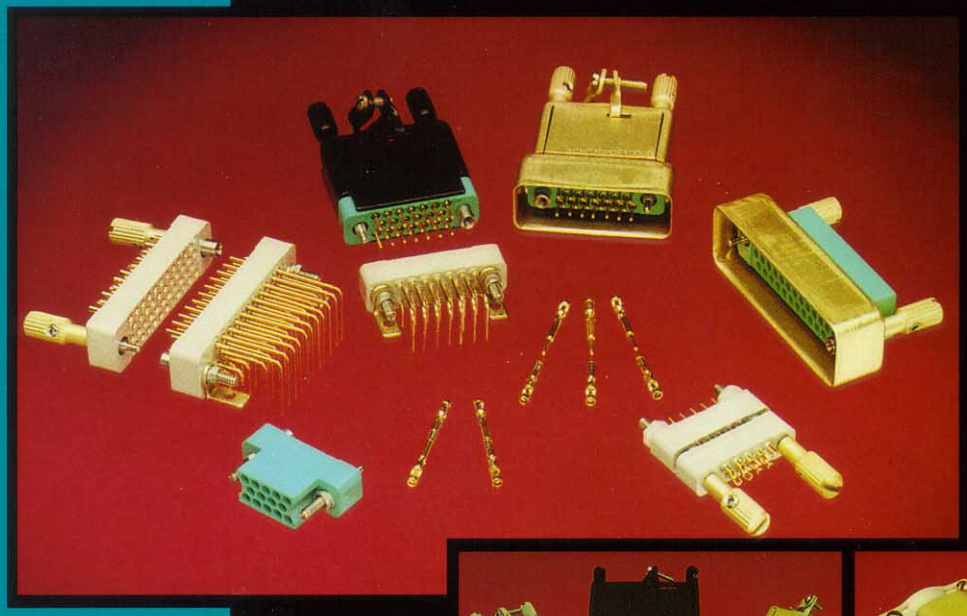
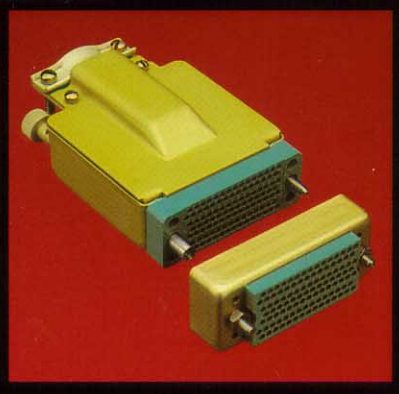
POSITRONIC INDUSTRIES

Catalog of High Contact Density Rectangular Connectors

For Avionics, Instrumentation and Control Systems Applications

Qualified To:
MIL-DTL-28748/13 & MIL-DTL-28748/14
MIL-DTL-28748/7 & MIL-DTL-28748/8
MIL-C-39029/34-440 & MIL-C-39029/35-441





Unless otherwise specified, dimensional tolerances are:

1) **±0.001 inches (0.03 mm) for male contact mating diameters.**
2) **±0.003 inches (0.08 mm) for contact termination diameters.**
3) **±0.005 inches (0.13 mm) for all other diameters.**
4) **±0.015 inches (0.38 mm) for all other dimensions.**

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Size 22 contacts, 5 ampere nominal rated, qualified to MIL-C-39029. Terminations are crimp, 22 AWG ($0.3mm^2$) through 28 AWG ($0.08mm^2$) solder cup and printed board terminations.

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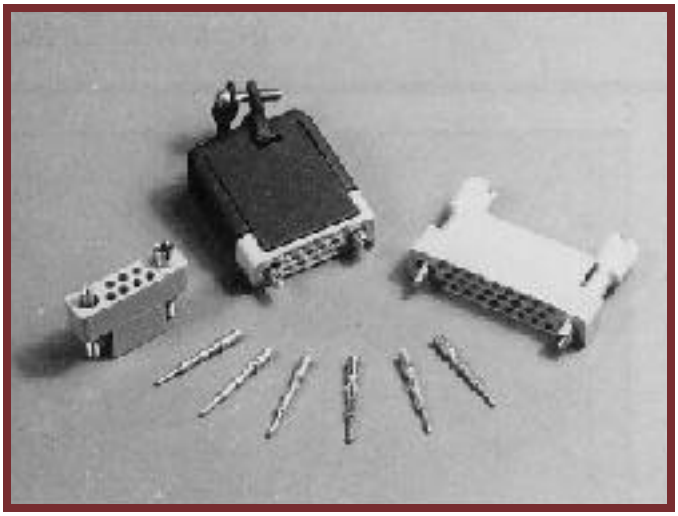

SGM SERIES CONNECTORS.....25 - 29

High density, rectangular connectors with size 22 fixed contacts, 5 ampere nominal rated, solder cup, wrap post and printed board terminations. Thirteen connector variants, four through 75 poles. Qualified to MIL-DTL-28748.

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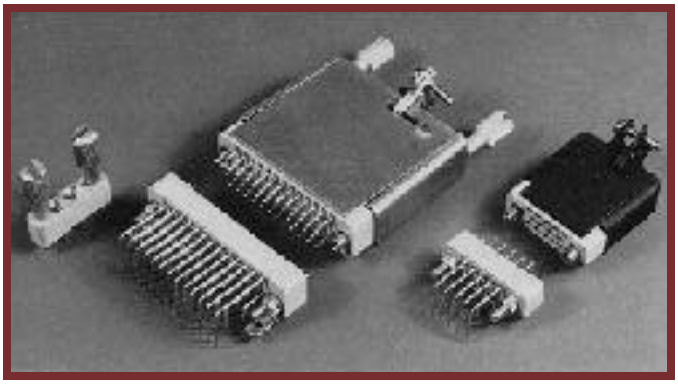

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High density, rectangular printed board connectors with size 22, right angle solder cup contacts. Twelve connector variants, four through 50 poles.

