

Nano-D

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.025" (.64 mm) Centerline Nano

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CAGE Code 61873

■ Dual Row Bi-lobe®

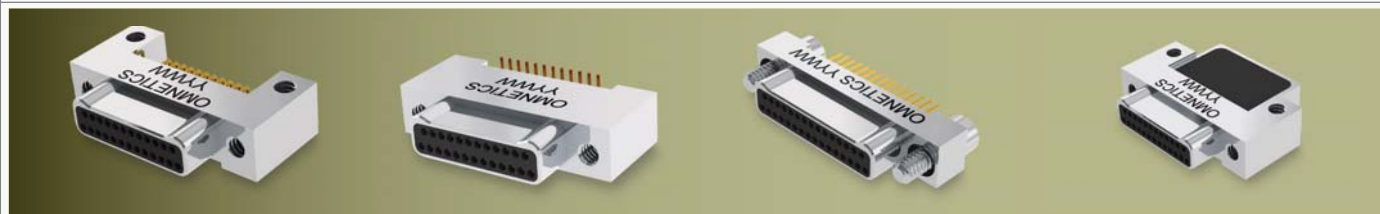
Pages 14-57

SMT Horizontal Type AA

SMT Vertical Type VV Page

Straight Tails Type DD

Thru-Hole Horizontal Type H4

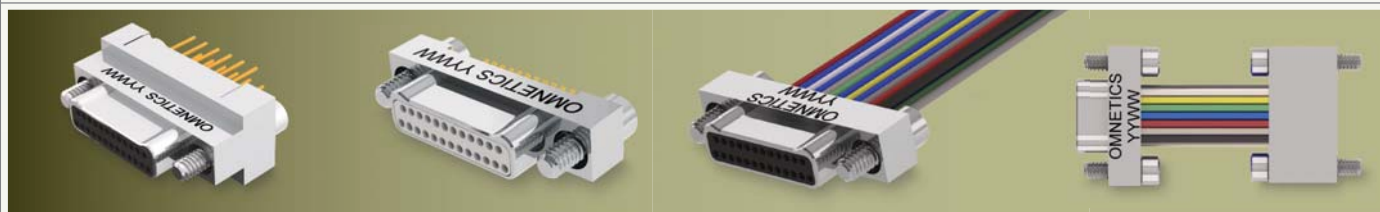


Thru-Hole Vertical Type V4

Flex Mount Type FF

Pre-Wired Type WD

Jumpers Type JU



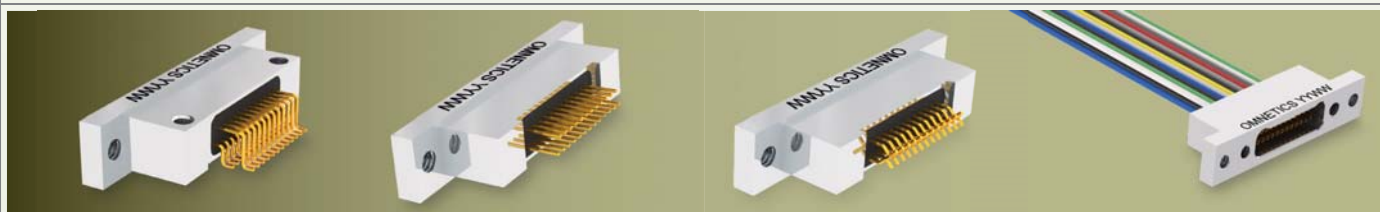
■ Panel Mount Bi-lobe®

SMT Horizontal Type AA

SMT Vertical Type DD

Flex Mount Type FF

Flex Mount Type WD



■ Hermetically Sealed Bi-lobe®

■ Latching Bi-lobe®



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■ Single Row Bi-lobe® Pages 58-83

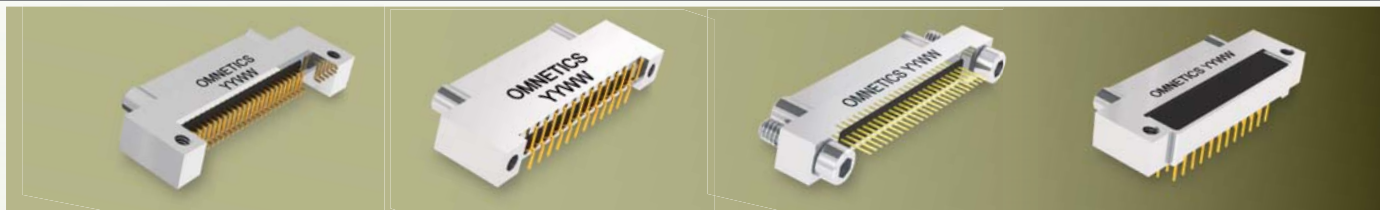
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SMT Horizontal Type AA

SMT Vertical Type VV

Straight Tails Type DD

Thru-Hole Horizontal Type H2



Thru-Hole Vertical Type V2

Pre-Wired Type WD

Jumpers Type JU



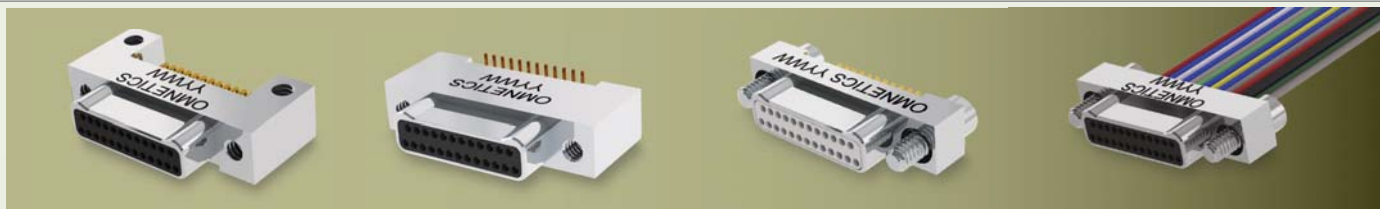
■ Commercial off The Shelf (COTS) Pages 84-92

SMT Horizontal Type AA

SMT Vertical Type VV

Flex Mount Type FF

Pre-Wired Type WD



■ Connector Savers Pages 93-94

■ Back Shells Pages 95-96



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■ The Flex Pin Design

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Designed Simply for High Shock & Vibration

Omnetics' Flex Pin contact design is a wonderfully 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.

The Flex Pin contact is inter-mate-able with all MIL- DTL-32139 sockets. Its rugged design easily passes the shock and vibration requirements of the military specification. In fact, independent tests have proven that the Flex Pin contact can even withstand the intense shock and vibration of the geophysical drilling market.

Flex Pin contacts are all plated with 50 micro inches (1.27 μm) of gold over 50 micro inches (1.27 μm) of nickel. All pins are plated post forming to insure a non-porous surface.



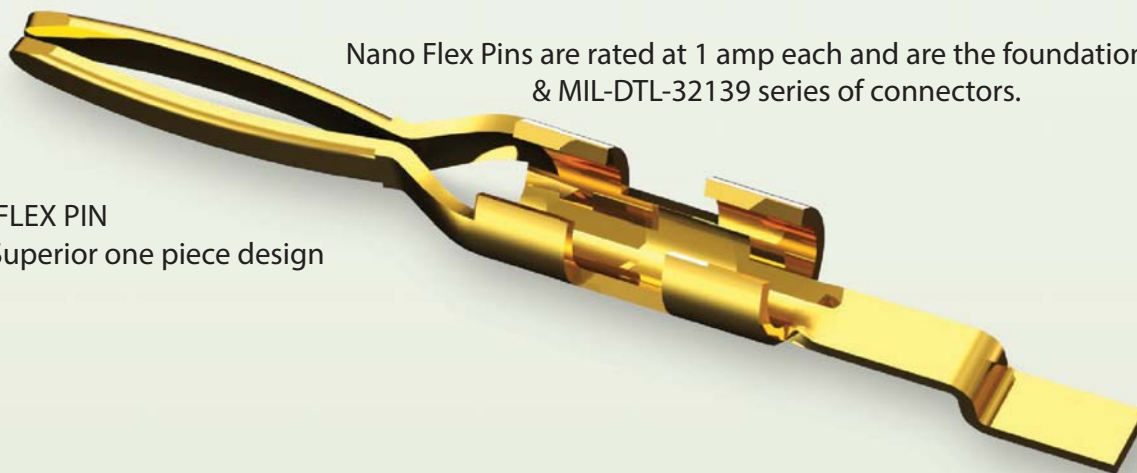
■ Flex Pin

The Omnetics nano Flex Pin has been in successful production for over 25 years, while its young counterpart the nano twist pin is relatively new. Nano twist pin manufacturers took an old standard and shrunk it down to nano size.

Omnetics on the other hand looked at the old technology and found ways to improve and simplify the design. Omnetics removed the extra crimps and welds and came up with an elegant one piece design with the same performance as the overly complex twist pin. The elimination of extra joints removed resistance points as well as spots for potential fatigue and failure.

Nano Flex Pins are rated at 1 amp each and are the foundation of our Bi-Lobe® & MIL-DTL-32139 series of connectors.

FLEX PIN
Superior one piece design



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Space Application

■ Space Level Screening



Omnetics Connector Corporation has a rich history of supporting orbital and deep space projects. Our connectors have been used on the Co-Star, Space Shuttle, Mars Rover and Iridium satellite, to name a few. Omnetics can aid in the design of connectors and harnesses suitable for your application. We offer multiple levels of space screening to the requirements of your specific application.

■ 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	

■ Ordering Steps

Step 1 - Choose a suitable Micro or Nano connector

Step 2 - Choose a level of Space Screening

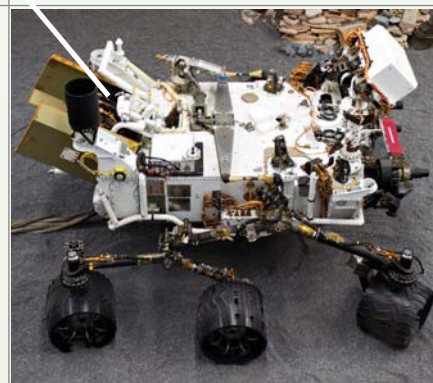
Level 1 - Mission Critical (Highest Reliability)

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.



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				

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■ Single Row

Pre-Wired Single Row Bi-Lobe® nanos can be ordered with full QPL approval. These assemblies are crimped using proprietary automated crimping systems in Omnetics MIL-STD-790 approved manufacturing facility pre-crimped wires & contacts are potted in place further protecting the integrity of the crimp joint.

Building these as full QPL parts gives users an added level of confidence for critical applications.

Commercial off the shelf (COTS) non-QPL versions are also available with 18" of color coded 30 AWG Teflon for quick turn around.



These connectors are available in standard sizes ranging from 5 through 51 positions.

■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

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■ Single Row QPL Ordering Guide

Examples:

M32139-01-A-01-S-N Bi-Lobe Male, 9 contacts, 6.0" White 30 AWG wire, Jackscrew, Aluminum shell, Nickel-Plated

M32139-02-A-04-T-N Bi-Lobe Female, 21 contacts, 6.0" Colored AWG wire, Threaded Hole, Aluminum Shell, Nickel-Plated

(Each option separated by a hyphen)

Basic Spec	Slash Number	Wire Type	Hardware	Shell Material and Finish	Space Class
M32139	Plugs 01 - A - Pin Connector, 9 Contacts Single 01 - B - Pin Connector, 15 Contacts Single 01 - C - Pin Connector, 21 Contacts Single 01 - D - Pin Connector, 25 Contacts Single 01 - E - Pin Connector, 31 Contacts Single 01 - F - Pin Connector, 37 Contacts Single 01 - G - Pin Connector, 51 Contacts Single Receptacles 02 - A - Socket Connector, 9 Contacts Single 02 - B - Socket Connector, 15 Contacts Single 02 - C - Socket Connector, 21 Contacts Single 02 - D - Socket Connector, 25 Contacts Single 02 - E - Socket Connector, 31 Contacts Single 02 - F - Socket Connector, 37 Contacts Single 02 - G - Socket Connector, 51 Contacts Single	NEMA HP-3-ETXBBB Wire <i>(#30 Awg, 7 Strand Silver-Coated Cooper, Extruded PTFE Insulation, 250 V rms, 200° C.)</i> 01 - 6 inches White 02 - 18 inches White 03 - 36 inches White 04 - 6 inches 10 Color Repeat 05 - 18 inches 10 Color Repeat 06 - 36 inches 10 Color Repeat M22759/33-30 Wire <i>(#30 Awg, 7 Strand Silver-Coated High-Strength Cooper, Extruded Cross-Linked Modified ETFE Insulation, 600 V rms, 200° C.)</i> 07 - 6 inches White 08 - 18 inches White 09 - 36 inches White 10 - 6 inches 10 Color Repeat 11 - 18 inches 10 Color Repeat 12 - 36 inches 10 Color Repeat Composite PTFE/ Polyimide Wire <i>(#30 Awg, 7 Strand Silver-Coated High-Strength Cooper, Extruded Cross-Linked Modified ETFE Insulation, 600 V rms, 200° C.)</i> 13 - 6 inches White 14 - 18 inches White 15 - 36 inches White 16 - 6 inches 10 Color Repeat 17 - 18 inches 10 Color Repeat 18 - 36 inches 10 Color Repeat	S <i>Jackscrew, #0-80, Hex Head (Slash 01 & 03 Pin Connectors Only)</i> V <i>Threaded Hole, #0-80 (Slash 02 & 04 Socket Connectors Only)</i> RH RoHS COMPLIANT 	 CD <i>Aluminum Shell, Cadmium Plated</i>  N <i>Aluminum Shell Electroless Nickel Plated</i>  S <i>Stainless Steel Shell Passivated</i>  T <i>Titanium Shell Unplated</i>	S <i>Space Class</i> <i>(Not For Use With Cadmium Plated Aluminum Shells)</i> Omit for Non-Space Applications

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■ Dual Row

Pre-Wired Dual Row Bi-Lobe® nanos can be ordered with full QPL approval. These assemblies are crimped using proprietary automated crimping systems in Omnetics MIL-STD-790 approved manufacturing facility pre-crimped wires & contacts are potted in place further protecting the integrity of the crimp joint.

∞ Building these as full QPL parts gives users an added level of confidence for critical applications.

Commercial off the shelf (COTS) non-QPL versions are also available with 18" of color coded 30 AWG Teflon for quick turn around.

These connectors are available in standard sizes ranging from 9 through 65 positions.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

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■ Dual Row QPL Ordering Guide

Examples:

M32139-03-A-01-S-N Bi-Lobe Male, 9 contacts, 6.0" White 30 AWG wire, Jackscrew, Aluminum shell, Nickel-Plated

M32139-04-A-04-T-N Bi-Lobe Female, 21 contacts, 6.0" Colored AWG wire, Threaded Hole, Aluminum Shell, Nickel-Plated

(Each option separated by a hyphen)

Basic Spec	Slash Number	Wire Type	Hardware	Shell Material and Finish	Space Class
M32139	Plugs 03 - A - Pin Connector, 9 Contacts Single 03 - B - Pin Connector, 15 Contacts Single 03 - C - Pin Connector, 21 Contacts Single 03 - D - Pin Connector, 25 Contacts Single 03 - E - Pin Connector, 31 Contacts Single 03 - F - Pin Connector, 37 Contacts Single 03 - G - Pin Connector, 51 Contacts Single Receptacles 04 - A - Socket Connector, 9 Contacts Single 04 - B - Socket Connector, 15 Contacts Single 04 - C - Socket Connector, 21 Contacts Single 04 - D - Socket Connector, 25 Contacts Single 04 - E - Socket Connector, 31 Contacts Single 04 - F - Socket Connector, 37 Contacts Single 04 - G - Socket Connector, 51 Contacts Single	NEMA HP-3-ETXBBB Wire <i>(#30 Awg, 7 Strand Silver-Coated Cooper, Extruded PTFE Insulation, 250 V rms, 200° C.)</i> 01 - 6 inches White 02 - 18 inches White 03 - 36 inches White 04 - 6 inches 10 Color Repeat 05 - 18 inches 10 Color Repeat 06 - 36 inches 10 Color Repeat M22759/33-30 Wire <i>(#30 Awg, 7 Strand Silver-Coated High-Strength Cooper, Extruded Cross-Linked Modified ETFE Insulation, 600 V rms, 200° C.)</i> 07 - 6 inches White 08 - 18 inches White 09 - 36 inches White 10 - 6 inches 10 Color Repeat 11 - 18 inches 10 Color Repeat 12 - 36 inches 10 Color Repeat Composite PTFE/Polyimide Wire <i>(#30 Awg, 7 Strand Silver-Coated High-Strength Cooper, Extruded Cross-Linked Modified ETFE Insulation, 600 V rms, 200° C.)</i> 13 - 6 inches White 14 - 18 inches White 15 - 36 inches White 16 - 6 inches 10 Color Repeat 17 - 18 inches 10 Color Repeat 18 - 36 inches 10 Color Repeat	S <i>Jackscrew, #0-80, Hex Head (Slash 01 & 03 Pin Connectors Only)</i> V <i>Threaded Hole, #0-80 (Slash 02 & 04 Socket Connectors Only)</i> RH RoHS COMPLIANT 	 C <i>Aluminum Shell, Cadmium Plated</i>  N <i>Aluminum Shell Electroless Nickel Plated</i>  S <i>Stainless Steel Shell Passivated</i>  T <i>Titanium Shell Unplated</i>	S <i>Space Class</i> <i>(Not For Use With Cadmium Plated Aluminum Shells)</i> Omit for Non-Space Applications

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■ Bi-Lobe® and MIL-DTL-32139 Specifications

1. Scope: These specifications highlight some of the standard requirements of Omnetics' Bi-Lobe® style nano connectors in both QPL & non-QPL versions. These connectors have contacts densely packed with centerlines of .025" (.64mm) and are commonly used in mission critical applications.

2. Precedence of Requirements: The specifications herein are a select summary of those called out in MIL-DTL-32139. The complete controlled version of MIL-DTL-32139 from DSCC takes precedence over these pages. For non-QPL parts, requirements of customer specifications and Omnetics' detail drawings will take top priority.

3. Quality & Material

3.1. Statistical Process Control (SPC): Omnetics uses statistical process control (SPC) techniques, when possible, in the manufacturing of Bi-Lobe® nano connectors. The SPC program is maintained in accordance with MIL-STD-790. Where SPC cannot be utilized because of non-continuous production, a lot sampling plan for inspection with C = 0 (accept on zero defects) may be utilized. The SPC and C = 0 programs are documented and maintained as part of our overall reliability assurance program, as specified in MIL-STD-790.

3.2. Pin Contact Finish: Pin contacts are gold plated in accordance with ASTM B488, Type II, Code C, class 1.27, 50 micro inches minimum thickness, over 50 micro inches of nickel.

3.3. Socket Contact Finish: Socket contacts are gold plated in accordance with ASTM B488, Type II, Code C, class 1.27, 50 micro inches minimum thickness, over 50 micro inches of nickel.

3.4. Insulator Material: Insulator material for connectors is LCP in accordance with ASTM D5138.

3.5. Shells: Shell options include the following materials:

3.5.1. Aluminum, alloy 6061 per SAE-AMS-QQ-A-200/8, plated as follows:

3.5.1.1. Electroless Nickel plated per SAE-AMS-C-26074, class 3 or 4, grade B.

3.5.1.2. Cadmium plated per SAE-AMS-QQ-P-416, type II, class 1, yellow chromate.

3.5.2. Stainless Steel, 303 in accordance with ASTM A582, passivated per ASTM A967.

3.5.3. Titanium, in accordance with MIL-T-81556 or SAE-AMS-4911.

3.6. Encapsulant: Epoxy shall be used as a potting material to prevent contact removal. A suitable material shall be used to enable the connector to pass all required mechanical, environmental and electrical testing.

3.7. Pigtail Wire: Insulated wire shall be in accordance with SAE-AS22759/33, DSCC drawing 04047 or NEMA HP3 for size 30 AWG. (NOTE: Connectors, which are pre-wired with SAE- AS22759/33 and stored in a sealed environment, could experience corrosion. Omnetics takes this into consideration when packaging and storing connectors using this wire.)

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■ Bi-Lobe® and MIL-DTL-32139 Specifications cont...

4. Mechanical Requirements

4.1. Contact Wipe: All contacts have a minimum contact wipe of .015 inch (0.38 mm) prior to the connector halves arriving at their fully mated position.

4.2. Durability: MIL-DTL-32139 requires a minimum of 200 mating cycles per test procedure EIA-364-09. Omnetics easily passes this requirement and has conducted and passed internal testing of over 2,000 mating cycles.

4.3. Contact Retention: Contacts will withstand a 2 lb. (0.9 kg) axial load for a min. of 5 seconds.

4.4. Crimp Tensile Strength: 30 AWG wire will not break or pull from crimp joints with an applied force of less than 1.0 lb. (0.44 kg).

4.5. Contact Engaging and Separation Force: Maximum engagement force is 5.0 ounces (141.7 g.) and minimum separation force is 0.4 ounces (11.3 g.) (when using maximum and minimum ID test sleeves.)

4.6. Connector Mating/unmating Force: Maximum mating and unmating force will be less than or equal to 7 ounces (198.4 g.) times the number of contacts.

4.7. Solderability: Printed circuit tails intended for SMT and Thru-Hole soldering will meet the solderability requirements of MIL-STD-202, Method 208.

5. Electrical Requirements

5.1. Current Capability: Contacts can carry 1.0 amp in continuous operation from -55° C to 125 ° C.

5.2. Dielectric Withstanding Voltage (sea Level): Connectors will show no signs of breakdown or flash over at 250 VAC, rms 60 Hz, per the DWV test of EIA-364-20.

5.3. Dielectric Withstanding Voltage (70,000 Feet): Connectors will show no signs of breakdown or flash over at 100 VAC, rms 60 Hz, per the DWV test of EIA-364-20.

5.4. Insulation Resistance: 5,000 Megohms minimum @ 100 VDC per IAW EIA-364-21

5.5. Contact Resistance: 71 mV drop maximum with a 1 ampere test current in accordance with EIA-364-06 using 30 AWG stranded wire.

5.6. Low Level Contact Resistance: 71 milliohms with a test current of 10 milliamperes maximum in accordance with EIA-364-06.

5.7. Magnetic Permeability: The magnetic permeability will not exceed 2 mu when tested in accordance with EIA-364-54.

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6. Environmental Requirements

6.1. Shock: 100 g's when tested for mechanical shock, mated connectors shall not be damaged, and there shall be no loosening of parts. There shall be no interruptions in the circuit which lasts longer than 10 nanoseconds.

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6.2. Vibration: 20 g's when tested for vibration, mated connectors shall not be damaged, and there shall be no loosening of parts. There shall be no interruptions in the circuit which lasts longer than 10 nanoseconds.

6.3. Salt Spray (Corrosion): Mated connectors will show no exposure of base metal due to corrosion which will affect performance after be subjected to the salt spray test of EIA-364-26 condition B. Connectors must withstand 48 hours of salt spray. Following the test all connectors shall meet the specified requirements for low-signal level contact resistance and connector mating and unmating forces.

6.4. Thermal Vacuum Out gassing: These connector assemblies shall have a maximum total mass loss (TML) of 1.0 percent of the original specimen mass, and shall have a maximum volatile condensable material (VCM) content of 0.1 percent of the original specimen mass.

6.5. Fluid Immersion: Connectors will continue to adhere to the mating force requirements set forth by MIL-DTL-32139 after be subjected to a 20 hour immersion in synthetic lubricating oil, 2 hour immersion in Perchloroethylene cleaning solvent and 1 hour immersion in coolant fluid. There will be no degradation of the insulators or encapsulates.

6.6. Material Fungus Resistance: Materials used in the construction of these connectors are fungus inert in accordance with ASTM G21.

6.7. Thermal Shock: Connectors will withstand 5 cycles of thermal shock from -55° C to 125 ° C per EIA-364-32, condition I. There will be no detrimental damage or degradation of the electrical performance.

6.8. Humidity: These connectors will meet all the humidity testing requirements in accordance with EIA-364-31, test condition A (excluding steps 7a & 7b). Post humidity, the connectors will pass a 250 VAC DWV test. Within 1 hour the connectors will pass a 1 megohm insulation resistance test. Following 24 hours, the connectors will pass a 1,000 megohm insulation resistance test.

6.9. Marking Permanency: Any marking on the connector shells of these nano connectors shall meet the requirements of MIL-STD-202, Method 215.

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■ Mounting Hardware and Tools

Omnetics Connector Corporation's entire line of Bi-Lobe® & MIL-DTL-32139 connectors are available retention and/or mounting features that most commonly utilize a #0-80 screw. The retention screws which are captive inside the metal housing act as a positive locking mechanism to hold a mated pair of connectors together in the harshest of environments. These retention screws come with a standard hex head of .050" (1.27mm). Our panel mount and printed circuit board mountable versions (SMT & Thru-Hole) of our Bi-Lobe® & MIL-DTL-32139 nano connectors come with pre-threaded mounting holes ready to accept #0-80 screws. These screw also come with a standard hex head of .050" (1.27 mm). We understand that the mounting

screws and tools for these U.S. standards are not easy to procure around the globe. For your convenience we have created some standard part #'s and keep stock of various tools and screw sizes.

Please contact Omnetics or your local authorized distributor for more information on these parts.



