

# OMNETICS

CONNECTOR CORPORATION

## Space Short Form Catalog



**Lighter, smaller, more durable connectors for any application**

Visit [Omnetics.com](http://Omnetics.com) to find a solution for you. | call us at 763-572-0656

# About Omnetics

Omnetics Connector Corporation is a privately held, world class connector design and manufacturing company with over 30 years experience focused on ultra-lightweight micro-miniature and nano-miniature highly reliable electronic connectors and interconnection systems. Our products are designed and assembled at our plant in Minneapolis, Minnesota that includes in-house automatic machining and over-molding equipment.

## Omnetics' Flex Pin

Designed for  
High Shock  
and Vibration



Omnetics' Flex Pin contact design is an engineered piece, designed and produced many years before the creation of MIL-DTL-32139. This simple one piece design is stamped from ASTM B194 BeCu. The spring characteristic of BeCu is ideal for withstanding high shock and vibration situations.





# Table Of Contents



Micro Strip Connectors: pages 8-9



Nano Strip Connectors: pages 10-11  
PZN Strip Connectors: page 11



Micro-D Connectors: pages 12-13



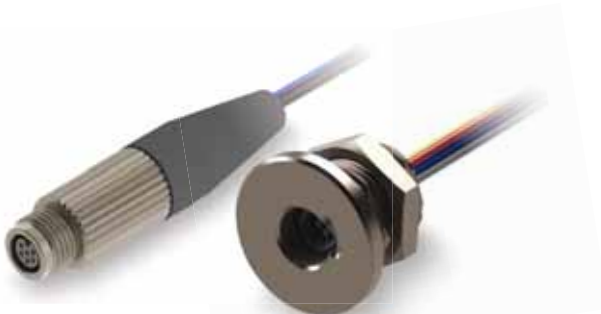
Bi-Lobe® / Nano-D Connectors: pages 14-15



Hybrid Connectors: pages 16-17



Micro 360® Circular Connectors: pages 17-18



Nano 360® Circular Connectors: pages 20-21

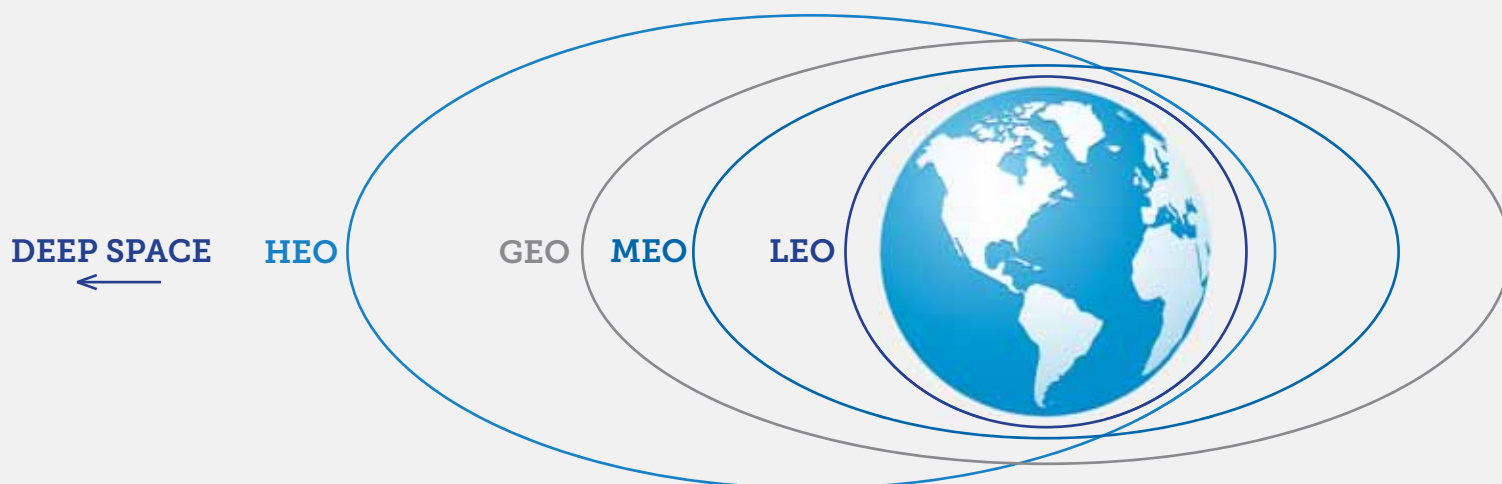
**OMNETICS**  
CONNECTOR CORPORATION

# Omnetics Space Heritage

Miniature Micro and Nano connectors from Omnetics are ideally suited for space environments. Omnetics has over 30 years of experience designing extremely small, rugged, and lightweight connectors and cable assemblies, which are ideal for saving space and weight inside satellites and other instruments onboard spacecrafts. Designers can make the most of their PCB space with Omnetics connectors' small footprints. These miniature connectors also have low weight and mass, ideal for maximizing launch efficiency and shock resistance. Retention screws and other locking mechanisms are available for added signal integrity. Space level screening can be specified for low outgassing materials and high reliability.

