

DELPHI

Connection
Systems

*MRS Rectangular Connectors
MIL-C-28748 Qualified*



Driving Tomorrow's Technology

MRS Rectangular Connectors

Qualified to MIL-C-28748 to meet military and commercial requirements



Commercial, industrial, as well as military electronics systems will benefit from the MR rectangular family of connectors for its versatility of applications. The MRS series is a non-environmental version of the MR product family, a dependable glass-filled diallyl phthalate body with size 16 AWG [1.0 mm²] crimp/removable contacts ranging from 10 through 212 – providing adaptability in a variety of arrangements.

Benefits and Features:

The MRS rectangular connectors' compactness allows for a maximum number of contacts in the smallest available space, resulting in a high contact density connector.

Delphi's MRS rectangular connector family offers two versions to meet your application requirements:

- MIL-C-28748 is a qualified MIL-SPEC series in aluminum alloy with polarizing bosses per QQ-A-225/9 with an anodized finish per MIL-A-8825 dyed gray in all insert arrangements.
- Commercial MRS non-environmental, meets requirements of MIL-C-28748 (COTS equivalent).

Shielded contacts offer versatility in allowing the designer to mix power requirements with signal requirements in any configuration or combination. Pin protectors, backshells, dust covers and extended jackscrews are available as accessories.

Simultaneous crimp shielded contacts are shipped pre-assembled for ease of cable assembly by sliding properly stripped coaxial cable into the contact and are crimped by using Delphi's unique, self-aligning simultaneous crimp tool.

Exclusive Features:

The MRS rectangular connector offers a POLARHEX™ center jackscrew coupling mechanism to help assure alignment, also providing positive polarization with a choice of polarizing positions to prevent mismatching.

All versions of the MRS have a unique contact retaining clip retention system that provides maximum economy and improved field servicing time and is available in a variety of contact body materials and finishes to allow for increased application versatility.



Typical Applications:

Any electronic equipment applications requiring connectors utilizing crimp/removable contacts including:

- Shipboard
- Military and commercial airborne equipment
- Ground support systems
- Rack and panel
- Umbilical assemblies for control systems
- Cable-to-cable/cable-to-chassis connections
- Test equipment

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Key Words:

COTS — *Commercial Equivalent*

MIL-SPEC — *Military Specification*

MRS Series – General Information

Contact Performance Data

Size Gauge	16 AWG [1.0 mm ²]
Separation Forces	2.0 oz. [56.7 g] minimum
Current Rating	13 amps
Resistance	50 mv. maximum
Crimp Tensile Strength:	
Size 16 Crimp Barrel	
Wire Size 16 AWG [1.0 mm ²]	50 lbs. [22.7 kg] minimum
Wire Size 20 AWG [0.5 mm ²]	20 lbs. [9.1 kg] minimum
Size 20 Crimp Barrel	
Wire Size 20 AWG [0.5 mm ²]	20 lbs. [9.1 kg] minimum
Wire Size 24 AWG [0.22 mm ²]	8 lbs. [3.6 kg] minimum

Contact/Connector Performance Data

Contact Retention	20 lbs. [9.1 kg] minimum
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Connector Performance Data

Durability	500 cycles
Dielectric Strength:	
Sea Level	2,000 VAC RMS
Thermal Shock (Operating Temperature)	-54°C to +125°C (-65°F to +257°F)
Insulation Resistance at 500 VDC	5,000 M Ω minimum

Materials

Connector Body and Spacer	Diallyl phthalate, SDG-F per MIL-M-14
Jackscrew	Corrosion resistant steel, Type 303 or 303 Se per ASTM A581 or ASTM A582
Metal Insert	Corrosion resistant steel, Type 303 per ASTM A581
Polarizing Boss and Cap	10 thru 36 contacts aluminum alloy 7075-T6 per QQ-A-225/9 52 thru 212 contacts aluminum alloy 2024-T4 per QQ-A-225/6
Retaining Ring	Copper alloy 172 per QQ-C-533

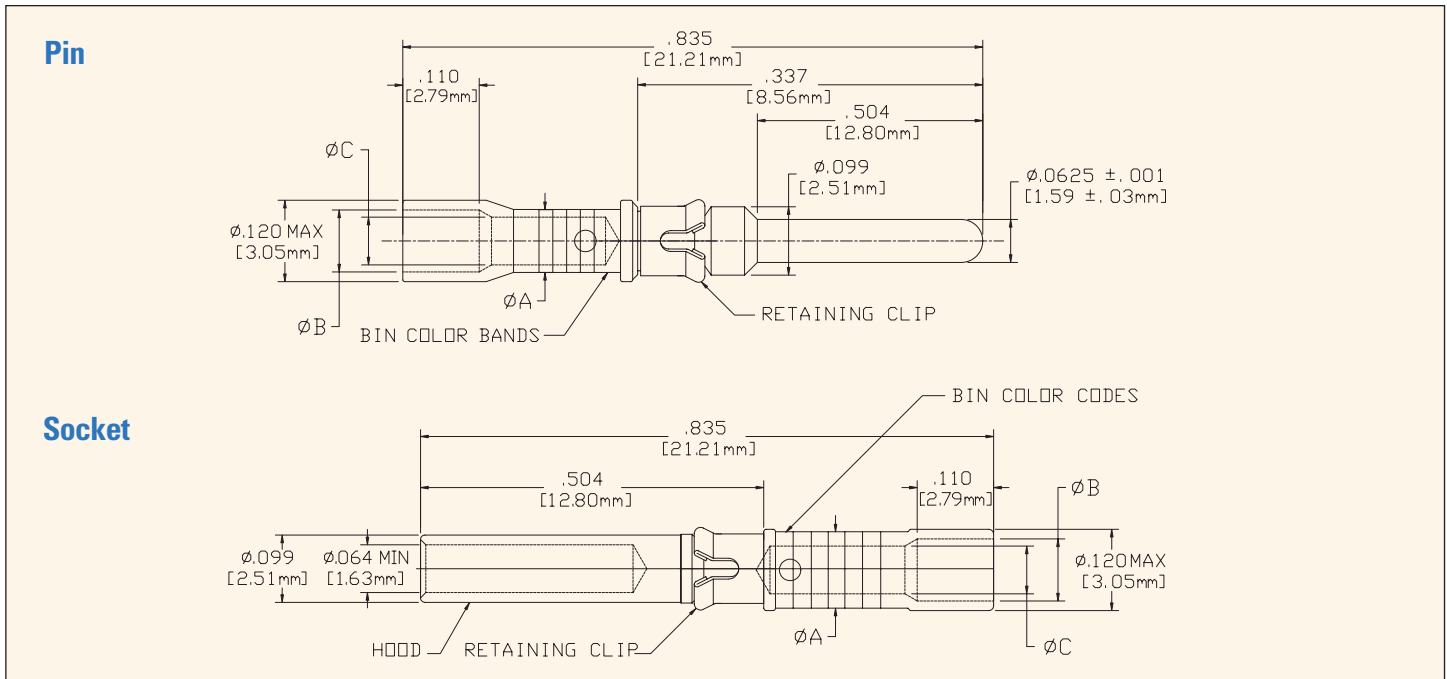
Finishes

Jackscrew	Passivated per MIL-F-14072
Retaining Ring	Electroless nickel per MIL-C-26074, Class 1, E300
Metal Insert (000 Series)	Passivated per QQ-P-35
Polarizing Boss and Cap	10 thru 212 contacts Anodized per MIL-A-8625, Type II, Class 2, dyed gray

MRS Contacts – Size 16

The MRS connector product family offers a size 16 contact in two different versions for maximum application flexibility; standard pin and socket style and crimp shielded pin and socket style.