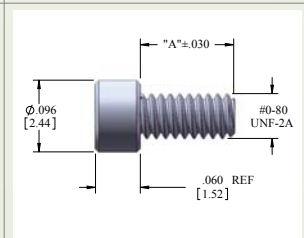
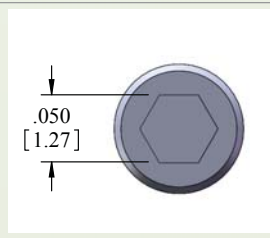
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■ Tool Part Numbers

PART NUMBER	DESCRIPTION
D3665-001	Ball point driver
S0627	.050" Hex wrench

■ Mounting Screw Part Numbers

PART NUMBER	DESCRIPTION
D4193-125	Thread Length- 3.18 mm / .125"
D4193-156	Thread Length- 3.97 mm / .156"
D4193-187	Thread Length- 4.76 mm / .186"
D4193-250	Thread Length- 6.35 mm / .250"
D4193-312	Thread Length- 7.94 mm / .312"
D4193-375	Thread Length- 9.53 mm / .375"



■ Part No

- D4193-125
- D4193-156
- D4193-187
- D4193-250
- D4193-312
- D4193-375

■ English (IN) "A"

- 1/8 .125"
- 5/32 .156"
- 3/16 .186"
- 1/4 .250"
- 5/16 .312"
- 3/8 .375"

■ Metric (mm) "A"

- 3.18
- 3.97
- 4.76
- 6.35
- 7.94
- 9.53

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■ Dual Row Horizontal SMT (TYPE AA)

Horizontal SMT Bi-Lobe® nanos offer an extremely low profile package that is well suited to pick and place mounting methods. These connectors feature Omnetics' highly reliable gold plated Flex Pin contact system conforms to the requirements of MIL-DTL-32139. These rugged lightweight connectors are suitable for the most demanding applications. Available with threaded mounting holes suitable for PCB and flex mounting. These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configurations.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

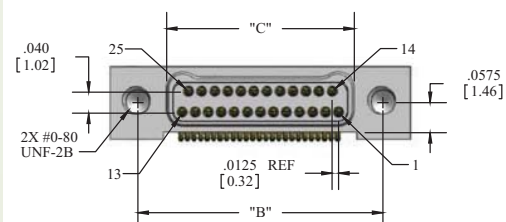
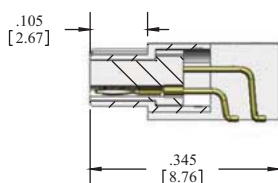
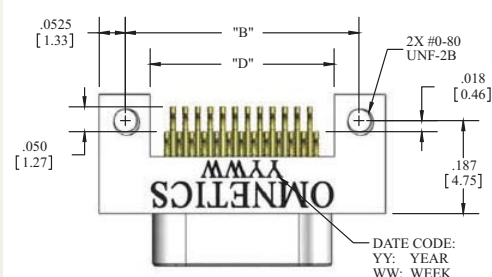
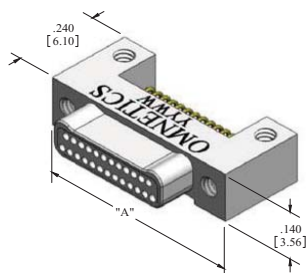
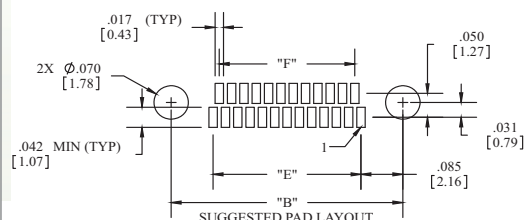
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

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Nano-D

Horizontal SMT Type AA

■ Dual Row Horizontal SMT (Type AA)



■ English (IN)

■ Metric (mm)

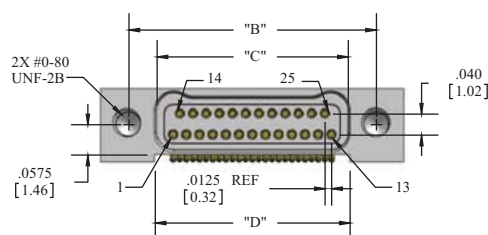
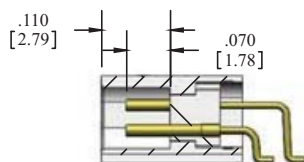
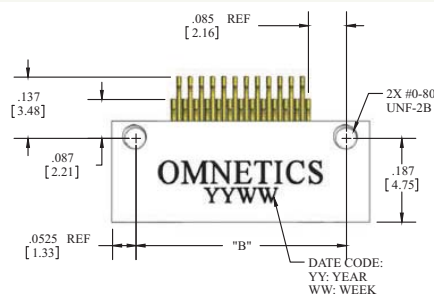
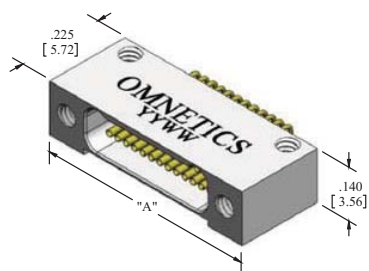
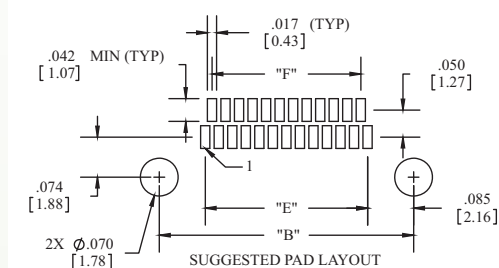
CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"A"	"B"	"C"	"D"	"E"	"F"
9	0.375	0.270	0.160	0.170	0.100	0.075	9.53	6.86	4.06	4.32	2.54	1.91
15	0.450	0.345	0.235	0.245	0.175	0.150	11.43	8.76	5.97	6.22	4.45	3.81
21	0.525	0.420	0.310	0.320	0.250	0.225	13.34	10.67	7.87	8.13	6.35	5.72
25	0.575	0.470	0.360	0.370	0.300	0.275	14.61	11.94	9.14	9.40	7.62	6.99
31	0.650	0.545	0.435	0.445	0.375	0.350	16.51	13.84	11.05	11.30	9.53	8.89
37	0.725	0.620	0.510	0.520	0.450	0.425	18.42	15.75	12.95	13.21	11.43	10.80
51	0.900	0.795	0.685	0.695	0.625	0.600	22.86	20.19	17.40	17.65	15.88	15.24
65	1.075	0.970	0.860	0.870	0.800	0.775	27.31	24.64	21.84	22.10	20.32	19.69

CAGE Code 61873

Horizontal SMT Type AA

Nano-D

■ Dual Row Horizontal SMT (Type AA)



■ English (IN)

■ Metric (mm)

CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"A"	"B"	"C"	"D"	"E"	"F"
9	0.375	0.270	0.163	0.170	0.100	0.075	9.53	6.86	4.14	4.32	2.54	1.91
15	0.450	0.345	0.238	0.245	0.175	0.150	11.43	8.76	6.05	6.22	4.45	3.81
21	0.525	0.420	0.313	0.320	0.250	0.225	13.34	10.67	7.95	8.13	6.35	5.72
25	0.575	0.470	0.363	0.370	0.300	0.275	14.61	11.94	9.22	9.40	7.62	6.99
31	0.650	0.545	0.438	0.445	0.375	0.350	16.51	13.84	11.13	11.30	9.53	8.89
37	0.725	0.620	0.513	0.520	0.450	0.425	18.42	15.75	13.03	13.21	11.43	10.80
51	0.900	0.795	0.688	0.695	0.625	0.600	22.86	20.19	17.48	17.65	15.88	15.24
65	1.075	0.970	0.863	0.870	0.800	0.775	27.31	24.64	21.92	22.10	20.32	19.69

CAGE Code 61873

Nano-D

Horizontal SMT Type AA

■ Dual Row Horizontal SMT (Type AA) Ordering Guide

■ Series	■ # of Contacts	■ Termination Type	■ Shell Material and Finish	■ Options
■ MNPO Male (Pin Connector)	09 15 21 25 31 37 51 65	AA Horizontal Surface Mount 	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole, #0-80  M Mounting Hole  HTE High Temp. Epoxy  RH RoHS COMPLIANT 

Examples



MNPO-25-AA-N-ETH-M



MSPO-37-AA-N-ETH-M-HTE

■ Horizontal SMT Bi-Lobe® Mass Chart (estimated +/- 10%)

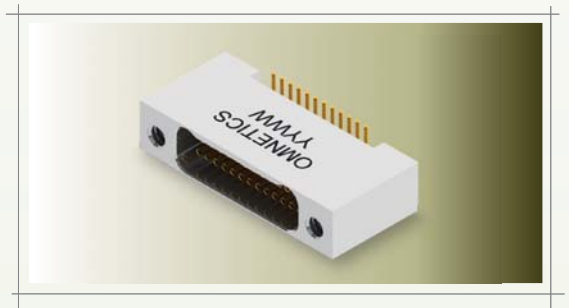
■ Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■ 09	.40 g	.62 g	1.01 g	.36 g	.58 g	.96 g
■ 15	.47 g	.70 g	1.12 g	.43 g	.66 g	1.07 g
■ 21	.53 g	.78 g	1.22 g	.49 g	.74 g	1.17 g
■ 25	.58 g	.83 g	1.29 g	.54 g	.79 g	1.24 g
■ 31	.65 g	.91 g	1.39 g	.60 g	.87 g	1.35 g
■ 37	.72 g	1.00 g	1.49 g	.67 g	.95 g	1.46 g
■ 51	.88 g	1.18 g	1.73 g	.82 g	1.13 g	1.71 g
■ 65	1.04 g	1.37 g	1.96 g	.97 g	1.32 g	1.95 g

CAGE Code 61873

■ Dual Row Vertical SMT (Type VV)

Vertical SMT Bi-Lobe® nanos require a minimal amount of board space on flex circuits and rigid circuit boards. These connectors feature Omnetics' highly reliable gold plated Flex Pin contact system conforming to the requirements of MIL-DTL-32139. These rugged lightweight connectors are suitable for the most demanding applications. They are available with threaded mounting holes and retention screws.

Shell material choices include Titanium, Aluminum and Stainless steel with multiple standard and custom plating options upon request. These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configurations.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

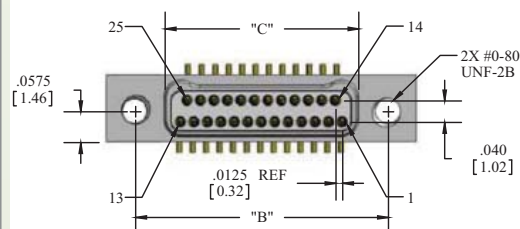
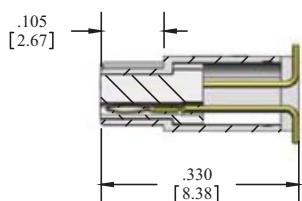
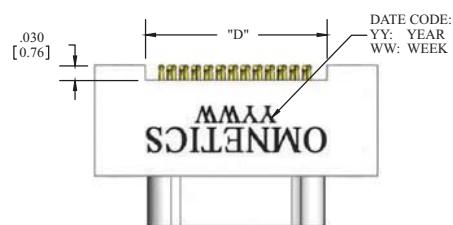
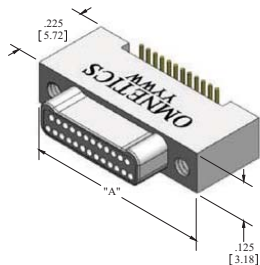
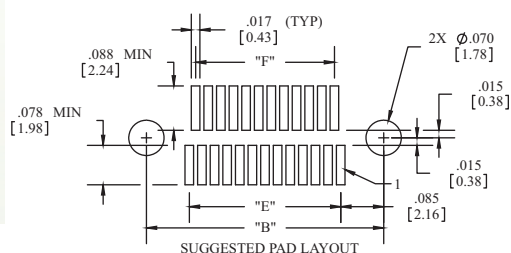
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Vertical SMT Type VV

■ Dual Row Vertical SMT (Type VV)



■ English (IN)

■ Metric (mm)

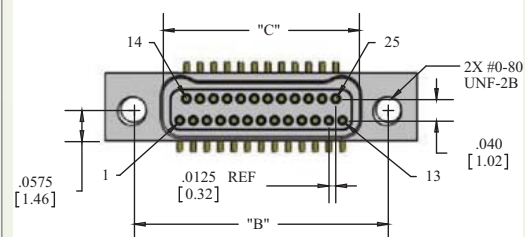
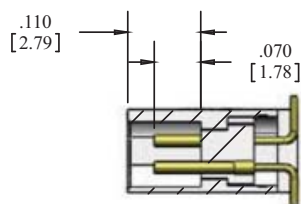
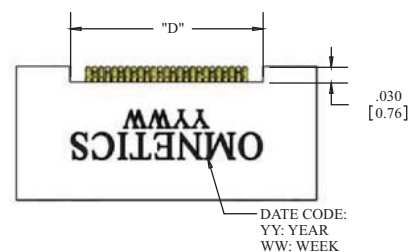
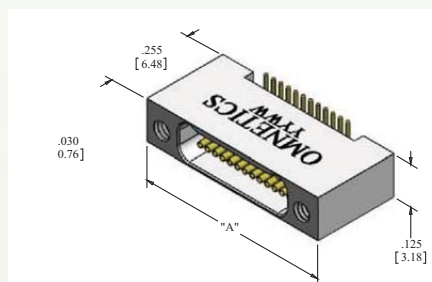
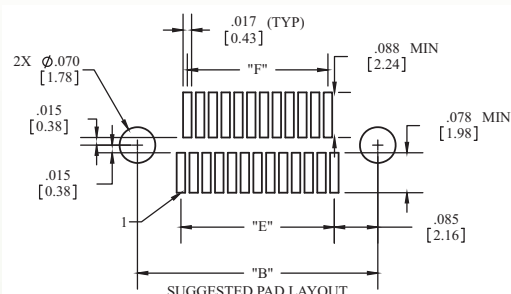
CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"A"	"B"	"C"	"D"	"E"	"F"
9	0.375	0.270	0.160	0.170	0.100	0.075	9.53	6.86	4.06	4.32	2.54	1.91
15	0.450	0.345	0.235	0.245	0.175	0.150	11.43	8.76	5.97	6.22	4.45	3.81
21	0.525	0.420	0.310	0.320	0.250	0.225	13.34	10.67	7.87	8.13	6.35	5.72
25	0.575	0.470	0.360	0.370	0.300	0.275	14.61	11.94	9.14	9.40	7.62	6.99
31	0.650	0.545	0.435	0.445	0.375	0.350	16.51	13.84	11.05	11.30	9.53	8.89
37	0.725	0.620	0.510	0.520	0.450	0.425	18.42	15.75	12.95	13.21	11.43	10.80
51	0.900	0.795	0.685	0.695	0.625	0.600	22.86	20.19	17.40	17.65	15.88	15.24
65	1.075	0.970	0.860	0.870	0.800	0.775	27.31	24.64	21.84	22.10	20.32	19.69

CAGE Code 61873

Vertical SMT Type VV

Nano-D

■ Dual Row Vertical SMT (Type VV)



■ English (IN)

■ Metric (mm)

CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"A"	"B"	"C"	"D"	"E"	"F"
9	0.375	0.270	0.163	0.170	0.100	0.075	9.53	6.86	4.14	4.32	2.54	1.91
15	0.450	0.345	0.238	0.245	0.175	0.150	11.43	8.76	6.05	6.22	4.45	3.81
21	0.525	0.420	0.313	0.320	0.250	0.225	13.34	10.67	7.95	8.13	6.35	5.72
25	0.575	0.470	0.363	0.370	0.300	0.275	14.61	11.94	9.22	9.40	7.62	6.99
31	0.650	0.545	0.438	0.445	0.375	0.350	16.51	13.84	11.13	11.30	9.53	8.89
37	0.725	0.620	0.513	0.520	0.450	0.425	18.42	15.75	13.03	13.21	11.43	10.80
51	0.900	0.795	0.688	0.695	0.625	0.600	22.86	20.19	17.48	17.65	15.88	15.24
65	1.075	0.970	0.863	0.870	0.800	0.775	27.31	24.64	21.92	22.10	20.32	19.69

CAGE Code 61873

Nano-D

Vertical SMT Type VV

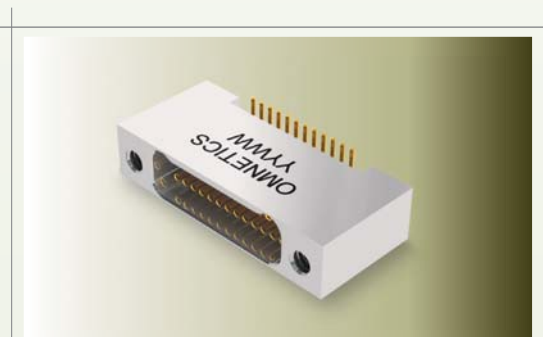
■ Dual Row Vertical SMT (Type VV) Ordering Guide

■ Series	■ # of Contacts	■ Termination Type	■ Shell Material and Finish	■ Options
■ MNPO Male (Pin Connector)	09 15 21 25 31 37 51 65	VV Vertical Surface Mount	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole, #0-80  HTE High Temp. Epoxy  RH RoHS 

Examples



MNPO-25-VV-N-ETH



MNSO-37-VV-N-ETH-HTE

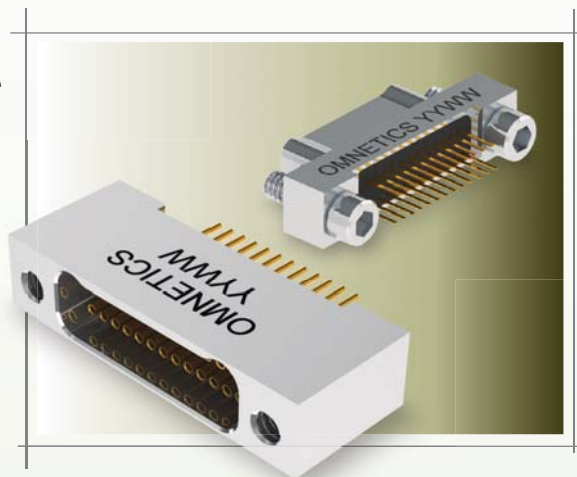
■ Vertical SMT Bi-Lobe® Mass Chart (estimated +/- 10%)

■ Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■ 09	.40 g	.61 g	.98 g	.36 g	.59 g	.97 g
■ 15	.48 g	.71 g	1.10 g	.43 g	.66 g	1.08 g
■ 21	.57 g	.80 g	1.23 g	.49 g	.74 g	1.18 g
■ 25	.62 g	.87 g	1.31 g	.53 g	.79 g	1.25 g
■ 31	.70 g	.97 g	1.44 g	.59 g	.86 g	1.35 g
■ 37	.79 g	1.07 g	1.57 g	.65 g	.94 g	1.45 g
■ 51	.98 g	1.29 g	1.86 g	.79 g	1.12 g	1.69 g
■ 65	1.17 g	1.52 g	2.15 g	.94 g	1.30 g	1.93 g

CAGE Code 61873

■ Dual Row Straight Tail (TYPE DD)

The Dual Row Bi-Lobe® nanos are configured with simple straight tails (Integral or Crimped). Suitable for vertical thru-hole mounting to fine pitched flex circuits. These ruggedized nano connectors are designed on .025" (.64 mm) centerlines. The straight solid tails are also commonly used in ultra fine wire wrap termination, such as used in electro-physiology. Whatever your application, these connectors feature Omnetics' gold plated Flex Pin contact system that conforms to the requirements of MIL-DTL-32139. They are available with retention screws for a positive lock. These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configurations. Flex design and installation service is also available from Omnetics. Please contact us for more information.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

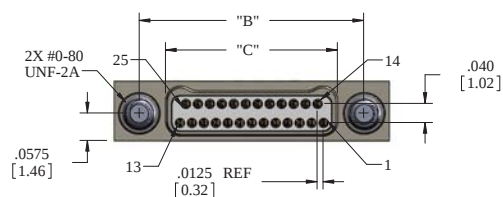
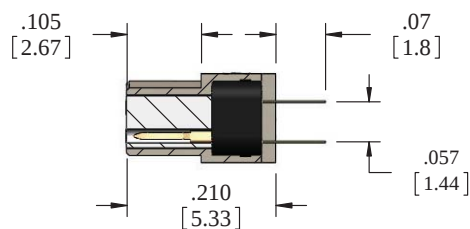
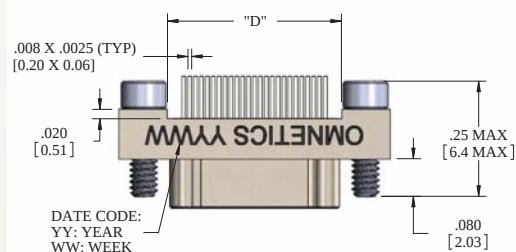
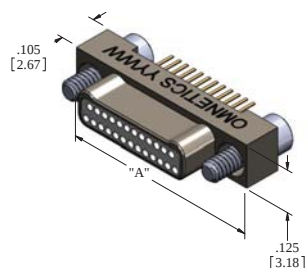
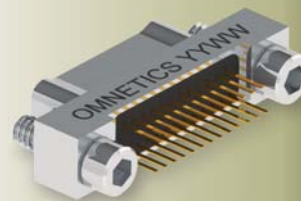
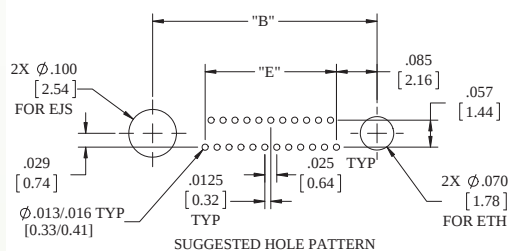
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Straight Tail Type DD

■ Dual Row Straight Tail (Type DD)



■ English (IN)

■ Metric (mm)

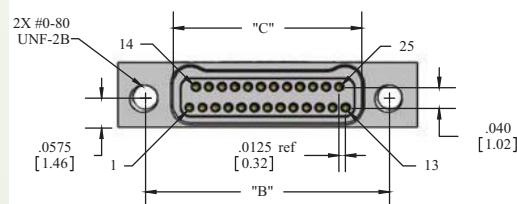
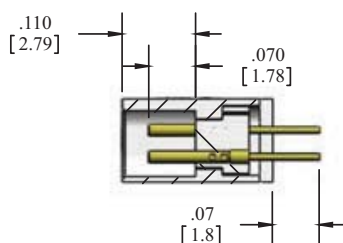
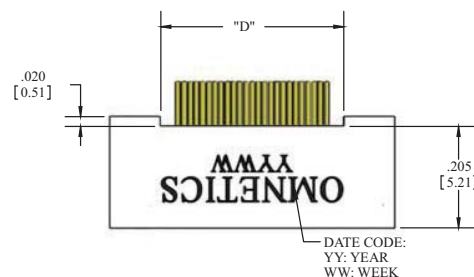
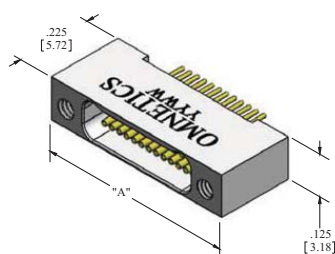
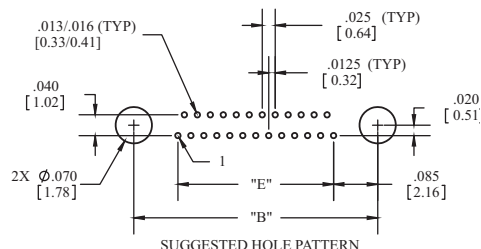
PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"A"	"B"	"C"	"D"	"E"
A28500-009	9	0.375	0.270	0.160	0.170	0.100	9.53	6.86	4.06	4.32	2.54
A28500-015	15	0.450	0.345	0.235	0.245	0.175	11.43	8.76	5.97	6.22	4.45
A28500-021	21	0.525	0.420	0.310	0.320	0.250	13.34	10.67	7.87	8.13	6.35
A28500-025	25	0.575	0.470	0.360	0.370	0.300	14.61	11.94	9.14	9.40	7.62
A28500-031	31	0.650	0.545	0.435	0.445	0.375	16.51	13.84	11.05	11.30	9.53
A28500-037	37	0.725	0.620	0.510	0.520	0.450	18.42	15.75	12.95	13.21	11.43
A28500-051	51	0.900	0.795	0.685	0.695	0.625	22.86	20.19	17.40	17.65	15.88
A28500-065	65	1.075	0.970	0.860	0.870	0.800	27.31	24.64	21.84	22.10	20.32
A28500-085	85	1.325	1.220	1.110	1.120	1.050	33.66	30.99	28.19	28.45	26.67

CAGE Code 61873

Straight Tail Type DD

Nano-D

■ Dual Row Straight Tail (TYPE DD)



■ English (IN)

■ Metric (mm)

PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"A"	"B"	"C"	"D"	"E"
A29500-009	9	0.375	0.270	0.163	0.170	0.100	9.53	6.86	4.14	4.32	2.54
A29500-015	15	0.450	0.345	0.238	0.245	0.175	11.43	8.76	6.05	6.22	4.45
A29500-021	21	0.525	0.420	0.313	0.320	0.250	13.34	10.67	7.95	8.13	6.35
A29500-025	25	0.575	0.470	0.363	0.370	0.300	14.61	11.94	9.22	9.40	7.62
A29500-031	31	0.650	0.545	0.438	0.445	0.375	16.51	13.84	11.13	11.30	9.53
A29500-037	37	0.725	0.620	0.513	0.520	0.450	18.42	15.75	13.03	13.21	11.43
A29500-051	51	0.900	0.795	0.688	0.695	0.625	22.86	20.19	17.48	17.65	15.88
A29500-065	65	1.075	0.970	0.863	0.870	0.800	27.31	24.64	21.92	22.10	20.32
A29500-085	85	1.325	1.220	1.113	1.120	1.050	33.66	30.99	28.27	28.45	26.67

CAGE Code 61873

Nano-D

Straight Tail Type DD

■ Dual Row Straight Tail (TypeDD) Ordering Guide

■ Series	■ # of Contacts	■ Termination Type	■ Shell Material and Finish	■ Options
■ MNPO Male (Pin Connector)	09 15 21 25 31 37 51 65	DD Thru-Hole Straight	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole,#0-80  EJS End Jackscrew (Pin Only)  M Mounting Hole  HTE High Temp. Epoxy 

Examples



MNPO-25-DD-N-EJS



MNSO-37-DD-N-ETH-HTE

RH
RoHS
COMPLIANT



25

■ Straight Through Hole Bi-Lobe® Mass Chart (estimated +/- 10%)

■ Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■ 09	.41 g	.50 g	.66 g	.33 g	.52 g	.86 g
■ 15	.46 g	.56 g	.73 g	.39 g	.59 g	.96 g
■ 21	.51 g	.61 g	.81 g	.44 g	.66 g	1.06 g
■ 25	.55 g	.65 g	.86 g	.48 g	.71 g	1.12 g
■ 31	.60 g	.71 g	.93 g	.54 g	.78 g	1.22 g
■ 37	.65 g	.76 g	1.01 g	.59 g	.85 g	1.32 g
■ 51	.76 g	.90 g	1.18 g	.72 g	1.02 g	1.55 g
■ 65	.88 g	1.03 g	1.36 g	.86 g	1.19 g	1.78 g

CAGE Code 61873

■ Dual Row Horizontal Thru-Hole (TYPE H4)

The Dual Row Bi-Lobe® H4 nanos are a thru-hole mounted, low mass ruggedized connector on .025" (.64 mm) centerlines. The thru-hole tails are spread into a mounting pattern on .050" (1.27 mm) centers, allowing space for annular rings and routing traces. They feature Omnetics' gold plated Flex Pin contact system conforming to the requirements of MIL-DTL-32139. These durable lightweight connectors are perfect for the most demanding applications and are inter-mateable with Omnetics' QPL versions of Military Specification MIL-DTL-32139. They are available with retention screws for a positive lock. These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configurations.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

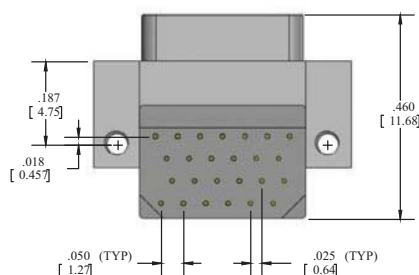
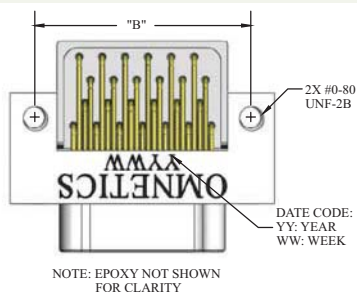
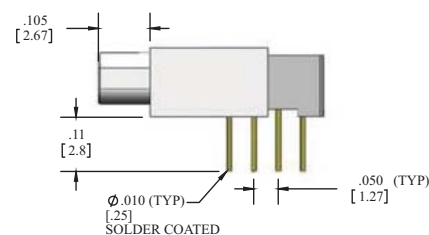
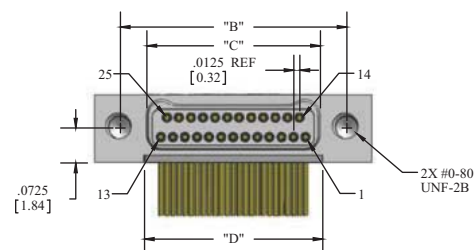
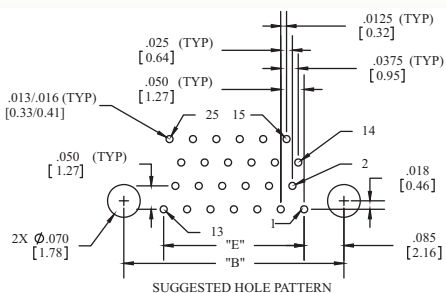
■ Material Specifications