## To Infinity and Beyond...

Connectors from Omnetics have been deployed on space missions ranging from Low Earth orbits to deep space exploration.



## Mission Critical Quality

Component	Material	%TML	%CVCM	%WVR
Epoxy	Standard Epoxy	0.98	0.02	0.42
Epoxy	High Temperature Epoxy	0.24	0.02	0.08
Ink	White Epoxy Ink	0.64	0.01	0.42
Ink	Black Epoxy Ink	0.74	0.01	0.54
Insulator	Liquid Crystal Polymer	0.03	0.00	0.01
Wire	30 AWG / 80 Micro Inch Silver Plated	0.10	0.03	0.00

# Omnetics Space Heritage



**Cassini-Huygens Mission**

Nano Strip Connectors



**Curiosity Rover**

Micro-D and Nano-D Connectors



**Iridium® NEXT Satellite Constellation**

Nano-D Connectors



**InSight Lander**

Micro-D and Nano-D Connectors



**Hubble Telescope**

Latching Micro Strip Connectors



**Cube Satellites**

Nano-D and Micro-D Connectors



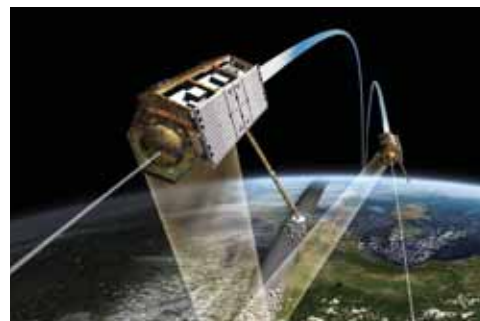
**SNC Dream Chaser**

Micro-D and Micro Strip Connectors



**Virgin Orbit LauncherOne**

Micro Circular and Hybrid Micro-D Connectors



**TanDEM-X and TerraSAR-X Satellites**

Nano-D Connectors

Images courtesy of: NASA, Virgin Orbit, Iridium® NEXT, DLR



# Space Level Screening

Per EEE-INST-002



## Ordering Steps

Step 1 - Choose a suitable Micro or Nano connector

Step 2 - Choose a level of Space Screening

Level 1 - Mission Critical (Highest Reliability)

Level 2 - High Reliability

Level 3 - Standard Reliability

Step 3 - Select any added outgassing processing needed.

Step 4 - Specify chosen ORDERING CODES from table below.  
These codes should be used as separate line items on all quote Requests and Purchase Orders as required.

## Ordering Codes (quoted as separate line items)

Screening Level	Special Screening Only	Processing for Outgassing
Level 1 - Mission Critical	SPT1	All standard materials exhibit less than 1.0% TML without additional processing. Contact service for special requirements.
Level 2 - High Reliability	SPT2	
Level 3 - Standard Reliability	Standard	



Inspection/Test	Micro (.050" center)		Nano (.025" center)	
	Level 1 Com'l/SCD	Level 2 Com'l/SCD	Level 1 Com'l/SCD	Level 2 Com'l/SCD
Visual	100%	100%	100%	100% 100%
Mechanical	2 (0)	2 (0)	2 (0)	2 (0)
Voltage Rating (DWV)	100%	2 (0)	100%	2 (0)
Insulation Resistance	2 (0)	2 (0)	2 (0)	2 (0)
Temperature Cycling	2 (0)	2 (0)	2 (0)	-
Low Level Contact Resistance	2 (0)	2 (0)	2 (0)	2 (0)
Mating/Unmating Force	2 (0)	-	2 (0)	-
Solderability/Resistance to heat (SMT & Thru-Hole only)	2 (0)	-	2 (0)	-
Note: NASA screening requirements from Table 2C & 2J of EEE-INST-002				

## Backshells

Omnetics manufactures a selection of Micro-D and Nano-D backshells commonly used for mission critical applications. These small lightweight accessories will provide strain relief to the wires or cable. This prevents mechanical stress and aids in the shielding technology to ensure EMC of the interconnect systems. Backshells are available in many different form factors for flexibility and added strain relief.



## Cable Assembly and Wire Harness

Omnetics manufactures a wide range of cable and wire harness assemblies for Nano and Micro miniature form factors. These assemblies are built to meet or exceed the durability and performance requirements of the application environment. Omnetics is well suited to meet the cable harness needs of our customers, with IPC-610 and IPC-620 trained workers on-site. Our experienced staff of sales, engineering, and manufacturing professionals make cable harness projects a hassle-free experience.



# Micro Strip Connectors

Omnetics Micro Strip Connectors are a well-established products in our COTS and Standards family. The ultra-low profile and rugged format are suited to both inside-the-box and board to board solutions.

