

# Amphenol Docking Connectors

Amphenol Aerospace offers the ideal connector for applications where frequent docking to charge and transfer data is a necessity. Utilizing Amphenol's Brush contact system, this connector system offers high performance of over 100,000 mating cycles.

## Brush Technology



### Brush Technology

Strands of high tensile strength wire are bundled together to form brush-like contacts. By intermeshing two wire bundles together, an electrical connection is made.

#### Brush Attributes:

- Low Mating Force: 70-90% less than conventional pin and socket
- Provides multiple points of contact, 14-70 points of contact per mate.
- Impervious to fretting corrosion
- Long contact life, over 100,000 mating cycles without degradation in performance.

Amphenol's docking connectors are designed for applications of:

- Handheld GPS Units
- Handheld Radios
- Rugged Computers
- Controllers
- Scanners
- Accessories
- Cellular Phone



### Amphenol Design Engineering and Manufacturing Expertise

We take pride that Amphenol Aerospace is the undisputed leader in interconnect systems for aerospace/harsh environment applications. Such applications require a high degree of engineering sophistication and precision manufacturing capabilities that only a company that has been in the interconnect product design and manufacturing business for over 50 years can offer.

Expert design and applications engineering provides solid modeling and full Pro-E capabilities to develop new interconnect products and perform structural analysis. In addition, Amphenol's team of dedicated signal integrity engineers characterize our interconnect products and optimize for high speed.



# Performance

Durability:	Up to 100,000 mating cycles
Insertion/Extraction Force:	1.5 ounce typical per contact
Operating Temperature:	-65° to 125°C
Current Rating:	Up to 5 amperes (termination dependent) Hot swap 1 ampere maximum (load dependent)
Data Rate: (Select connectors only)	Configurable for 3.125 Gbps differential signal
Insulation Resistance:	5 gigaohms minimum
Dielectric Withstanding Voltage:	750 volts @ Sea Level Minimum 250 volts @ 70,000 Feet Elevation Minimum
Solderability:	MIL-STD-202, Method 208
Salt Fog:	48 Hours IAW MIL-STD-1344, method 1001, test condition B
Humidity:	IAW MIL-STD-1344, method 1002, type II
Vibration:	4 hours in each of 3 mutually perpendicular axes IAW MIL-STD-1344, method 2005, test condition V, letter H
Shock:	1 shock along each of three mutually perpendicular axes IAW MIL-STD-1344, method 2004, test condition G

# Features

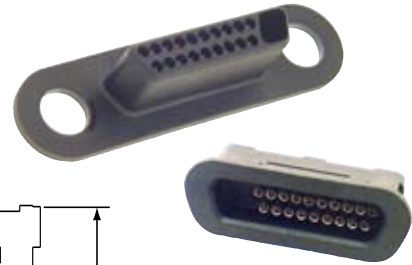
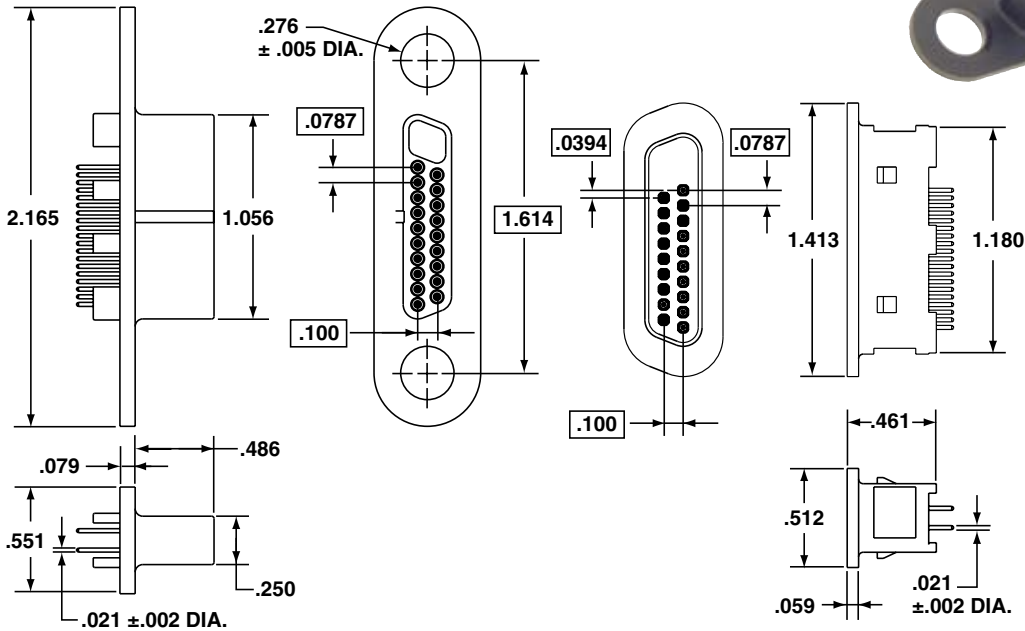
Radial Misalignment:	Capable of correcting up to a .040" initial radial misalignment
Angular Misalignment:	Capable of mating with up to a 4° initial angular misalignment
Polarization:	"D" shaped interface
Color:	Standard – Black plus a wide variety of colors available