■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Horizontal Thru-Hole Type H4

■ Dual Row Horizontal Thru-Hole (TYPE H4)



English (IN)

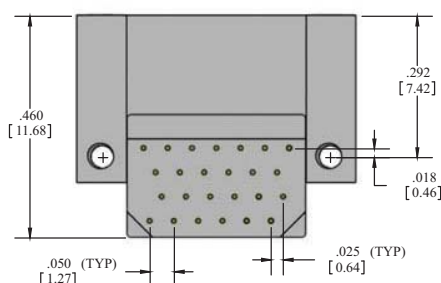
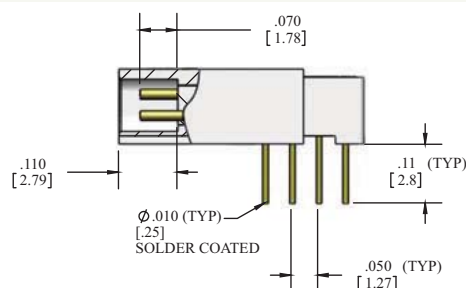
■ **Metric (mm)**

	PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"A"	"B"	"C"	"D"	"E"
■	A28400-009	9	0.375	0.270	0.160	0.170	0.100	9.53	6.86	4.06	4.32	2.54
■	A28400-015	15	0.450	0.345	0.235	0.245	0.175	11.43	8.76	5.97	6.22	4.45
■	A28400-021	21	0.525	0.420	0.310	0.320	0.250	13.34	10.67	7.87	8.13	6.35
■	A28400-025	25	0.575	0.470	0.360	0.370	0.300	14.61	11.94	9.14	9.40	7.62
■	A28400-031	31	0.650	0.545	0.435	0.445	0.375	16.51	13.84	11.05	11.30	9.53
■	A28400-037	37	0.725	0.620	0.510	0.520	0.450	18.42	15.75	12.95	13.21	11.43
■	A28400-051	51	0.900	0.795	0.685	0.695	0.625	22.86	20.19	17.40	17.65	15.88
■	A28400-065	65	1.075	0.970	0.860	0.870	0.800	27.31	24.64	21.84	22.10	20.32
■	A28400-085	85	1.305	1.220	1.110	1.120	1.050	33.66	30.99	28.19	28.45	26.67

CAGE Code 61873

Nano-D

28



■ **Metric (mm)**

CAGE Code 61873

Nano-D

Horizontal Thru-Hole Type H4

■ Dual Row Horizontal Thru-Hole (TYPE H4) Ordering Guide

■ Series	■ # of Contacts	■ Termination Type	■ Shell Material and Finish	■ Options
■ MNPO Male (Pin Connector)	09 15 21 25 31 37 51 65	H4 Horizontal Thru-Hole	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole, #0-80  M Mounting Hole  HTE High Temp. Epoxy 

Examples



MNPO-25-H4-N-ETH-M



MNSO-37-H4-N-ETH-M



29

RH
RoHS
COMPLIANT



■ Horizontal Thru-Hole Bi-Lobe® Mass Chart (estimated +/- 10%)

■ Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■ 09	.50 g	.72 g	1.12 g	.64 g	.95 g	1.53 g
■ 15	.61 g	.84 g	1.26 g	.75 g	1.08 g	1.68 g
■ 21	.72 g	.96 g	1.40 g	.87 g	1.21 g	1.84 g
■ 25	.79 g	1.04 g	1.49 g	.94 g	1.30 g	1.95 g
■ 31	.90 g	1.16 g	1.63 g	1.06 g	1.43 g	2.10 g
■ 37	1.00 g	1.28 g	1.77 g	1.17 g	1.56 g	2.26 g
■ 51	1.26 g	1.56 g	2.10 g	1.44 g	1.86 g	2.62 g
■ 65	1.51 g	1.84 g	2.43 g	1.71 g	2.17 g	2.99 g

CAGE Code 61873

Vertical Thru-Hole Type V4

Nano-D

■ Dual Row Vertical Thru-Hole (TYPE V4)

The Dual Row Bi-Lobe® V4 nanos offer a low mass vertical thru-hole mounted orientation making them ideal for high shock & vibration environments. These ruggedized nanos have contacts arranged on .025" (.64 mm) center lines. The tails are spread into a mounting pattern on .050" (1.27 mm) centers, allowing space for the routing of traces and size of annular rings. These connectors feature Omnetics' highly dependable gold plated Flex Pin contact system conforming to the requirements of MIL-DTL-32139. These durable lightweight connectors are perfect for the most demanding applications and are interchangeable with Omnetics' QPL versions of Military Specification MIL-DTL-32139. They are available with retention screws for a positive lock. These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configuration.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

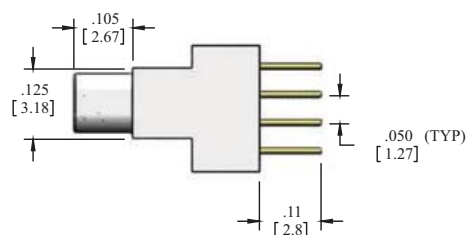
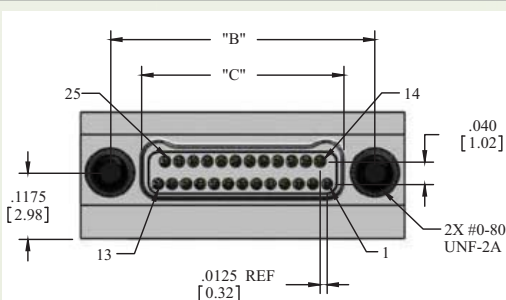
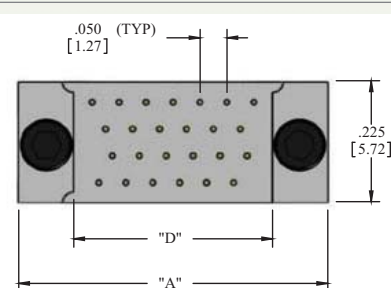
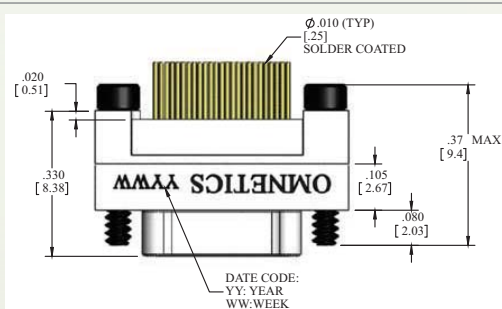
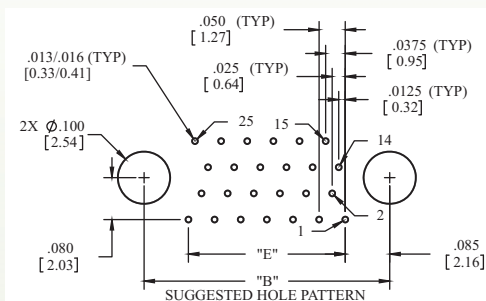
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Vertical Thru-Hole Type V4

■ Dual Row Vertical Thru-Hole (TYPE V4)



■ English (IN)

■ Metric (mm)

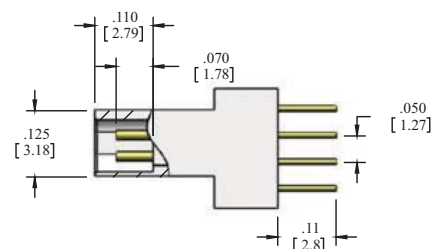
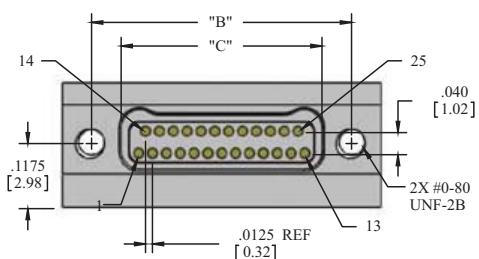
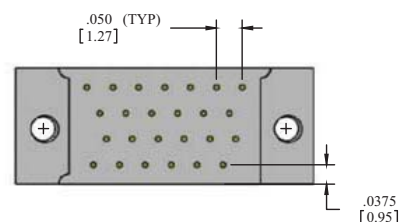
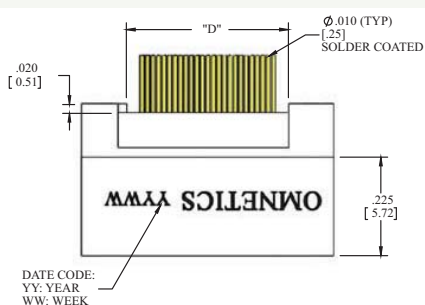
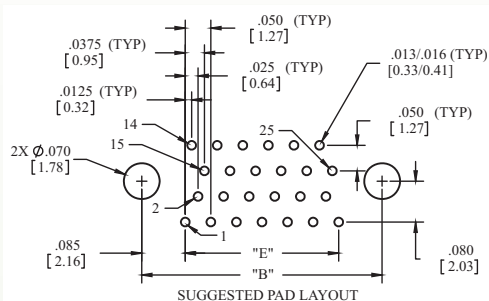
PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"A"	"B"	"C"	"D"	"E"
A28410-009	9	0.375	0.270	0.160	0.170	0.100	9.53	6.86	4.14	4.32	2.54
A28410-015	15	0.450	0.345	0.235	0.245	0.175	11.43	8.76	6.05	6.22	4.45
A28410-021	21	0.525	0.420	0.310	0.320	0.250	13.34	10.67	7.95	8.13	6.35
A28410-025	25	0.575	0.470	0.360	0.370	0.300	14.61	11.94	9.22	9.40	7.62
A28410-031	31	0.650	0.545	0.435	0.445	0.375	16.51	13.84	11.13	11.30	9.53
A28410-037	37	0.725	0.620	0.510	0.520	0.450	18.42	15.75	13.03	13.21	11.43
A28410-051	51	0.900	0.795	0.685	0.695	0.625	22.86	20.19	17.48	17.65	15.88
A28410-065	65	1.075	0.970	0.860	0.870	0.800	27.31	24.64	21.92	22.10	20.32
A28410-085	85	1.325	1.220	1.110	1.120	1.050	33.66	30.99	28.19	28.45	26.67

CAGE Code 61873

Vertical Thru-Hole Type V4

Nano-D

■ Dual Row Vertical Thru-Hole (TYPE V4)



■ English (IN)

■ Metric (mm)

PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"A"	"B"	"C"	"D"	"E"
■ A29410-009	9	0.375	0.270	0.163	0.170	0.100	9.53	6.86	4.14	4.32	2.54
■ A29410-015	15	0.450	0.345	0.238	0.245	0.175	11.43	8.76	6.05	6.22	4.45
■ A29410-021	21	0.525	0.420	0.313	0.320	0.250	13.34	10.67	7.95	8.13	6.35
■ A29410-025	25	0.575	0.470	0.363	0.370	0.300	14.61	11.94	9.22	9.40	7.62
■ A29410-031	31	0.650	0.545	0.438	0.445	0.375	16.51	13.84	11.13	11.30	9.53
■ A29410-037	37	0.725	0.620	0.513	0.520	0.450	18.42	15.75	13.03	13.21	11.43
■ A29410-051	51	0.900	0.795	0.688	0.695	0.625	22.86	20.19	17.48	17.65	15.88
■ A29410-065	65	1.075	0.970	0.863	0.870	0.800	27.31	24.64	21.92	22.10	20.32
■ A29410-085	85	1.325	1.220	1.113	1.120	1.050	33.66	30.99	28.27	28.45	26.67

CAGE Code 61873

Nano-D

Vertical Thru-Hole Type V4

■ Dual Row Vertical Thru-Hole (TYPE V4) Ordering Guide

■ Series	■ # of Contacts	■ Termination Type	■ Shell Material and Finish	■ Options
■ MNPO Male (Pin Connector)	09 15 21 25 31 37 51 65	V4 Vertical Thru-Hole	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole,#0-80  EJS End Jackscrew (Pin Only)  HTE High Temp. Epoxy 

Examples



MNPO-25-V4-N-EJS



MNSO-37-V4-N-ETH

RH
RoHS
COMPLIANT



■ Straight Thru-Hole Bi-Lobe® Mass Chart (estimated +/- 10%)

■ Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
09	.83 g	1.09 g	1.54 g	.62 g	.98 g	1.63 g
15	.93 g	1.20 g	1.69 g	.75 g	1.13 g	1.82 g
21	1.04 g	1.32 g	1.84 g	.87 g	1.28 g	2.00 g
25	1.10 g	1.40 g	1.94 g	.96 g	1.38 g	2.13 g
31	1.21 g	1.52 g	2.09 g	1.08 g	1.52 g	2.31 g
37	1.31 g	1.64 g	2.24 g	1.21 g	1.67 g	2.50 g
51	1.54 g	1.91 g	2.58 g	1.50 g	2.01 g	2.93 g
65	1.78 g	2.19 g	2.93 g	1.80 g	2.36 g	3.37 g

CAGE Code 61873

■ Dual Row Flex Tail (TYPE FF)

Flex Mount Bi-Lobe® nanos are a low profile ruggedized connector on .025" (.64 mm) centerlines. The SMT tails are formed together in an hourglass shape, allowing a double sided flex circuit to slide between the 2 rows. The spring tension holds the flex in place during the soldering process. These connectors feature Omnetics' highly reliable gold plated Flex Pin contact system conforming to the requirements of MIL-DTL-32139. These durable lightweight connectors are suitable for the most demanding applications. These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configurations. Flex design and installation service is also available from Omnetics.

Please contact us for more information.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

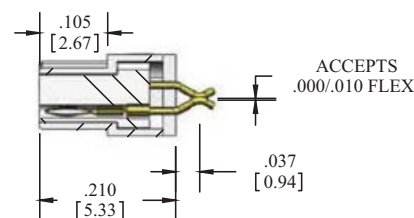
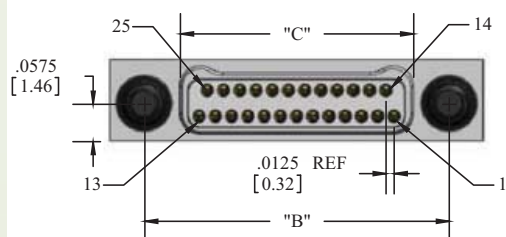
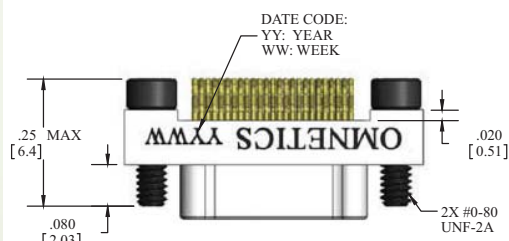
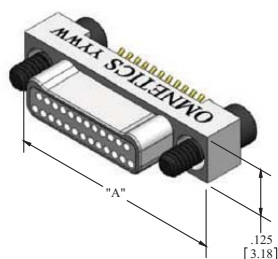
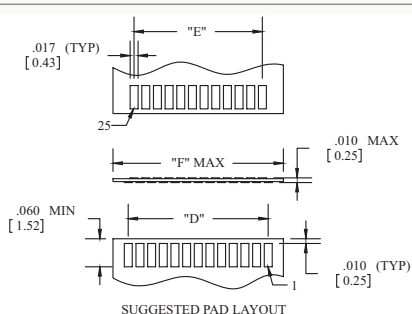
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Flex Tail Type FF

■ Dual Row Flex Tail (TYPE FF)



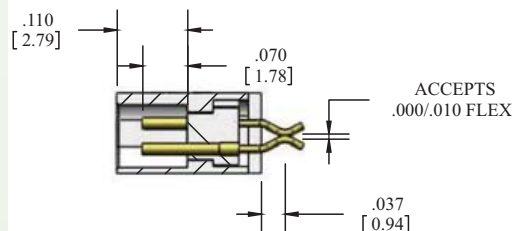
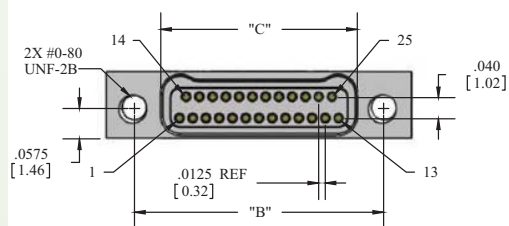
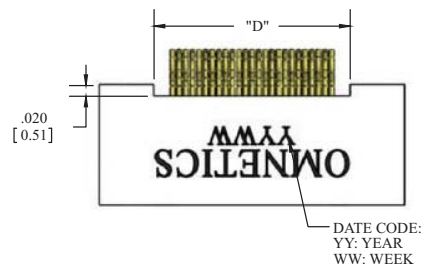
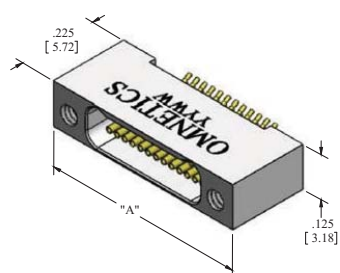
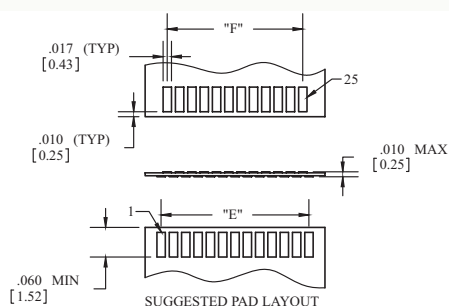
■ English (IN)

■ Metric (mm)

PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"A"	"B"	"C"	"D"	"E"	"F"
■ A28300-009	9	0.375	0.270	0.160	0.100	0.075	0.165	9.53	6.86	4.06	2.54	1.91	4.19
■ A28300-015	15	0.450	0.345	0.235	0.175	0.150	0.240	11.43	8.76	5.97	4.45	3.81	6.10
■ A28300-021	21	0.525	0.420	0.310	0.250	0.225	0.315	13.34	10.67	7.87	6.35	5.72	8.00
■ A28300-025	25	0.575	0.470	0.360	0.300	0.275	0.365	14.61	11.94	9.14	7.62	6.99	9.27
■ A28300-031	31	0.650	0.545	0.435	0.375	0.350	0.440	16.51	13.84	11.05	9.53	8.89	11.18
■ A28300-037	37	0.725	0.620	0.510	0.450	0.425	0.515	18.42	15.75	12.95	11.43	10.80	13.08
■ A28300-051	51	0.900	0.795	0.685	0.625	0.600	0.690	22.86	20.19	17.40	15.88	15.24	17.53
■ A28300-065	65	1.075	0.970	0.860	0.800	0.775	0.865	27.31	24.64	21.84	20.32	19.69	21.97
■ A28300-085	85	1.325	1.220	1.110	1.050	1.025	1.115	33.66	30.99	28.19	26.67	26.04	28.32

CAGE Code 61873

■ Dual Row Flex Tail (TYPE FF)



■ English (IN)

■ Metric (mm)

PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"A"	"B"	"C"	"D"	"E"	"F"
A29300-009	9	0.375	0.270	0.163	0.170	0.100	0.075	9.53	6.86	4.14	4.32	2.54	1.91
A29300-015	15	0.450	0.345	0.238	0.245	0.175	0.150	11.43	8.76	6.05	6.22	4.45	3.81
A29300-021	21	0.525	0.420	0.313	0.320	0.250	0.225	13.34	10.67	7.95	8.13	6.35	5.72
A29300-025	25	0.575	0.470	0.363	0.370	0.300	0.275	14.61	11.94	9.22	9.40	7.62	6.99
A29300-031	31	0.650	0.545	0.438	0.445	0.375	0.350	16.51	13.84	11.13	11.30	9.53	8.89
A29300-037	37	0.725	0.620	0.513	0.520	0.450	0.425	18.42	15.75	13.03	13.21	11.43	10.80
A29300-051	51	0.900	0.795	0.688	0.695	0.625	0.600	22.86	20.19	17.48	17.65	15.88	15.24
A29300-065	65	1.075	0.970	0.863	0.870	0.800	0.775	27.31	24.64	21.92	22.10	20.32	19.69
A29300-085	85	1.325	1.220	1.113	1.120	1.050	1.025	33.66	30.99	28.27	28.45	26.67	26.04

CAGE Code 61873

Nano-D

Flex Tail Type FF

■ Dual Row Flex Tail (TYPE FF) Ordering Guide

■ Series	■ # of Contacts	■ Termination Type	■ Shell Material and Finish	■ Options
■ MNPO Male (Pin Connector)	09 15 21 25 31 37 51 65	FF Flex Mount 	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole, #0-80  EJS End Jackscrew (Pin Only)  HTE High Temp. Epoxy 

Examples



MNPO-25-FF-N-EJS



MNSO-37-FF-N-ETH

RH
RoHS
COMPLIANT



■ Flex Bi-Lobe® Mass Chart (estimated +/- 10%)

■ Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■ 09	.42 g	.51 g	.67 g	.33 g	.52 g	.86 g
■ 15	.47 g	.57 g	.75 g	.39 g	.59 g	.96 g
■ 21	.53 g	.63 g	.83 g	.44 g	.66 g	1.06 g
■ 25	.56 g	.68 g	.88 g	.48 g	.71 g	1.12 g
■ 31	.62 g	.74 g	.97 g	.54 g	.78 g	1.22 g
■ 37	.67 g	.80 g	1.05 g	.59 g	.85 g	1.32 g
■ 51	.79 g	.95 g	1.24 g	.72 g	1.02 g	1.55 g
■ 65	.92 g	1.10 g	1.43 g	.86 g	1.19 g	1.78 g

CAGE Code 61873

■ Dual Row Pre-Wired (TYPE WD)

Pre-Wired Dual Row Bi-Lobe® nanos are available with 30 AWG and smaller stranded wire. These assemblies are crimped using proprietary semi-automated crimping systems. Due to their small size and precision required to make these quality crimps, hand crimping is not an option. Pre-crimped wires and contacts are potted in place further protecting the integrity of the crimp joint. Building these parts to order allows for maximum flexibility in wire type, size and color coding. Commercial off the shelf (COTS) versions are also available with 18" of color coded 30 AWG Teflon for quick turn around. These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configurations. Full QPL versions of MIL-DTL-32139 are also available from Omnetics.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

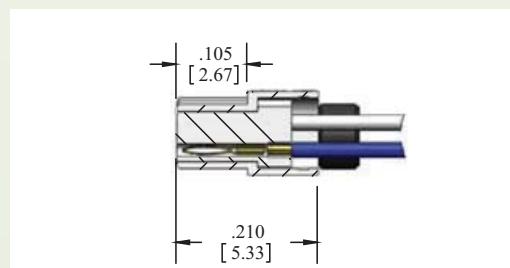
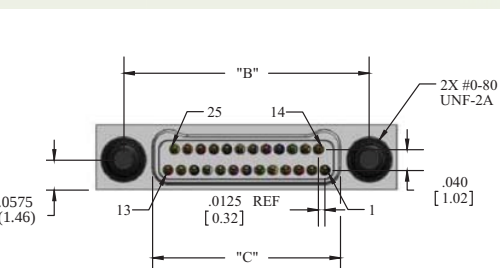
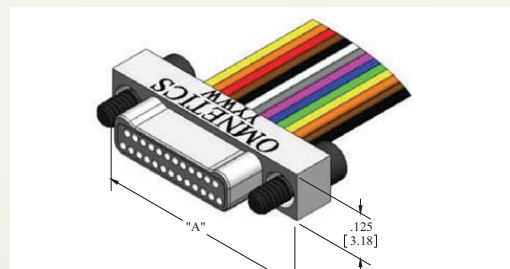
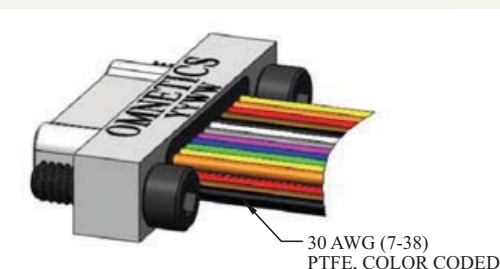
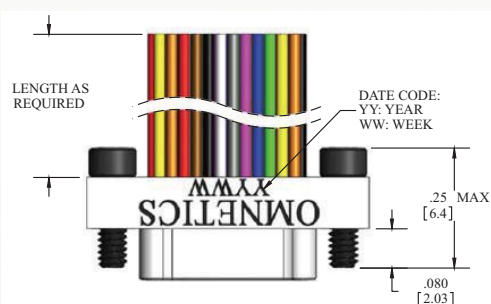
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Pre-Wired Type WD

■ Dual Row Pre-Wired (TYPE WD)



39

■ English (IN)

■ Metric (mm)

■ Pin

■ Color

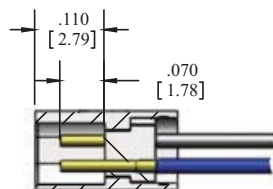
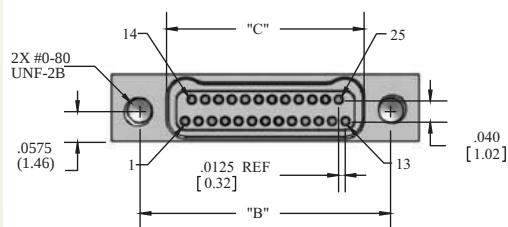
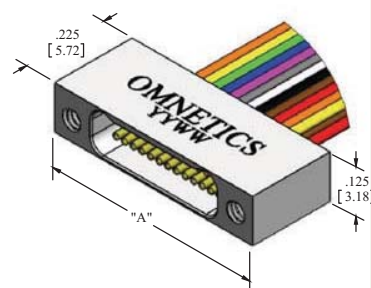
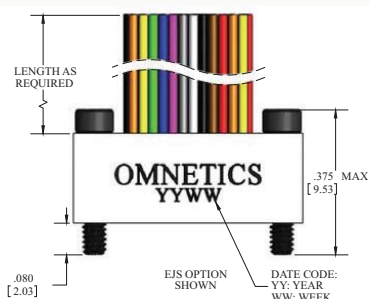
PART NO.	CONTACTS	"A"	"B"	"C"	"A"	"B"	"C"	1, 11, 21, 31, 41, 51, 61, 71, 81	BLACK
A28000-009	9	0.375	0.270	0.160	9.53	6.86	4.06	2, 12, 22, 32, 42, 52, 62, 72, 82	BROWN
A28000-015	15	0.450	0.345	0.235	11.43	8.76	5.97	3, 13, 23, 33, 43, 53, 63, 73, 83	RED
A28000-021	21	0.525	0.420	0.310	13.34	10.67	7.87	4, 14, 24, 34, 44, 54, 64, 74, 84	ORANGE
A28000-025	25	0.575	0.470	0.360	14.61	11.94	9.14	5, 15, 25, 35, 45, 55, 65, 75, 85	YELLOW
A28000-031	31	0.650	0.545	0.435	16.51	13.84	11.05	6, 16, 26, 36, 46, 56, 66, 76 ..	GREEN
A28000-037	37	0.725	0.620	0.510	18.42	15.75	12.95	7, 17, 27, 37, 47, 57, 67, 77 ..	BLUE
A28000-051	51	0.900	0.795	0.685	22.86	20.19	17.40	8, 18, 28, 38, 48, 58, 68, 78 ..	VIOLET
A28000-065	65	1.075	0.970	0.860	27.31	24.64	21.84	9, 19, 29, 39, 49, 59, 69, 79 ..	GRAY
A28000-085	85	1.325	1.220	1.110	33.66	30.99	28.19	10, 20, 30, 40, 50, 60, 70, 80 ..	WHITE