Omnetics' Micro Strip Connectors are particularly suited to applications where ruggedness is critical, such as in unmanned aerial vehicles which demand rugged performance combined with low weight and small size. Land based robotic circuits have high shock and continuous vibration requirements and contain field replaceable modules that need to be switched quickly.

## Product Specifications

Current Carrying:	3 AMPs per contact
Dielectric Withstanding:	600 VAC RMS at Sea Level
Insulation Resistance:	5000 Megohms min at 500 VDC
Vibration:	20 g's with no discontinuities > 1 microsecond
Shock:	50 g's with no discontinuities > 1 microsecond
Operating Temperature:	-55°C - +200°C
Durability:	Exceeds 2000 mating cycles

## Industries

- ☑ Space
- ☑ Aviation
- ☑ Medical
- ☑ Military
- ☑ Petroleum
- ☑ Robotics
- ☑ Unmanned Systems
- ☑ Neuroscience



### Durability

Omnetics' rugged lightweight Micro Strip Connectors provide a variety of low profile configurations for demanding applications.



### Flexibility

Micro Strip Connectors are available in single row, dual row, and offset dual row configurations with a variety of terminations for PCB and flex termination. Additionally, the rugged lightweight connectors offer a variety of additional securing options.





# Micro Strip Connectors



**Micro Single Row Pin  
PS1/PS2 Series**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> RoHS         | <input checked="" type="checkbox"/> COTS           |
| <input checked="" type="checkbox"/> Guide Posts  | <input checked="" type="checkbox"/> Latches        |
| <input checked="" type="checkbox"/> 200 °C Rated | <input checked="" type="checkbox"/> Mounting Holes |



**Micro Single Row Socket  
SSB Series**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> RoHS         | <input checked="" type="checkbox"/> COTS    |
| <input checked="" type="checkbox"/> Guide Posts  | <input checked="" type="checkbox"/> Latches |
| <input checked="" type="checkbox"/> 200 °C Rated |   |



**Micro Dual Row Offset Pin  
PSM Series**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> RoHS         | <input checked="" type="checkbox"/> COTS           |
| <input checked="" type="checkbox"/> Guide Posts  | <input checked="" type="checkbox"/> Latches        |
| <input checked="" type="checkbox"/> 200 °C Rated | <input checked="" type="checkbox"/> Mounting Holes |



**Micro Dual Row Offset Socket  
SSO Series**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> RoHS         | <input checked="" type="checkbox"/> COTS           |
| <input checked="" type="checkbox"/> Guide Posts  | <input checked="" type="checkbox"/> Latches        |
| <input checked="" type="checkbox"/> 200 °C Rated | <input checked="" type="checkbox"/> Mounting Holes |



**Micro Dual Row Pin  
DRP Series**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> RoHS         | <input checked="" type="checkbox"/> COTS    |
| <input checked="" type="checkbox"/> Guide Posts  | <input checked="" type="checkbox"/> Latches |
| <input checked="" type="checkbox"/> 200 °C Rated |   |



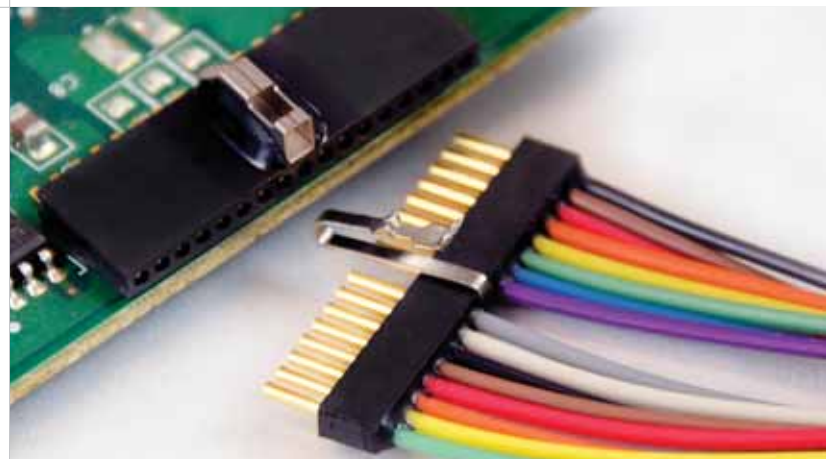
**Micro Dual Row Socket  
DRS Series**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> RoHS         | <input checked="" type="checkbox"/> COTS           |
| <input checked="" type="checkbox"/> Guide Posts  | <input checked="" type="checkbox"/> Latches        |
| <input checked="" type="checkbox"/> 200 °C Rated | <input checked="" type="checkbox"/> Mounting Holes |



