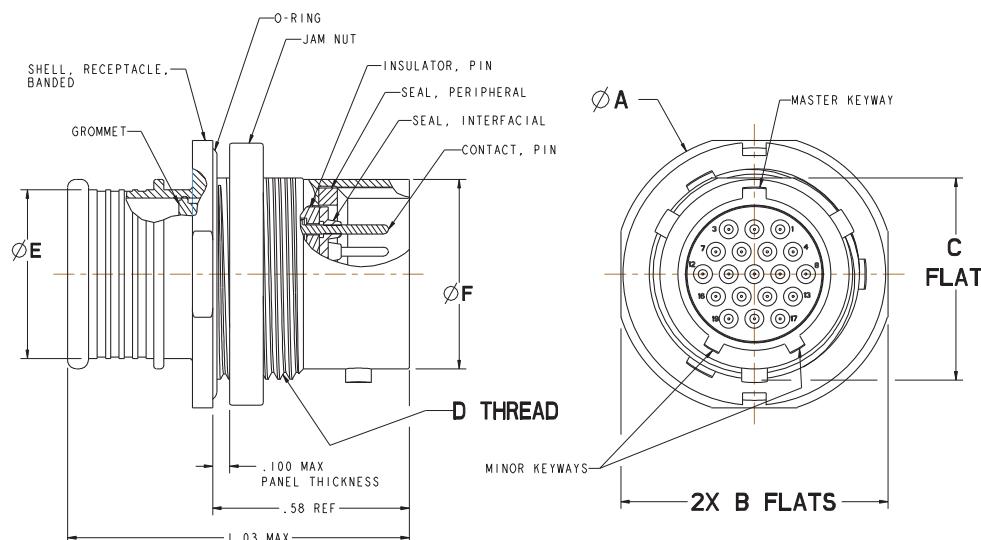


**Barrel Clocking
(N- Clocking Shown)**

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

| SHELL CLOCKING | | |
|----------------|------|------|
| POSITION | K1° | K2° |
| N (NORMAL) | 150° | 210° |
| X | 75° | 210° |
| Y | 95° | 230° |
| Z | 140° | 275° |

MKJ3 Jam Nut Receptacle (Banding Platform)

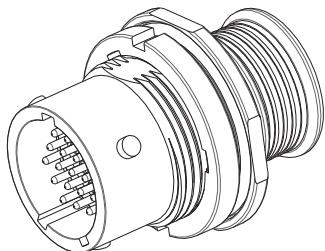


B

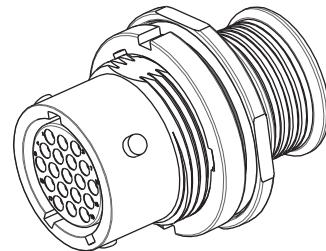
Mini Circular

MKJ0 JAM NUT RECEPTACLE DIMENSIONS

| LAYOUT | Ø A FLANGE DIA. | B FLAT | C FLAT | D THREAD UN-2A | Ø E | Ø F | H FLAT | Ø J | MAX WEIGHT IN GRAMS |
|--------|--------------------|--------|--------|-------------------|------|------|--------|------|------------------------|
| 6-4 | .635 | .595 | .410 | .4375-28 | .290 | .362 | .415 | .445 | TBD |
| 6-7 | .635 | .595 | .410 | .4375-28 | .290 | .362 | .415 | .445 | TBD |
| 7-10 | .755 | .723 | .536 | .5625-32 | .390 | .436 | .541 | .572 | TBD |
| 8-13 | .755 | .723 | .536 | .5625-32 | .440 | .508 | .541 | .583 | TBD |
| 9-19 | .830 | .790 | .596 | .6250-28 | .500 | .561 | .601 | .643 | TBD |
| 10-26 | .890 | .855 | .656 | .6875-28 | .562 | .635 | .671 | .720 | TBD |
| 12-37 | 1.078 | 1.044 | .845 | .8750-28 | .650 | .714 | .850 | .885 | TBD |