Standard Pin and Socket Contacts



Materials and Finishes

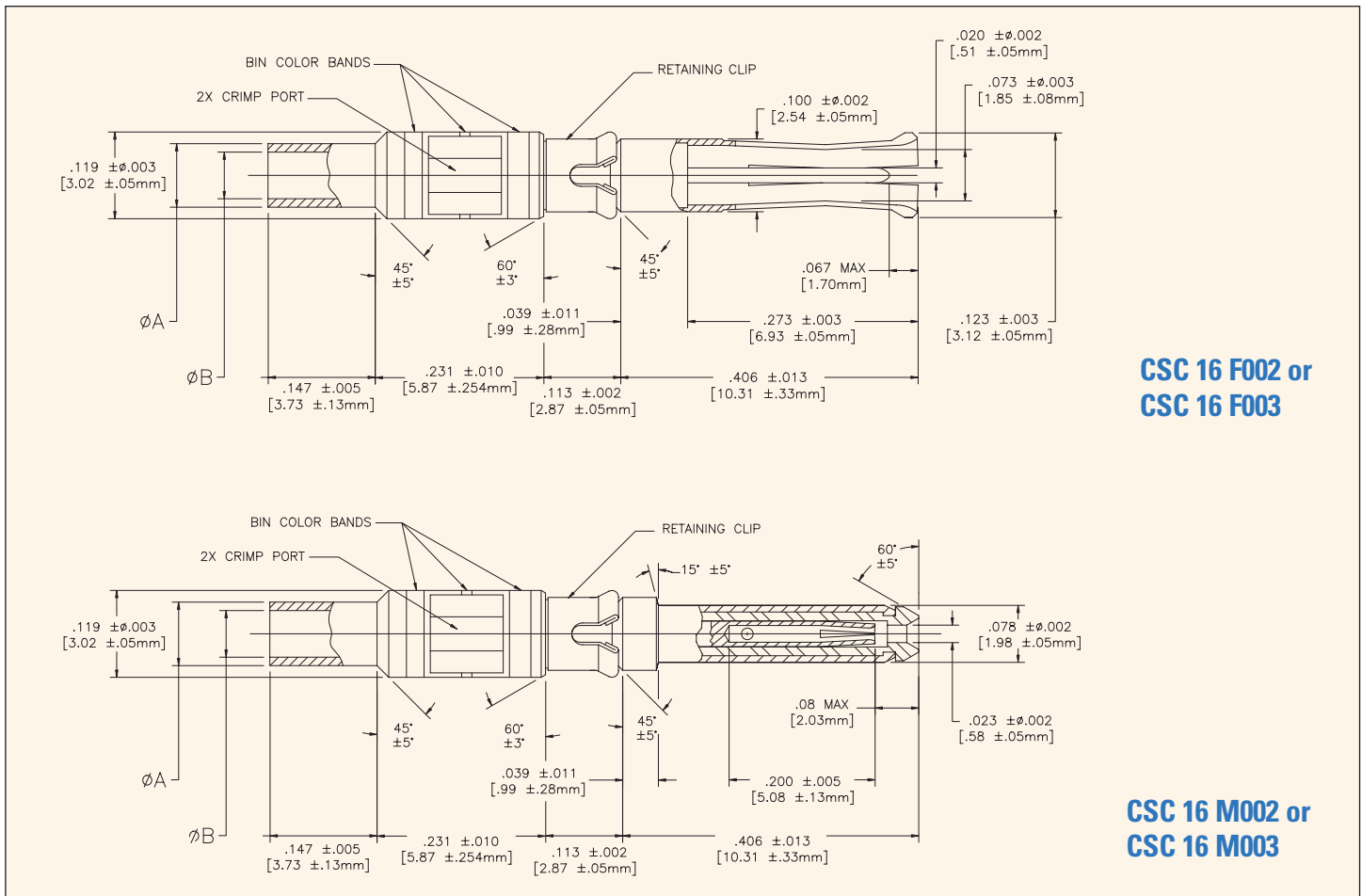
Description	Material	Finish
Body	Copper alloy	Gold plate per MIL-G-45204, Type II
Spring	Copper alloy	Gold plate per MIL-G-45204, Type II
Clip	Copper alloy	Electroless nickel or none
Hood	Stainless steel	Passivated

Part Number Specifications

Catalog No.	Bin Code	Color Bands			Wire Gauge Range	ØA ±.003 [±0.08]	ØB ±.003 [±0.08]	ØC ±.003 [±0.08]	Clip Finish
		1st	2nd	3rd					
MP16Y20C400	N/A	N/A	N/A	N/A	20 - 24 AWG [0.5 - 0.22 mm ²]	.077 [1.96]	.069 [1.75]	.046 [1.17]	None
M39029/36-277	277	Red	Violet	Violet					None
MP16Y16C400	N/A	N/A	N/A	N/A	16 - 20 AWG [1.0 - 0.5 mm ²]	.110 [2.79]	.089 [2.26]	.068 [1.73]	None
M39029/36-278	278	Red	Violet	Grey					None
MS16Y20C400	N/A	N/A	N/A	N/A	20 - 24 AWG [0.5 - 0.22 mm ²]	.077 [1.96]	.069 [1.75]	.046 [1.17]	None
M39029/37-279	279	Red	Violet	White					None
MS16Y16C400	N/A	N/A	N/A	N/A	16 - 20 AWG [1.0 - 0.5 mm ²]	.110 [2.79]	.089 [2.26]	.068 [1.73]	None
M39029/37-280	280	Red	Grey	Black					None

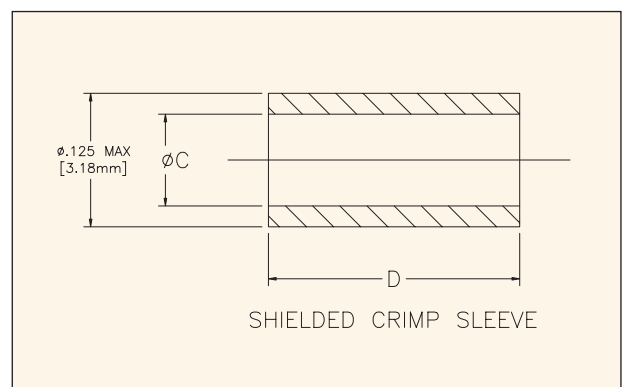
Dimensions shown are for reference only. Unless otherwise specified, dimensions are in inches and [millimeters].

Crimp Shielded Contacts



Materials

Description	Material
Male Housing	Brass alloy, Comp II per QQ-B-626
Female Housing	Copper alloy 173, Cond. HT per QQ-C-530
Insulator	Acetal per ASTM D4181
Crimp Ring	Brass alloy, Comp II per QQ-B-626
Inner Pin	Brass alloy, Comp II per QQ-B-626
Inner Socket	Copper alloy 173, Cond. HT per QQ-C-530
Retaining Clip	Copper alloy 172, Cond. 1/4 HT per QQ-C-533



Finishes

Description	Finish
Male/Female Housing, Crimp Ring, Inner Pin and Socket Contact	Gold plate, Type II, Grade C or D Class I per MIL-G-45204 over copper strike
Retaining Clip	Electroless nickel per AMS 2404 Class I (M002 and F002: Silver color) (M003 and F003: Dyed blue)

Dimensions shown are for reference only. Unless otherwise specified, dimensions are in inches and [millimeters].

Crimp Shielded Contacts

Part Number Specifications

Catalog No.	Bin Code	Color Bands			Cable Accommodated	Contact Cavity Size	Type	Class	ØA ±.002 [±0.05]	ØB ±.002 [±0.05]	ØC ±.001 [±0.03]	D ±.005 [±0.13]
		1st	2nd	3rd								
CSC16M002	N/A	N/A	N/A	N/A	RG 179 B/U	16	D	A	.087 [2.21]	.070 [1.78]	.107 [2.71]	.305 [7.75]
CSC16F002	N/A	N/A	N/A	N/A								
M39029/79-436	436	Yellow	Orange	Blue								
M39029/80-438	438	Yellow	Orange	Grey	RG 178 B/U	16	D	A	.087 [2.21]	.045 [1.14]	.104 [2.63]	.250 [6.35]
CSC16M003	N/A	N/A	N/A	N/A								
CSC16F003	N/A	N/A	N/A	N/A								
M39029/79-437	437	Yellow	Orange	Violet	RG 196 A/U	16	D	A	.087 [2.21]	.045 [1.14]	.104 [2.63]	.250 [6.35]
M39029/80-439	439	Yellow	Orange	White								

Tools

Tools are available from Koehlke Components, Inc. (See page 19.)

Crimping Tool

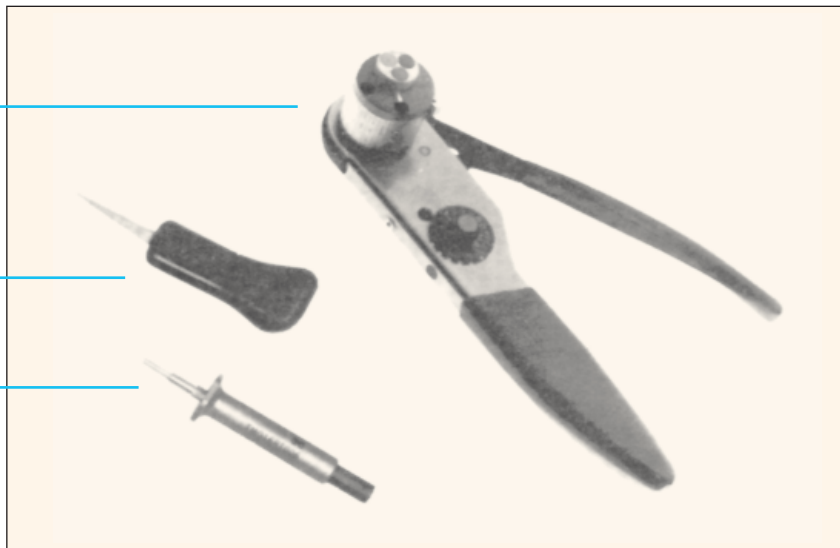
Size 16 Contact: M22520/1-01
Locator Stop: TL5M16
Shielded Contact Crimp Tool: TM DC16 CX4

Insertion Tool

TMO16IT000

Removal Tool

Size 16 Contacts: TMO16RT006
Shielded Contacts: TMC16RT008

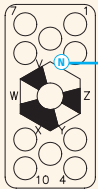


Dimensions shown are for reference only. Unless otherwise specified, dimensions are in inches and [millimeters].