**Micro Header  
HMD Series**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> RoHS           | Termination:                           |
| <input checked="" type="checkbox"/> 200 °C Rated   | <input checked="" type="checkbox"/> AA |
| <input checked="" type="checkbox"/> Mounting Holes | <input checked="" type="checkbox"/> DD |
| <input checked="" type="checkbox"/> COTS           | <input checked="" type="checkbox"/> H2 |
|  | <input checked="" type="checkbox"/> VV |



# Nano Strip Connectors

Omnetics Nano Strips and PZN series are an ideal solution for designers who are tight for space, yet demand rugged reliability. Omnetics Polarized Nano Series is a hermaphroditic connector solution encompassing both male and female contacts within the same insulator arrangement. Benefits from this connector configuration include the fact the connector itself is polarized, thus eliminating the need for excess weight caused by guide pins or other polarizing features. Meanwhile, at .025" (.64 mm) spacing, both product families offer mil quality, gold plated contacts for the reliability you need.

## Product Specifications

(excludes PZN series)

Current Carrying:	1 AMP per contact
Dielectric Withstanding:	250 VAC RMS at Sea Level
Insulation Resistance:	5000 Megohms min at 100 VDC
Vibration:	20 g's with no discontinuities > 10 nanoseconds
Shock:	100 g's with no discontinuities > 10 nanoseconds
Operating Temperature:	-55°C - +200°C
Durability:	Exceeds 2000 mating cycles

## Industries

- ☑ Space
- ☑ Aviation
- ☑ Medical
- ☑ Military
- ☑ Petroleum
- ☑ Robotics
- ☑ Unmanned Systems
- ☑ Sensors



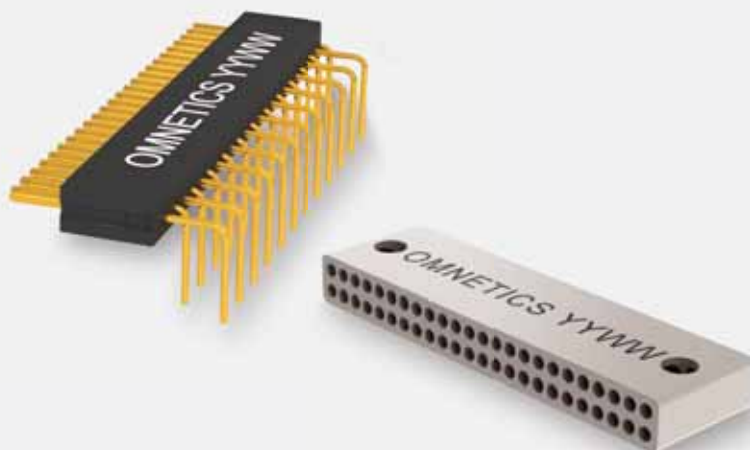
### Durability

Nano Strip connectors provide a rugged, low profile, and lightweight option to reduce the size and weight of the interconnect in applications. These connectors exceed 2,000 mating cycles.



### Flexibility

Omnetics' Nano Strip connectors are available in a variety of configurations and termination styles for PCB and flex terminations.



# Nano Strip Connectors



**Nano Single Row Pin  
NPS Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ Guide Pins
- ☑ COTS
- ☑ Mounting Holes



**Nano Single Row Socket  
NSS Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ Guide Pins
- ☑ COTS



**Nano Header  
HND Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- Termination:
  - ☑ AA
  - ☑ DD
  - ☑ H2
  - ☑ VV



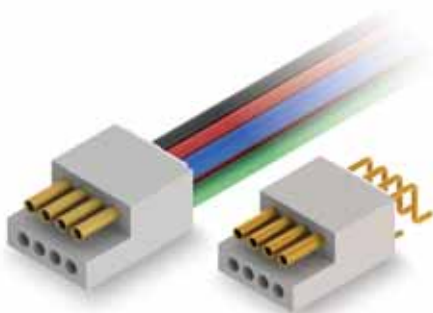
**Nano Dual Row Pin  
NPD Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ Guide Pins
- ☑ COTS
- ☑ Latches
- ☑ Mounting Holes



**Nano Dual Row Socket  
NSD Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ Guide Pins
- ☑ COTS
- ☑ Latches



**Polarized Nano  
PZN Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS

## Product Specifications

Current Carrying	1 AMP per contact
Dielectric Withstanding	250 VAC @ Sea Level
Insulation Resistance	> 5000 Megohms @ 100 VDC
Vibration	20 g's with no discontinuities greater than 10 nanoseconds
Shock	100 g's with no discontinuities greater than 10 nanoseconds
Operating Temperature	-55°C - +200°C
Durability	Exceeds 500 mating cycles



# Micro-D Connectors

Omnetics Micro-D, Low Profile Micro-D, and Single Row Micro-D Connectors are ideal for mission critical, high reliability industries including aerospace, military, and down-hole drilling.