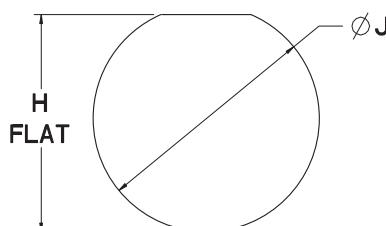


Pin Insert



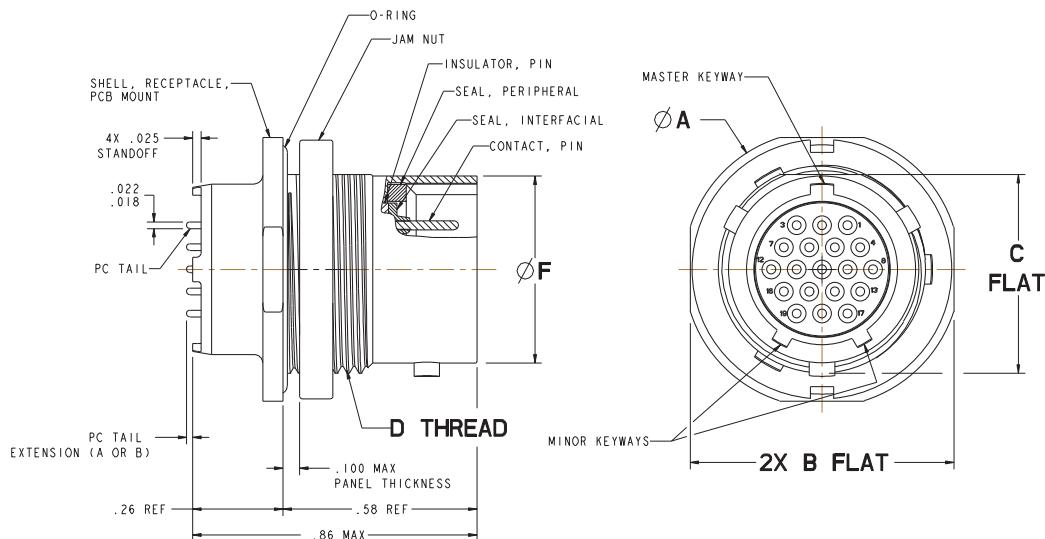
Socket Insert

Panel Cutouts



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

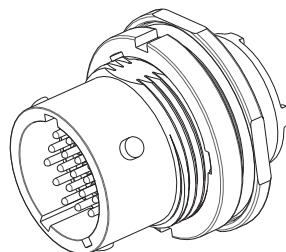
MKJ3 Jam Nut Receptacle (PCB Mount)



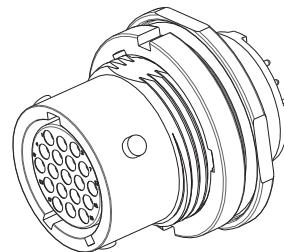
Mini Circular

MKJ0 JAM NUT RECEPTACLE DIMENSIONS

| LAYOUT | Ø A FLANGE DIA. | B FLAT | C FLAT | D THREAD UN-2A | ØF | H FLAT | Ø J | MAX WEIGHT IN GRAMS |
|--------|--------------------|--------|--------|-------------------|------|--------|------|------------------------|
| 6-4 | .635 | .595 | .410 | .4375-28 | .362 | .415 | .445 | TBD |
| 6-7 | .635 | .595 | .410 | .4375-28 | .362 | .415 | .445 | TBD |
| 7-10 | .755 | .723 | .536 | .5625-32 | .436 | .541 | .572 | TBD |
| 8-13 | .755 | .723 | .536 | .5625-32 | .508 | .541 | .583 | TBD |
| 9-19 | .830 | .790 | .596 | .6250-28 | .561 | .601 | .643 | TBD |
| 10-26 | .890 | .855 | .656 | .6875-28 | .635 | .671 | .720 | TBD |
| 12-37 | 1.078 | 1.044 | .845 | .8750-28 | .714 | .850 | .885 | TBD |