Insert Arrangements and Polarizations

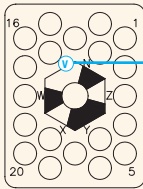
To polarize connectors, boss is mounted in the insert with largest opening adjacent to desired position.

Pin Body – Face View



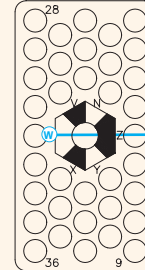
Polarizing Boss shown in **N** position

10 Contacts



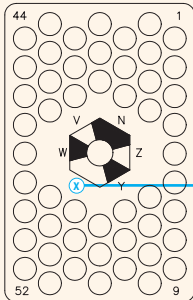
Polarizing Boss shown in **V** position

20 Contacts



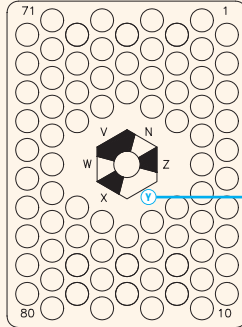
Polarizing Boss shown in **W** position

36 Contacts



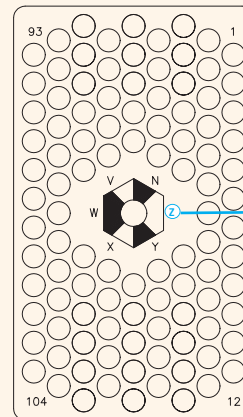
Polarizing Boss shown in **X** position

52 Contacts



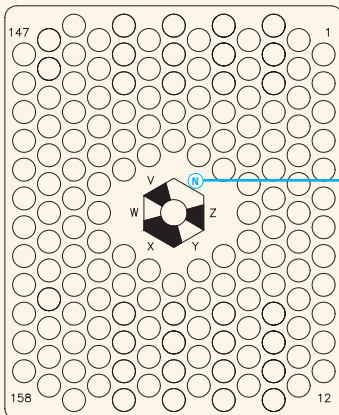
Polarizing Boss shown in **Y** position

80 Contacts



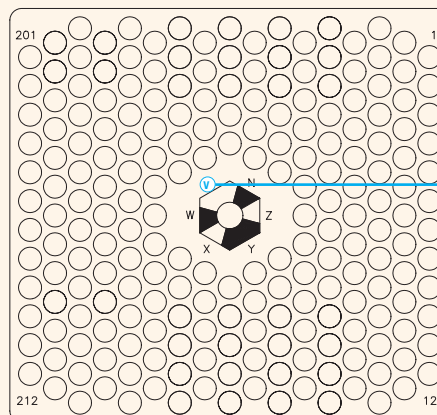
Polarizing Boss shown in **Z** position

104 Contacts



Polarizing Boss shown in **N** position

158 Contacts



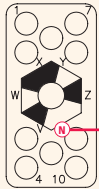
Polarizing Boss shown in **V** position

212 Contacts

Insert Arrangements and Polarizations

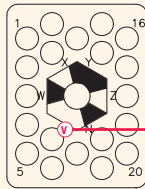
To polarize connectors, boss is mounted in the insert with largest opening adjacent to desired position.

Socket Body – Face View



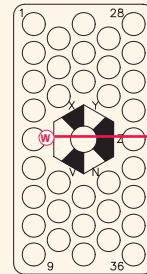
10 Contacts

Polarizing Boss shown in **N** position



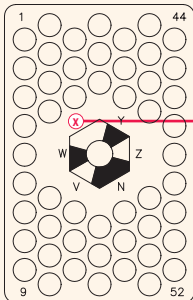
20 Contacts

Polarizing Boss shown in **V** position



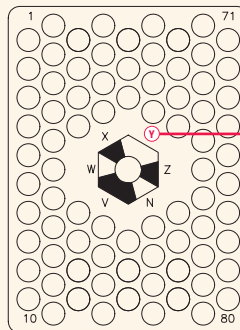
36 Contacts

Polarizing Boss shown in **W** position



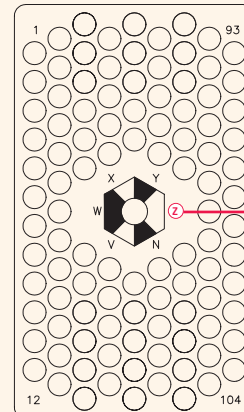
52 Contacts

Polarizing Boss shown in **X** position



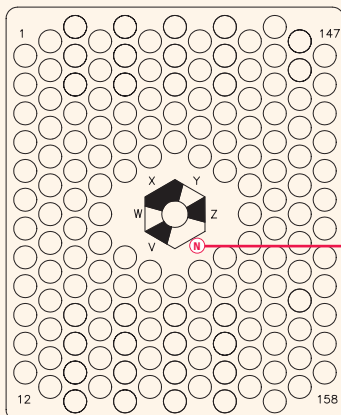
80 Contacts

Polarizing Boss shown in **Y** position



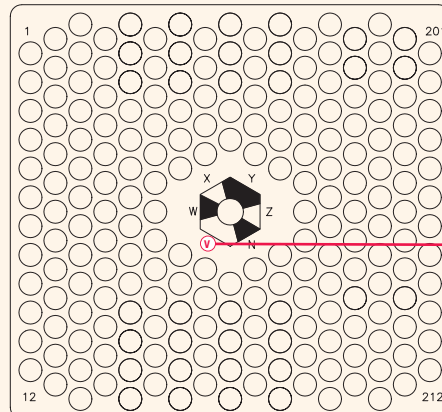
104 Contacts

Polarizing Boss shown in **Z** position



158 Contacts

Polarizing Boss shown in **N** position



212 Contacts

Polarizing Boss shown in **V** position

MRS Commercial Series Non-Environmental, COTS Equivalent (Meets Requirements of MIL-C-28748)

MRS

C

010

P

03

BN

3

00

Connector Series

Contact Style

Supplied with Connector, but not installed

0 = Less contacts

C = MP16Y16 C 400 Pins (M39029/36-278)
MS16Y16 C 400 Sockets (M39029/37-280)

B = MP16Y20 C 400 Pins (M39029/36-277)
MS16Y20 C 400 Sockets (M39029/37-279)

() Denotes MIL-SPEC Equivalent

Insert Arrangements

No. of Contacts

010 =	10 Contacts	Pin (MS18155) Sockets (MS18156)
020 =	20 Contacts	Pin (MS18157) Sockets (MS18158)
036 =	36 Contacts	Pin (MS18159) Sockets (MS18160)
052 =	52 Contacts	Pin (MS18161) Sockets (MS18162)
080 =	80 Contacts	Pin (MS18163) Sockets (MS18164)
104 =	104 Contacts	Pin (MS17778) Sockets (MS17779)
158 =	158 Contacts	Pin (MS18165) Sockets (MS18166)
212 =	212 Contacts	Pin (MS18167) Sockets (MS18168)

Body

P for Pin
S for Socket

Variations, Modifications Code*

- 00** for Recessed Jackscrew and No Jackscrew
- 06** for Extended Jackscrew
- 07** for Extended Jackscrew
- 08** for Extended Jackscrew
- 09** for Extended Jackscrew
- 14** for Extended Jackscrew
- 15** for Extended Jackscrew
- 24** for Extended Jackscrew

See pages 12 thru 15 for dimensions.

Body Style, Modifications Code*

- 3** = Less Mounting Inserts
- 0** = With Mounting Inserts

Polarization Boss and Position*

- 90° Jackscrew Hardware = **BN BV BW**
- 85° Jackscrew Hardware = **CX CY CZ**
- 80° Jackscrew Hardware = **PN PV PW**
- 90° Guide Pin Hardware = **GN GV GW**
- 85° Guide Pin Hardware = **HX HY HZ**

Center Hardware*

- 03** = Body & Contacts with Jackscrew
- 00** = Body & Contacts with Boss only
- 03** = Body & Contacts with Guide Pin

* Consult factory for other available options.