Omnetics Connector Corporation also offers a tool-free Micro-D equivalent. This Latching Micro-D utilizes the same contact system that Omnetics uses in their QPL Micro-Ds per MIL-DTL-83513. Even without jackscrews, the performance matches or exceeds the requirements called out in MIL-DTL-83513. The positive latching process quickly mates and de-mates as needed without the use of tools or the need to unscrew fasteners. The operator can simply click it and forget it.

These highly rugged and compact designs are available in shell styles from 9 to 100 contacts.

## Product Specifications

Insulator Size:	9 through 100 contacts
Current Carrying:	3 AMPs per contact
Dielectric Withstanding:	600 VAC RMS at sea level
Insulation Resistance:	5000 Megohms min at 500 VDC
Vibration:	20 g's with no discontinuities > 1 microsecond
Shock:	50 g's with no discontinuities > 1 microsecond
Operating Temperature:	-55°C - +260°C
Durability:	Exceeds 2000 mating cycles

## Industries

- ☑ Space
- ☑ Aviation
- ☑ Medical
- ☑ Military
- ☑ Petroleum
- ☑ Robotics
- ☑ Unmanned Systems



### Durability

Micro-D connectors meet or exceed the requirements of MIL-DTL-83513. In addition to a variety of termination styles for PCB and flex terminations, there are configurations available with QPC.



### Flexibility

Omnetics' Micro-D connectors not only offer traditional jack-screw/jack-post configurations, but are also available in a tool-free latching configuration.



# Micro-D Connectors



## Standard Micro-D Pin/Socket MMDP/MMDS Series

- ☑ RoHS
- ☑ 260 °C Rated
- ☑ Mounting Holes
- ☑ COTS
- ☑ Panel Mount
- ☑ Shielding / Backshell



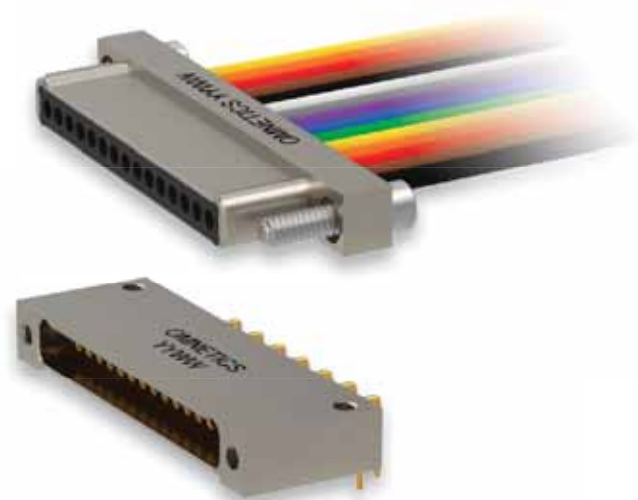
## Latching Micro-D Pin/Socket LMDP/LMDS Series

- ☑ RoHS
- ☑ 260 °C Rated
- ☑ Mounting Holes
- ☑ COTS
- ☑ Latches
- ☑ Shielding / Backshell



## Low Profile Micro-D Pin/Socket MDLP/MDLS Series

- ☑ RoHS
- ☑ 260 °C Rated
- ☑ COTS
- ☑ Mounting Holes
- ☑ Shielding / Backshell



## Single Row Micro-D Pin/Socket MMPS/MMSS Series

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Latches
- ☑ Shielding / Backshell

# Bi-Lobe® / Nano-D Connectors

Omnetics Bi-Lobe® / Nano-D connectors, at .025" pitch, are some of the smallest most rugged connectors on the market today. Omnetics has reduced size and weight by as much as 4x that of standard Micro-D connectors and 8x that of previous D-Sub footprints. These ultra-miniature connectors, like all of Omnetics connectors, use our unique flex-pin gold plated contacts that are polarized and shrouded by a unique liquid crystal polymer insulator and "lobed" housing making these connectors capable of over 2,000 mating cycles.

Omnetics space grade connectors are available in a number of tail terminations. Standard pre-wired connectors come in 18" and 36" lengths with 80 micro inches of silver plated 30 AWG (7-38) PTFE insulated wire. Board mount options include both surface mount as well as thru-hole. If you are using a flex circuit, flex tails are also available.

## Product Specifications

Current Carrying:	1 AMP per contact
Dielectric Withstanding:	250 VAC RMS at Sea Level
Insulation Resistance:	5000 Megohms min at 100 VDC
Vibration:	20 g's with no discontinuities > 10 nanoseconds
Shock:	100 g's with no discontinuities > 10 nanoseconds
Operating Temperature:	-55°C - +200°C
Durability:	Exceeds 2000 mating cycles

## Industries

- ☑ Space
- ☑ Aviation
- ☑ Medical
- ☑ Military
- ☑ Petroleum
- ☑ Robotics
- ☑ Unmanned Systems
- ☑ Sensors



### Durability

The Bi-Lobe® / Nano-D connectors meet or exceed the requirements of MIL-DTL-32139. This connector will also exceed 2,000 mating cycles.