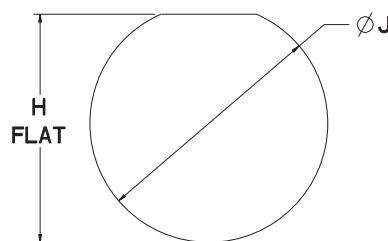


Pin Insert

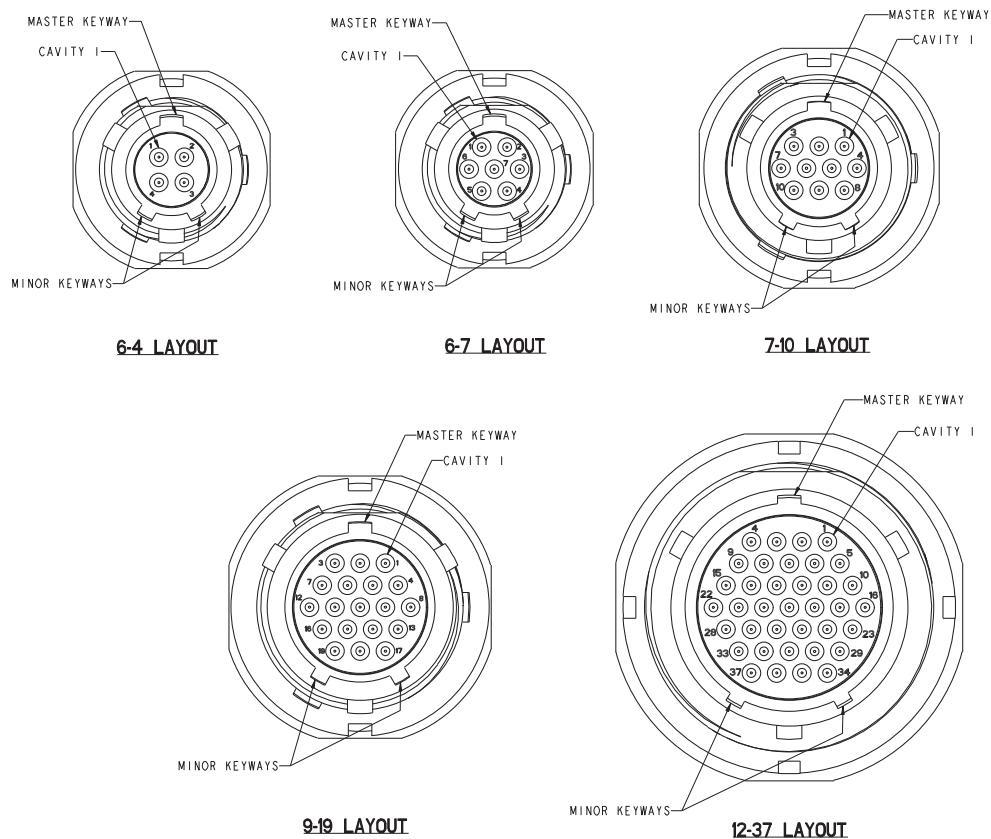


Socket Insert

Panel Cutouts

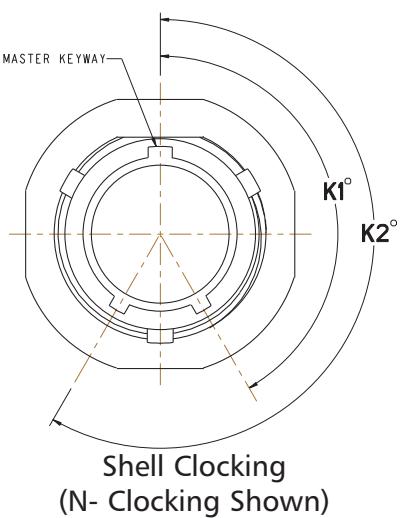


Connector Orientation Front Side



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

MKJ3 Shell Clocking Positions



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

| SHELL CLOCKING | | |
|----------------|------|------|
| POSITION | K1° | K2° |
| N (NORMAL) | 150° | 210° |
| X | 75° | 210° |
| Y | 95° | 230° |
| X | 140° | 275° |

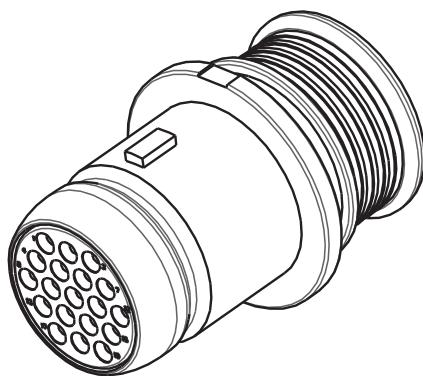
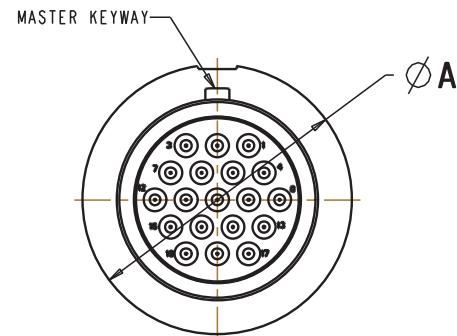
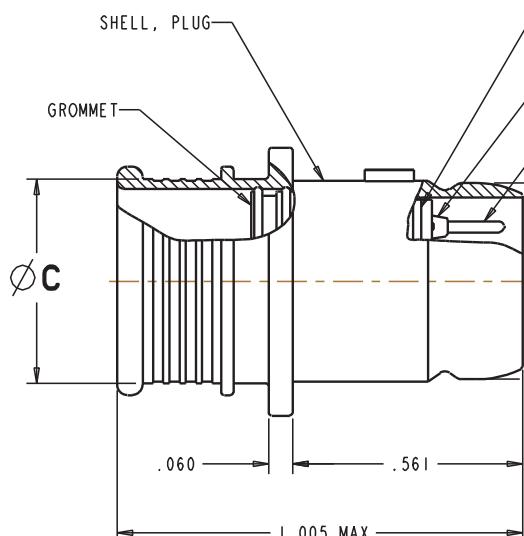


The MKJ4 features a canted retention spring disconnect coupling mechanism. This durable coupling mechanism allows quick and easy mating and demating of the connector. Ideal for battlefield and medical device equipment.