MIL-C-28748

MIL-SPEC Qualified

M28748 / 9 A 0 A L 1A

Connector Series
(MIL-C-28748)

Body
9 = Pin
10 = Socket

Contact Style:
Supplied with Connector, but not installed

1A = M39029/36-278 (Pin) or
M39029/37-280 (Socket)
2A = M39029/36-277 (Pin) or
M39029/37-279 (Socket)

Center Hardware*
L = With Jackscrew (P03 or S03)
O = With Boss only (P00 or S00)
G = With Guide Pin
B = Boss that accepts Guide Pin

Insert Arrangements
No. of Contacts

With Mounting Inserts	Without Mounting Inserts		No. Contacts
A	J	MS18155 – Pin	10
		MS18156 – Socket	10
B	K	MS18157 – Pin	20
		MS18158 – Socket	20
C	L	MS18159 – Pin	36
		MS18160 – Socket	36
D	M	MS18161 – Pin	52
		MS18162 – Socket	52
E	N	MS18163 – Pin	80
		MS18164 – Socket	80
F	P	MS17778 – Pin	104
		MS17779 – Socket	104
G	R	MS18165 – Pin	158
		MS18166 – Socket	158
H	S	MS18167 – Pin	212
		MS18168 – Socket	212

Shield Clamp Retaining Plate
0 = None included

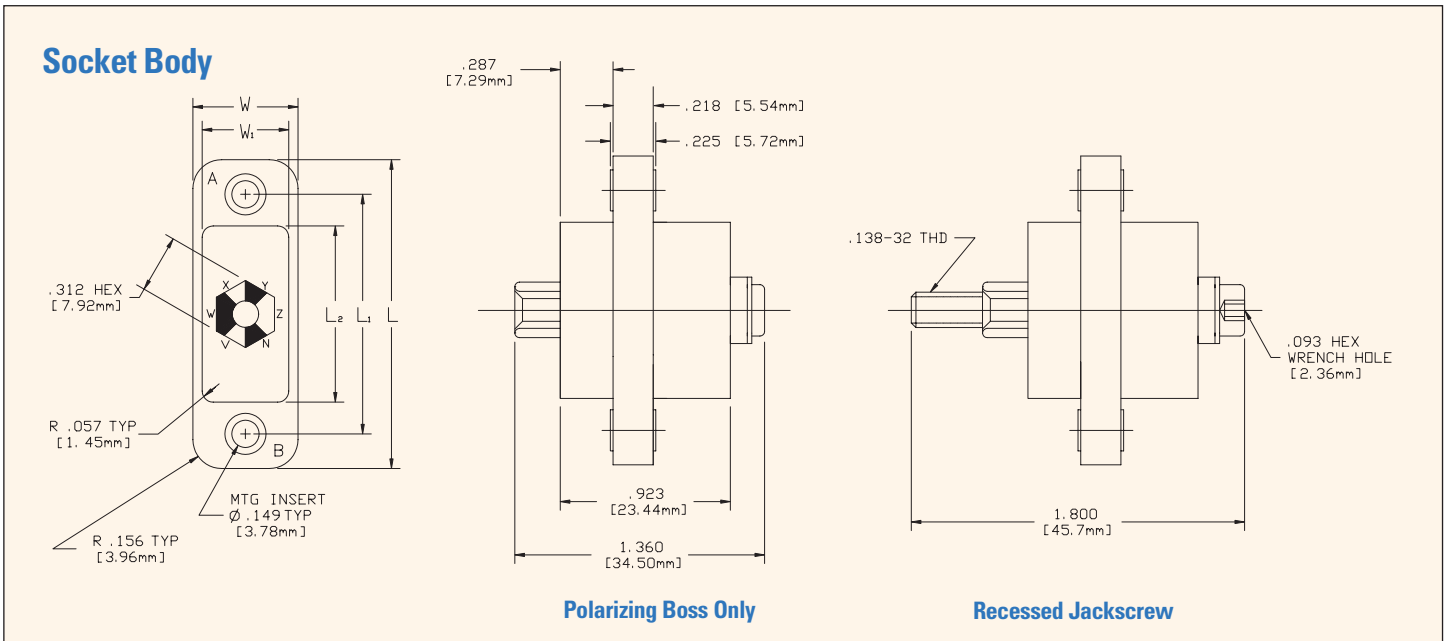
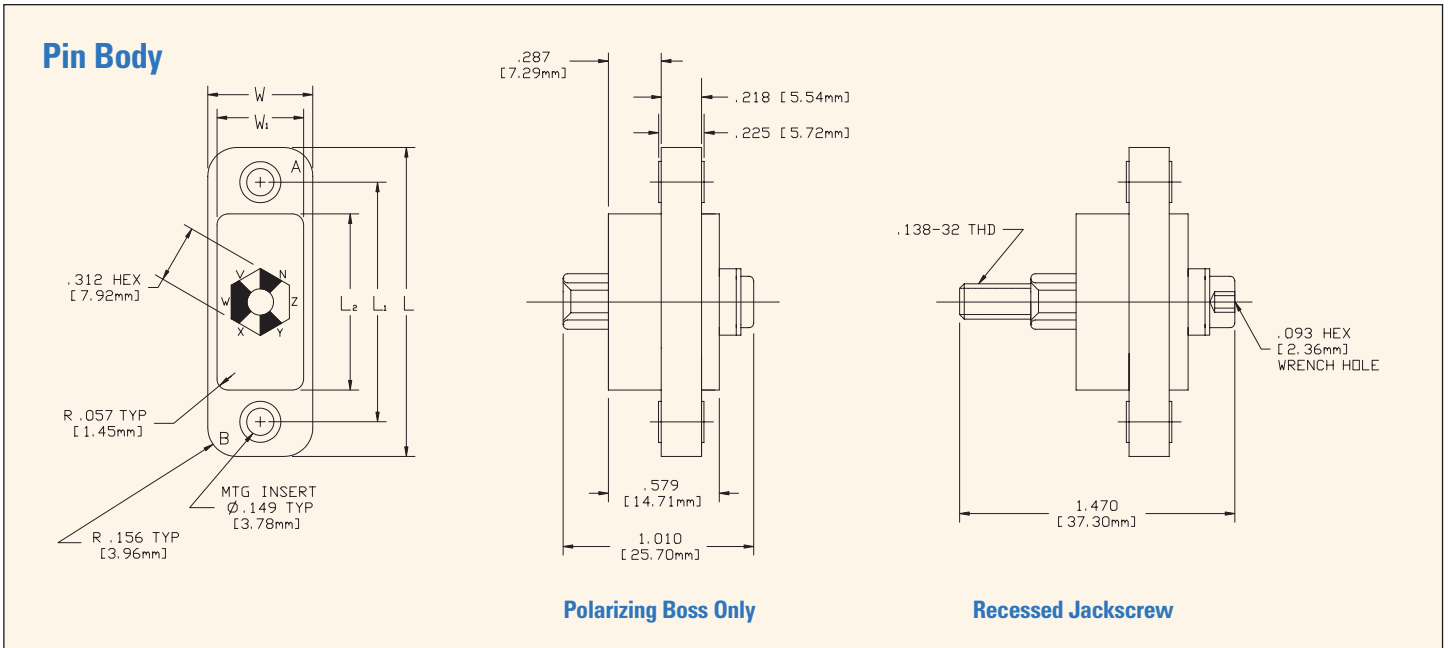
Polarization Boss and Position*

A thru F = With Jackscrew
N thru Z = With Boss only
G thru M = With Guide Pin
P thru U = Guide Pin Boss only

A = BN	N = BN
B = BV	V = BV
C = BW	W = BW
D = CX	X = CX
E = CY	Y = CY
F = CZ	Z = CZ
G = GN	P = GN
H = GV	Q = GV
J = GW	R = GW
K = HX	S = HX
L = HY	T = HY
M = HZ	U = HZ

* Consult factory for other available options.