### Flexibility

In addition to a variety of termination styles for PCB and flex termination, Omnetics offers configurations available with QPL.

Omnetics' Bi-Lobe® / Nano-D connectors not only offer traditional jack-screw/jack-post configurations but are also available in a tool free latching configuration.





# Bi-Lobe® / Nano-D Connectors



**Nano-D Single Row Pin  
MBPS Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Mounting Holes
- ☑ Shielding / Backshell



**Nano-D Single Row Socket  
MBSS Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Mounting Holes
- ☑ Shielding / Backshell



**Nano-D Dual Row Pin  
MNPO Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Latches
- ☑ Shielding / Backshell



**Nano-D Dual Row Socket  
MNSO Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Mounting Holes
- ☑ Shielding / Backshell



**Nano-D Dual Row Panel Mount  
MNSOP Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Mounting Holes
- ☑ Shielding / Backshell



**Nano-D Dual Row Latching Panel Mount Socket  
MNSLP Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Mounting Holes
- ☑ Shielding / Backshell



**Nano-D Dual Row Latching Pin  
MNPL Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Latches
- ☑ Shielding / Backshell



**Nano-D Dual Row Latching Socket  
MNSL Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Mounting Holes
- ☑ Shielding / Backshell

# Hybrid Connectors

Omnetics Connector Corporation offers a range of hybrid connector options allowing designers the ability to transmit data, signals, and power easily in a single connector footprint.

These new connector families are an ideal solution for designers looking to upgrade as it relates to not only the size, but the overall performance of their miniature rugged devices. Omnetics Hybrid series allow the designers themselves the ability to determine the amount of signal and power connections that best serve their particular application. These Hybrid configurations are available in Micro-D, Nano-D and Micro Circular footprints.



## Industries

- ☒ Space
- ☒ Aviation
- ☒ Medical
- ☒ Military
- ☒ Petroleum
- ☒ Robotics
- ☒ Unmanned Systems

## Options

- ☒ IP68
- ☒ RoHS
- ☒ Panel Mount
- ☒ Latches
- ☒ Shielding / Backshell
- ☒ High Speed



## Why Omnetics?

Omnetics' rugged hybrid connectors offer a variety of configurations allowing you to reduce the number of connectors on a device while meeting your power requirements.



## Why a Hybrid Connector?

Rugged hybrid connectors allow you to meet the signal integrity requirements for your high speed digital data, reduce size and weight, and maintain power.



# Hybrid Connectors

## Micro-D Hybrid



Insulators Sizes:	9 through 51 contacts
Dielectric Withstanding:	600 VAC RMS at Sea Level (Power contacts) 1000 VAC RMS at Sea Level (Micro contacts)
Insulation Resistance:	5000 Megohms min at 500 VDC
Vibration:	20 g's with no discontinuities > 1 microsecond
Shock:	50 g's with no discontinuities > 1 microsecond
Contact System:	Contact Omnetics for options and specifications
Operating Temperature:	-55°C to +125°C
Durability:	500 mating cycles

## Nano-D Hybrid



Insulators Sizes:	12 through 39 contacts
Dielectric Withstanding:	250 VAC RMS at Sea Level (Nano contacts) 1000 VAC RMS at Sea Level (Micro contacts)
Insulation Resistance:	5000 Megohms min at 100 VDC (Nano contacts) 5000 Megohms min at 500 VDC (Micro contacts)
Vibration:	20 g's with no discontinuities > 1 microsecond
Shock:	100 g's with no discontinuities > 1 microsecond
Contact System:	Qualified to MIL-DTL-83513 & 32139 (QPL for wired & soldercups)
Operating Temperature:	-55°C to +200°C
Durability:	Exceeds 2000 mating cycles

## Circular Hybrid



Insulators Sizes (Micro Circulars):	12 through 39 contacts
Dielectric Withstanding:	600 VAC RMS at Sea Level
Insulation Resistance:	5000 Megohms min at 500 VDC
Vibration:	20g's with no discontinuities > 1 microsecond
Shock:	50g's with no discontinuities > 1 microsecond
Contact System:	Contact Omnetics for options and specifications
Operating Temperature:	-55°C to +125°C
Durability:	500 mating cycles

## Circular USB 3.0



Data Rate:	Up to 5 Gbps
Impedance:	90 ± 15 Ω
Insertion Loss:	-3.0 dB Max @ 2.5 GHz
Dielectric Withstanding:	600 VAC RMS at Sea Level
Insulation Resistance:	5000 Megohms min at 500 VDC
Sealing Performance:	IP68
Operating Temperature:	-55°C to +85°C
Durability:	Exceeds 2000 mating cycles