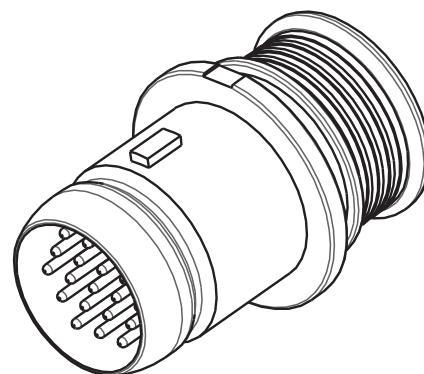
Specifications

| | |
|------------------------------|---|
| Contact Type | Rear crimp |
| Contacts | Size 23 (0.076" spacing), Size 16 (.177" spacing) |
| Wire Size | #22 - #28 AWG (Size 23 Contacts), #16 - #20 AWG (Size 16 Contacts) |
| Contact Rating | 5 Amps Maximum |
| Voltage Rating | 500 VAC RMS sea level |
| Insulation Resistance | 5,000 Megaohms minimum |
| Operating Temperature | -55°C to +150°C |
| Contact Resistance | 8 Milliohms maximum |
| Vibration | 20 g's in accordance with MIL-STD-1344 Method 2005, Condition IV |
| Shock | 50 g's in accordance with MIL-STD-1344 Method 2004, Condition E |
| Durability | 2,000 mating cycles |
| Receptacle Mounting | Jam Nut |
| EMI Shielding | 400db attenuation, 100Mhz to 1000Mhz |
| Coupling | Quick disconnect (Canted Spring) |
| Materials | Shells - Aluminum Alloy or Stainless Steel Insulators - Thermoplastic Seals - Flurosilicone Contacts - Copper alloy with gold over nickel plating Canted Coil - Stainless Steel |

MKJ4 Plug (Banding Platform)



Socket Insert



Pin Insert



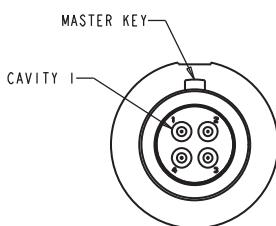
Mini Circular

| MKJ4 PLUG DIMENSIONS | | | | | |
|----------------------|------|------|------|---------------------|--------|
| LAYOUT | Ø A | Ø B | Ø C | MAX WEIGHT IN GRAMS | |
| | | | | PIN | SOCKET |
| 6-4 | .485 | .310 | .290 | 2.5 | 3.0 |
| 6-7 | .485 | .310 | .290 | 2.6 | 3.1 |
| 7-10 | .565 | .380 | .390 | 3.7 | 4.5 |
| 9-19 | .660 | .480 | .500 | 5.1 | 6.6 |

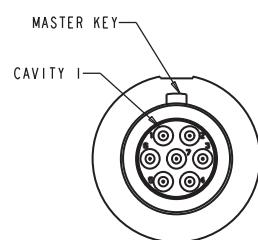
Dimensions shown in inches (mm)
Specifications and dimensions subject to change

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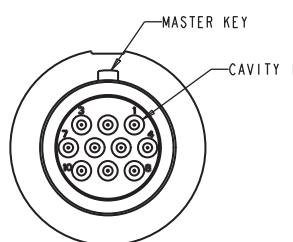
Connector Orientation Front Side



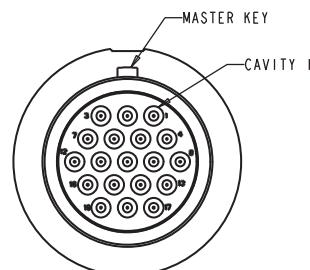
6-4 LAYOUT



6-7 LAYOUT



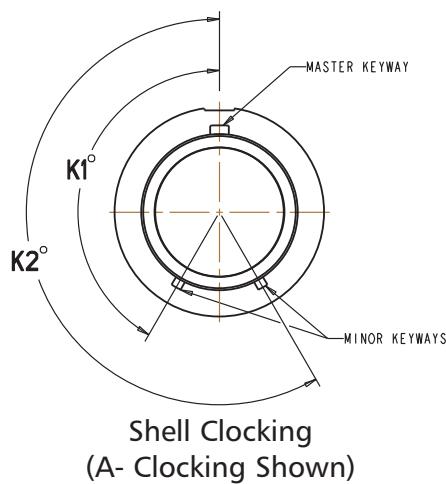
7-10 LAYOUT



9-19 LAYOUT

Note: Pin insert front side shown for reference only. Socket insert is a mirror image.
Connectors shown without minor keys.