# Materials

Insulator:	Glass filled thermoplastic molding
Contact:	Wire: Beryllium copper per ASTM B197; finish is gold per ASTM B488 over nickel per AMS-QQ-N-290.  Holder: Brass similar to UNS C33500; finish is gold per MIL-G-45204 or tin-lead per MIL-P-81728 or tin per MIL-T-10727 (RoHS Compliant).  Sleeve: Stainless Steel per AMS-5514, passivated IAW QQ-P-35 (DB and I/O connectors only)

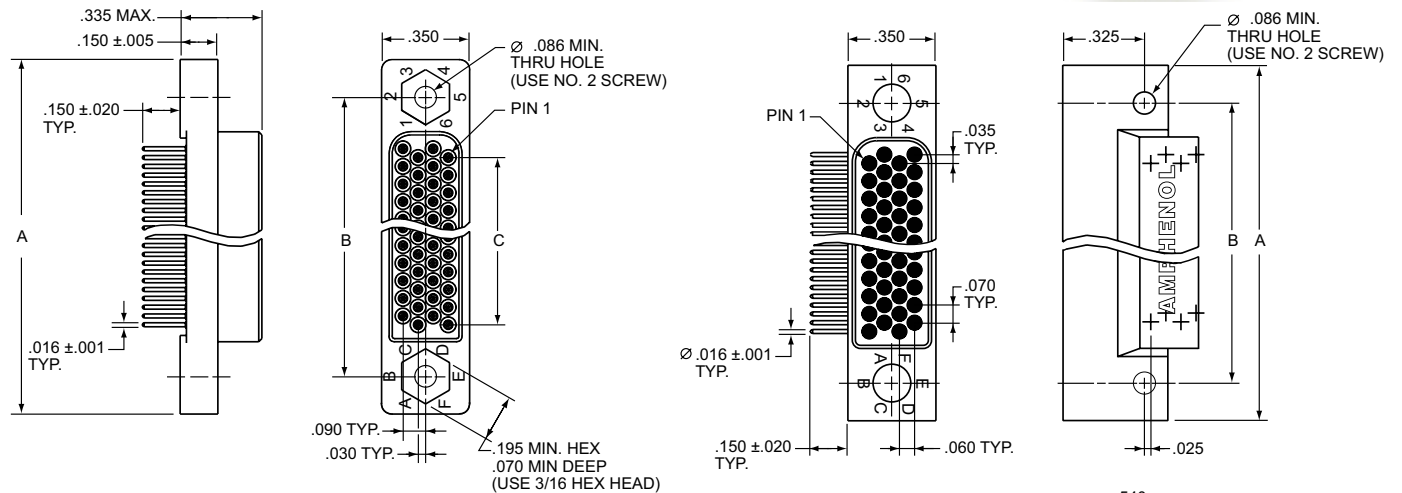
### Custom Contacts

.0787 X .100 Staggered Grid Spacing



### High Density Brush (HDB<sup>3</sup>) Connector Series

.070 X .060 Staggered Grid Spacing



Dimensions			
Number of Contacts	A	B	C
20	1.025	.725	.280
40	1.375	1.075	0.630

See Amphenol HDB3 Data sheet, PDS-201, for additional contact arrangements

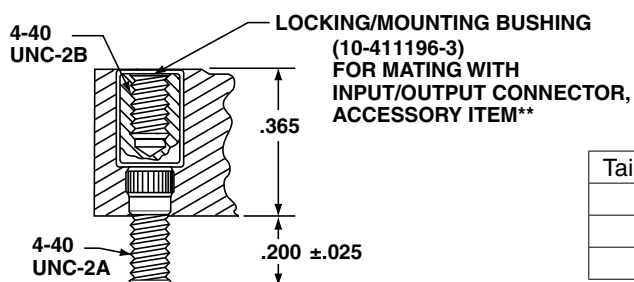
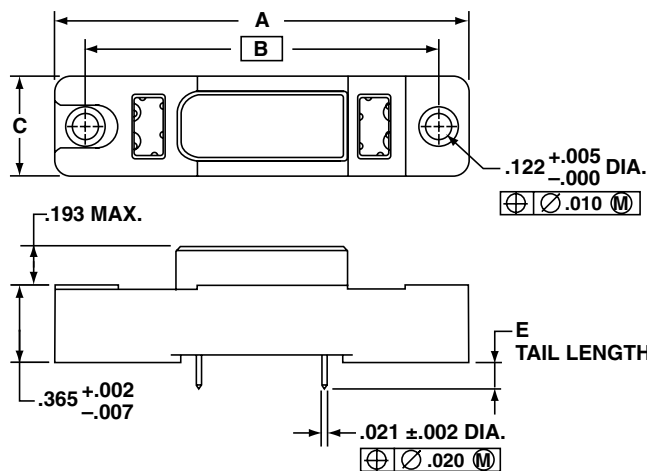