## Nano Coax



Frequency:	Up to 15 GHz
Impedance:	50Ω ± 2.5Ω
Insertion Loss:	-0.9dB (Cable-to-Cable) -1.1dB (Edge Launch) -3.2dB (Through Hole)
Insulation Resistance:	>5000 Megohms @ 500 VDC
Operating Temperature:	-55°C to 125°C
Durability:	2000 mating cycles

## USB 3.0



Data Rate:	Up to 5 Gbps
Impedance:	90±15 Ω (Connector) 90±7 Ω (Cable)
Insertion Loss:	-2.8dB Max @ 2.5 GHz
Dielectric Withstanding:	100 VAC @ sea level
Insulation Resistance:	>100 Megohms @ 500 VDC
Sealing Performance:	IP68
Durability:	500 Mating Cycles



# Micro 360® Circular Connectors

Omnetics Micro 360® Circular Series (spaced at .050" / 1.27 mm centerline-to-centerline) is ideal for tight spaces and rugged environments. This family of interconnect solutions features a mated length of less than 12.4 mm. Both the male (pins) and female (sockets) are shrouded by the plastic insulator which houses the contacts, ensuring the contacts themselves are protected during mating and de-mating. Outer diameters range from 5.6 mm to 11.3 mm.

Whether you are using these connectors housed inside of a metal shell or stand-alone, these high density circulars have the ability to withstand high shock and vibration while maintaining their electrical integrity. Many standard and custom options are available including custom cable harnesses.

## Product Specifications

Insulator Sizes:	5 through 39 contacts
Current Carrying:	3 AMPs per contact
Dielectric Withstanding:	600 VAC RMS at sea level
Insulation Resistance:	5000 Megohms min at 500 VDC
Vibration:	20 g's with no discontinuities > 1 microsecond
Shock:	50 g's with no discontinuities > 1 microsecond
Operating Temperature:	-55°C - +200°C
Durability:	Exceeds 2000 mating cycles

## Industries

- ☑ Space
- ☑ Aviation
- ☑ Medical
- ☑ Military
- ☑ Petroleum
- ☑ Robotics
- ☑ Unmanned Systems
- ☑ Sensors
- ☑ Neuroscience



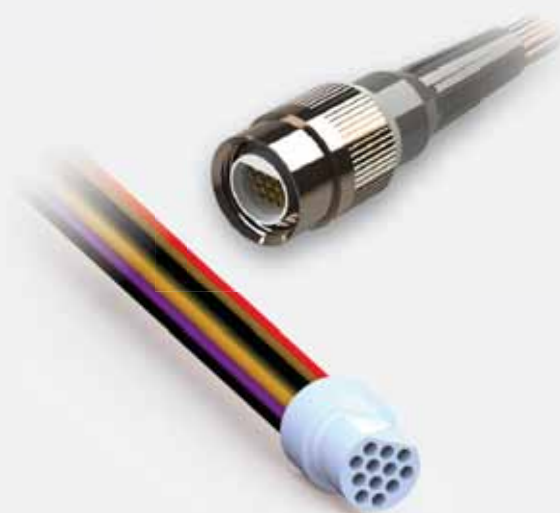
### Durability

Micro 360® Circular connectors have the ability to withstand high shock and vibration while maintaining their electrical integrity. The flex pins are capable of over 2,000 mating cycles.



### Flexibility

Omnetics' Micro 360® series of circular connectors are available with a variety of metal housings and plating options, giving them a reliable environmental seal for harsh environments.



# Micro 360® Circular Connectors



## Micro Metal Twist-Lock Pin TMCP Series

- ☑ IP68
- ☑ RoHS
- ☑ 200°C Rated
- ☑ Panel Mount
- ☑ COTS
- ☑ Latches
- ☑ Shielding / Backshell



## Micro Metal Twist-Lock Socket TMCS Series

- ☑ IP68
- ☑ RoHS
- ☑ 200°C Rated
- ☑ COTS
- ☑ Shielding / Backshell



## Micro Plastic Pin/Socket MCP/MCS Series

- ☑ RoHS
- ☑ 200°C Rated
- ☑ COTS
- ☑ Latches
- ☑ Plastic Clip Available



## Micro Metal Threaded Pin MMCP Series

- ☑ IP68
- ☑ RoHS
- ☑ 200°C Rated
- ☑ COTS
- ☑ Panel Mount
- ☑ Shielding / Backshell



## Micro Metal Threaded Socket MMCS Series

- ☑ IP68
- ☑ RoHS
- ☑ 200°C Rated
- ☑ COTS
- ☑ Shielding / Backshell



## Micro Metal Ratcheting Pin RMCP Series

- ☑ IP68
- ☑ RoHS
- ☑ Panel Mount
- ☑ COTS
- ☑ Shielding / Backshell



## Micro Metal Ratcheting Socket RMCS Series

- ☑ IP68
- ☑ RoHS
- ☑ Panel Mount
- ☑ COTS
- ☑ Shielding / Backshell



## Micro Metal Keyed Break Away Pin KBMP Series

- ☑ IP68
- ☑ RoHS
- ☑ 200°C Rated
- ☑ COTS
- ☑ Panel Mount
- ☑ Shielding / Backshell