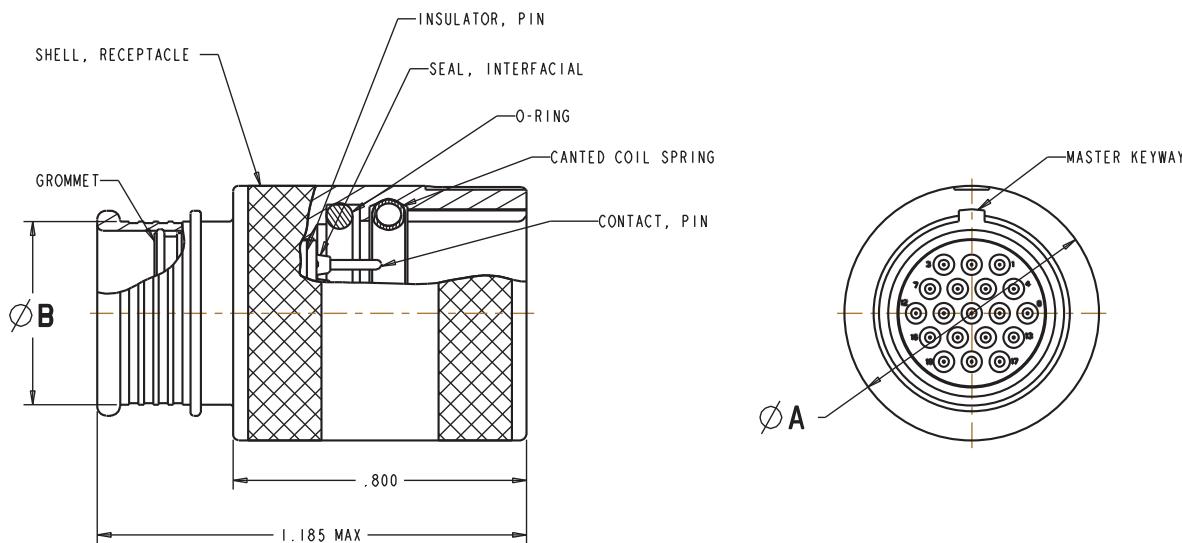
MKJ4 Receptacle Shell Clocking Positions



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

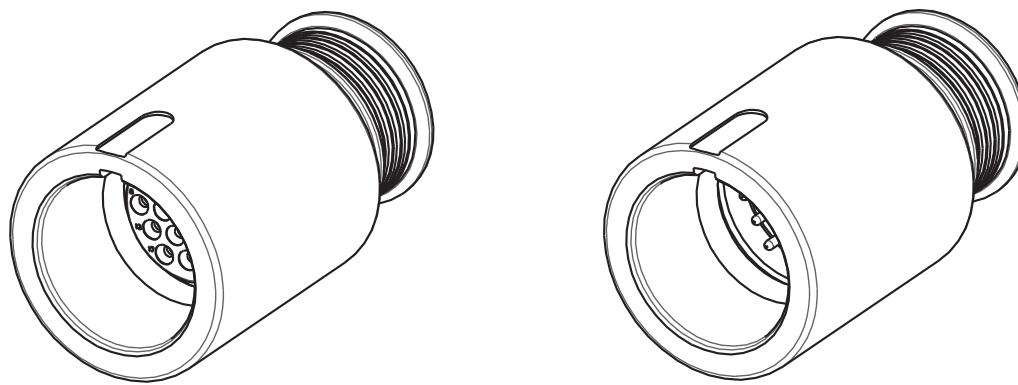
| SHELL CLOCKING | | |
|----------------|----------------------------------|------|
| POSITION | K1° | K2° |
| A (NORMAL) | 150° | 210° |
| B | 75° | 210° |
| C | 95° | 230° |
| D | 140° | 275° |
| NO DESIGNATION | MASTER KEY ONLY NO MINOR KEYS | |

MKJ4 In-Line Receptacle (Banding Platform)



B

Mini Circular



Socket Insert

Pin Insert

| MKJ4 RECEPTACLE DIMENSIONS | | | | |
|----------------------------|------|------|---------------------|--------|
| LAYOUT | Ø A | Ø B | MAX WEIGHT IN GRAMS | |
| | | | PIN | SOCKET |
| 6-4 | .520 | .290 | 6.3 | 6.8 |
| 6-7 | .520 | .290 | 6.4 | 6.9 |
| 7-10 | .580 | .390 | 7.8 | 8.6 |
| 9-19 | .695 | .500 | 10.7 | 12.1 |

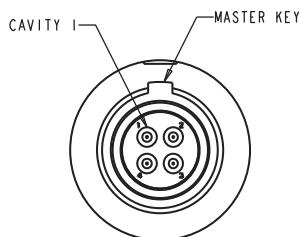
Dimensions shown in inches (mm)