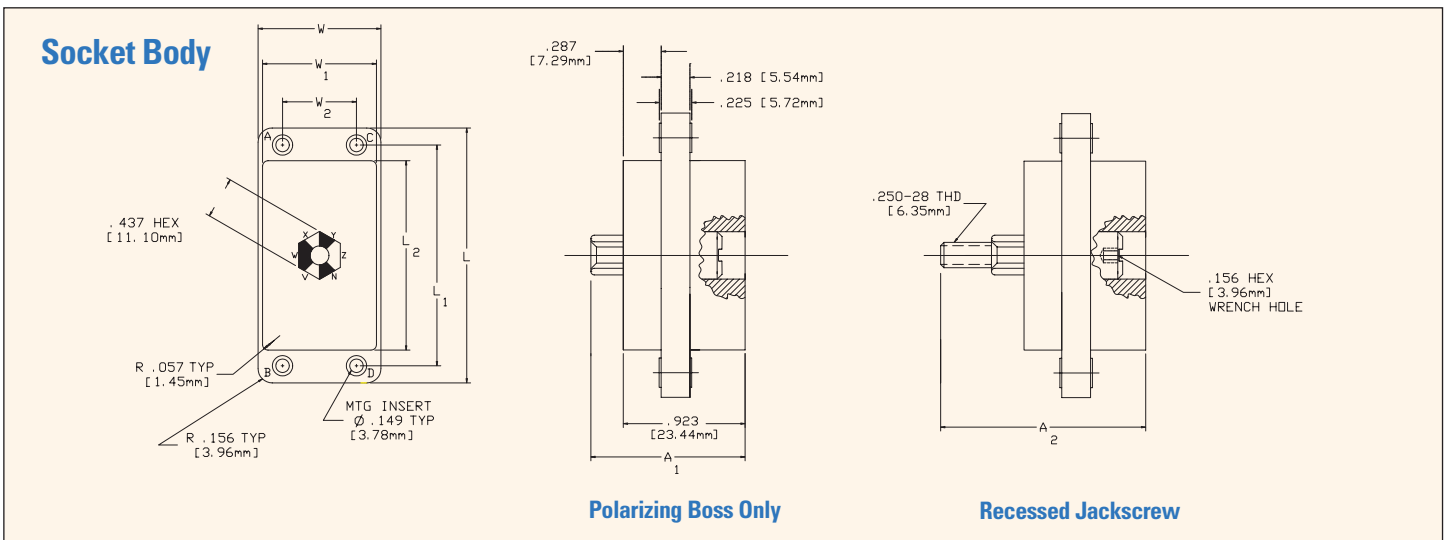
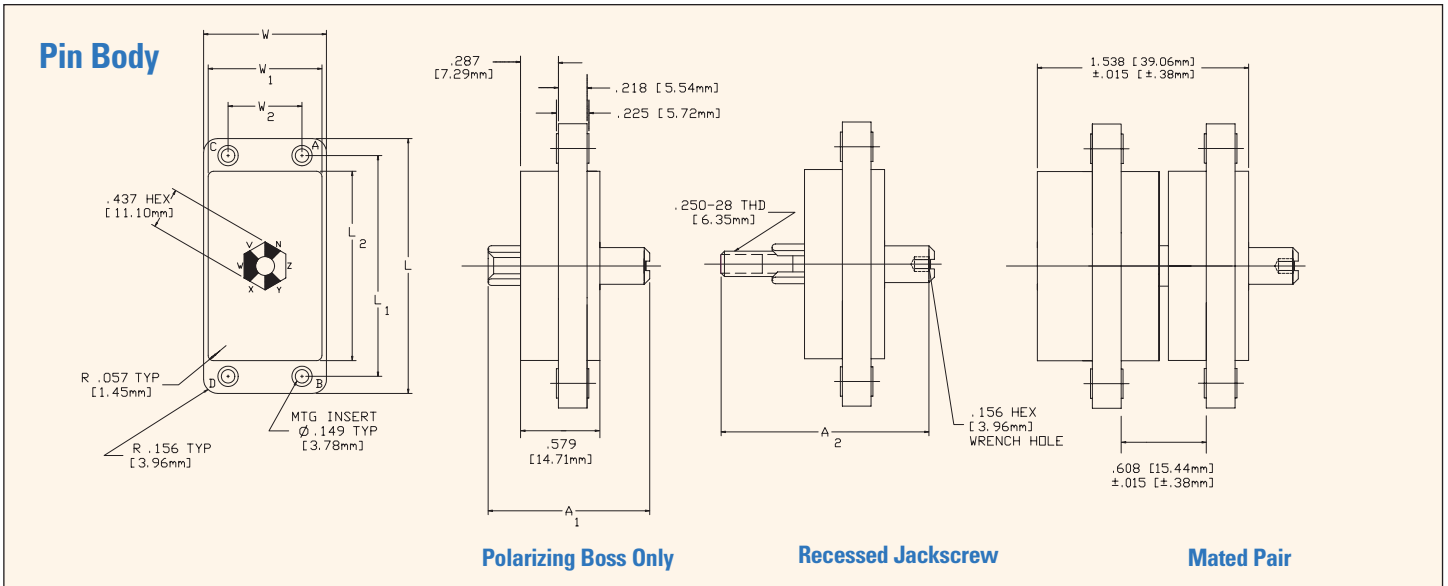
Pin & Socket Bodies – 10, 20, 36 Contacts



No. of Contacts	L		L ₁		L ₂		W		W ₁	
	in. ±.010	mm ±0.25	in. ±.010	mm ±.025	in. ±.010	mm ±0.25	in. ±.010	mm ±0.25	in. ±.010	mm ±0.25
10	1.675	42.55	1.300	33.02	.956	24.28	.570	14.48	.470	11.94
20	1.675	42.55	1.300	33.02	.956	24.28	.830	21.08	.730	18.54
36	2.125	53.98	1.750	44.45	1.406	35.71	.830	21.08	.730	18.54

Dimensions shown are for reference only. Unless otherwise specified, dimensions are in inches and [millimeters].

Pin & Socket Bodies – 52-212 Contacts



Socket Body 52 thru 212							
000 Series				300 Series			
A1		A2		A1		A2	
inch ±.030	mm ±.76	inch ±.030	mm ±.76	inch ±.030	mm ±.76	inch ±.030	mm ±.76
1.18	30.00	1.74	44.20	1.17	29.70	1.60	40.60

Pin Body 52 thru 212							
000 Series				300 Series			
A1		A2		A1		A2	
inch ±.030	mm ±.76	inch ±.030	mm ±.76	inch ±.030	mm ±.76	inch ±.030	mm ±.76
1.03	26.20	1.59	40.40	1.17	29.70	1.59	40.40

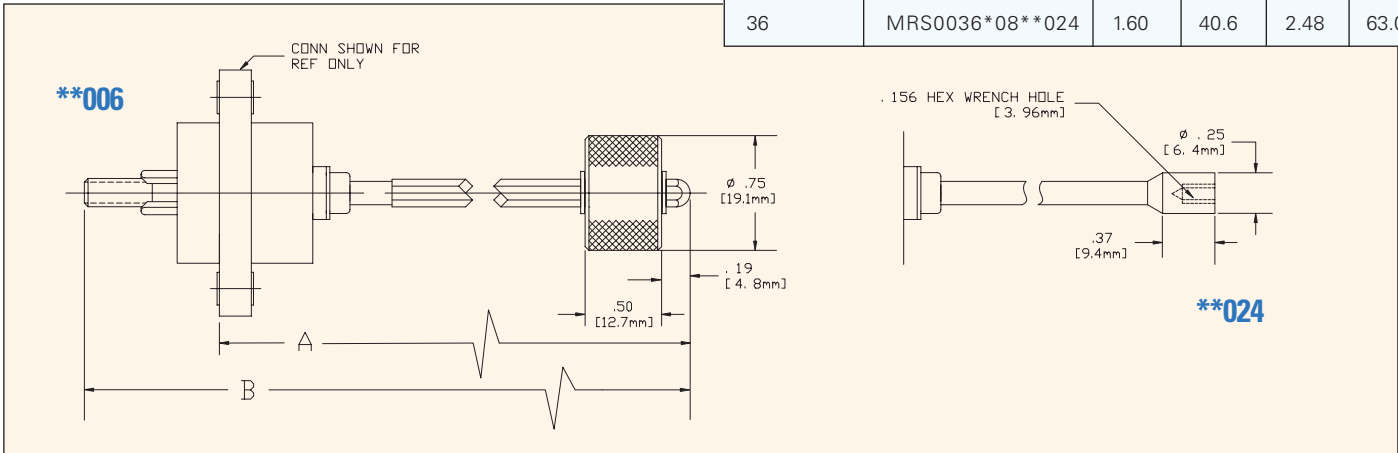
No. of Contacts	L		L ₁		L ₂		W		W ₁		W ₂	
	in. ±.010	mm ±0.25	in. ±.010	mm ±0.25	in. ±.010	mm ±0.25	in. ±.010	mm ±0.25	in. ±.010	mm ±0.25	in. ±.010	mm ±0.25
52	2.275	57.79	1.900	48.26	1.555	39.50	1.090	27.69	.990	25.15	.550	13.97
80	2.420	61.47	2.045	51.94	1.700	43.18	1.350	34.29	1.250	31.75	.812	20.62
104	2.875	73.03	2.500	63.50	2.158	54.76	1.350	34.29	1.250	31.75	.812	20.62
158	2.875	73.03	2.500	63.50	2.158	54.76	1.860	47.24	1.760	44.70	1.250	31.75
212	2.875	73.03	2.500	63.50	2.158	54.76	2.390	60.71	2.290	58.17	1.850	46.99

Dimensions shown are for reference only. Unless otherwise specified, dimensions are in inches and [millimeters].