## Micro Metal Keyed Break Away Socket KBMS Series

- ☑ IP68
- ☑ RoHS
- ☑ 200°C Rated
- ☑ COTS
- ☑ Shielding / Backshell

# Nano 360® Circular Connectors

At .025" pitch, Omnetics Nano 360® Circular connectors are the smallest mil-aero circular connectors on the market. Compared to larger circular configurations, we have reduced the size and weight by as much as 3x compared to standard .050" pitch circular connectors. Omnetics Nano 360® Circular connectors offer a number of standard designs and locking methods with pin counts ranging from 2 to 39 positions. The unique polarized-insulator allow for both plastic and metal shell connector design styles. Threaded couplings, metal and plastic breakaway shells and twist-lock housings are ready for both inline as well as panel mount interconnections. Thirty-two gauge standard Teflon insulated copper wire is also offered from stock that handles nearly 1 ampere of current per contact.

## Product Specifications

(excludes Nano IP68 Circular Series)

Insulator Sizes:	6 through 39 contacts
Current Carrying:	1 AMP per contact
Dielectric Withstanding:	250 VAC RMS at sea level
Insulation Resistance:	5000 Megohms min at 100 VDC
Vibration:	20 g's with no discontinuities > 10 nanoseconds
Shock:	100 g's with no discontinuities > 10 nanoseconds
Operating Temperature:	-55°C - +200°C
Durability:	Exceeds 2000 mating cycles

## Industries

- ☑ Space
- ☑ Aviation
- ☑ Medical
- ☑ Military
- ☑ Petroleum
- ☑ Robotics
- ☑ Unmanned Systems
- ☑ Sensors
- ☑ Neuroscience



### Durability

The Nano 360® Circular connectors have the ability to withstand high shock and vibration while maintaining their electrical integrity. The flex pins are capable of over 2,000 mating cycles.



### Flexibility

Omnetics' Nano 360® Circular connectors are available with a variety of metal housings and plating options which giving them a reliable environmental seal for harsh environments.





# Nano 360® Circular Connectors



**Nano Metal Threaded Pin  
MNCP Series**

- ☑ IP68
- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Panel Mount
- ☑ Shielding / Backshell



**Nano Metal Threaded Socket  
MNCS Series**

- ☑ IP68
- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Shielding / Backshell



**Nano Metal Twist-Lock Pin  
TNCP Series**

- ☑ IP68
- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Panel Mount
- ☑ Shielding / Backshell



**Nano Metal Twist-Lock Socket  
TNCS Series**

- ☑ IP68
- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Shielding / Backshell



**Nano Plastic Pin/Socket  
NCP/NCS Series**

- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Plastic Clip



**Nano Metal Keyed Break Away Pin  
KBNP Series**

- ☑ IP68
- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Panel Mount
- ☑ Shielding / Backshell



**Nano Metal Keyed Break Away Socket  
KBNS Series**

- ☑ IP68
- ☑ RoHS
- ☑ 200 °C Rated
- ☑ COTS
- ☑ Panel Mount
- ☑ Shielding / Backshell

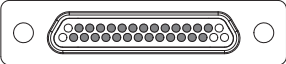
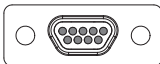
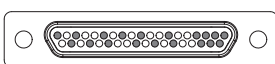
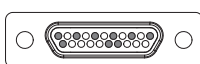
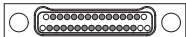

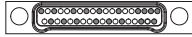
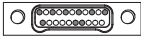











# Specification Sheets

The Omnetics High-Speed Protocol Guide, based on extensive internal research, provides connector options for various high-speed signaling protocols. The high-speed signaling specifications for each protocol were scrutinized extensively to provide an optimal pinout and ensure that the connectors meet or exceed the performance requirements.

When necessary, measurements were taken on the Omnetics connectors and directly compared to commercially available connectors. In these cases, Omnetics connectors outperformed the commercial connectors, yielding lower loss values across the critical frequencies.

The pinouts for each available configuration are provided in the table below.

OMNETICS CONNECTOR CORPORATION	Camera Link	Ethernet	HDMI	USB 3.0
Micro-D				
Nano-D				
Micro Strip				
Nano Strip				
Metal Micro Circular				
Metal Nano Circular				
QuickLock				







**Lighter, smaller, more durable connectors for any application**

# OMNETICS

CONNECTOR CORPORATION

Omnetics Connector Corporation | 7260 Commerce Circle East | Minneapolis, MN 55432  
Ph: 763-572-0656 | Fax: 763-572-3925 | [www.omnetics.com](http://www.omnetics.com) | E-mail: [sales@omnetics.com](mailto:sales@omnetics.com)  
© 2019 Omnetics Connector Corporation