### Low Mating Force Rectangular Connector Series

.100 X .100 Square Grid Arrangement

(Reference MIL-55302/166 thru /170)

Mother Board Connector

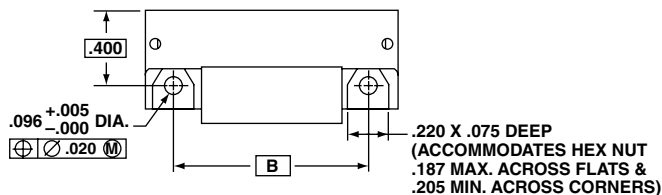
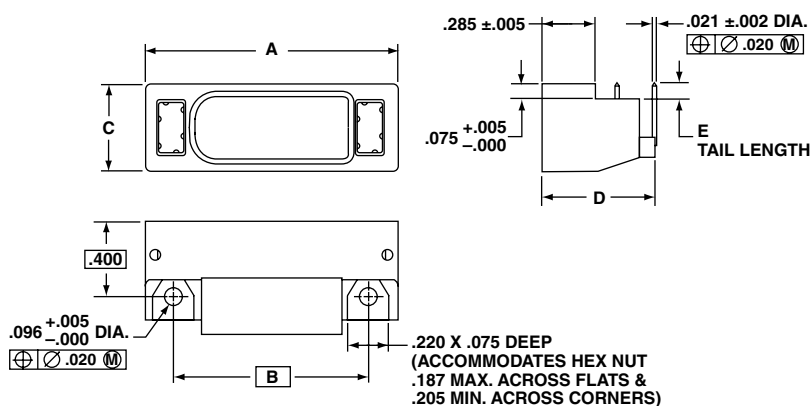


Tail Length E ± .020
.148
.180
.335

Number of Contacts	Contact Pattern	A Max	B	C Max
10	2 X 5	1.795	1.475	.390
12	2 X 6	1.895	1.575	.390
14	2 X 7	1.995	1.675	.390
15	3 X 5	1.795	1.475	.490
16	2 X 8	2.095	1.775	.390
18	2 X 9	2.195	1.875	.390
	3 X 6	1.895	1.575	.490
20	4 X 5	1.795	1.475	.590
21	3 X 7	1.995	1.675	.490
24	3 X 8	2.095	1.775	.490
	4 X 6	1.895	1.575	.590
27	3 X 9	2.195	1.875	.490
28	4 X 7	1.995	1.675	.590
32	4 X 8	2.095	1.775	.590
36	4 X 9	2.195	1.875	.590

See Amphenol Low Mating Force Rectangular Catalog, 12-035, for additional contact arrangements

### Daughter Board Connector

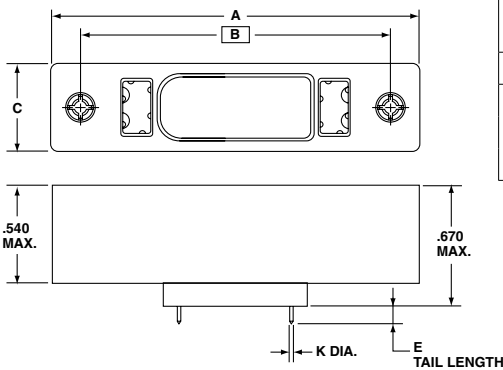


Tail Length E ± .020
.085
.120
.300

Number of Contacts	Contact Pattern	A Max	B	C Max	D Max
10	2 X 5	1.180	.850	.375	.545
12	2 X 6	1.280	.950	.375	.545
14	2 X 7	1.380	1.050	.375	.545
15	3 X 5	1.180	.850	.475	.645
16	2 X 8	1.480	1.150	.375	.545
18	2 X 9	1.580	1.250	.375	.545
	3 X 6	1.280	.950	.475	.645
20	4 X 5	1.180	.850	.575	.745
21	3 X 7	1.380	1.050	.475	.645
24	3 X 8	1.480	1.150	.475	.645
	4 X 6	1.280	.950	.575	.745
27	3 X 9	1.580	1.250	.475	.645
28	4 X 7	1.380	1.050	.575	.745
32	4 X 8	1.480	1.150	.575	.745
36	4 X 9	1.580	1.250	.575	.745

See Amphenol Low Mating Force Rectangular Catalog, 12-035, for additional contact arrangements