Extended Jackscrews

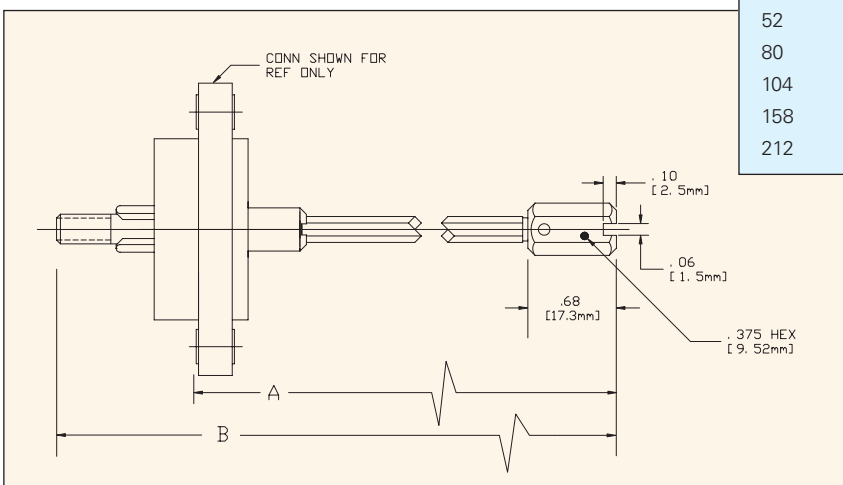
10, 20, 36 Contacts Pin/Socket Bodies

No. of Contacts	Ordering Nomenclature	A		B	
		in.	mm	in.	mm
10	MRS0010*08**006	3.00	76.2	4.10	104.1
20	MRS0020*08**006	3.00	76.2	4.10	104.1
36	MRS0036*08**006	3.00	4.10	104.1	
10	MRS0010*08**024	1.60	40.6	2.48	63.0
20	MRS0020*08**024	1.60	40.6	2.48	63.0
36	MRS0036*08**024	1.60	40.6	2.48	63.0



52-212 Contacts Pin/Socket Bodies Hex Drive

No. of Contacts	Ordering Nomenclature	A		B	
		in.	mm	in.	mm
52	MRS0052*08**009	4.50	114.3	5.60	142.2
80	MRS0080*08**009	4.50	114.3	5.60	142.2
104	MRS0104*08**009	4.50	114.3	5.60	142.2
158	MRS0158*08**009	4.50	114.3	5.60	142.2
212	MRS0212*08**009	4.50	114.3	5.60	142.2
52	MRS0052*08**015	2.05	52.1	3.09	78.5
80	MRS0080*08**015	2.05	52.1	3.09	78.5
104	MRS0104*08**015	2.05	52.1	3.09	78.5
158	MRS0158*08**015	2.05	52.1	3.09	78.5
212	MRS0212*08**015	2.05	52.1	3.09	78.5
52	MRS0052*08**014	2.30	58.4	3.40	86.4
80	MRS0080*08**014	2.30	58.4	3.40	86.4
104	MRS0104*08**014	2.30	58.4	3.40	86.4
158	MRS0158*08**014	2.30	58.4	3.40	86.4
212	MRS0212*08**014	2.30	58.4	3.40	86.4



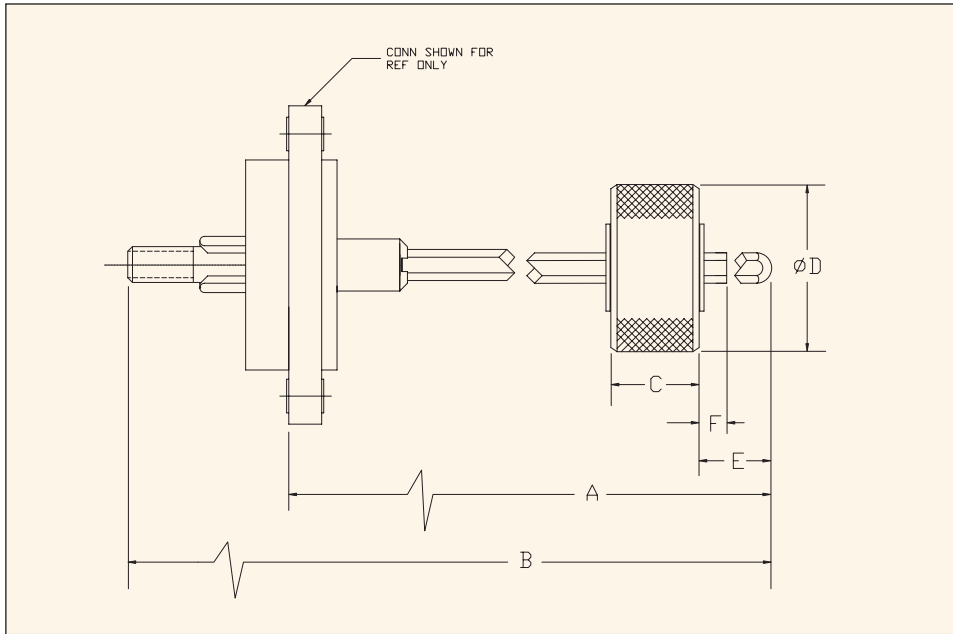
Ordering Options Key

*Insert "P" for Pin, "S" for Socket
 **Insert BN, BV, BW for 90° Boss
 Insert CX, CY, CZ for 85° Boss

Dimensions shown are for reference only. Unless otherwise specified, dimensions are in inches and [millimeters].

Extended Jackscrews

52-212 Contacts – Pin / Socket Bodies



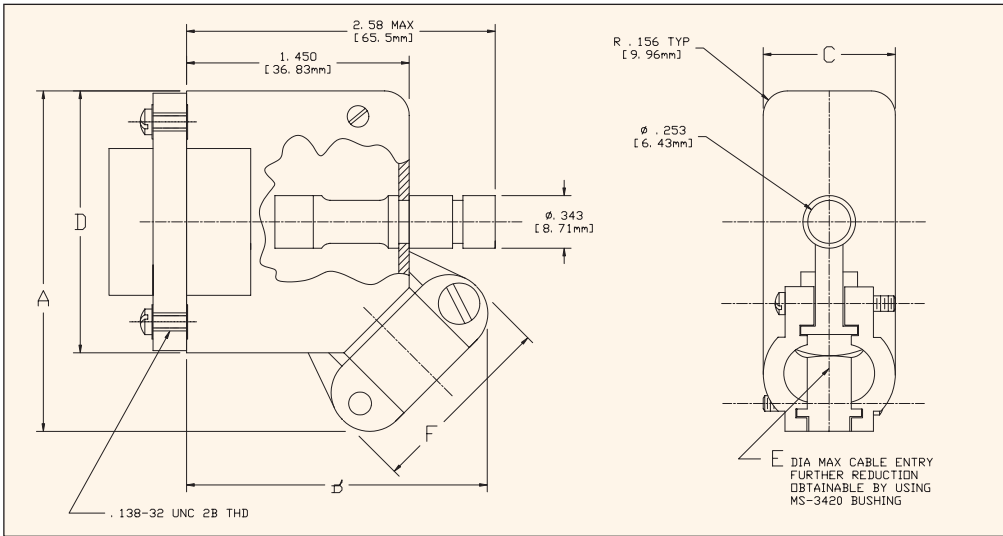
Ordering Options Key

*Insert "P" for Pin, "S" for Socket
 **Insert BN, BV, BW for 90° Boss
 Insert CX, CY, CZ for 85° Boss