CAGE Code 61873

Pre-Wired Type WD

Nano-D

■ Dual Row Pre-Wired (TYPE WD)



■ English (IN)

■ Metric (mm)

■ Pin

■ Color

PART NO.	CONTACTS	"A"	"B"	"C"	"A"	"B"	"C"	Pin	Color
A29000-009	9	0.375	0.270	0.163	9.53	6.86	4.14	1, 11, 21, 31, 41, 51, 61, 71, 81	BLACK
A29000-015	15	0.450	0.345	0.238	11.43	8.76	6.05	2, 12, 22, 32, 42, 52, 62, 72, 82	BROWN
A29000-021	21	0.525	0.420	0.313	13.34	10.67	7.95	3, 13, 23, 33, 43, 53, 63, 73, 83	RED
A29000-025	25	0.575	0.470	0.363	14.61	11.94	9.22	4, 14, 24, 34, 44, 54, 64, 74, 84	ORANGE
A29000-031	31	0.650	0.545	0.438	16.51	13.84	11.13	5, 15, 25, 35, 45, 55, 65, 75, 85	YELLOW
A29000-037	37	0.725	0.620	0.513	18.42	15.75	13.03	6, 16, 26, 36, 46, 56, 66, 76 ..	GREEN
A29000-051	51	0.900	0.795	0.688	22.86	20.19	17.48	7, 17, 27, 37, 47, 57, 67, 77 ..	BLUE
A29000-065	65	1.075	0.970	0.863	27.31	24.64	21.92	8, 18, 28, 38, 48, 58, 68, 78 ..	VIOLET
A29000-085	85	1.325	1.220	1.113	33.66	30.99	28.27	9, 19, 29, 39, 49, 59, 69, 79 ..	GRAY
								10, 20, 30, 40, 50, 60, 70, 80 ..	WHITE

CAGE Code 61873

Nano-D

Pre-Wired Type WD

■ Dual Row Pre-Wired (TYPE WD) Ordering Guide

■ Series	■ # of Contacts	■ Termination Type	■ Wire Length	■ Shell Material and Finish	■ Options
■ MNPO Male (Pin Connector)	09 15 21 25 31 37 51 65	WD Pre-Wired PTFE	XX.X Length in Inches	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole, #0-80  EJS End Jackscrew (Pin Only)  C Color Coded  HTE High Temp. Epoxy 

Examples



MNPO-25-WD-6.0-N-EJS-C



MNSO-25-WD-15.0-N-ETH-C-HTE

RH
RoHS
COMPLIANT



■ Teflon Wired Bi-Lobe® Mass Chart (estimated +/- 10%)

■ Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel	Additional Mass of 30 AWG Wire (g/in)
■ 09	.42 g	.54 g	.71 g	.39 g	.59 g	.97 g	.22 g
■ 15	.48 g	.60 g	.78 g	.43 g	.65 g	1.06 g	.37 g
■ 21	.53 g	.65 g	.85 g	.47 g	.71 g	1.14 g	.52 g
■ 25	.56 g	.69 g	.90 g	.50 g	.75 g	1.20 g	.62 g
■ 31	.62 g	.74 g	.98 g	.54 g	.81 g	1.28 g	.77 g
■ 37	.67 g	.79 g	1.05 g	.58 g	.86 g	1.36 g	.92 g
■ 51	.79 g	.92 g	1.22 g	.68 g	1.00 g	1.56 g	1.27 g
■ 65	.92 g	1.04 g	1.39 g	.78 g	1.13 g	1.76 g	1.62 g

CAGE Code 61873

■ Dual Row Jumpers (TYPE JU)

Pre-Wired Dual Row Bi-Lobe® harnesses with 30 AWG and smaller stranded wire are fully manufactured by Omnetics per your specific requirements. Building these parts to order allows for maximum flexibility in wire type, size and color coding. Building these parts to order allows for maximum flexibility in wire type, size and color coding.

Ultra small .025" (.64 mm) centerlines make them an excellent choice for routing multiple lines through confined spaces. These connectors feature Omnetics' highly dependable gold plated Flex Pin contact system conforming to the requirements of MIL-DTL-32139. Shell material options include Aluminum and Stainless steel with multiple standard and custom plating options upon request. These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configurations.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

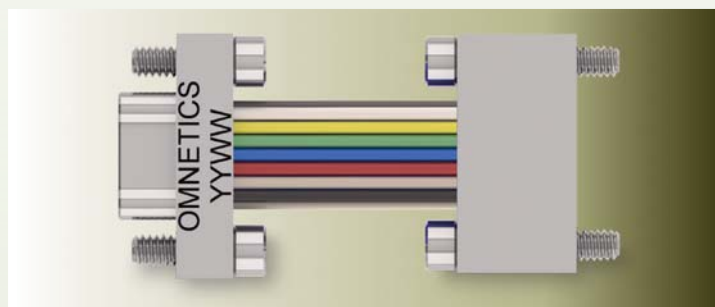
CAGE Code 61873

Nano-D

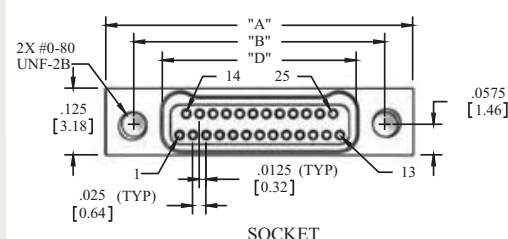
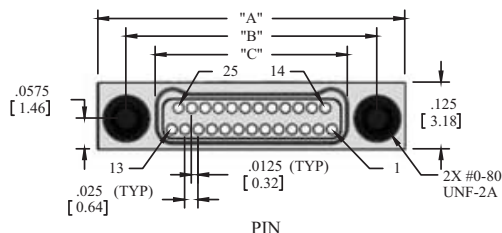
Jumper Type JU

■ Dual Row Jumpers (TYPE JU)

■ Series	■ # of Contacts	■ Connection Type End 1 and 2	■ Termination Type	■ Wire Length	■ Shell Material and Finish	■ Options
JUM Jumper	09	MNSO Female (Socket Connector)	WD Pre-Wired PTFE	XX.X Length in Inches	 N Aluminum Shell, Electroless Nickel Plated	ETH End Threaded Hole, #0-80
	15					
	21					
	25					
	31	MNPO Male (Pin Connector)	WC Cable		 CD Aluminum Shell, Cadmium Plated	EJS End Jackscrew (Pin Only)
	37					
	51					
	65				 B Aluminum Shell, Black Anodized	HTE High Temp. Epoxy
					 S Stainless Steel Shell, Passivated	C Color Coded
					 T Titanium Shell Unplated	RH RoHS COMPLIANT



JUM-25-MNPO-MNSO-WD-2.0-ETH-EJS-C



■ English (IN)

■ Metric (mm)

CONTACTS	"A"	"B"	"C"	"D"	"A"	"B"	"C"	"D"
9	0.375	0.270	0.160	0.163	9.53	6.86	4.06	4.14
15	0.450	0.345	0.235	0.238	11.43	8.76	5.97	6.05
21	0.525	0.420	0.310	0.313	13.34	10.67	7.87	7.95
25	0.575	0.470	0.360	0.363	14.61	11.94	9.14	9.22
31	0.650	0.545	0.435	0.438	16.51	13.84	11.05	11.13
37	0.725	0.620	0.510	0.513	18.42	15.75	12.95	13.03
51	0.900	0.795	0.685	0.688	22.86	20.19	17.40	17.48
65	1.075	0.970	0.860	0.863	27.31	24.64	21.84	21.92

CAGE Code 61873

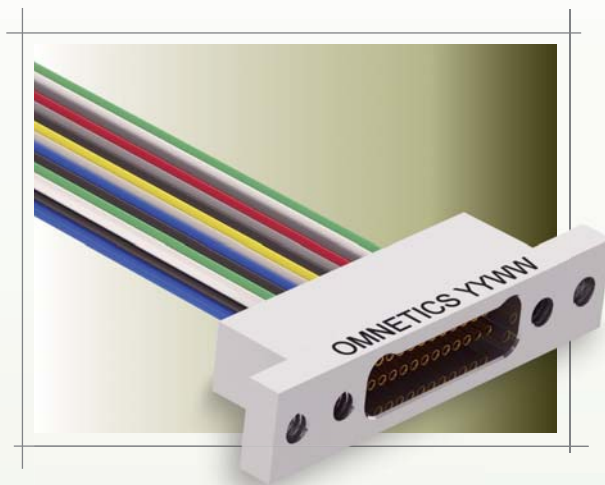
Panel Mount Type AA-DD-FF-WD

Nano-D

■ Dual Row Panel Mount (Type AA-DD-FF-WD)

Omnetics' Dual Row Bi-Lobe® nanos are available with panel mount housings. These housings require minimal real estate to create a convenient I/O arrangement. Utilizing Omnetics highly reliable gold plated Flex Pin contact system, these connectors are mateable with all MIL-DTL-32139 plugs.

Their low mass and .025" (.64 mm) centerlines make them ideal for high shock & vibration applications. They feature retention screw receptacles for a positive lock. Termination options include pre-wired, SMT, flex mount and straight tails. Shell material options include Aluminum and Stainless steel with multiple standard and custom plating options upon request.



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These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configuration.

■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

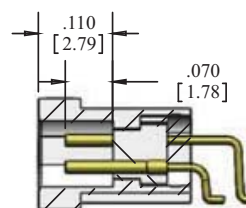
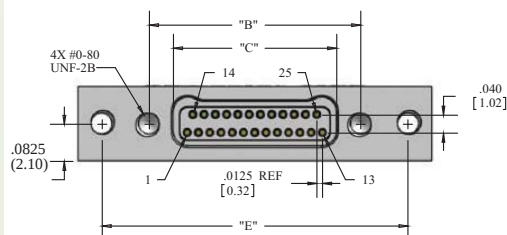
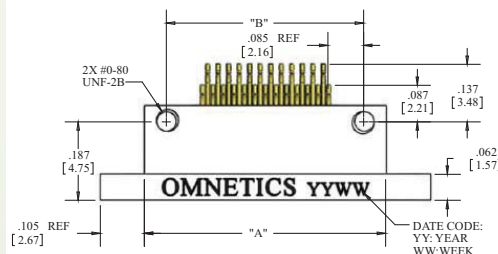
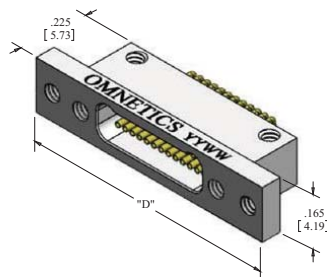
■ Material Specifications

■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Panel Mount Type AA

Figure 1: Suggested Pad Layout. This technical drawing shows the dimensions for a suggested pad layout. The layout is rectangular with a central row of 12 circular pads. Dimensions are given in inches and millimeters. Key dimensions include: overall width 'B' [2.16], overall height 'F' [1.88], distance between pads 'G' [0.43], distance from left edge to first pad [1.07], distance from last pad to right edge [1.27], distance from bottom edge to pad row [1.78], and distance from top edge to pad row [1.88]. A note '2X Ø.070 [1.78]' indicates the diameter of the pads. A note '1' points to the central row of pads. A note 'SUGGESTED PAD LAYOUT' is at the bottom.



■ **Metric (mm)**

CONTACTS		"A"	"B"	"C"	"D"	"E"	"F"	"G"	"A"	"B"	"C"	"D"	"E"	"F"	"G"
■	9	0.375	0.270	0.163	0.585	0.480	0.100	0.075	9.53	6.86	4.14	14.86	12.19	2.54	1.91
■	15	0.450	0.345	0.238	0.660	0.555	0.175	0.150	11.43	8.76	6.05	16.76	14.10	4.45	3.81
■	21	0.525	0.420	0.313	0.735	0.630	0.250	0.225	13.34	10.67	7.95	18.67	16.00	6.35	5.72
■	25	0.575	0.470	0.363	0.785	0.680	0.300	0.275	14.61	11.94	9.22	19.94	17.27	7.62	6.99
■	31	0.650	0.545	0.438	0.860	0.755	0.375	0.350	16.51	13.84	11.13	21.84	19.18	9.53	8.89
■	37	0.725	0.620	0.513	0.935	0.830	0.450	0.425	18.42	15.75	13.03	23.75	21.08	11.43	10.80
■	51	0.900	0.795	0.688	1.110	1.005	0.625	0.600	22.86	20.19	17.48	28.19	25.53	15.88	15.24
■	65	1.075	0.970	0.863	1.285	1.180	0.800	0.775	27.31	24.64	21.92	32.64	29.97	20.32	19.69

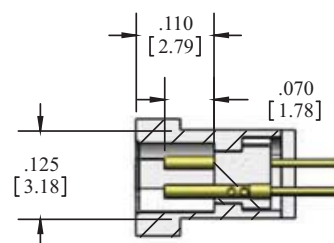
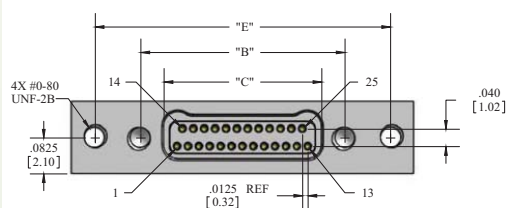
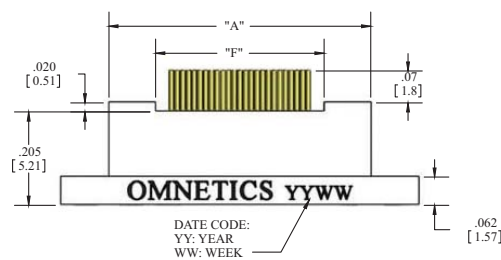
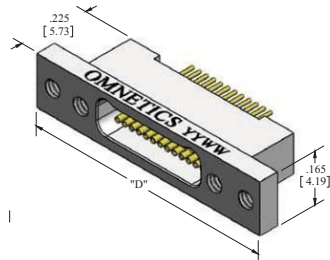
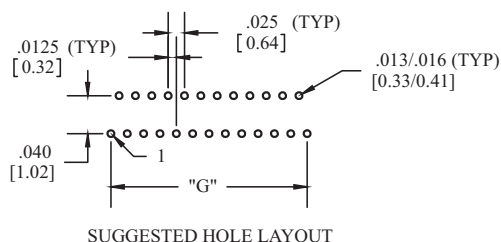
E-mail: sales@omnetics.com

OMNETICS
CONNECTOR CORPORATION

Panel Mount Type DD

Nano-D

■ Dual Row Panel Mount (Type DD)



■ English (IN)

■ Metric (mm)

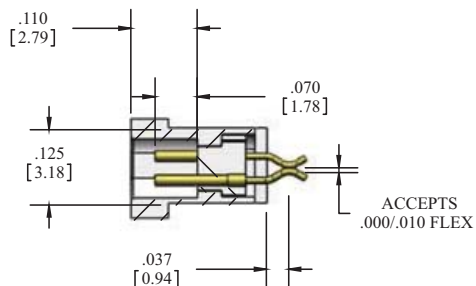
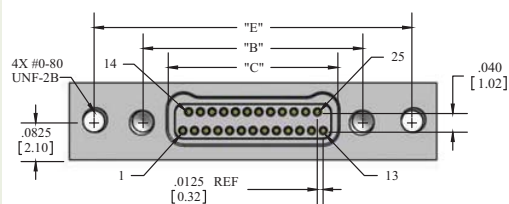
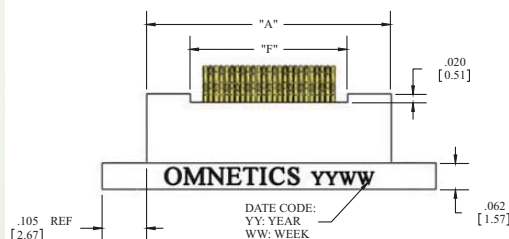
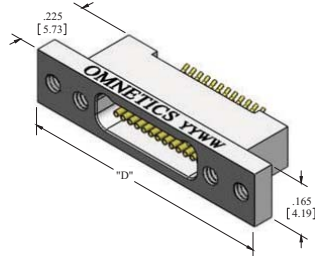
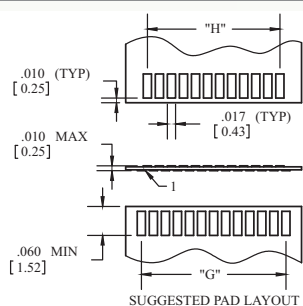
CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"A"	"B"	"C"	"D"	"E"	"F"	"G"
9	0.375	0.270	0.163	0.585	0.480	0.170	0.100	9.53	6.86	4.14	14.86	12.19	4.32	2.54
15	0.450	0.345	0.238	0.660	0.555	0.245	0.175	11.43	8.76	6.05	16.76	14.10	6.22	4.45
21	0.525	0.420	0.313	0.735	0.630	0.320	0.250	13.34	10.67	7.95	18.67	16.00	8.13	6.35
25	0.575	0.470	0.363	0.785	0.680	0.370	0.300	14.61	11.94	9.22	19.94	17.27	9.40	7.62
31	0.650	0.545	0.438	0.860	0.755	0.445	0.375	16.51	13.84	11.13	21.84	19.18	11.30	9.53
37	0.725	0.620	0.513	0.935	0.830	0.520	0.450	18.42	15.75	13.03	23.75	21.08	13.21	11.43
51	0.900	0.795	0.688	1.110	1.005	0.695	0.625	22.86	20.19	17.48	28.19	25.53	17.65	15.88
65	1.075	0.970	0.863	1.285	1.180	0.870	0.800	27.31	24.64	21.92	32.64	29.97	22.10	20.32

CAGE Code 61873

Nano-D

Panel Mount Type FF

■ Dual Row Panel Mount (Type FF)



■ English (IN)

■ Metric (mm)

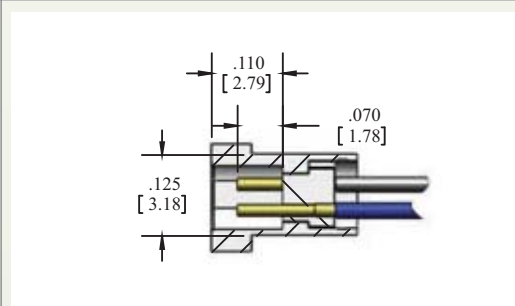
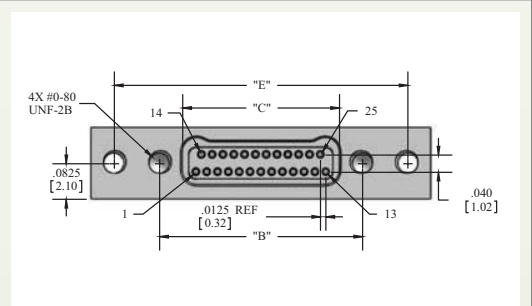
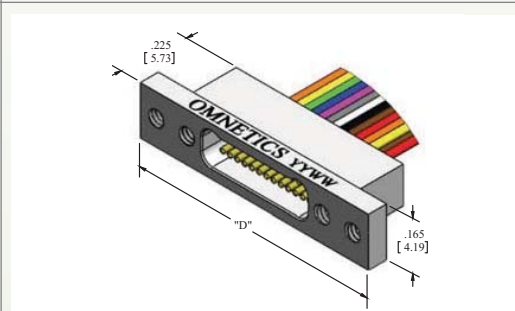
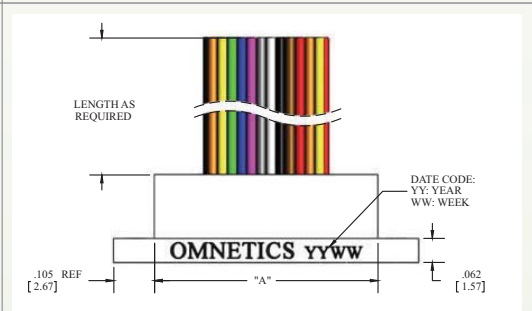
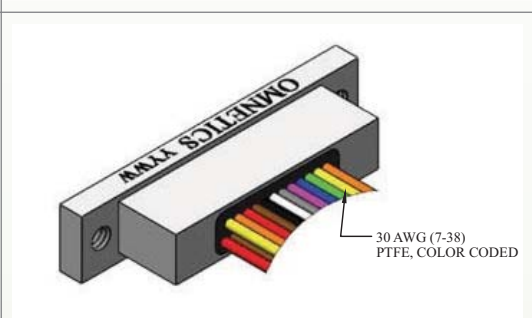
	CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"
■	9	0.375	0.270	0.163	0.585	0.480	0.170	0.100	0.075	9.53	6.86	4.14	14.86	12.19	4.32	2.54	1.91
■	15	0.450	0.345	0.238	0.660	0.555	0.245	0.175	0.150	11.43	8.76	6.05	16.76	14.10	6.22	4.45	3.81
■	21	0.525	0.420	0.313	0.735	0.630	0.320	0.250	0.225	13.34	10.67	7.95	18.67	16.00	8.13	6.35	5.72
■	25	0.575	0.470	0.363	0.785	0.680	0.370	0.300	0.275	14.61	11.94	9.22	19.94	17.27	9.40	7.62	6.99
■	31	0.650	0.545	0.438	0.860	0.755	0.445	0.375	0.350	16.51	13.84	11.13	21.84	19.18	11.30	9.53	8.89
■	37	0.725	0.620	0.513	0.935	0.830	0.520	0.450	0.425	18.42	15.75	13.03	23.75	21.08	13.21	11.43	10.80
■	51	0.900	0.795	0.688	1.110	1.005	0.695	0.625	0.600	22.86	20.19	17.48	28.19	25.53	17.65	15.88	15.24
■	65	1.075	0.970	0.863	1.285	1.180	0.870	0.800	0.775	27.31	24.64	21.92	32.64	29.97	22.10	20.32	19.69

CAGE Code 61873

Panel Mount Type WD

Nano-D

■ Dual Row Panel Mount (Type WD)



■ English (IN)

■ Metric (mm)

■ Socket

■ Color

CONTACTS	"A"	"B"	"C"	"D"	"E"	"A"	"B"	"C"	"D"	"E"	Socket	Color
9	0.375	0.270	0.163	0.585	0.480	9.53	6.86	4.14	14.86	12.19	1, 11, 21, 31, 41, 51, 61 . . .	BLACK
15	0.450	0.345	0.238	0.660	0.555	11.43	8.76	6.05	16.76	14.10	2, 12, 22, 32, 42, 52, 62 . . .	BROWN
21	0.525	0.420	0.313	0.735	0.630	13.34	10.67	7.95	18.67	16.00	3, 13, 23, 33, 43, 53, 63 . . .	RED
25	0.575	0.470	0.363	0.785	0.680	14.61	11.94	9.22	19.94	17.27	4, 14, 24, 34, 44, 54, 64 . . .	ORANGE
31	0.650	0.545	0.438	0.860	0.755	16.51	13.84	11.13	21.84	19.18	5, 15, 25, 35, 45, 55, 65 . . .	YELLOW
37	0.725	0.620	0.513	0.935	0.830	18.42	15.75	13.03	23.75	21.08	6, 16, 26, 36, 46, 56	GREEN
51	0.900	0.795	0.688	1.110	1.005	22.86	20.19	17.48	28.19	25.53	7, 17, 27, 37, 47, 57	BLUE
65	1.075	0.970	0.863	1.285	1.180	27.31	24.64	21.92	32.64	29.97	8, 18, 28, 38, 48, 58	VIOLET
											9, 19, 29, 39, 49, 59	GRAY
											10, 20, 30, 40, 50, 60	WHITE

CAGE Code 61873

Nano-D

Panel Mount Type AA-DD-FF-WD

■ Panel Mount (Type AA-DD-FF-WD) Ordering Guide

■ Series	■ # of Contacts	■ Termination Type	■ Wire Length	■ Shell Material and Finish	■ Options
■ MNSOP Panel Mount (Socket Connector)	09 15 21 25 31 37 51 65	DD Straight Thru Hole WD Pre-Wired PTFE AA Horizontal Surface Mount FF Flex Mount	XX.X Length in Inches	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole,#0-80  M Mounting Hole (Type AA Only)  C Color Coded  HTE High Temp. Epoxy 

Examples



MNSOP-25-WD-1.0-N-ETH-C



MNSOP-37-FF-N-ETH-HTE

RH
RoHS
COMPLIANT



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■ Panel Mount Bi-Lobe® Mass Chart (estimated +/- 10%)

■ Pin Count	Female Aluminum	Female Titanium	Female Stainless Steel	Additional Mass of 30 AWG Wire (g/in)
■ 09	.49 g	.78 g	1.31 g	.22 g
■ 15	.56 g	.87 g	1.44 g	.37 g
■ 21	.63 g	.97 g	1.57 g	.52 g
■ 25	.68 g	1.03 g	1.66 g	.62 g
■ 31	.75 g	1.12 g	1.79 g	.77 g
■ 37	.82 g	1.22 g	1.92 g	.92 g
■ 51	.99 g	1.43 g	2.23 g	1.27 g
■ 65	1.16 g	1.65 g	2.53 g	1.62 g

CAGE Code 61873

■ Hermetically Sealed Bi-Lobe®

MIL-DTL-32139 compatible Hermetic Connectors are ideal for high pressure applications that require low leakage rates such as Optics, Cryogenics, Petroleum, Space and UAV systems. Available in weld-able or solder-able bulkhead mounts with 9-65 positions. Each contact is sealed with a proprietary dispersion-strengthened, devitrifying polycrystalline ceramic compound that offers performance above and beyond conventional glass seals. Due to its non-amorphous crystalline structure this ceramic is five times more resistant to fracturing than glass. These nano-miniature connectors are capable of achieving helium leak rates of less than **1x10-9 cc/sec Helium at 1 atmosphere** of differential pressure.



Specifications: Helium leak rate: 1x10-9 cc/sec at 1 atmosphere.
Insulation Resistance: >5,000 Meg ohms at 100 VDC. DWV: 250 VAC Initial, 100 VAC after Humidity.
Ceramic Operating Range: -269° to 450° C. Contact Resistance: 70 mV max at 1 amp.
Current Rating: 1 amp per contact.