Specifications and dimensions subject to change

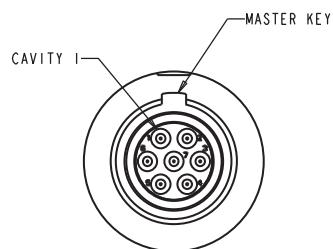
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MKJ4 Connectors

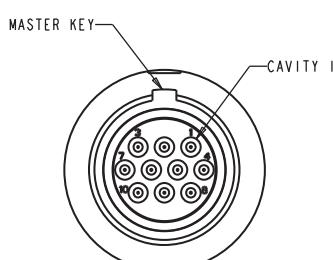
Receptacle Connector Orientation Front Side



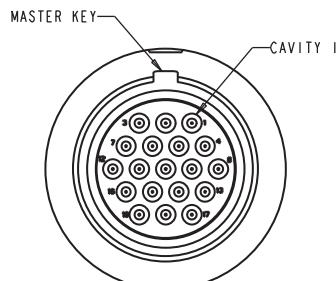
6-4 LAYOUT



6-7 LAYOUT



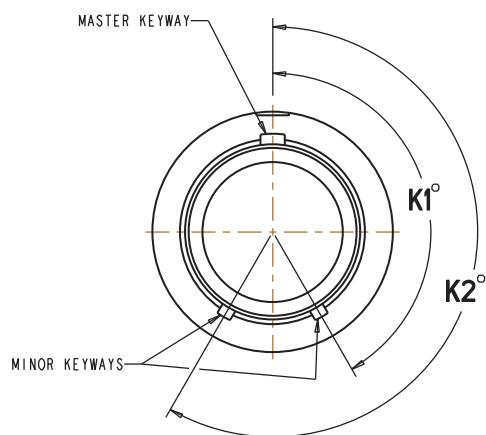
7-10 LAYOUT



9-19 LAYOUT

Note: Pin insert front side shown for reference only. Socket insert is a mirror image.
Connectors shown without minor key ways.

MKJ4 Receptacle Shell Clocking Positions

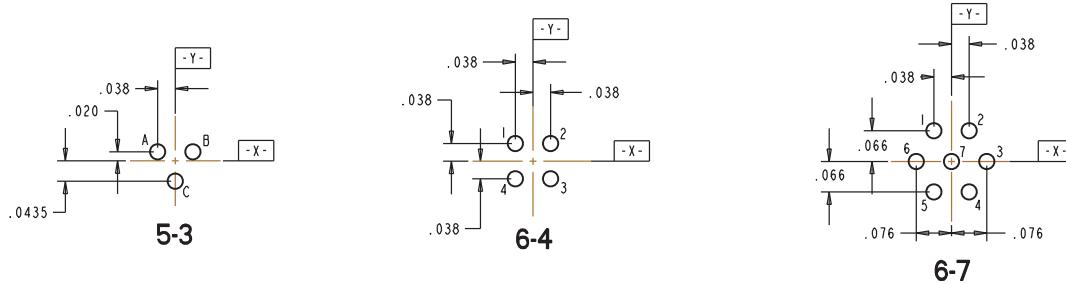


Shell Clocking
(A- Clocking Shown)