No. of Contacts	Ordering Nomenclature	A		B		C		ØD		E		F	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
52	MRS0052*08**008	4.00	101.6	5.10	129.5	.50	12.7	1.00	25.4	.38	9.6	-	-
80	MRS0080*08**008	4.00	101.6	5.10	129.5	.50	12.7	1.00	25.4	.38	9.6	-	-
104	MRS0104*08**008	4.00	101.6	5.10	129.5	.50	12.7	1.00	25.4	.38	9.6	-	-
158	MRS0158*08**008	4.00	101.6	5.10	129.5	.50	12.7	1.00	25.4	.38	9.6	-	-
212	MRS0212*08**008	4.00	101.6	5.10	129.5	.50	12.7	1.00	25.4	.38	9.6	-	-
52	MRS0052*12**006	3.00	76.2	4.10	104.1	.37	9.4	.75	19.1	-	-	.08	2.03
80	MRS0080*12**006	3.00	76.2	4.10	104.1	.37	9.4	.75	19.1	-	-	.08	2.03
104	MRS0104*12**006	3.00	76.2	4.10	104.1	.37	9.4	.75	19.1	-	-	.08	2.03
158	MRS0158*12**006	3.00	76.2	4.10	104.1	.37	9.4	.75	19.1	-	-	.08	2.03
212	MRS0212*12**006	3.00	76.2	4.10	104.1	.37	9.4	.75	19.1	-	-	.08	2.03
52	MRS0052*12**008	4.00	101.6	5.10	129.5	.37	9.4	.75	19.1	-	-	.08	2.03
80	MRS0080*12**008	4.00	101.6	5.10	129.5	.37	9.4	.75	19.1	-	-	.08	2.03
104	MRS0104*12**008	4.00	101.6	5.10	129.5	.37	9.4	.75	19.1	-	-	.08	2.03
158	MRS0158*12**008	4.00	101.6	5.10	129.5	.37	9.4	.75	19.1	-	-	.08	2.03
212	MRS0212*12**008	4.00	101.6	5.10	129.5	.37	9.4	.75	19.1	-	-	.08	2.03
52	MRS0052*08**007	3.50	88.9	4.60	114.3	.50	12.7	1.00	25.4	.38	9.6	-	-
80	MRS0080*08**007	3.50	88.9	4.60	114.3	.50	12.7	1.00	25.4	.38	9.6	-	-
104	MRS0104*08**007	3.50	88.9	4.60	114.3	.50	12.7	1.00	25.4	.38	9.6	-	-
158	MRS0158*08**007	3.50	88.9	4.60	114.3	.50	12.7	1.00	25.4	.38	9.6	-	-
212	MRS0212*08**007	3.50	88.9	4.60	114.3	.50	12.7	1.00	25.4	.38	9.6	-	-

Backshells 45° Opening: 10, 20, 36 Contacts

For use with Extended Jackscrews



Materials:

- (a) Metal hood aluminum alloy A380 per Q-A591 or 6061-T6 per QQ-A225/8
- (b) Fillister head screws: CRES 300 series
- (c) Lockwasher: CRES 300 series

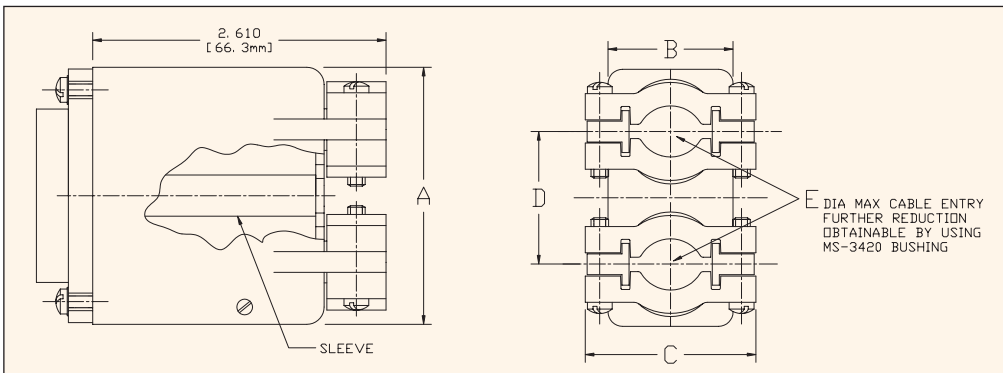
Finishes:

- (a) Metal hood & sleeve: Anodize Type II Class 2, per MIL-A-8625 (dyed black)
- (b) Screw & lockwasher: Passivated per QQ-P-35.

Ordering Nomenclature	No. of Contacts	A		B		C		D		E Max		F	
		in. ±.030	mm ±.76	in. ±.030	mm ±.76	in. ±.030	mm ±.76	in. ±.030	mm ±.76	in.	mm	in. ±.76	mm ±.030
MAC0010H005	10	2.19	55.6	1.98	50.3	.60	15.2	1.70	43.2	.442	11.23	1.23	31.2
MAC0020H005	20	2.19	55.6	1.98	50.3	.86	21.8	1.70	43.2	.608	15.44	1.23	31.2
MAC0036H005	36	2.63	66.8	1.92	48.8	.86	21.8	2.15	54.6	.736	18.69	1.33	33.8

Backshells Top Opening: 52-212 Contacts

For use with Extended Jackscrews



Materials:

- (a) Metal hood aluminum alloy A380 per QQ-A-591 or 6061-T6 per QQ-A225/8
- (b) Fillister head screws: CRES 300 series
- (c) Lockwasher: CRES 300 series
- (d) Sleeve

Finishes:

- (a) Metal hood & sleeve: anodize type II Class 2, per MIL-A-8625 (dyed black)
- (b) Screw & lockwasher: Passivated per QQ-P-35.

Ordering Nomenclature	No. of Contacts	A		B		C		D		E Max	
		in. ±.030	mm ±.76	in. ±.030	mm ±.76	in. ±.030	mm ±.76	in. ±.030	mm ±.76	in.	mm
MAC0052H003	52	2.30	58.4	1.12	28.4	1.53	38.9	1.189	30.20	.62	15.70
MAC0080H003	80	2.45	62.2	1.38	35.1	1.76	44.7	1.336	33.93	.75	19.05
MAC0104H003	104	2.90	73.7	1.39	35.3	1.77	44.9	1.585	40.26	1.00	25.40
MAC0158H003	158	2.90	73.7	1.82	46.2	2.19	55.6	1.585	40.26	1.44	36.60
MAC0212H003	212	2.90	73.7	2.42	61.5	2.80	71.1	1.585	40.26	2.04	51.80

Dimensions shown are for reference only. Unless otherwise specified, dimensions are in inches and [millimeters].

Backshells 90° Opening: 10-212 Contacts

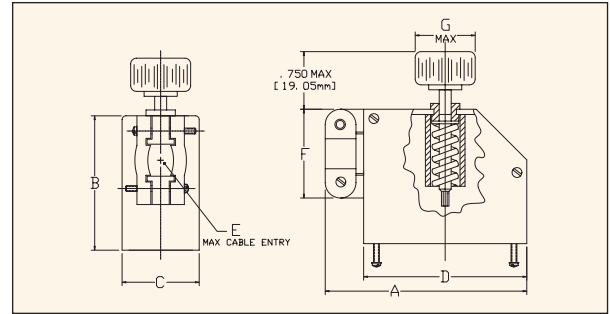
For use with Recessed Jackscrews

Materials:

Hood and Knob Aluminum alloy A380 per QQ-A-591 or 6061-T6 per QQ-A-225/8
 Screw CRES-300 Series
 Lockwasher CRES-300 Series

Finishes:

Hood and Knob Cad Plate
 Per QQ-P-416 CL1, Type II, Olive drab
 Screw & Lockwasher . Passivated per QQ-P-35



Shell Size	A		B		C		D		E		F		G		Catalog No. Pin Body	Catalog No. Socket body
	in. ±.062	mm ±1.57	in. ±.020	mm ±.51	in. ±.062	mm ±1.57	in. ±.062	mm ±1.57	in. max	mm max	in. ±.031	mm ±.79	in. max	mm max		
10	2.050	52.07	1.750	44.45	.570	14.48	1.675	42.55	.250	6.35	.812	20.62	.531	13.49	MAC0010PH900	MAC0010SH900
20	2.050	52.07	1.750	44.45	.830	21.08	1.675	42.55	.312	7.92	.875	22.23	.781	19.84	MAC0020PH900	MAC0020SH900
36	2.625	66.68	1.750	44.45	.830	21.08	2.125	53.98	.562	14.27	1.156	29.36	.781	19.84	MAC0036PH900	MAC0036SH900
52	2.775	70.49	1.750	44.45	1.090	27.69	2.275	57.79	.625	15.88	1.250	31.75	1.031	26.19	MAC0052H900	
80	2.920	74.17	2.000	50.80	1.350	34.29	2.420	61.47	.750	19.05	1.469	37.31	1.031	26.19	MAC0080H900	
104	3.500	88.90	2.250	57.15	1.350	34.29	2.875	73.03	.938	23.83	1.688	42.88	1.031	26.19	MAC0104H900	
158	3.500	88.90	2.250	57.15	1.860	47.24	2.875	73.03	.938	23.83	1.688	42.88	1.031	26.19	MAC0158H900	
212	3.500	88.90	2.750	69.85	2.390	60.71	2.875	73.03	1.250	31.75	2.031	51.59	1.031	26.19	MAC0212H900	

Backshells 45° Opening: 10-212 Contacts

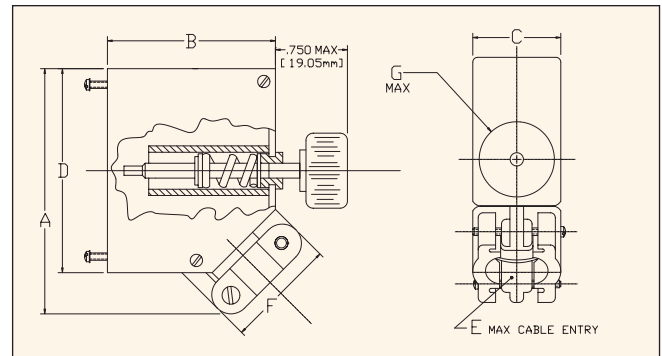
For use with Recessed Jackscrews

Materials:

Hood and Knob Aluminum alloy A380 per QQ-A-591 or 6061-T6 per QQ-A-225/8
 Screw CRES-300 Series
 Lockwasher CRES-300 Series

Finishes:

Hood and Knob Cad Plate
 Per QQ-P-416 CL1, Type II, Olive drab
 Screw & Lockwasher . . . Passivated per QQ-P-35



Shell Size	A		B		C		D		E		F		G		Catalog No. Pin Body	Catalog No. Socket body	
	in. max	mm max	in. ±.020	mm ±.51	in. ±.062	mm ±1.57	in. ±.062	mm ±1.57	in. max	mm max	in. ±.031	mm ±.79	±.5°	in. max			mm max
10	2.125	53.98	1.750	44.45	.570	14.48	1.675	42.55	.250	6.35	.812	20.62	59°	.531	13.49	MAC0010PH450	MAC0010SH450
20	2.156	54.76	1.750	44.45	.830	21.08	1.675	42.55	.312	7.92	.875	22.23	63°	.781	19.84	MAC0020PH450	MAC0020SH450
36	2.700	68.58	1.750	44.45	.830	21.08	2.125	53.98	.562	14.27	1.156	29.36	59°	.781	19.84	MAC0036PH450	MAC0036SH450
52	2.812	71.42	1.750	44.45	1.090	27.69	2.275	57.79	.625	15.88	1.250	31.75	52°	1.031	26.19	MAC0052H450	
80	3.000	76.20	2.000	50.80	1.350	34.29	2.420	61.47	.750	19.05	1.469	37.31	54°	1.031	26.19	MAC0080H450	
104	3.500	88.90	2.250	57.15	1.350	34.29	2.875	73.03	.938	23.83	1.688	42.88	49°	1.031	26.19	MAC0104H450	
158	3.500	88.90	2.250	57.15	1.860	47.24	2.875	73.03	.938	23.83	1.688	42.88	49°	1.031	26.19	MAC0158H450	
212	3.620	91.95	2.750	69.85	2.390	60.71	2.875	73.03	1.250	31.75	2.031	51.59	58°	1.031	26.19	MAC0212H450	

Dimensions shown are for reference only. Unless otherwise specified, dimensions are in inches and [millimeters].

Pin Protectors

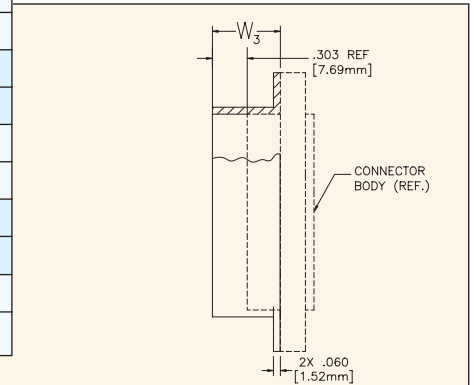
Ordering Nomenclature	L		L ₁		L ₂		W ₁		W ₂		W ₃	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
MAC0010S004	1.67	42.4	1.300	33.02	.97	24.6	.48	12.2	-	-	.58	14.7
MAC0010S001	1.67	42.4	1.300	33.02	.97	24.6	.48	12.2	-	-	.58	14.7
MAC0020S004	1.67	42.4	1.300	33.02	.97	24.6	.74	18.8	-	-	.58	14.7
MAC0020S001	1.67	42.4	1.300	33.02	.97	24.6	.74	18.8	-	-	.58	14.7
MAC0036S004	2.12	53.8	1.750	44.45	1.42	36.1	.74	18.8	-	-	.58	14.7
MAC0036S001	2.12	53.8	1.750	44.45	1.42	36.1	.74	18.8	-	-	.58	14.7
MAC0052S004	2.27	57.7	1.900	48.26	1.57	39.9	1.00	25.4	.550	13.97	.58	14.7
MAC0052S001	2.27	57.7	1.900	48.26	1.57	39.9	1.00	25.4	.550	13.97	.58	14.7
MAC0080S004	2.42	61.5	2.045	51.94	1.71	43.4	1.26	32.0	.812	20.62	.58	14.7
MAC0080S001	2.42	61.5	2.045	51.94	1.71	43.4	1.26	32.0	.812	20.62	.58	14.7
MAC0104S004	2.87	72.9	2.500	63.50	2.17	55.1	1.26	32.0	.812	20.62	.58	14.7
MAC0104S001	2.87	72.9	2.500	63.50	2.17	55.1	1.26	32.0	.812	20.62	.58	14.7
MAC0158S004	2.87	72.9	2.500	63.50	2.17	55.1	1.77	45.0	1.250	31.75	.58	14.7
MAC0158S001	2.87	72.9	2.500	63.50	2.17	55.1	1.77	45.0	1.250	31.75	.58	14.7
MAC0212S004	2.87	72.9	2.500	63.50	2.17	55.1	2.30	58.4	1.850	46.99	.58	14.7
MAC0212S001	2.87	72.9	2.500	63.50	2.17	55.1	2.30	58.4	1.850	46.99	.58	14.7

Materials:

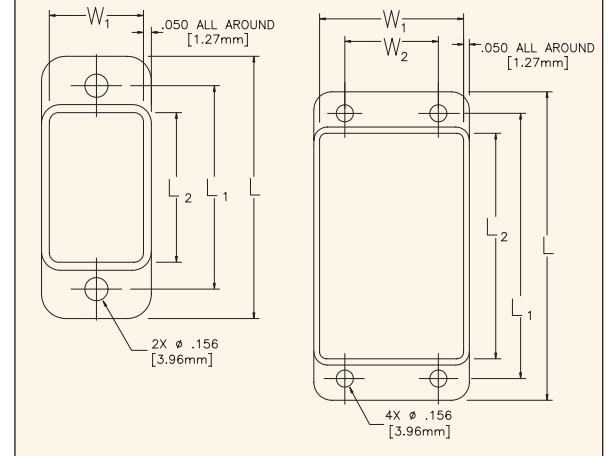
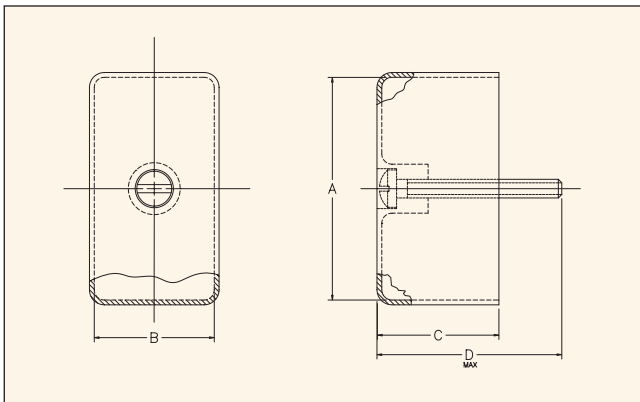
- (a) Pin Protector: Aluminum alloy: A380 per QQ-A-591 or 6061-T6 per QQ-A-225/8

Finishes:

- (a) Pin Protector S-001 Anodize per MIL-A-8625, Type II, Class 2, Dyed Black, (S001)
 (b) Electroless Nickel per MIL-C-26074, Class 1 (S004)



Dust Covers



Ordering Nomenclature	No. of Contacts	A		B		C		D	
		in.	mm	in.	mm	in.	mm	in.	mm
MAC0010C000	10	.97	24.6	.48	12.2	1.00	25.4	1.40	35.6
MAC0020C000	20	.97	24.6	.74	18.8	1.00	25.4	1.40	35.6
MAC0036C000	36	1.42	36.1	.74	18.8	1.00	25.4	1.40	35.6
MAC0052C000	52	1.57	39.9	1.00	25.4	1.27	32.3	1.75	44.5
MAC0080C000	80	1.71	43.4	1.26	32.0	1.27	32.3	1.75	44.5
MAC0104C000	104	2.17	55.1	1.26	32.0	1.27	32.3	1.75	44.5
MAC0158C000	158	2.17	55.1	1.77	45.0	1.27	32.3	1.75	44.5
MAC0212C000	212	2.17	55.1	2.30	58.4	1.27	32.3	1.75	44.5

Materials:

- (a) Dust Cover: High Density Polyethylene (commercial grade, color green)
 (b) Fillister Head Screw: Stainless steel 300 Series

Finishes:

- (a) Fillister Head Screw: Passivated per QQ-P-35

Dimensions shown are for reference only. Unless otherwise specified, dimensions are in inches and [millimeters].