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■ Materials

- Contact: _____ BeCu alloy 172/173, per ASTM B 196/197
- Contact Finish: _____ Nickel per QQ-N-290, Gold per ASTM B488
- Insulator: _____ Proprietary Ceramic

■ Shell Options

- Aluminum: _____ Alloy 4047
- Titanium: _____ Alloy 6A14V
- Stainless Steel: _____ Alloy 304L

■ Part Numbering Guide

- | | | | |
|-------------|--------------|---------------|-----------------|
| ■ Aluminium | ■ Flange | ■ Flush Mount | ■ Solder Flange |
| ■ Titanium | ■ A40601-0XX | ■ A40604-0XX | ■ A40607-0XX |
| ■ Stainless | ■ A40602-0XX | ■ A40605-0XX | ■ A40608-0XX |
| ■ Steel | ■ A40603-0XX | ■ A40606-0XX | ■ A40609-0XX |

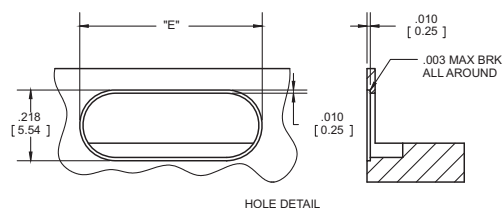
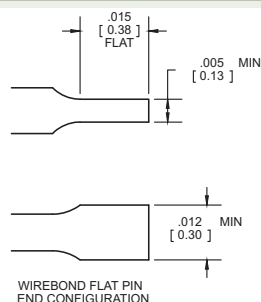
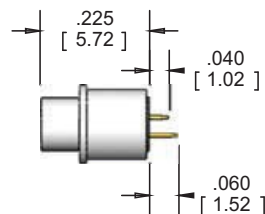
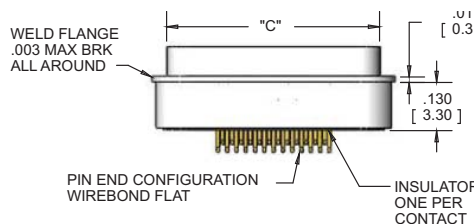
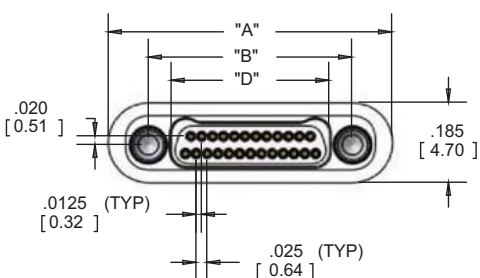
To create part #, replace XX with number of Contacts (09, 15, 21, 25, 31, 37, 51, or 65). Example: A40604-009

CAGE Code 61873

Nano-D

Hermetically Sealed Flange

Hermetically Sealed Flange



ALUMINUM TITANIUM STAINLESS

English (IN)

Metric (mm)

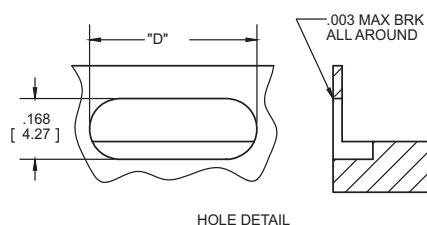
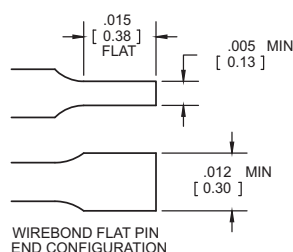
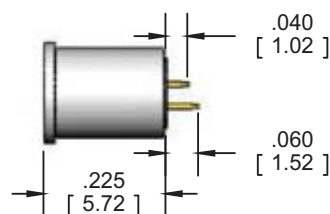
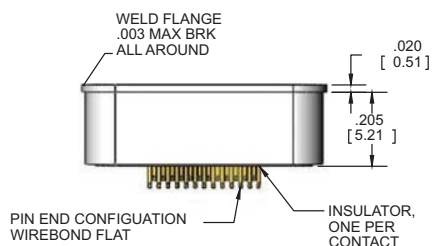
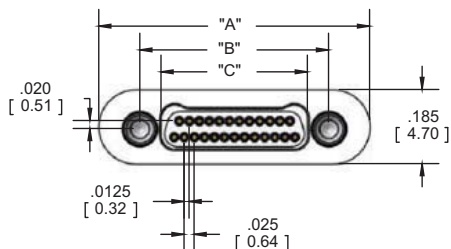
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A40601-009	A40602-009	A40603-009	9	0.455	0.270	0.375	0.165	0.458	11.56	6.86	9.53	4.19	11.63
A40601-015	A40602-015	A40603-015	15	0.530	0.345	0.450	0.240	0.533	13.46	8.76	11.43	6.10	13.54
A40601-021	A40602-021	A40603-021	21	0.605	0.420	0.525	0.315	0.608	15.37	10.67	13.34	8.00	15.44
A40601-025	A40602-025	A40603-025	25	0.655	0.470	0.575	0.365	0.658	16.64	11.94	14.61	9.27	16.71
A40601-031	A40602-031	A40603-031	31	0.730	0.545	0.650	0.440	0.733	18.54	13.84	16.51	11.18	18.62
A40601-037	A40602-037	A40603-037	37	0.805	0.620	0.725	0.515	0.808	20.45	15.75	18.42	13.08	20.52
A40601-051	A40602-051	A40603-051	51	0.980	0.795	0.900	0.690	0.983	24.89	20.19	22.86	17.53	24.97
A40601-065	A40602-065	A40603-065	65	1.155	0.970	1.075	0.865	1.158	29.34	24.64	27.31	21.97	29.41

CAGE Code 61873

Hermetically Sealed Solder Flange

Nano-D

Hermetically Sealed Flush Mount



ALUMINUM TITANIUM STAINLESS

PART NO.	PART NO.	PART NO.	CONTACTS
A40604-009	A40605-009	A40606-009	9
A40604-015	A40605-015	A40606-015	15
A40604-021	A40605-021	A40606-021	21
A40604-025	A40605-025	A40606-025	25
A40604-031	A40605-031	A40606-031	31
A40604-037	A40605-037	A40606-037	37
A40604-051	A40605-051	A40606-051	51
A40604-065	A40605-065	A40606-065	65

English (IN)

"A"	"B"	"C"	"D"
0.455	0.270	0.165	0.438
0.530	0.345	0.240	0.513
0.605	0.420	0.315	0.588
0.655	0.470	0.365	0.638
0.730	0.545	0.440	0.713
0.805	0.620	0.515	0.788
0.980	0.795	0.690	0.963
1.155	0.970	0.865	1.138

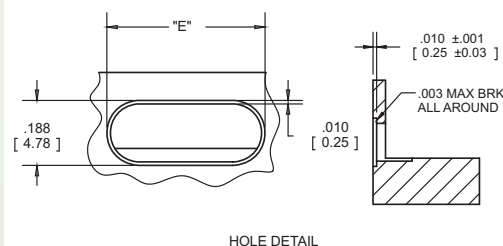
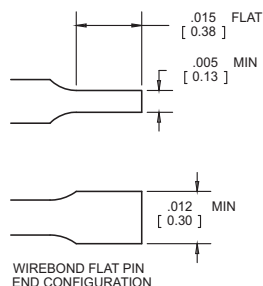
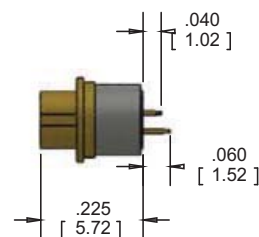
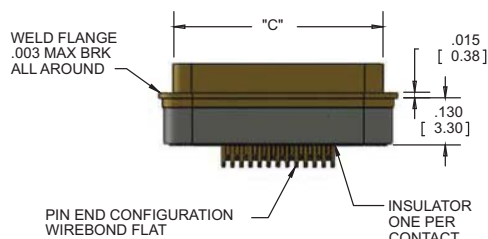
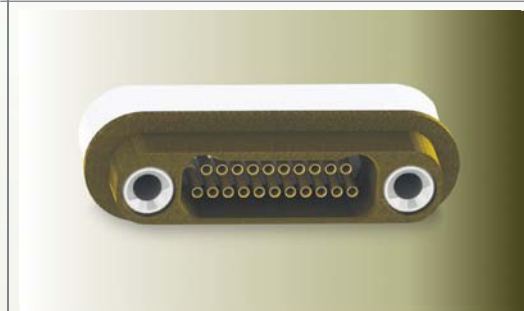
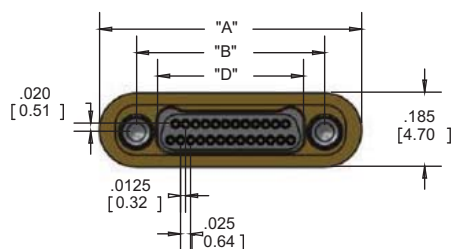
Metric (mm)

"A"	"B"	"C"	"D"
11.56	6.86	4.19	11.13
13.46	8.76	6.10	13.03
15.37	10.67	8.00	14.94
16.64	11.94	9.27	16.21
18.54	13.84	11.18	18.11
20.45	15.75	13.08	20.02
24.89	20.19	17.53	24.46
29.34	24.64	21.97	28.91

CAGE Code 61873

Nano-D Hermetically Sealed Solder Flange

Hermetically Sealed Solder Flange



ALUMINUM TITANIUM STAINLESS

English (IN)

Metric (mm)

PART NO.	PART NO.	PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"A"	"B"	"C"	"D"	"E"
A40607-009	A40608-009	A40609-009	9	0.455	0.270	0.375	0.165	0.488	11.56	6.86	9.53	4.19	12.40
A40607-015	A40608-015	A40609-015	15	0.530	0.345	0.450	0.240	0.563	13.46	8.76	11.43	6.10	14.30
A40607-021	A40608-021	A40609-021	21	0.605	0.420	0.525	0.315	0.638	15.37	10.67	13.34	8.00	16.21
A40607-025	A40608-025	A40609-025	25	0.655	0.470	0.575	0.365	0.688	16.64	11.94	14.61	9.27	17.48
A40607-031	A40608-031	A40609-031	31	0.730	0.545	0.650	0.440	0.763	18.54	13.84	16.51	11.18	19.38
A40607-037	A40608-037	A40609-037	37	0.805	0.620	0.725	0.515	0.838	20.45	15.75	18.42	13.08	21.29
A40607-051	A40608-051	A40609-051	51	0.980	0.795	0.900	0.690	1.013	24.89	20.19	22.86	17.53	25.73
A40607-065	A40608-065	A40609-065	65	1.155	0.970	1.075	0.865	1.188	29.34	24.64	27.31	21.97	30.18

CAGE Code 61873

■ Dual Row Latching Bi-Lobe®

Omnetics Bi-Lobe® connectors are now available with a quick latch system. These latches require no tools and offer great ease in handling. Bi-Lobe® connectors utilize Omnetics' rugged and reliable Flex Pin contact system. Spaced on 25 mil (.64mm) centerlines, they are capable of carrying 1 amp per contact. Extremely small and lightweight, they have passed the shock and vibration requirements of MIL- DTL-32139.

Available in pin counts from 9-65, latching Bi-Lobes® can be configured with discrete wires, overmolded cable, panel mount housings, and PCB mounted versions.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy
■ Latch:	See Shell Options
■ Latch Spring:	Stainless Steel
■ Pre-Molded Backshell:	Polybutylene Terephthalate (PBT)

CAGE Code 61873

Nano-D

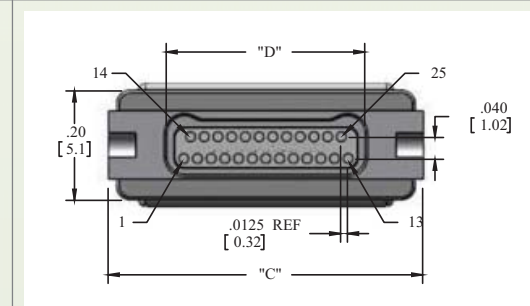
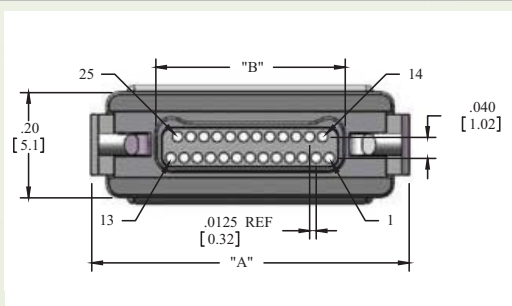
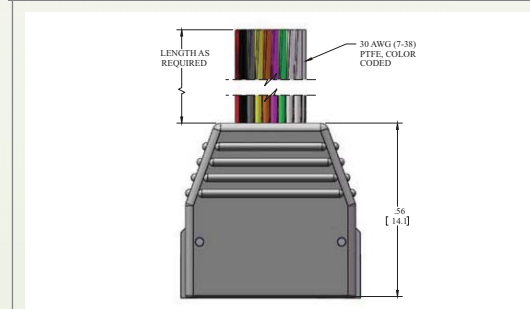
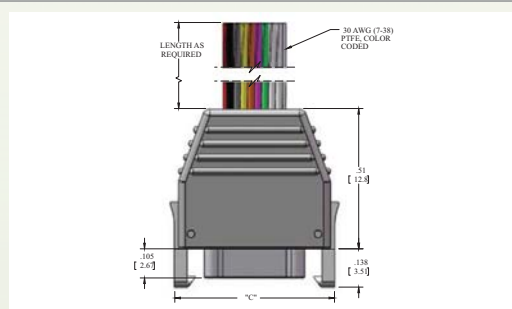
Dual Row Latching Bi-Lobe

■ Dual Row Latching Bi-Lobe®

MALE PIN CONNECTOR



FEMALE SOCKET CONNECTOR



■ English (IN)

■ Metric (mm)

■ Pin Socket

■ Color

CONTACTS	"A"	"B"	"C"	"D"	"A"	"B"	"C"	"D"	1, 11, 21, 31, 41, 51, 61 . . .	BLACK
9	0.400	0.160	0.375	0.163	10.16	4.06	9.53	4.14	2, 12, 22, 32, 42, 52, 62 . . .	BROWN
15	0.475	0.235	0.450	0.238	12.07	5.97	11.43	6.05	3, 13, 23, 33, 43, 53, 63 . . .	RED
21	0.550	0.310	0.525	0.313	13.97	7.87	13.34	7.95	4, 14, 24, 34, 44, 54, 64 . . .	ORANGE
25	0.600	0.360	0.575	0.363	15.24	9.14	14.61	9.22	5, 15, 25, 35, 45, 55, 65 . . .	YELLOW
31	0.675	0.435	0.650	0.438	17.15	11.05	16.51	11.13	6, 16, 26, 36, 46, 56	GREEN
37	0.750	0.510	0.725	0.513	19.05	12.95	18.42	13.03	7, 17, 27, 37, 47, 57	BLUE
51	0.925	0.685	0.900	0.688	23.50	17.40	22.86	17.48	8, 18, 28, 38, 48, 58	VIOLET
65	1.100	0.860	1.075	0.863	27.94	21.84	27.31	21.92	9, 19, 29, 39, 49, 59	GRAY
									10, 20, 30, 40, 50, 60	WHITE

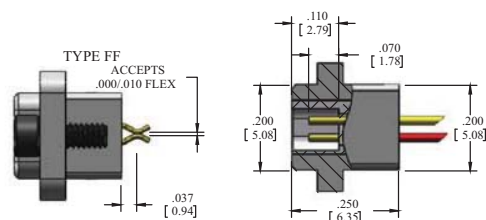
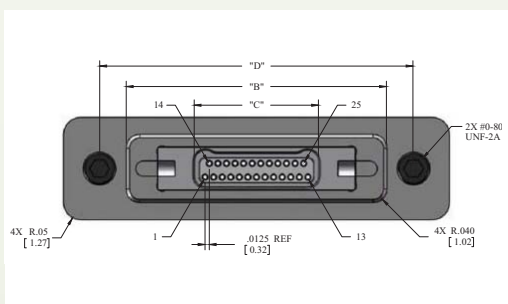
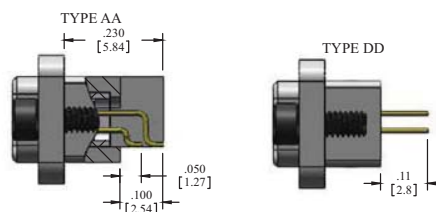
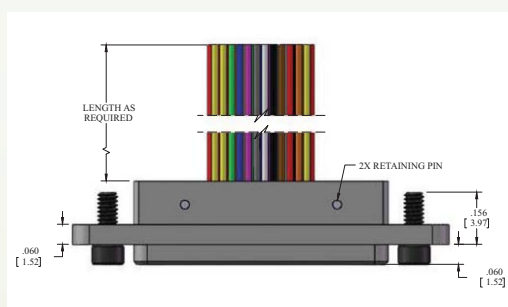
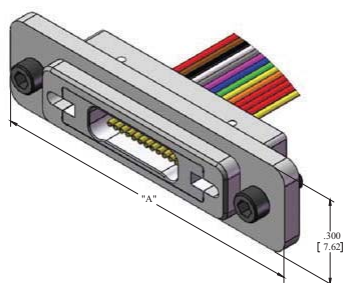
CAGE Code 61873

Dual Row Latching Bi-Lobe

Nano-D

■ Dual Row Latching Bi-Lobe®

PANEL MOUNT



■ English (IN)

■ Metric (mm)

■ Socket

■ Color

CONTACTS	"A"	"B"	"C"	"D"	"A"	"B"	"C"	"D"	Socket	Color
9	0.925	0.560	0.163	0.715	23.50	14.22	4.14	18.16	1, 11, 21, 31, 41, 51, 61 . . .	BLACK
15	1.000	0.635	0.238	0.790	25.40	16.13	6.05	20.07	2, 12, 22, 32, 42, 52, 62 . . .	BROWN
21	1.075	0.710	0.313	0.865	27.31	18.03	7.95	21.97	3, 13, 23, 33, 43, 53, 63 . . .	RED
25	1.125	0.760	0.363	0.915	28.58	19.30	9.22	23.24	4, 14, 24, 34, 44, 54, 64 . . .	ORANGE
31	1.200	0.835	0.438	0.990	30.48	21.21	11.13	25.15	5, 15, 25, 35, 45, 55, 65 . . .	YELLOW
37	1.275	0.910	0.513	1.065	32.39	23.11	13.03	27.05	6, 16, 26, 36, 46, 56	GREEN
51	1.450	1.085	0.688	1.240	36.83	27.56	17.48	31.50	7, 17, 27, 37, 47, 57	BLUE
65	1.625	1.260	0.863	1.415	41.28	32.00	21.92	35.94	8, 18, 28, 38, 48, 58	VIOLET
									9, 19, 29, 39, 49, 59	GRAY
									10, 20, 30, 40, 50, 60	WHITE

CAGE Code 61873

Nano-D

Dual Row Latching Bi-Lobe

■ Dual Row Latching Bi-Lobe® Ordering Guide

■ Series	■ # of Contacts	■ Termination Type	■ Wire Length	■ Shell Material and Finish	■ Options
■ MNPL Male (Pin Connector)	09 15 21 25	All Types WD Pre-Wired	XX.X Length in Inches (for use with WD only)	 N Aluminum Shell, Electroless Nickel Plated	C Color Coded 
MNSL Female (Socket Connector)	31 37 51 65	AA Surface Mount		 CD Aluminum Shell, Cadmium Plated	
		FF Flex Mount		 B Aluminum Shell, Black Anodized	HTE High Temp. Epoxy 
MNSLP Panel Mount (Socket Connector)		DD Straight Thru Hole		 S Stainless Steel Shell, Passivated	
				 T Titanium Shell Unplated	RH RoHS COMPLIANT 

Examples



MNPL-25-WD-6.0-S-C



MNSLP-25-AA-N-HTE



MNSL-9-WD-6.0-T-C

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■ Horizontal SMT Bi-Lobe® Mass Chart (estimated +/- 10%)

■ Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel	Panel Aluminum	Panel Stainless Steel	Panel Stainless Steel	Additional Mass of Wire (g/in)
■ 09	.92 g	1.04 g	1.22 g	.99 g	1.19 g	1.54 g	1.65 g	2.21 g	2.21 g	.22 g
■ 15	1.17 g	1.29 g	1.49 g	1.23 g	1.44 g	1.82 g	1.79 g	2.39 g	2.39 g	.37 g
■ 21	1.41 g	1.54 g	1.76 g	1.46 g	1.69 g	2.10 g	1.93 g	2.57 g	2.57 g	.52 g
■ 25	1.58 g	1.71 g	1.94 g	1.62 g	1.86 g	2.29 g	2.03 g	2.70 g	2.70 g	.62 g
■ 31	1.83 g	1.96 g	2.21 g	1.86 g	2.11 g	2.57 g	2.16 g	2.88 g	2.88 g	.77 g
■ 37	2.07 g	2.21 g	2.48 g	2.10 g	2.36 g	2.85 g	2.30 g	3.06 g	3.06 g	.92 g
■ 51	2.65 g	2.79 g	3.11 g	2.65 g	2.95 g	3.50 g	2.63 g	3.48 g	3.48 g	1.27 g
■ 65	3.23 g	3.37 g	3.73 g	3.21 g	3.54 g	4.15 g	2.96 g	3.91 g	3.91 g	1.62 g

CAGE Code 61873

■ Single Row Horizontal SMT (TYPE AA)

Single Row Horizontal SMT Bi-Lobe® nanos offer an extremely low profile package that is well suited for pick and place mounting methods. They have a very tight pitch of .025" (.64 mm) centerlines. These connectors featuring Omnetics' highly reliable gold plated Flex Pin contact system, conforming to the requirements of MIL-DTL-32139. These rugged light-weight connectors are suitable for the most demanding applications. Available with threaded mounting holes suitable for PCB and flex mounting. These connectors are available in standard sizes ranging from 5 through 51 positions, as well as custom configurations



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

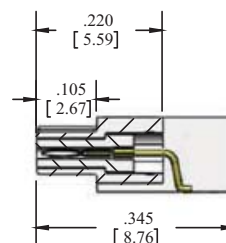
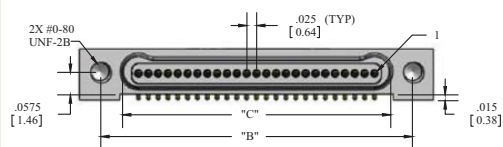
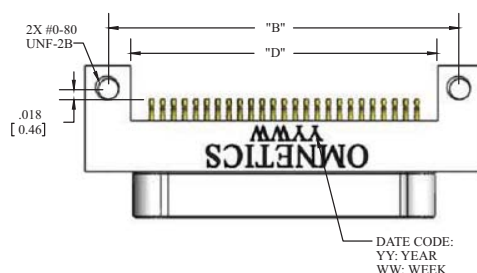
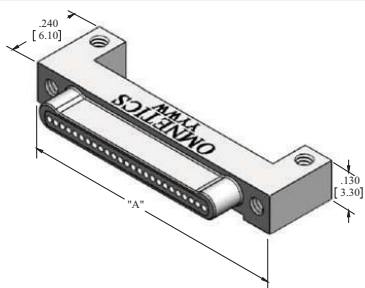
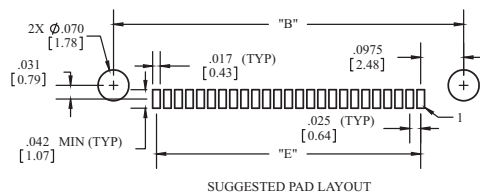
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Horizontal SMT Type AA

Single Row Horizontal SMT (TYPE AA)



English (IN)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.184	0.195	0.100
9	0.500	0.395	0.284	0.295	0.200
15	0.650	0.545	0.434	0.445	0.350
21	0.800	0.695	0.584	0.595	0.500
25	0.900	0.795	0.684	0.695	0.600
31	1.050	0.945	0.834	0.845	0.750
37	1.200	1.095	0.984	0.995	0.900
51	1.550	1.445	1.334	1.345	1.250

Metric (mm)

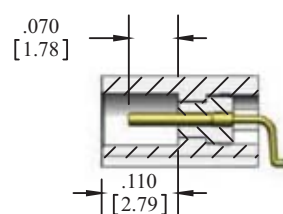
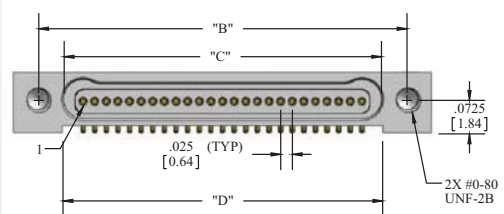
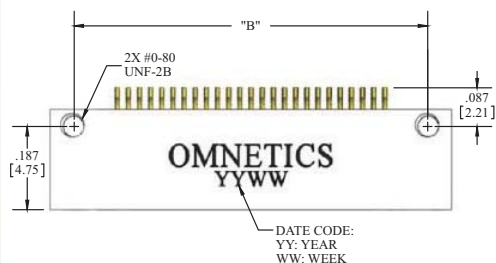
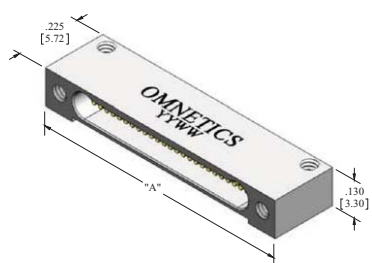
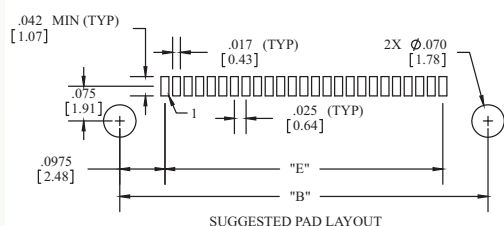
"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.67	4.95	2.54
12.70	10.03	7.21	7.49	5.08
16.51	13.84	11.02	11.30	8.89
20.32	17.65	14.83	15.11	12.70
22.86	20.19	17.37	17.65	15.24
26.67	24.00	21.18	21.46	19.05
30.48	27.81	24.99	25.27	22.86
39.37	36.70	33.88	34.16	31.75

CAGE Code 61873

Horizontal SMT Type AA

Nano-D

Single Row Horizontal SMT (TYPE AA)



English (IN)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.185	0.190	0.100
9	0.500	0.395	0.285	0.290	0.200
15	0.650	0.545	0.435	0.440	0.350
21	0.800	0.695	0.585	0.590	0.500
25	0.900	0.795	0.685	0.690	0.600
31	1.050	0.945	0.835	0.840	0.750
37	1.200	1.095	0.985	0.990	0.900
51	1.550	1.445	1.335	1.340	1.250

Metric (mm)

"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.70	4.83	2.54
12.70	10.03	7.24	7.37	5.08
16.51	13.84	11.05	11.18	8.89
20.32	17.65	14.86	14.99	12.70
22.86	20.19	17.40	17.53	15.24
26.67	24.00	21.21	21.34	19.05
30.48	27.81	25.02	25.15	22.86
39.37	36.70	33.91	34.04	31.75

CAGE Code 61873

Nano-D

Horizontal SMT Type AA

Single Row Horizontal SMT (TYPE AA) Ordering Guide

Series	# of Contacts	Termination Type	Shell Material and Finish	Options
MBPS Male (Pin Connector)	09 15 21 25 31 37 51 65	AA Horizontal Surface Mount	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole, #0-80  M Mounting Hole  HTE High Temp. Epoxy 

Examples



MBPS-25-AA-N-ETH-M



MBSS-37-AA-N-ETH-M

RH
RoHS
COMPLIANT



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Horizontal SMT Bi-Lobe® Mass Chart (estimated +/- 10%)

	Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■	5	.38 g	.61 g	1.03 g	.37 g	.60 g	1.02 g
■	9	.45 g	.71 g	1.17 g	.45 g	.71 g	1.18 g
■	15	.56 g	.86 g	1.38 g	.56 g	.87 g	1.43 g
■	21	.67 g	1.00 g	1.59 g	.68 g	1.04 g	1.68 g
■	25	.75 g	1.10 g	1.73 g	.76 g	1.14 g	1.85 g
■	31	.86 g	1.24 g	1.94 g	.87 g	1.31 g	2.10 g
■	37	.97 g	1.39 g	2.15 g	.99 g	1.47 g	2.34 g
■	51	1.22 g	1.73 g	2.64 g	1.25 g	1.85 g	2.92 g

CAGE Code 61873

■ Single Row Vertical SMT (TYPE VV)

Vertical SMT Bi-Lobe® nanos require a minimal amount of board space on flex circuits and rigid circuit boards. These connectors feature Omnetics' highly reliable gold plated Flex Pin contact system conforming to the requirements of MIL-DTL-32139. Set on a .025" (.64 mm) pitch, these rugged lightweight connectors are suitable for the most demanding applications. They are available with threaded mounting holes and retention screws. Shell material choices include Aluminum and Stainless steel with multiple standard and custom plating options upon request. These connectors are available in standard sizes ranging from 5 through 51 positions, as well as custom configurations.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

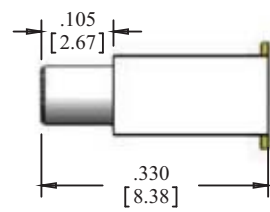
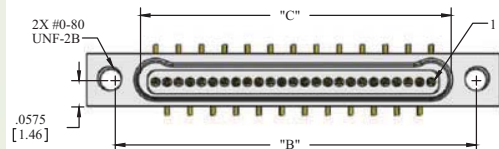
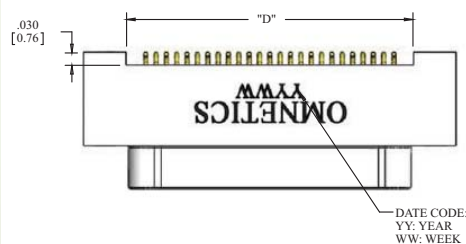
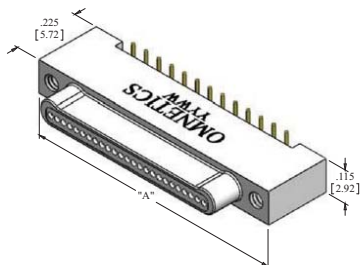
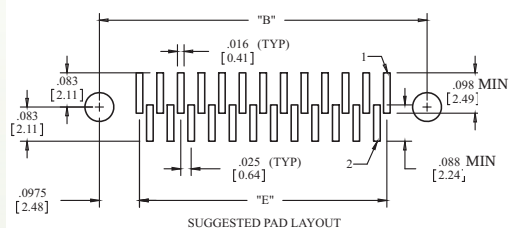
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Vertical SMT Type VV

Single Row Vertical SMT (TYPE VV)



English (IN)

Metric (mm)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.184	0.195	0.100
9	0.500	0.395	0.284	0.295	0.200
15	0.650	0.545	0.434	0.445	0.350
21	0.800	0.695	0.584	0.595	0.500
25	0.900	0.795	0.684	0.695	0.600
31	1.050	0.945	0.834	0.845	0.750
37	1.200	1.095	0.984	0.995	0.900
51	1.550	1.445	1.334	1.345	1.250

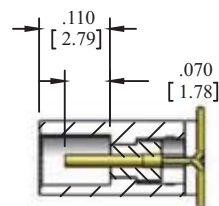
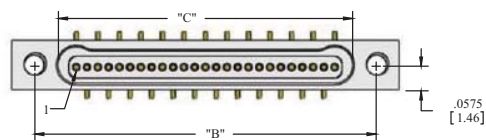
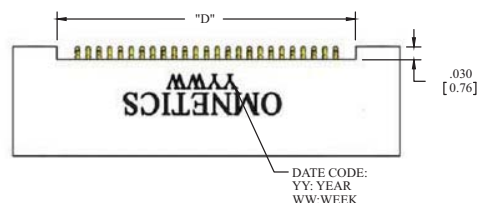
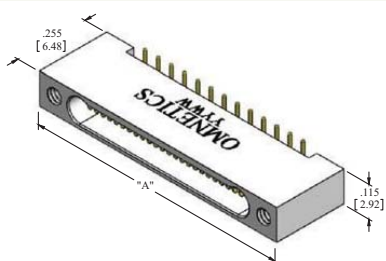
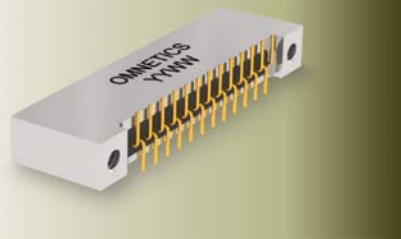
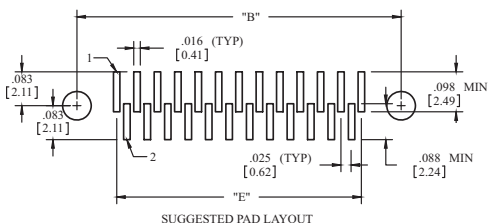
"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.67	4.95	2.54
12.70	10.03	7.21	7.49	5.08
16.51	13.84	11.02	11.30	8.89
20.32	17.65	14.83	15.11	12.70
22.86	20.19	17.37	17.65	15.24
26.67	24.00	21.18	21.46	19.05
30.48	27.81	24.99	25.27	22.86
39.37	36.70	33.88	34.16	31.75

CAGE Code 61873

Vertical SMT Type VV

Nano-D

Single Row Vertical SMT (TYPE VV)



English (IN)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.185	0.195	0.100
9	0.500	0.395	0.285	0.295	0.200
15	0.650	0.545	0.435	0.445	0.350
21	0.800	0.695	0.585	0.595	0.500
25	0.900	0.795	0.685	0.695	0.600
31	1.050	0.945	0.835	0.845	0.750
37	1.200	1.095	0.985	0.995	0.900
51	1.550	1.445	1.335	1.345	1.250

Metric (mm)

"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.70	4.95	2.54
12.70	10.03	7.24	7.49	5.08
16.51	13.84	11.05	11.30	8.89
20.32	17.65	14.86	15.11	12.70
22.86	20.19	17.40	17.65	15.24
26.67	24.00	21.21	21.46	19.05
30.48	27.81	25.02	25.27	22.86
39.37	36.70	33.91	34.16	31.75

CAGE Code 61873

Nano-D

Vertical SMT Type VV

Single Row Vertical SMT (TYPE VV) Ordering Guide

Series	# of Contacts	Termination Type	Shell Material and Finish	Options
MBPS Male (Pin Connector)	05 09 15 21 25 31 37 51	VV Vertical Surface Mount	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole,#0-80  HTE High Temp. Epoxy RH RoHS COMPLIANT
MBSS Female (Socket Connector)				

Examples



MBPS-25-VV-N-ETH



MBSS-37-VV-N-ETH-HTE

Vertical Surface Mount Bi-Lobe® Mass Chart (estimated +/- 10%)

	Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■	5	.40 g	.63 g	1.05 g	.38 g	.62 g	1.05 g
■	9	.50 g	.77 g	1.25 g	.45 g	.72 g	1.21 g
■	15	.65 g	.97 g	1.54 g	.57 g	.88 g	1.45 g
■	21	.80 g	1.17 g	1.84 g	.68 g	1.04 g	1.68 g
■	25	.90 g	1.30 g	2.03 g	.75 g	1.14 g	1.84 g
■	31	1.04 g	1.50 g	2.33 g	.87 g	1.30 g	2.08 g
■	37	1.19 g	1.70 g	2.63 g	.98 g	1.46 g	2.32 g
■	51	1.54 g	2.17 g	3.31 g	1.24 g	1.82 g	2.88 g

CAGE Code 61873

Straight Tail Type DD

Nano-D

■ Single Row Straight Tail (TYPE DD)

Single Row Bi-Lobe® nanos can be loaded with simple straight tails (Integral or Crimped). Suitable for vertical thru-hole mounting to fine pitched flex circuits, they are designed on .025" (.64 mm) centerlines. The straight tails are also commonly used in ultra fine wirewrap termination, such as used in eletro-physiology. These durable lightweight connectors utilize Omnetics' gold plated Flex Pin contact system and are suitable for the most demanding applications. They are inter-mateable with Omnetics' QPL versions of MIL-DTL-32139. These connectors are available in standard sizes ranging from 5 through 51 positions, as well as custom configurations. Flex design and termination is available. Please contact us for more information.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

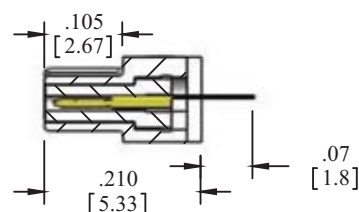
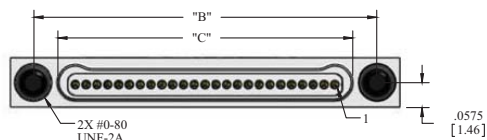
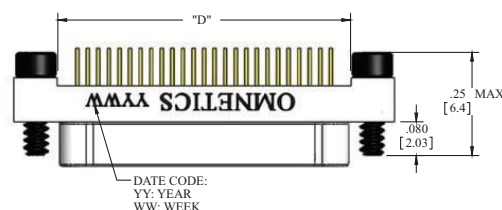
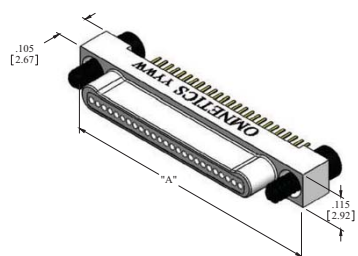
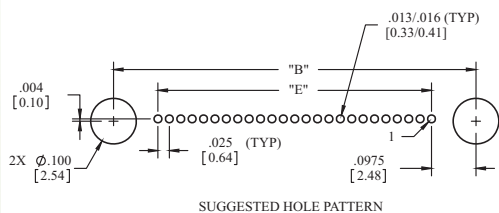
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Straight Tail Type DD

Single Row Straight Tail (TYPE DD)



English (IN)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.184	0.195	0.100
9	0.500	0.395	0.284	0.295	0.200
15	0.650	0.545	0.434	0.445	0.350
21	0.800	0.695	0.584	0.595	0.500
25	0.900	0.795	0.684	0.695	0.600
31	1.050	0.945	0.834	0.845	0.750
37	1.200	1.095	0.984	0.995	0.900
51	1.550	1.445	1.334	1.345	1.250

Metric (mm)

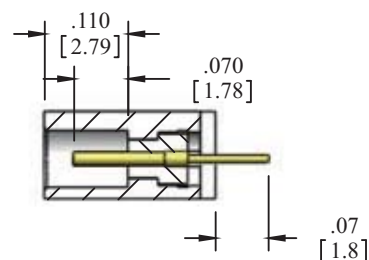
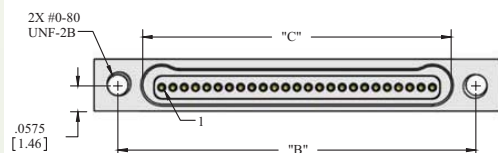
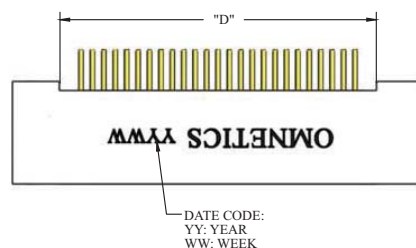
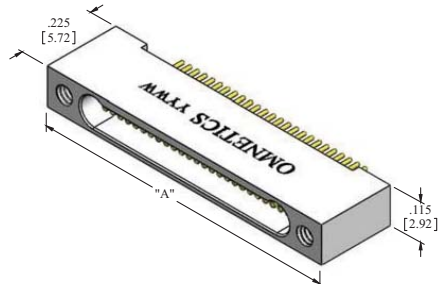
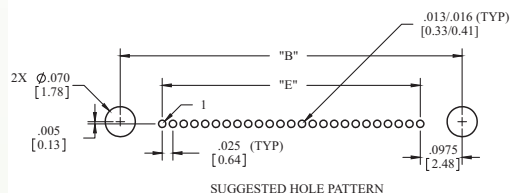
"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.67	4.95	2.54
12.70	10.03	7.21	7.49	5.08
16.51	13.84	11.02	11.30	8.89
20.32	17.65	14.83	15.11	12.70
22.86	20.19	17.37	17.65	15.24
26.67	24.00	21.18	21.46	19.05
30.48	27.81	24.99	25.27	22.86
39.37	36.70	33.88	34.16	31.75

CAGE Code 61873

Straight Tail Type DD

Nano-D

Single Row Straight Tail (TYPE DD)



English (IN)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.185	0.195	0.100
9	0.500	0.395	0.285	0.295	0.200
15	0.650	0.545	0.435	0.445	0.350
21	0.800	0.695	0.585	0.595	0.500
25	0.900	0.795	0.685	0.695	0.600
31	1.050	0.945	0.835	0.845	0.750
37	1.200	1.095	0.985	0.995	0.900
51	1.550	1.445	1.335	1.345	1.250

Metric (mm)

"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.70	4.95	2.54
12.70	10.03	7.24	7.49	5.08
16.51	13.84	11.05	11.30	8.89
20.32	17.65	14.86	15.11	12.70
22.86	20.19	17.40	17.65	15.24
26.67	24.00	21.21	21.46	19.05
30.48	27.81	25.02	25.27	22.86
39.37	36.70	33.91	34.16	31.75

CAGE Code 61873

Nano-D

Straight Tail Type DD

Single Row Straight Tail (TYPE DD)

Series	# of Contacts	Termination Type	Shell Material and Finish	Options
MBPS Male (Pin Connector)	05 09 15 21 25 31 37 51	DD Straight Thru-Hole	N Aluminum Shell, Electroless Nickel Plated CD Aluminum Shell, Cadmium Plated B Aluminum Shell, Black Anodized S Stainless Steel Shell, Passivated T Titanium Shell Unplated	ETH End Threaded Hole, #0-80 (Socket Only) EJS End Jackscrew (Pin Only) HTE High Temp. Epoxy

Examples



MBPS-25-DD-N-EJS



MBSS-37-DD-N-ETH-HTE

RH
RoHS
COMPLIANT



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Straight Thru-Hole Bi-Lobe® Mass Chart (estimated +/- 10%)

	Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■	5	.42 g	.53 g	.72 g	.34 g	.55 g	.94 g
■	9	.49 g	.62 g	.85 g	.42 g	.66 g	1.10 g
■	15	.58 g	.75 g	1.04 g	.53 g	.82 g	1.35 g
■	21	.68 g	.87 g	1.23 g	.64 g	.98 g	1.59 g
■	25	.74 g	.96 g	1.36 g	.72 g	1.09 g	1.76 g
■	31	.84 g	1.09 g	1.55 g	.83 g	1.25 g	2.01 g
■	37	.93 g	1.22 g	1.74 g	.95 g	1.41 g	2.25 g
■	51	1.16 g	1.52 g	2.18 g	1.21 g	1.79 g	2.83 g

CAGE Code 61873

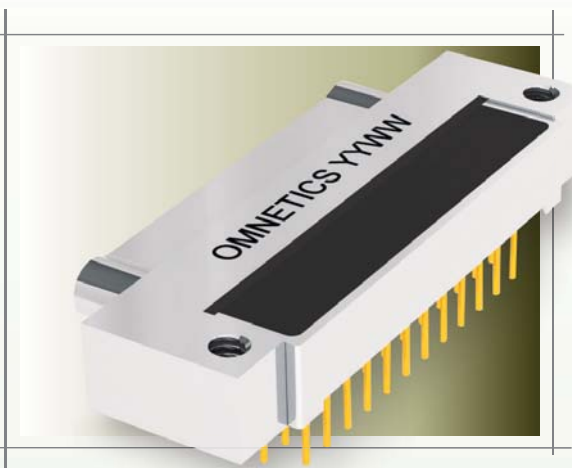
Horizontal Thru-Hole Type H2

Nano-D

■ Single Row Horizontal Thru-Hole (TYPE H2)

The Single Row Bi-Lobe® H2 nanos have contacts arranged on .025" (.64 mm) centerlines. The thru-hole tails are spread out into a mounting pattern on .050" (1.27 mm) centers, allowing space for traces and annular rings. These connectors feature Omnetics' gold plated Flex Pin contact system conforming to the requirements of MIL-DTL-32139.

These durable lightweight connectors are perfect for the most demanding applications. They are available with retention screws for a positive lock. Shell material options include Aluminum and Stainless steel with multiple standard and custom plating options upon request. These connectors are available in standard sizes ranging from 5 through 51 positions, as well as custom configurations.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

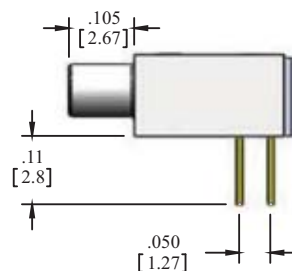
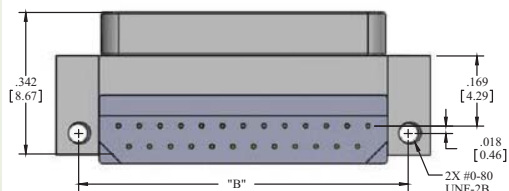
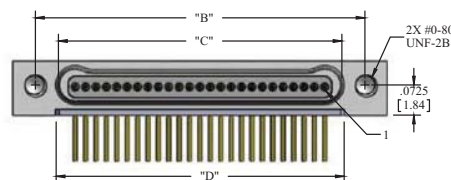
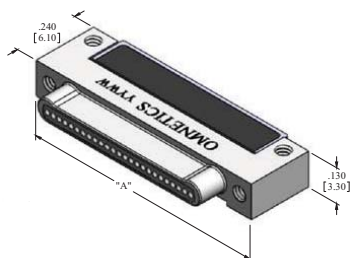
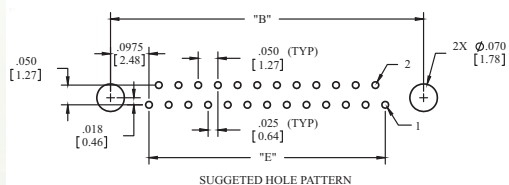
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Horizontal Thru-Hole Type H2

Single Row Horizontal Thru-Hole (TYPE H2)



English (IN)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.184	0.195	0.100
9	0.500	0.395	0.284	0.295	0.200
15	0.650	0.545	0.434	0.445	0.350
21	0.800	0.695	0.584	0.595	0.500
25	0.900	0.795	0.684	0.695	0.600
31	1.050	0.945	0.834	0.845	0.750
37	1.200	1.095	0.984	0.995	0.900
51	1.550	1.445	1.334	1.345	1.250

Metric (mm)

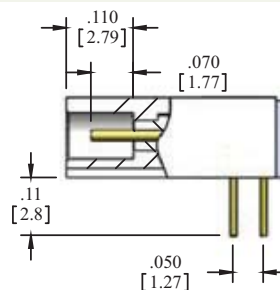
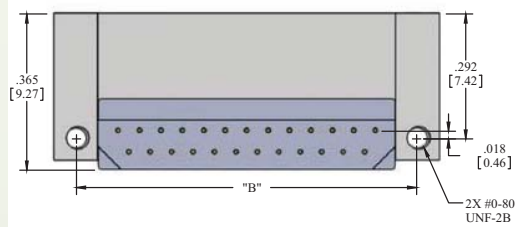
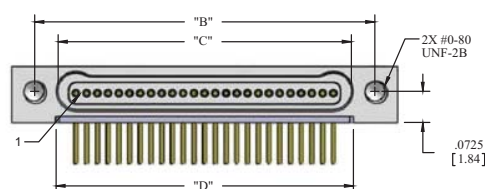
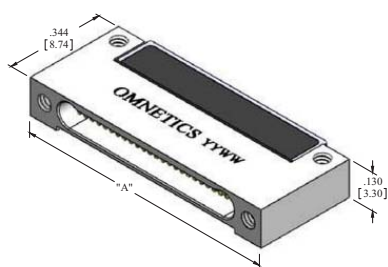
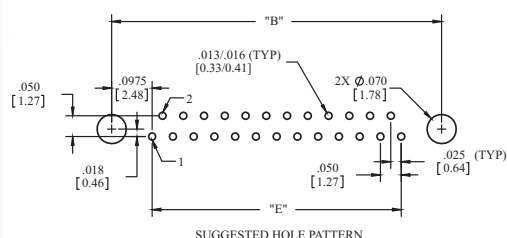
"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.67	4.95	2.54
12.70	10.03	7.21	7.49	5.08
16.51	13.84	11.02	11.30	8.89
20.32	17.65	14.83	15.11	12.70
22.86	20.19	17.37	17.65	15.24
26.67	24.00	21.18	21.46	19.05
30.48	27.81	24.99	25.27	22.86
39.37	36.70	33.88	34.16	31.75

CAGE Code 61873

Horizontal Thru-Hole Type H2

Nano-D

Single Row Horizontal Thru-Hole (TYPE H2)



English (IN)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.185	0.195	0.100
9	0.500	0.395	0.285	0.295	0.200
15	0.650	0.545	0.435	0.445	0.350
21	0.800	0.695	0.585	0.595	0.500
25	0.900	0.795	0.685	0.695	0.600
31	1.050	0.945	0.835	0.845	0.750
37	1.200	1.095	0.985	0.995	0.900
51	1.550	1.445	1.335	1.345	1.250

Metric (mm)

"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.70	4.95	2.54
12.70	10.03	7.24	7.49	5.08
16.51	13.84	11.05	11.30	8.89
20.32	17.65	14.86	15.11	12.70
22.86	20.19	17.40	17.65	15.24
26.67	24.00	21.21	21.46	19.05
30.48	27.81	25.02	25.27	22.86
39.37	36.70	33.91	34.16	31.75

CAGE Code 61873

Nano-D

Horizontal Thru-Hole Type H2

Single Row Horizontal Thru-Hole (TYPE H2) Ordering Guide

Series	# of Contacts	Termination Type	Shell Material and Finish	Options
MBPS Male (Pin Connector) 	05 09 15 21 25 31 37 51	H2 Horizontal Thru-Hole 	N Aluminum Shell, Electroless Nickel Plated CD Aluminum Shell, Cadmium Plated B Aluminum Shell, Black Anodized S Stainless Steel Shell, Passivated T Titanium Shell Unplated	ETH End Threaded Hole, #0-80  M Mounting Hole  HTE High Temp. Epoxy 

Examples



MBPS-25-H2-N-ETH-M



MBSS-37-H2-N-ETH-M-HTE

RH
RoHS
COMPLIANT



Horizontal Thru-Hole Bi-Lobe® Mass Chart (estimated +/- 10%)

	Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■	5	.47 g	.70 g	1.12 g	.59 g	.91 g	1.51 g
■	9	.58 g	.84 g	1.30 g	.70 g	1.06 g	1.71 g
■	15	.76 g	1.05 g	1.57 g	.87 g	1.28 g	2.01 g
■	21	.93 g	1.26 g	1.85 g	1.05 g	1.50 g	2.32 g
■	25	1.05 g	1.40 g	2.03 g	1.16 g	1.65 g	2.52 g
■	31	1.22 g	1.61 g	2.30 g	1.34 g	1.87 g	2.82 g
■	37	1.40 g	1.82 g	2.58 g	1.51 g	2.09 g	3.13 g
■	51	1.80 g	2.31 g	3.22 g	1.92 g	2.60 g	3.84 g

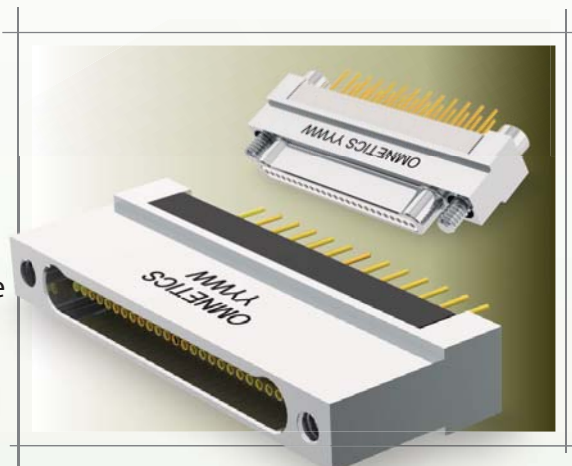
CAGE Code 61873

Vertical Thru-Hole Type V2

Nano-D

■ Single Row Vertical Thru-Hole (TYPE V2)

The Single Row Bi-Lobe® V2 nanos have contacts arranged on .025" (.64 mm) centerlines. The thru-hole tails are spread into a mounting pattern on .050" (1.27 mm) centers, allowing space for traces and annular rings. Featuring Omnetics' gold plated Flex Pin contact system, these durable lightweight connectors are perfect for the most demanding applications and are inter-mateable with our QPL versions of Military Specification MIL-DTL-32139. They are available with retention screws for a positive lock. Shell material options include Aluminum and Stainless steel with multiple standard and custom plating options upon request. These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configurations.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

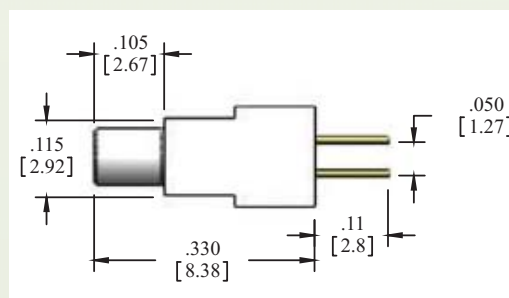
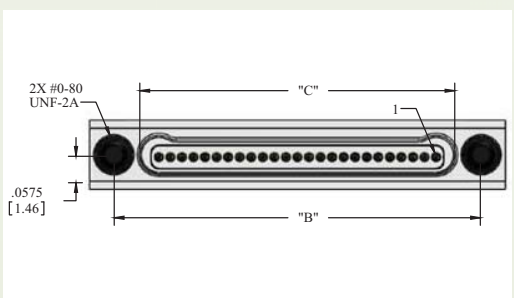
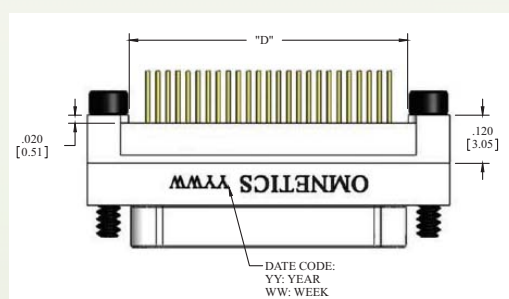
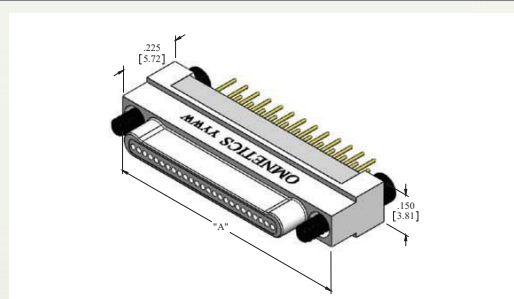
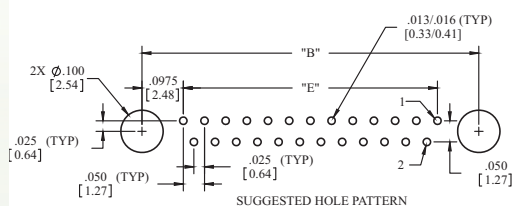
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Vertical Thru-Hole Type V2