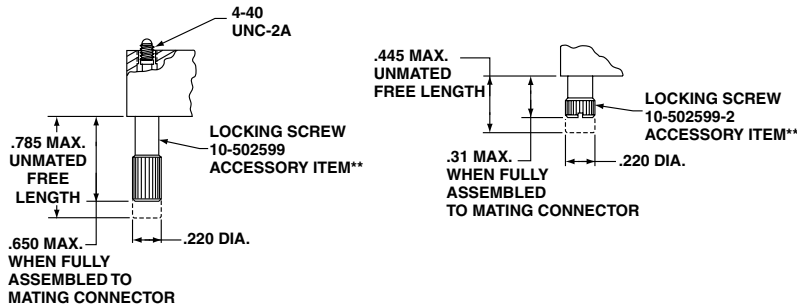
### Input/Output Connector



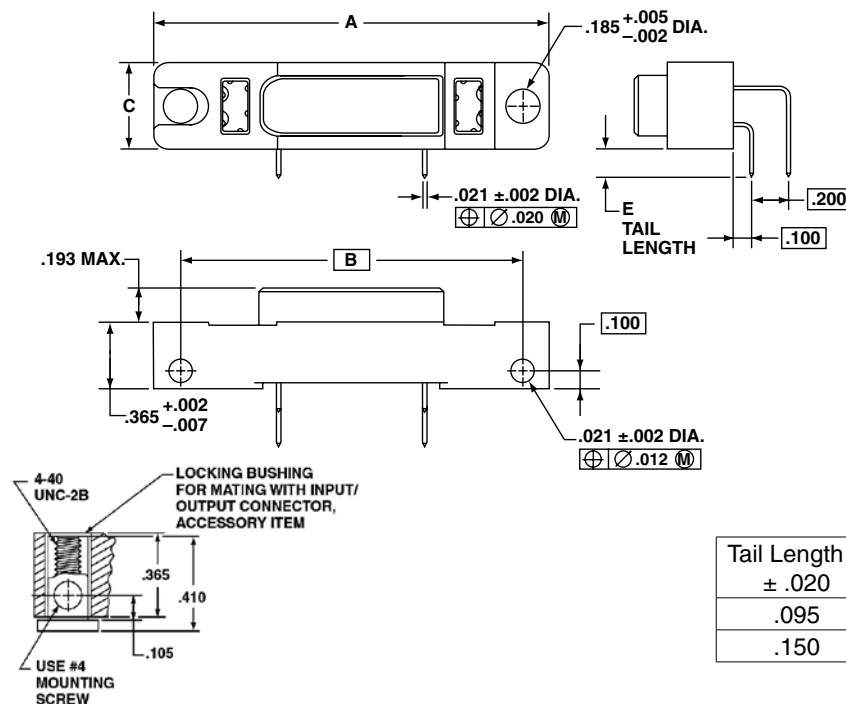
Contact Type	Diameter K ± .002	Length E ± .020
Crimp Contact	N/A	N/A
Round PCB Stud Solder Termination	.021	.060
	.021	.145
	.021	.335

Number of Contacts	Contact Pattern	A Max	B	C Max
10	2 X 5	1.795	1.475	.390
12	2 X 6	1.895	1.575	.390
14	2 X 7	1.995	1.675	.390
15	3 X 5	1.795	1.475	.490
16	2 X 8	2.095	1.775	.390
18	2 X 9	2.195	1.875	.390
	3 X 6	1.895	1.575	.490
20	4 X 5	1.795	1.475	.590
21	3 X 7	1.995	1.675	.490
24	3 X 8	2.095	1.775	.490
	4 X 6	1.895	1.575	.590
27	3 X 9	2.195	1.875	.490
28	4 X 7	1.995	1.675	.590
32	4 X 8	2.095	1.775	.590
36	4 X 9	2.195	1.875	.590

See Amphenol Low Mating Force Rectangular Catalog, 12-035, for additional contact arrangements



### Printed Circuit Connector



Number of Contacts	Contact Pattern	A Max	B	C Max
10	2 X 5	1.795	1.475	.390
12	2 X 6	1.895	1.575	.390
14	2 X 7	1.995	1.675	.390
15	3 X 5	1.795	1.475	.490
16	2 X 8	2.095	1.775	.390
18	2 X 9	2.195	1.875	.390
	3 X 6	1.895	1.575	.490
20	4 X 5	1.795	1.475	.590
21	3 X 7	1.995	1.675	.490
24	3 X 8	2.095	1.775	.490
	4 X 6	1.895	1.575	.590
27	3 X 9	2.195	1.875	.490
28	4 X 7	1.995	1.675	.590
32	4 X 8	2.095	1.775	.590
36	4 X 9	2.195	1.875	.590

Tail Length E ± .020
.095
.150

See Amphenol Low Mating Force Rectangular Catalog, 12-035, for additional contact arrangements

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