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

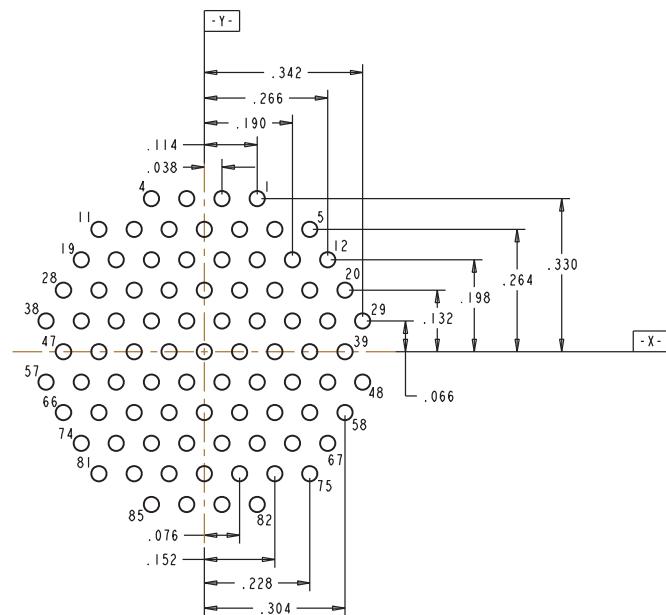
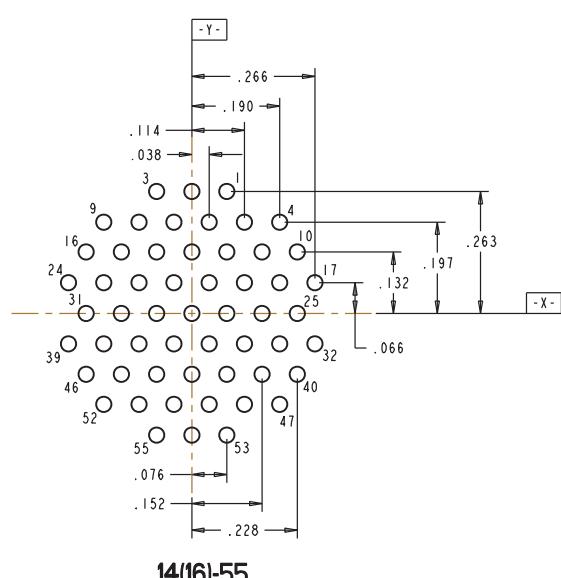
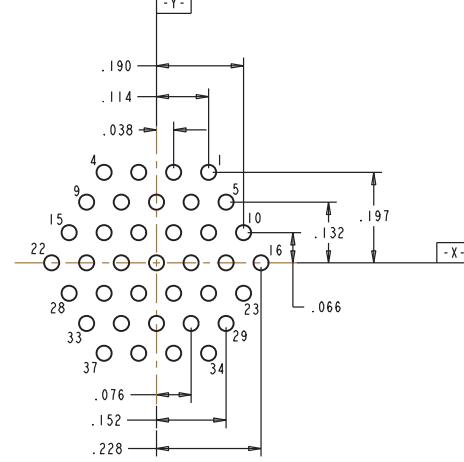
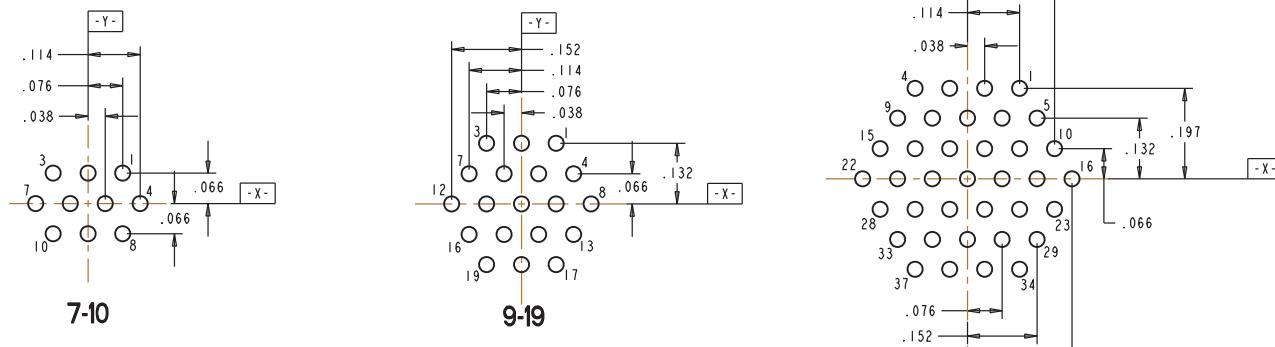
| SHELL CLOCKING | | |
|----------------|--|------|
| POSITION | K1° | K2° |
| A (NORMAL) | 150° | 210° |
| B | 75° | 210° |
| C | 95° | 230° |
| D | 140° | 275° |
| NO DESIGNATION | MASTER KEYWAY ONLY NO MINOR KEYWAYS | |

PCB Layout Dimensions



8

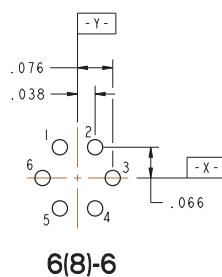
Mini Circular



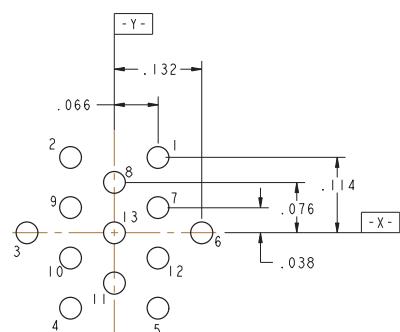
Note: Layouts for pin connectors shown. Socket connectors are a mirror image.

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

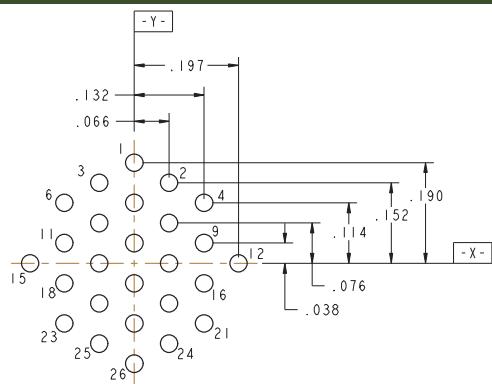
PCB Layout Dimensions



6(8)-6



8(10)-13



10(12)-26

Note: Layouts for pin connectors shown. Socket connectors are a mirror image.