Single Row Vertical Thru-Hole (TYPE V2)



English (IN)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.184	0.195	0.100
9	0.500	0.395	0.284	0.295	0.200
15	0.650	0.545	0.434	0.445	0.350
21	0.800	0.695	0.584	0.595	0.500
25	0.900	0.795	0.684	0.695	0.600
31	1.050	0.945	0.834	0.845	0.750
37	1.200	1.095	0.984	0.995	0.900
51	1.550	1.445	1.334	1.345	1.250

Metric (mm)

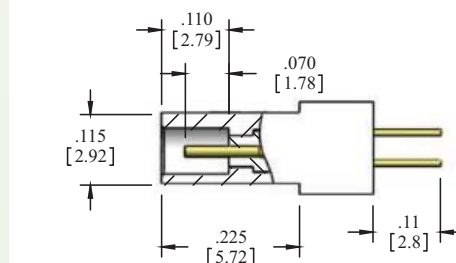
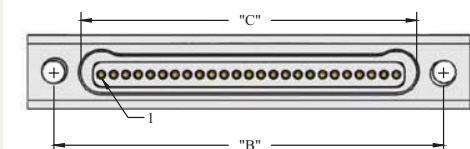
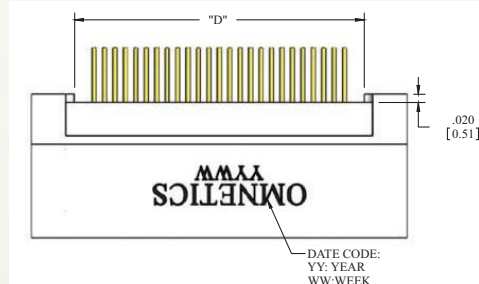
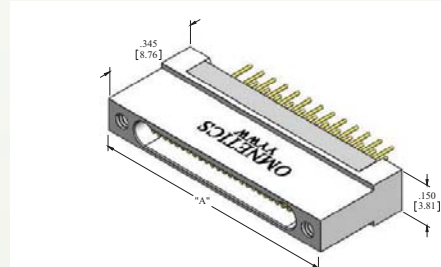
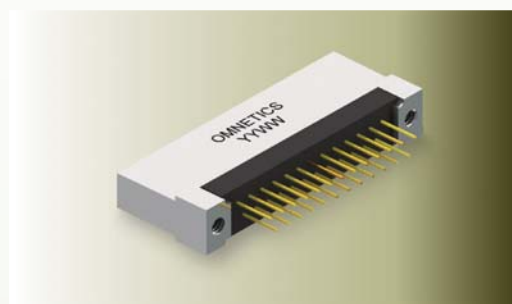
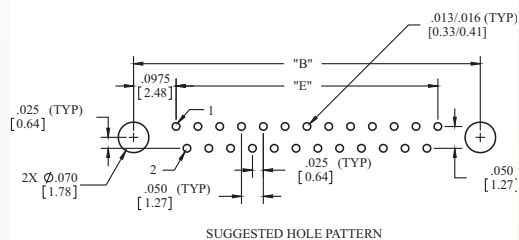
"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.67	4.95	2.54
12.70	10.03	7.21	7.49	5.08
16.51	13.84	11.02	11.30	8.89
20.32	17.65	14.83	15.11	12.70
22.86	20.19	17.37	17.65	15.24
26.67	24.00	21.18	21.46	19.05
30.48	27.81	24.99	25.27	22.86
39.37	36.70	33.88	34.16	31.75

CAGE Code 61873

Vertical Thru-Hole Type V2

Nano-D

Single Row Vertical Thru-Hole (TYPE V2)



English (IN)

CONTACTS	"A"	"B"	"C"	"D"	"E"
5	0.400	0.295	0.185	0.195	0.100
9	0.500	0.395	0.285	0.295	0.200
15	0.650	0.545	0.435	0.445	0.350
21	0.800	0.695	0.585	0.595	0.500
25	0.900	0.795	0.685	0.695	0.600
31	1.050	0.945	0.835	0.845	0.750
37	1.200	1.095	0.985	0.995	0.900
51	1.550	1.445	1.335	1.345	1.250

Metric (mm)

"A"	"B"	"C"	"D"	"E"
10.16	7.49	4.70	4.95	2.54
12.70	10.03	7.24	7.49	5.08
16.51	13.84	11.05	11.30	8.89
20.32	17.65	14.86	15.11	12.70
22.86	20.19	17.40	17.65	15.24
26.67	24.00	21.21	21.46	19.05
30.48	27.81	25.02	25.27	22.86
39.37	36.70	33.91	34.16	31.75

CAGE Code 61873

Nano-D

Vertical Thru-Hole Type V2

Single Row Vertical Thru-Hole (TYPE V2) Ordering Guide

Series	# of Contacts	Termination Type	Shell Material and Finish	Options
MBPS Male (Pin Connector)	05 09 15 21 25 31 37 51	V2 Vertical Thru-Hole	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	 ETH End Threaded Hole, #0-80 (Socket Only)  EJS End Jackscrew (Pin Only)  HTE High Temp. Epoxy

Examples



MBPS-25-V2-N-EJS



MBSS-37-V2-N-ETH-HTE

RH
RoHS
COMPLIANT



Straight Thru-Hole Bi-Lobe® Mass Chart (estimated +/- 10%)

	Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel
■	5	.73 g	.94 g	1.31 g	.58 g	.91 g	1.51 g
■	9	.84 g	1.07 g	1.50 g	.70 g	1.06 g	1.72 g
■	15	1.00 g	1.28 g	1.78 g	.87 g	1.28 g	2.04 g
■	21	1.17 g	1.49 g	2.07 g	1.04 g	1.51 g	2.35 g
■	25	1.28 g	1.63 g	2.25 g	1.15 g	1.65 g	2.56 g
■	31	1.45 g	1.84 g	2.54 g	1.32 g	1.88 g	2.88 g
■	37	1.62 g	2.05 g	2.82 g	1.49 g	2.10 g	3.19 g
■	51	2.01 g	2.53 g	3.48 g	1.89 g	2.62 g	3.93 g

CAGE Code 61873

■ Single Row Pre-Wired (TYPE WD)

Pre-Wired Single Row Bi-Lobe® nanos are available with 30 AWG and smaller stranded wire. These assemblies are crimped using proprietary semi-automated crimping systems. Due to their small size and precision required to make these quality crimps, hand crimping is not an option. Pre-crimped wires and contacts are potted in place further protecting the integrity of the crimp joint. Building these parts to order allows for maximum flexibility in wire type, size and color coding. Off the shelf (COTS) versions are also available with 18" of color coded 30 AWG Teflon for quick turn around.

These connectors are available in standard sizes ranging from 9 through 65 positions, as well as custom configurations. Full QPL versions of MIL-DTL-32139 are also available from Omnetics.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

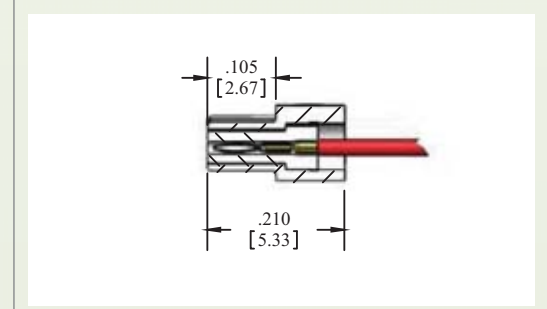
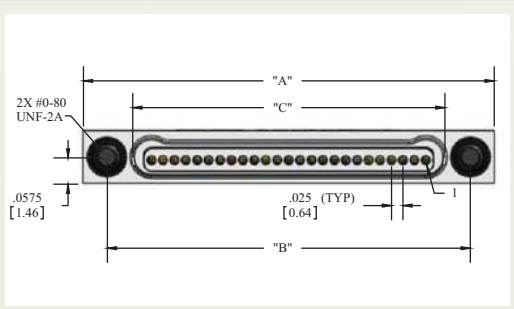
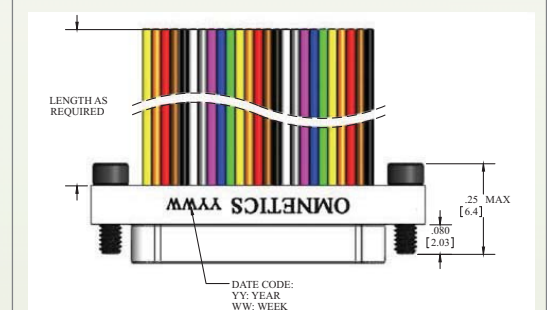
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Pre-Wired Type WD

■ Single Row Pre-Wired (TYPE WD)



79

■ English (IN)

■ Metric (mm)

■ Pin

■ Color

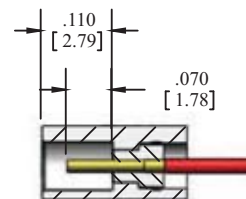
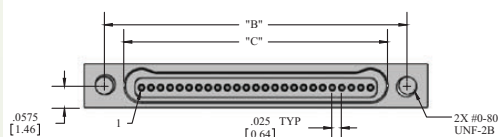
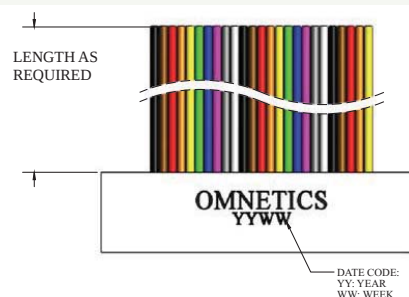
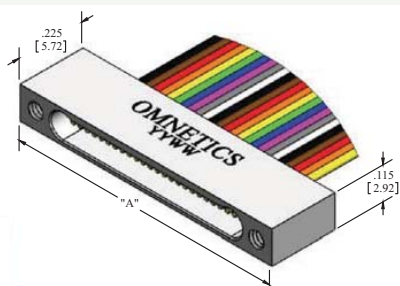
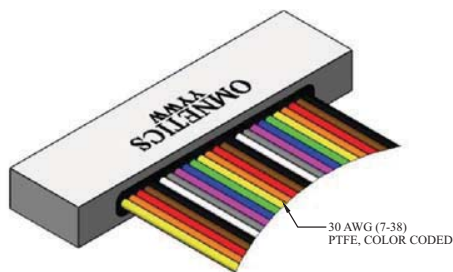
CONTACTS	"A"	"B"	"C"	"A"	"B"	"C"	Pin	Color
5	0.400	0.295	0.184	10.16	7.49	4.67	1, 11, 21, 31, 41, 51, 61 . . .	BLACK
9	0.500	0.395	0.284	12.70	10.03	7.21	2, 12, 22, 32, 42, 52, 62 . . .	BROWN
15	0.650	0.545	0.434	16.51	13.84	11.02	3, 13, 23, 33, 43, 53, 63 . . .	RED
21	0.800	0.695	0.584	20.32	17.65	14.83	4, 14, 24, 34, 44, 54, 64 . . .	ORANGE
25	0.900	0.795	0.684	22.86	20.19	17.37	5, 15, 25, 35, 45, 55, 65 . . .	YELLOW
31	1.050	0.945	0.834	26.67	24.00	21.18	6, 16, 26, 36, 46, 56	GREEN
37	1.200	1.095	0.984	30.48	27.81	24.99	7, 17, 27, 37, 47, 57	BLUE
51	1.550	1.445	1.334	39.37	36.70	33.88	8, 18, 28, 38, 48, 58	VIOLET
							9, 19, 29, 39, 49, 59	GRAY
							10, 20, 30, 40, 50, 60	WHITE

CAGE Code 61873

Pre-Wired Type WD

Nano-D

Single Row Pre-Wired (TYPE WD)



English (IN)

Metric (mm)

Pin

Color

CONTACTS	"A"	"B"	"C"	"A"	"B"	"C"	Pin	Color
5	0.400	0.295	0.185	10.16	7.49	4.70	1, 11, 21, 31, 41, 51, 61 ...	BLACK
9	0.500	0.395	0.285	12.70	10.03	7.24	2, 12, 22, 32, 42, 52, 62 ...	BROWN
15	0.650	0.545	0.435	16.51	13.84	11.05	3, 13, 23, 33, 43, 53, 63 ...	RED
21	0.800	0.695	0.585	20.32	17.65	14.86	4, 14, 24, 34, 44, 54, 64 ...	ORANGE
25	0.900	0.795	0.685	22.86	20.19	17.40	5, 15, 25, 35, 45, 55, 65 ...	YELLOW
31	1.050	0.945	0.835	26.67	24.00	21.21	6, 16, 26, 36, 46, 56 ...	GREEN
37	1.200	1.095	0.985	30.48	27.81	25.02	7, 17, 27, 37, 47, 57 ...	BLUE
51	1.550	1.445	1.335	39.37	36.70	33.91	8, 18, 28, 38, 48, 58 ...	VIOLET
							9, 19, 29, 39, 49, 59 ...	GRAY
							10, 20, 30, 40, 50, 60 ...	WHITE

CAGE Code 61873

Nano-D

Pre-Wired Type WD

Single Row Pre-Wired (TYPE WD) Ordering Guide

Series	# of Contacts	Termination Type	Wire Length	Shell Material and Finish	Options
MBPS Male (Pin Connector) 	05 09 15 21 25 31 37 51	WD Pre-Wired	XX.X Length in Inches	 N Aluminum Shell, Electroless Nickel Plated  CD Aluminum Shell, Cadmium Plated  B Aluminum Shell, Black Anodized  S Stainless Steel Shell, Passivated  T Titanium Shell Unplated	ETH End Threaded Hole, #0-80 (Socket Only)  EJS End Jackscrew (Pin Only)  C Color Coded  HTE High Temp. Epoxy 

Examples



MBPS-25-WD-18.0-N-EJS-C



MBSS-31-WD-3.0-N-ETH-C-HTE

RH
RoHS
COMPLIANT



Pre-Wired Bi-Lobe® Mass Chart (estimated +/- 10%)

Pin Count	Male Aluminum	Male Titanium	Male Stainless Steel	Female Aluminum	Female Titanium	Female Stainless Steel	Additional Mass of 30 AWG Wire (g/in)
5	.42 g	.53 g	.72 g	.36 g	.59 g	1.00 g	.12 g
9	.49 g	.62 g	.85 g	.43 g	.69 g	1.16 g	.22 g
15	.59 g	.75 g	1.05 g	.54 g	.85 g	1.40 g	.37 g
21	.69 g	.88 g	1.24 g	.65 g	1.00 g	1.64 g	.52 g
25	.75 g	.97 g	1.37 g	.72 g	1.10 g	1.80 g	.62 g
31	.85 g	1.10 g	1.56 g	.82 g	1.26 g	2.04 g	.77 g
37	.95 g	1.23 g	1.75 g	.93 g	1.41 g	2.28 g	.92 g
51	1.18 g	1.54 g	2.20 g	1.18 g	1.78 g	2.85 g	1.27 g

CAGE Code 61873

■ Single Row Jumpers (TYPE JU)

Single Row Bi-Lobe® nano harnesses are available with 30 AWG and smaller stranded wire. These multi connector assemblies are crimped using proprietary semi-automated crimping systems. Their ultra small profile, .025" (.64 mm) centerlines, makes them an excellent choice for complex wire routing in tight spaces. These connectors feature Omnetics' highly dependable gold plated Flex Pin contact system conforming to the requirements of MIL-DTL-32139.

These connectors are available in standard sizes ranging from 5 through 51 positions, as well as custom configurations.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Jumper Type JU

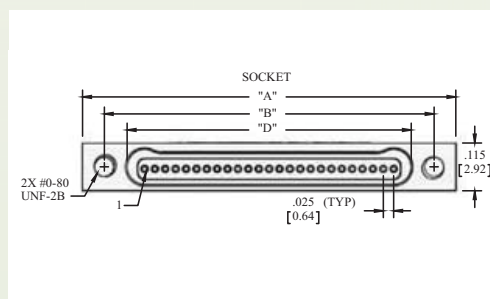
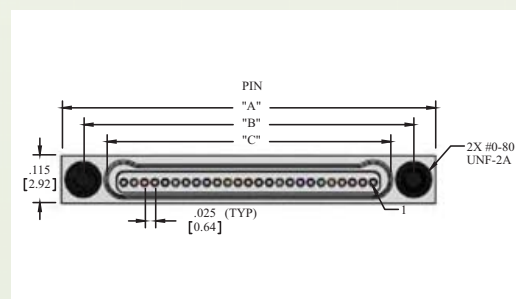
Single Row Jumpers (TYPE JU)

■ Series	■ # of Contacts	■ Connection Type End 1 and 2	■ Termination Type	■ Wire Length	■ Shell Material and Finish	■ Options		
JUM Jumper	09	MNSO Female (Socket Connector)	WD Pre-Wired PTFE	XX.X Length in Inches		ETH End Threaded Hole, #0-80 EJS End Jackscrew (Pin Only) HTE High Temp. Epoxy C Color Coded    RH RoHS COMPLIANT		
	15							
	21							
	25							
	31	MNPO Male (Pin Connector)	WC Cable					
	37							
	51							
65								
								
								





JUM-25-MBPS-MBSS-WD-2.0-ETH-EJS-C



English (IN)

Metric (mm)

CONTACTS	"A"	"B"	"C"	"D"	"A"	"B"	"C"	"D"
5	0.400	0.295	0.184	0.185	10.16	7.49	4.67	4.70
9	0.500	0.395	0.284	0.285	12.70	10.03	7.21	7.24
15	0.650	0.545	0.434	0.435	16.51	13.84	11.02	11.05
21	0.800	0.695	0.584	0.585	20.32	17.65	14.83	14.86
25	0.900	0.795	0.684	0.685	22.86	20.19	17.37	17.40
31	1.050	0.945	0.834	0.835	26.67	24.00	21.18	21.21
37	1.200	1.095	0.984	0.985	30.48	27.81	24.99	25.02
51	1.550	1.445	1.334	1.335	39.37	36.70	33.88	33.91

CAGE Code 61873

■ Off the Shelf (COTS) Bi-Lobe®

Omnetics Bi-Lobe® connectors are now stocked in various sizes and terminations. The following pages illustrate some of the standard configurations that are available for quick delivery. Bi-Lobe® connectors utilize Omnetics' rugged and reliable Flex Pin contact system. Spaced on 25 mil (.64mm) centerlines, they are capable of carrying 1 amp per contact.

Available in pin counts from 9-65, COTS Bi-Lobes® are typically stocked in SMT and pre-wired versions. Please consult the factory for up to date inventory status.



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

■ Material Specifications

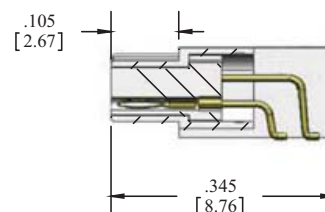
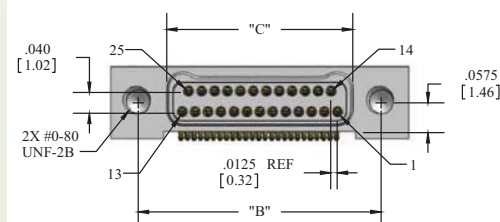
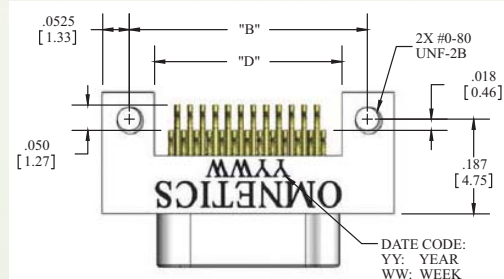
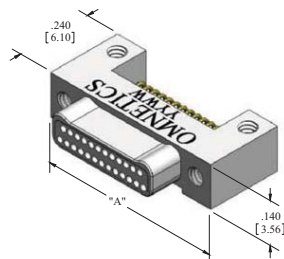
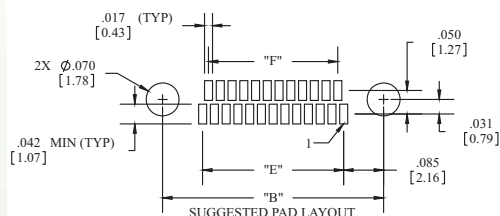
■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

Nano-D

Off Shelf COTS

■ Off the Shelf (COTS) Bi-Lobe® (Type AA)



■ English (IN)

■ Metric (mm)

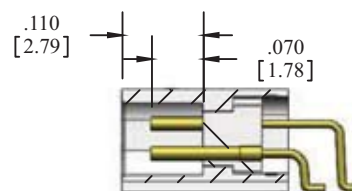
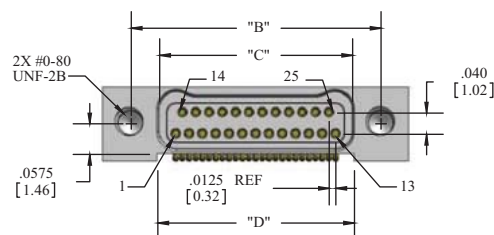
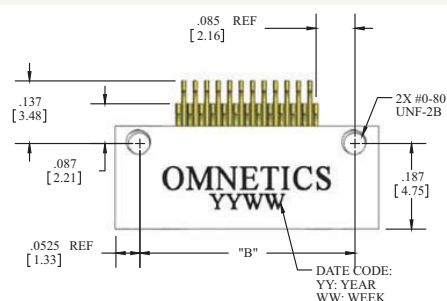
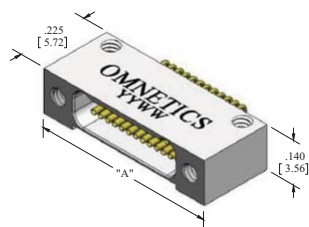
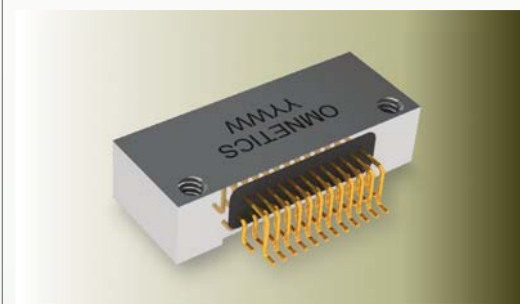
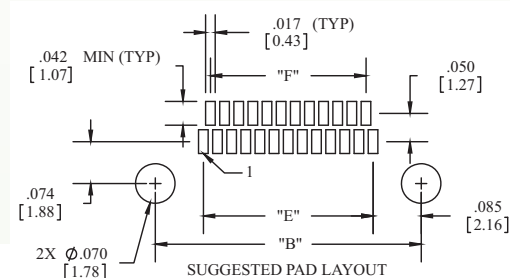
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■	A28100-009	9	0.375	0.270	0.160	0.170	0.100	0.075	9.53	6.86	4.06	4.32	2.54	1.91
■	A28100-015	15	0.450	0.345	0.235	0.245	0.175	0.150	11.43	8.76	5.97	6.22	4.45	3.81
■	A28100-021	21	0.525	0.420	0.310	0.320	0.250	0.225	13.34	10.67	7.87	8.13	6.35	5.72
■	A28100-025	25	0.575	0.470	0.360	0.370	0.300	0.275	14.61	11.94	9.14	9.40	7.62	6.99
■	A28100-031	31	0.650	0.545	0.435	0.445	0.375	0.350	16.51	13.84	11.05	11.30	9.53	8.89
■	A28100-037	37	0.725	0.620	0.510	0.520	0.450	0.425	18.42	15.75	12.95	13.21	11.43	10.8
■	A28100-051	51	0.900	0.795	0.685	0.695	0.625	0.600	22.86	20.19	17.40	17.65	15.88	15.24
■	A28100-065	65	1.075	0.970	0.860	0.870	0.800	0.775	27.31	24.64	21.84	22.10	20.32	19.69
■	A28100-085	85	1.325	1.220	1.110	1.120	1.050	1.025	33.66	30.99	28.19	28.45	26.67	26.04

CAGE Code 61873

Off Shelf COTS Type AA

Nano-D

■ Off the Shelf (COTS) Bi-Lobe® (Type AA)



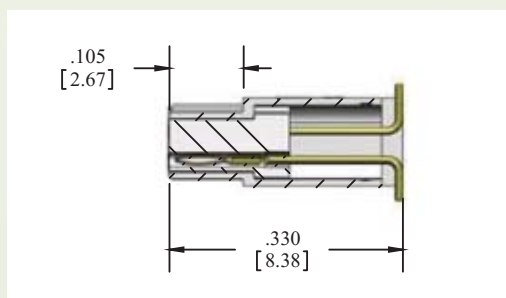
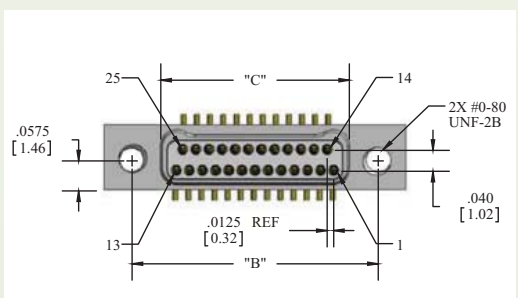
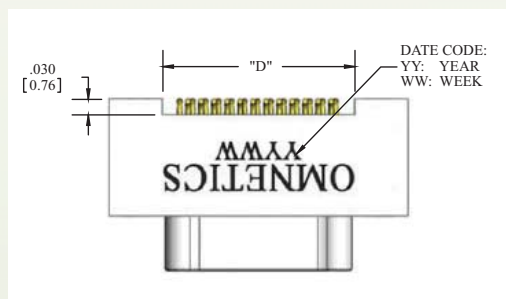
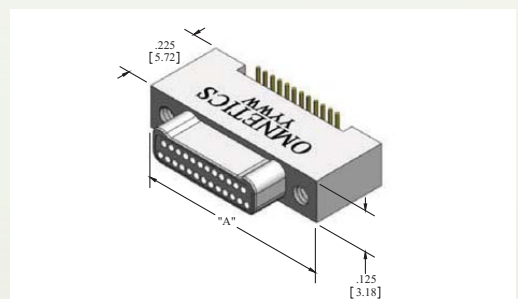
■ English (IN)

■ Metric (mm)

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A29100-009	9	0.375	0.270	0.163	0.170	0.100	0.075	9.53	6.86	4.14	4.32	2.54	1.91
A29100-015	15	0.450	0.345	0.238	0.245	0.175	0.150	11.43	8.76	6.05	6.22	4.45	3.81
A29100-021	21	0.525	0.420	0.313	0.320	0.250	0.225	13.34	10.67	7.95	8.13	6.35	5.72
A29100-025	25	0.575	0.470	0.363	0.370	0.300	0.275	14.61	11.94	9.22	9.40	7.62	6.99
A29100-031	31	0.650	0.545	0.438	0.445	0.375	0.350	16.51	13.84	11.13	11.30	9.53	8.89
A29100-037	37	0.725	0.620	0.513	0.520	0.450	0.425	18.42	15.75	13.03	13.21	11.43	10.80
A29100-051	51	0.900	0.795	0.688	0.695	0.625	0.600	22.86	20.19	17.48	17.65	15.88	15.24
A29100-065	65	1.075	0.970	0.863	0.870	0.800	0.775	27.31	24.64	21.92	22.10	20.32	19.69
A29100-085	85	1.325	1.220	1.113	1.120	1.050	1.025	33.66	30.99	28.27	28.45	26.67	26.04

CAGE Code 61873

Off Shelf COTS Type VV



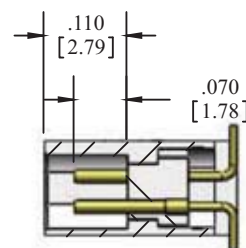
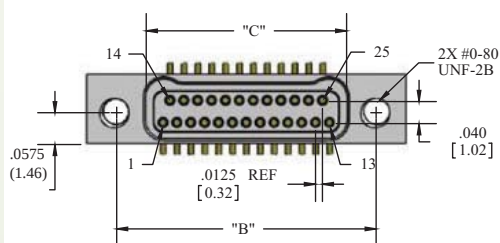
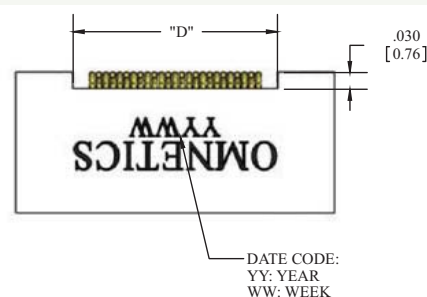
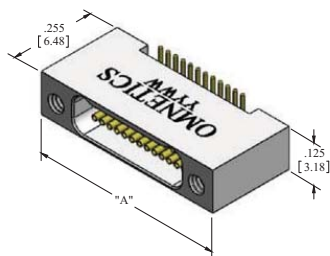
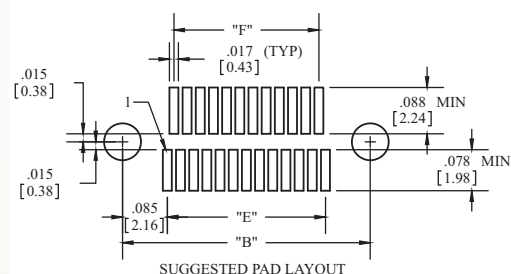
■ **Metric (mm)**

CAGE Code 61873

Off Shelf COTS Type VV

Nano-D

■ Off the Shelf (COTS) Bi-Lobe® (Type VV)



■ English (IN)

■ Metric (mm)

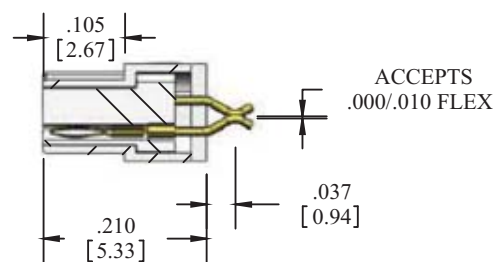
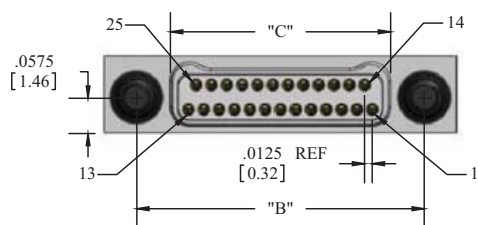
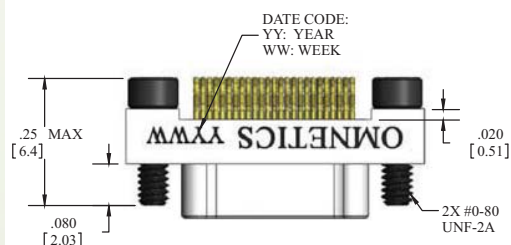
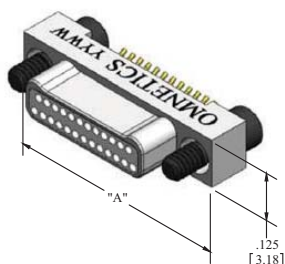
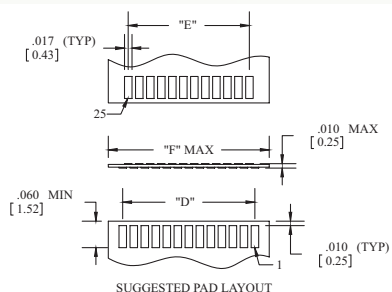
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A29200-009	9	0.375	0.270	0.163	0.170	0.100	0.075	9.53	6.86	4.14	4.32	2.54	1.91
A29200-015	15	0.450	0.345	0.238	0.245	0.175	0.150	11.43	8.76	6.05	6.22	4.45	3.81
A29200-021	21	0.525	0.420	0.313	0.320	0.250	0.225	13.34	10.67	7.95	8.13	6.35	5.72
A29200-025	25	0.575	0.470	0.363	0.370	0.300	0.275	14.61	11.94	9.22	9.40	7.62	6.99
A29200-031	31	0.650	0.545	0.438	0.445	0.375	0.350	16.51	13.84	11.13	11.30	9.53	8.89
A29200-037	37	0.725	0.620	0.513	0.520	0.450	0.425	18.42	15.75	13.03	13.21	11.43	10.80
A29200-051	51	0.900	0.795	0.688	0.695	0.625	0.600	22.86	20.19	17.48	17.65	15.88	15.24
A29200-065	65	1.075	0.970	0.863	0.870	0.800	0.775	27.31	24.64	21.92	22.10	20.32	19.69
A29200-085	85	1.325	1.220	1.113	1.120	1.050	1.025	33.66	30.99	28.27	28.45	26.67	26.04

CAGE Code 61873

Nano-D

Off Shelf COTS Type FF

■ Off the Shelf (COTS) Bi-Lobe® (Type FF)



■ English (IN)

■ Metric (mm)

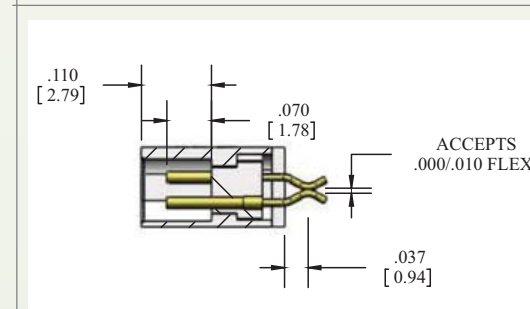
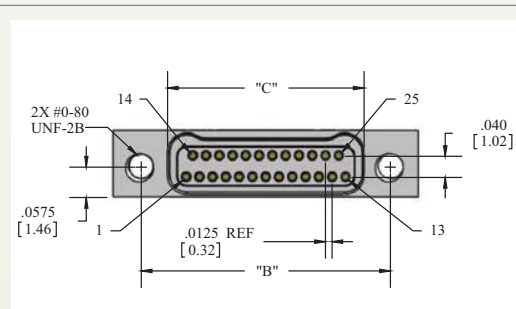
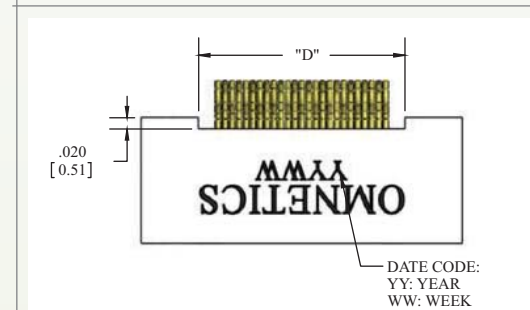
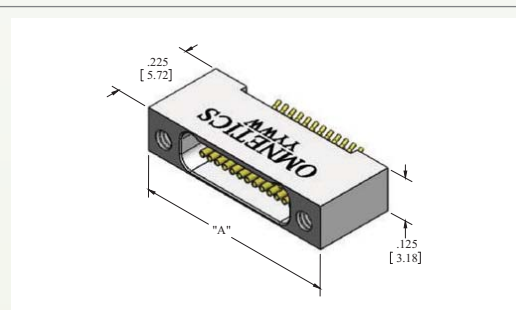
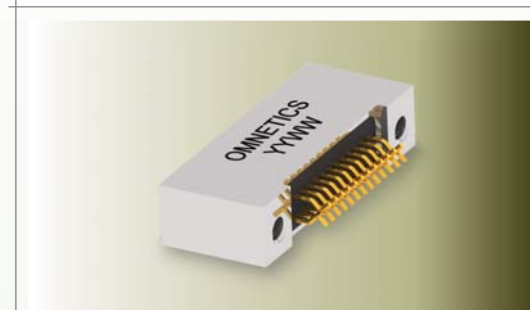
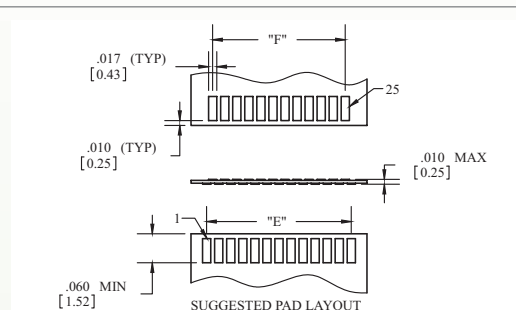
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■ A28300-009	9	0.375	0.270	0.160	0.100	0.075	0.165	9.53	6.86	4.06	2.54	1.91	4.19
■ A28300-015	15	0.450	0.345	0.235	0.175	0.150	0.240	11.43	8.76	5.97	4.45	3.81	6.10
■ A28300-021	21	0.525	0.420	0.310	0.250	0.225	0.315	13.34	10.67	7.87	6.35	5.72	8.00
■ A28300-025	25	0.575	0.470	0.360	0.300	0.275	0.365	14.61	11.94	9.14	7.62	6.99	9.27
■ A28300-031	31	0.650	0.545	0.435	0.375	0.350	0.440	16.51	13.84	11.05	9.53	8.89	11.18
■ A28300-037	37	0.725	0.620	0.510	0.450	0.425	0.515	18.42	15.75	12.95	11.43	10.80	13.08
■ A28300-051	51	0.900	0.795	0.685	0.625	0.600	0.690	22.86	20.19	17.40	15.88	15.24	17.53
■ A28300-065	65	1.075	0.970	0.860	0.800	0.775	0.865	27.31	24.64	21.84	20.32	19.69	21.97

CAGE Code 61873

Off Shelf COTS Type FF

Nano-D

■ Off the Shelf (COTS) Bi-Lobe® (Type FF)



■ English (IN)

■ Metric (mm)

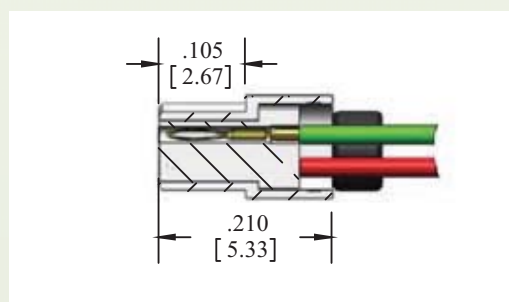
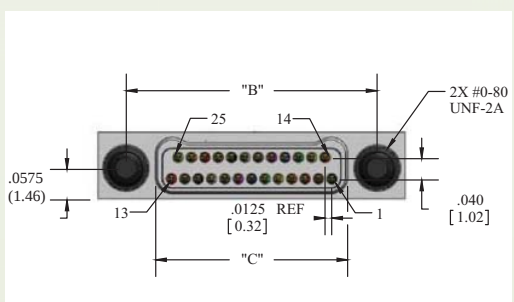
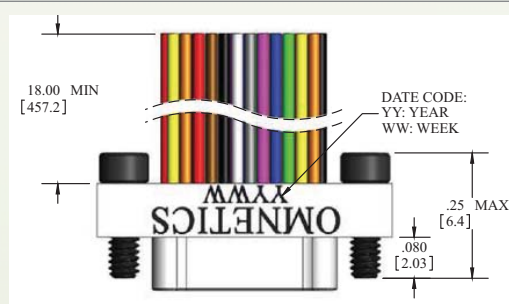
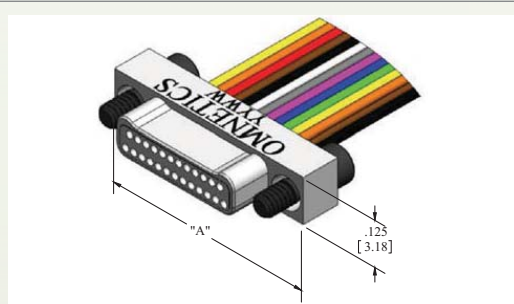
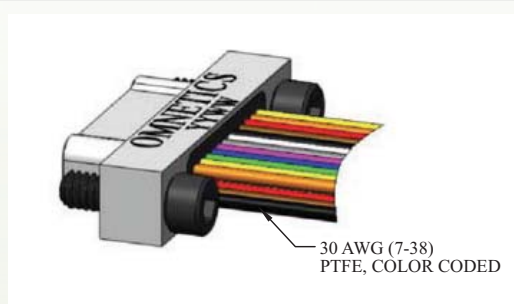
PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"F"	"A"	"B"	"C"	"D"	"E"	"F"
A29300-009	9	0.375	0.270	0.163	0.170	0.100	0.075	9.53	6.86	4.14	4.32	2.54	1.91
A29300-015	15	0.450	0.345	0.238	0.245	0.175	0.150	11.43	8.76	6.05	6.22	4.45	3.81
A29300-021	21	0.525	0.420	0.313	0.320	0.250	0.225	13.34	10.67	7.95	8.13	6.35	5.72
A29300-025	25	0.575	0.470	0.363	0.370	0.300	0.275	14.61	11.94	9.40	9.22	7.62	6.99
A29300-031	31	0.650	0.545	0.438	0.445	0.375	0.350	16.51	13.84	11.13	11.30	9.53	8.89
A29300-037	37	0.725	0.620	0.513	0.520	0.450	0.425	18.42	15.75	13.03	13.21	11.43	10.80
A29300-051	51	0.900	0.795	0.688	0.695	0.625	0.600	22.86	20.19	17.48	17.65	15.88	15.24
A29300-065	65	1.075	0.970	0.863	0.870	0.800	0.775	27.31	24.64	21.92	22.10	20.32	19.69

CAGE Code 61873

Nano-D

Off Shelf COTS Type WD

■ Off the Shelf (COTS) Bi-Lobe® (Type WD)



■ English (IN)

■ Metric (mm)

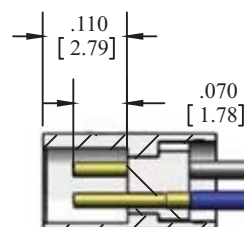
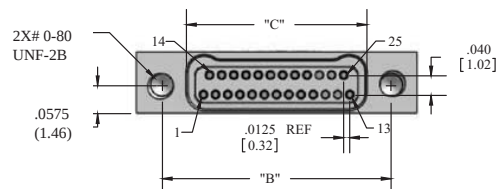
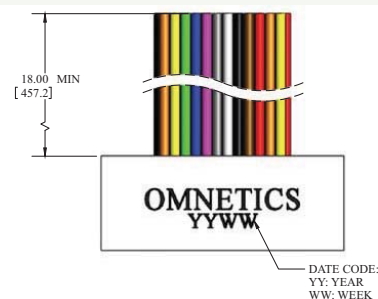
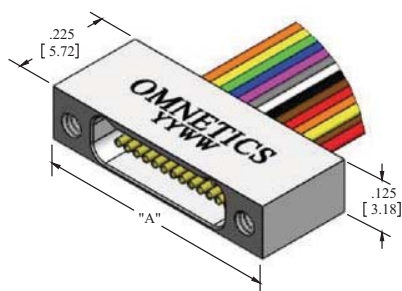
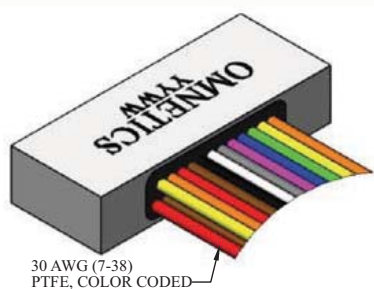
■ Pin

■ Color

PART NO.	CONTACTS	"A"	"B"	"C"	"A"	"B"	"C"	1, 11, 21, 31, 41, 51, 61 . . .	BLACK
A28000-009	9	0.375	0.270	0.160	9.53	6.86	4.06	2, 12, 22, 32, 42, 52, 62 . . .	BROWN
A28000-015	15	0.450	0.345	0.235	11.43	8.76	5.97	3, 13, 23, 33, 43, 53, 63 . . .	RED
A28000-021	21	0.525	0.420	0.310	13.34	10.67	7.87	4, 14, 24, 34, 44, 54, 64 . . .	ORANGE
A28000-025	25	0.575	0.470	0.360	14.61	11.94	9.14	5, 15, 25, 35, 45, 55, 65 . . .	YELLOW
A28000-031	31	0.650	0.545	0.435	16.51	13.84	11.05	6, 16, 26, 36, 46, 56	GREEN
A28000-037	37	0.725	0.620	0.510	18.42	15.75	12.95	7, 17, 27, 37, 47, 57	BLUE
A28000-051	51	0.900	0.795	0.685	22.86	20.19	17.40	8, 18, 28, 38, 48, 58	VIOLET
A28000-065	65	1.075	0.970	0.860	27.31	24.64	21.84	9, 19, 29, 39, 49, 59	GRAY
								10, 20, 30, 40, 50, 60	WHITE

CAGE Code 61873

Off the Shelf (COTS) Bi-Lobe® (Type WD)



English (IN)

Metric (mm)

Pin

Color

PART NO.	CONTACTS	"A"	"B"	"C"	"A"	"B"	"C"	Pin	Color
A29000-009	9	0.375	0.270	0.163	9.53	6.86	4.14	1, 11, 21, 31, 41, 51, 61 . . .	BLACK
A29000-015	15	0.450	0.345	0.238	11.43	8.76	6.05	2, 12, 22, 32, 42, 52, 62 . . .	BROWN
A29000-021	21	0.525	0.420	0.313	13.34	10.67	7.95	3, 13, 23, 33, 43, 53, 63 . . .	RED
A29000-025	25	0.575	0.470	0.363	14.61	11.94	9.22	4, 14, 24, 34, 44, 54, 64 . . .	ORANGE
A29000-031	31	0.650	0.545	0.438	16.51	13.84	11.13	5, 15, 25, 35, 45, 55, 65 . . .	YELLOW
A29000-037	37	0.725	0.620	0.513	18.42	15.75	13.03	6, 16, 26, 36, 46, 56	GREEN
A29000-051	51	0.900	0.795	0.688	22.86	20.19	17.48	7, 17, 27, 37, 47, 57	BLUE
A29000-065	65	1.075	0.970	0.863	27.31	24.64	21.92	8, 18, 28, 38, 48, 58	VIOLET
								9, 19, 29, 39, 49, 59	GRAY
								10, 20, 30, 40, 50, 60	WHITE

CAGE Code 61873

■ Bi-Lobe® Connector Savers

Omnetics Bi-Lobe® connectors are rated for 200+ mating cycles, however, many applications carry their own restrictions as to how many times a connector may be mated and unmated during programming, test and burn-in. To support these requirements, Omnetics offers a "Connector Saver" which can be mated to the corresponding connector on the sensitive equipment. They utilize the same rugged and reliable Flex Pin contact system. Spaced on 25 mil (.64mm) centerlines, they are capable of carrying 1 amp per contact.

Bi-Lobes® "Connector Savers" are available in pin counts from 9-65



■ Electro-Mechanical Specs

■ Durability:	200 Mating Cycles min
■ Temperature:	-55°C to +125 °C (200 °C w/HTE)
■ Current rating:	1 amp per contact
■ Voltage Rating (DWV):	250 VAC RMS Sea Level
■ Insulation Resistance:	5,000 Megohms min
■ Shock:	100 g's discontinuity < 10 nanoseconds
■ Vibration:	20 g's discontinuity < 10 nanoseconds
■ Thermal Vacuum Outgassing:	1.0% max TML, 0.1% max VCM
■ Contact Resistance:	71 mV drop @ 1 amp
■ Mating/Unmating Force:	7 oz. (.198 kg) max per contact

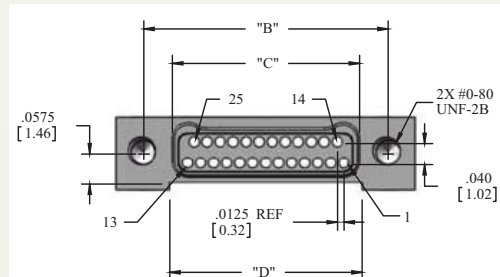
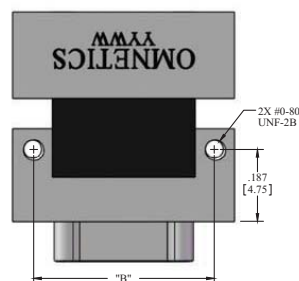
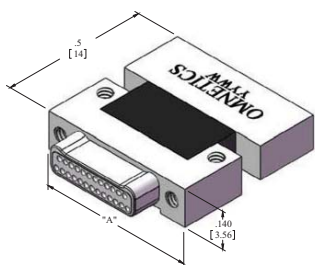
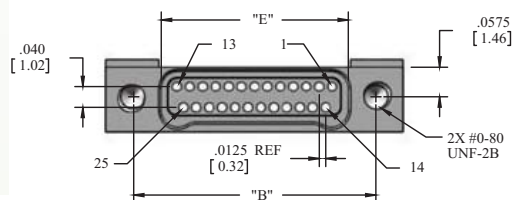
93

■ Material Specifications

■ Shell Material and Finish:	Aluminum Shell, Electroless Nickel plated Aluminum Shell, Cadmium plated Titanium Shell, Unplated Stainless Steel Shell, Passivated
■ Insulator:	Liquid Crystal Polymer (LCP)
■ Pin:	Gold Plated BeCu
■ Socket:	Gold Plated Copper Alloy
■ Encapsulant:	Epoxy

CAGE Code 61873

■ Bi-Lobe® Connector Savers



■ English (IN)

■ Metric (mm)

	PART NO.	CONTACTS	"A"	"B"	"C"	"D"	"E"	"A"	"B"	"C"	"D"	"E"
■	A40828-001	9	0.375	0.270	0.160	0.170	0.163	9.53	6.86	4.06	4.32	4.14
■	A40829-001	15	0.450	0.345	0.235	0.245	0.238	11.43	8.76	5.97	6.22	6.05
■	A40830-001	21	0.525	0.420	0.310	0.320	0.313	13.34	10.67	7.87	8.13	7.95
■	A40831-001	25	0.575	0.470	0.360	0.370	0.363	14.61	11.94	9.14	9.40	9.22
■	A40832-001	31	0.650	0.545	0.435	0.445	0.438	16.51	13.84	11.05	11.30	11.13
■	A40833-001	37	0.725	0.620	0.510	0.520	0.513	18.42	15.75	12.95	13.21	13.03
■	A40834-001	51	0.900	0.795	0.685	0.695	0.688	22.86	20.19	17.40	17.65	17.48
■	A40835-001	65	1.075	0.970	0.860	0.870	0.863	27.31	24.64	21.84	22.10	21.92

CAGE Code 61873

■ Bi-Lobe® Back Shells

Omnetics Bi-Lobe® connectors can be fitted with standard or custom back shells, providing strain relief and/or EMI shielding on wire and cable configurations.

Various back shell materials and plating options are available. Whether it is straight, right-angle, 45°, or entirely custom, Omnetics can design a solution to fit your application.

Please contact the factory to discuss your back shell requirements.

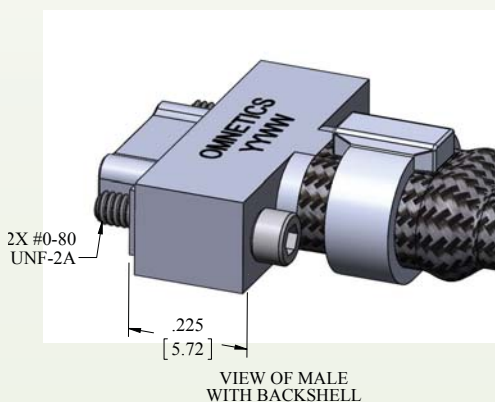
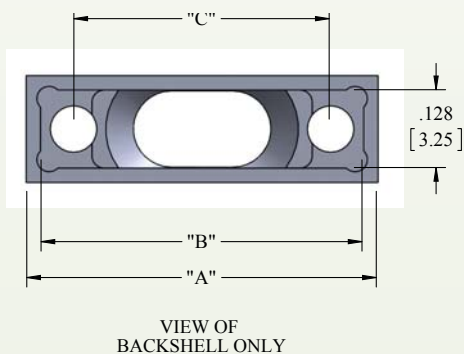
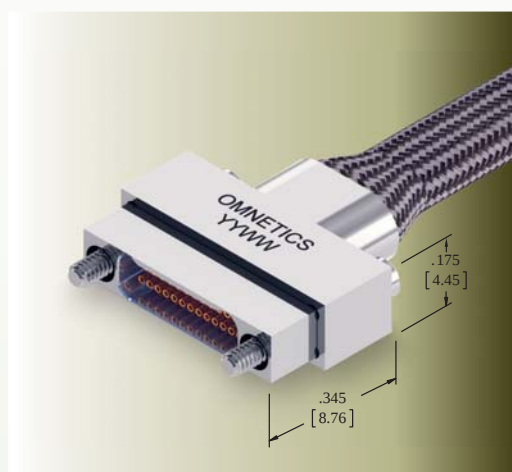
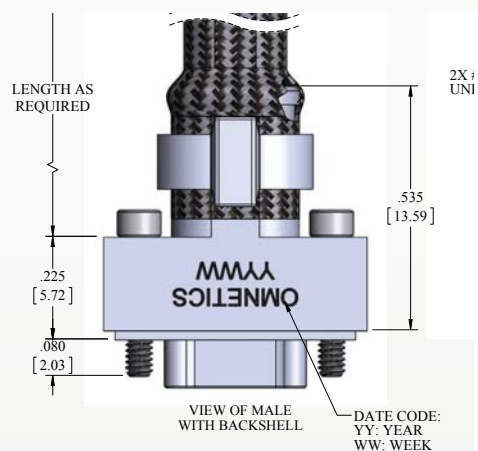


■ Shell Options

- | | |
|----------------------------|--|
| ■ Aluminum(Alloy 6061-T6): | Electroless Nickel per AMS-C-26074
Black Anodize per MIL-A-8625, Type II, Class 2
Cadmium, AMS-QQ-P-416, Type II, class I, yellow chromate |
| ■ Titanium: | MIL-T-81556 or SAE-AMS-T-9046 Gold Plated BeCu |
| ■ Stainless Steel: | 303, per ASTM A582, passivated per ASTM A967 |
| ■ Screws / Collars: | Stainless Steel |



■ Bi-Lobe® Back Shells



■ English (IN)

	CONTACTS	"A"	"B"	"C"	"D"
■	9	0.425	0.378	0.270	0.375
■	15	0.500	0.453	0.345	0.375
■	21	0.575	0.528	0.420	0.375
■	25	0.625	0.578	0.470	0.375
■	31	0.700	0.653	0.545	0.375
■	37	0.775	0.728	0.620	0.375
■	51	0.950	0.903	0.795	0.425
■	65	1.125	1.078	0.970	0.425

■ Metric (mm)

	"A"	"B"	"C"	"D"
	10.80	9.60	6.86	9.53
	12.70	11.51	8.76	9.53
	14.61	13.41	10.67	9.53
	15.88	14.68	11.94	9.53
	17.78	16.59	13.84	9.53
	19.69	18.49	15.75	9.53
	24.13	22.94	20.19	10.80
	28.58	27.38	24.64	10.80

CAGE Code 61873