Format Sheet-Tooling and Contacts MKJ

Crimp Contacts

Pin Contacts (Size 23) 030-9649-000
 Socket contacts (Size 23) 031-9750-000

**Contact Area Plating:**

50 Micro inches Gold over Nickel
 Accommodates Sizes #22-28 AWG Wire

Crimp Tool

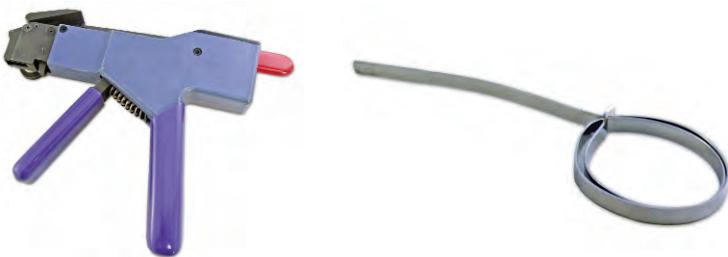
Contact Crimp Tool 995-0002-293
 Locator 995-0002-297



Mini Circular

Contact Insertion/Extraction Tools

Insertion Tool 995-0002-295
 Extraction Tool 995-0002-294

**Banding Tools**

Hand banding Tool 995-0002-298
 1/8" bands (100 pk)
 995-0002-299



| PART NUMBER | USE ON JAMNUT SIZE / PN |
|--------------|----------------------------|
| 317-2187-000 | MKJ1 (6) MKJ0 (7) |
| 317-2187-001 | MKJ1 (7) MKJ0 (9) |
| 317-2187-002 | MKJ1 (9) |
| 317-2187-003 | MKJ1 (13) |
| 317-2187-006 | MKJ0 (6) |
| 317-2187-007 | MKJ0 (12) |

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

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MKJ Accessories

Backshells

MKJ Banding Backshell Designator - Talking Dog



Mini Circular

| Backshell Designator | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|----------------------|---------------------------------|---------------------------------|---------------|---------------------------------|---------------|---------------------------------|---------------|---------------------------------|
| Shell Style | MKJ0, MKJ1, MKJ3, MKJ4 | MKJ0, MKJ1, MKJ3, MKJ4 | MKJ5 | MKJ0, MKJ1, MKJ3, MKJ4 | MKJ5 | MKJ0, MKJ1, MKJ3, MKJ4 | MKJ5 | MKJ0, MKJ1, MKJ3, MKJ4 |
| Shell Size | (05) Straight | (06) Straight | (08) Straight | (07) Straight | (09) Straight | (08) Straight | (10) Straight | (11) Straight |

Heat Shrink Boot

MKJ Heat Shrink Boot P/N's - Straight

| Shell Size | ITT P/N |
|----------------|--------------|
| 5, 6, 7 | 980-2010-017 |
| 8, 9 | 980-2010-018 |
| 10, 11, 12, 13 | 980-2010-019 |

MKJ Heat Shrink Boot P/N's - 90°

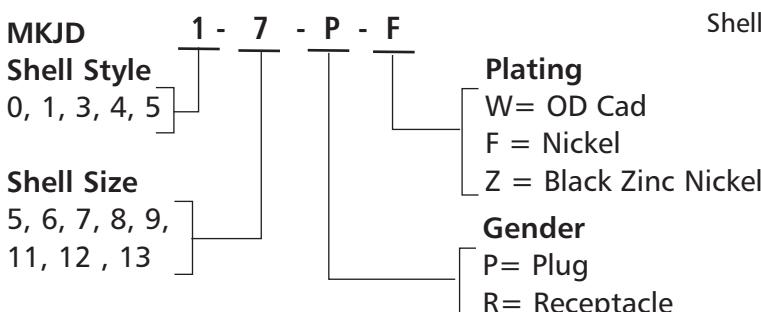
| Shell Size | ITT P/N |
|----------------|--------------|
| 5, 6, 7 | 980-2010-020 |
| 8, 9 | 980-2010-021 |
| 10, 11, 12, 13 | 980-2010-022 |

Material: Fluid resistant elastomer

Adhesive: Polyamide hot melt

Metal Dust Caps

MKJ Aluminum Dustcap Designator- Talking Dog



No Size 11 or 12 dustcaps are available on MKJ1
No size 11 or 13 dustcaps are available on MKJ0, MKJ3, & MKJ4
No size 5, 6, 7, or 13 dustcaps are available on MKJ5