SMPL SERIES CONNECTOR AND CONTACT ORDERING INFORMATION.....34

SMPL SERIES (HIGH DENSITY) ACCESSORIES.....15 - 24

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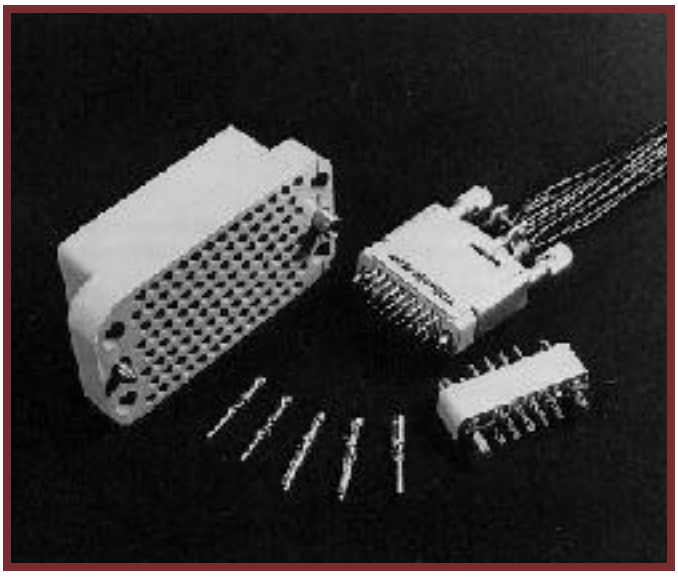


SGMC Series

HIGH DENSITY RECTANGULAR CONNECTORS with REMOVABLE CONTACTS

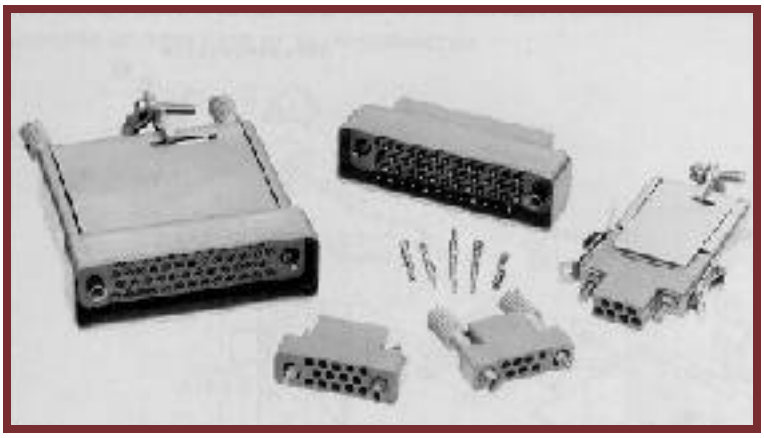
Size 22 Contacts

Connectors Qualified to DESC Drawing No. 86040 & 86078

Connectors Qualified to MIL-DTL-28748

Contacts Qualified to MIL-C-39029

Telecommunication
U.L. File #E140980



SGMC Series connectors are high reliability, high density, removable contact rectangular connectors qualified to DESC drawing numbers 86040 and 86078 and to MIL-DTL-28748 specifications. SGMC Series connectors utilize crimp contacts to MIL-C-39029, and are intermateable with Positronic SGM and SMPL series connectors. Removable contacts with solder cup and printed board terminations are also available.

Eleven connector variants, four through 104 poles, are offered. Contact spacing is 0.094 inch (2.39mm) between centers, and contact diameters are 0.030 inch (0.76mm), rated to five amperes per contact.

A complete array of mounting, locking, polarizing and shrouding accessories is available for the SGMC Series. For details, see the High Density Rectangular Connector Accessories section.

SGMC Series connectors are ideal for low weight, high density applications. The high reliability of "closed entry" female contacts insures numerous couplings of the connector without substantial degradation of contact resistance. A "Robi-D Open Entry" design female contact is also offered for non-military and less rigorous industrial applications. SGMC Series connectors are ideal for use in the aerospace, avionics, telecommunications, instrumentation, medical and robotics industries.

SGMC SERIES TECHNICAL CHARACTERISTICS

MILITARY SPECIFICATIONS:

Qualified to MIL-DTL-28748/13 and MIL-DTL-28748/14. Contacts qualified to MIL-C-39029/34 and MIL-C-39029/35.

INTERNATIONAL STANDARDS:

IEC 807-1

MATERIALS AND FINISHES:

Insulator:	Glass filled DAP per ASTM-D-5948 type SDG-F. Green color is standard, black or grey available.
Removable Contacts:	Copper alloy, 0.000015 inch (0.38 microns) gold over nickel.
Hoods, Cable Adapters:	Aluminum with yellow or black anodize.
Shells:	Aluminum with yellow anodize or black anodize.
Jackscrew System:	Passivated stainless steel.
Polarizing Guides:	Copper alloy with nickel plate or passivated stainless steel.
Vibration Locks:	Copper alloy with nickel plate.

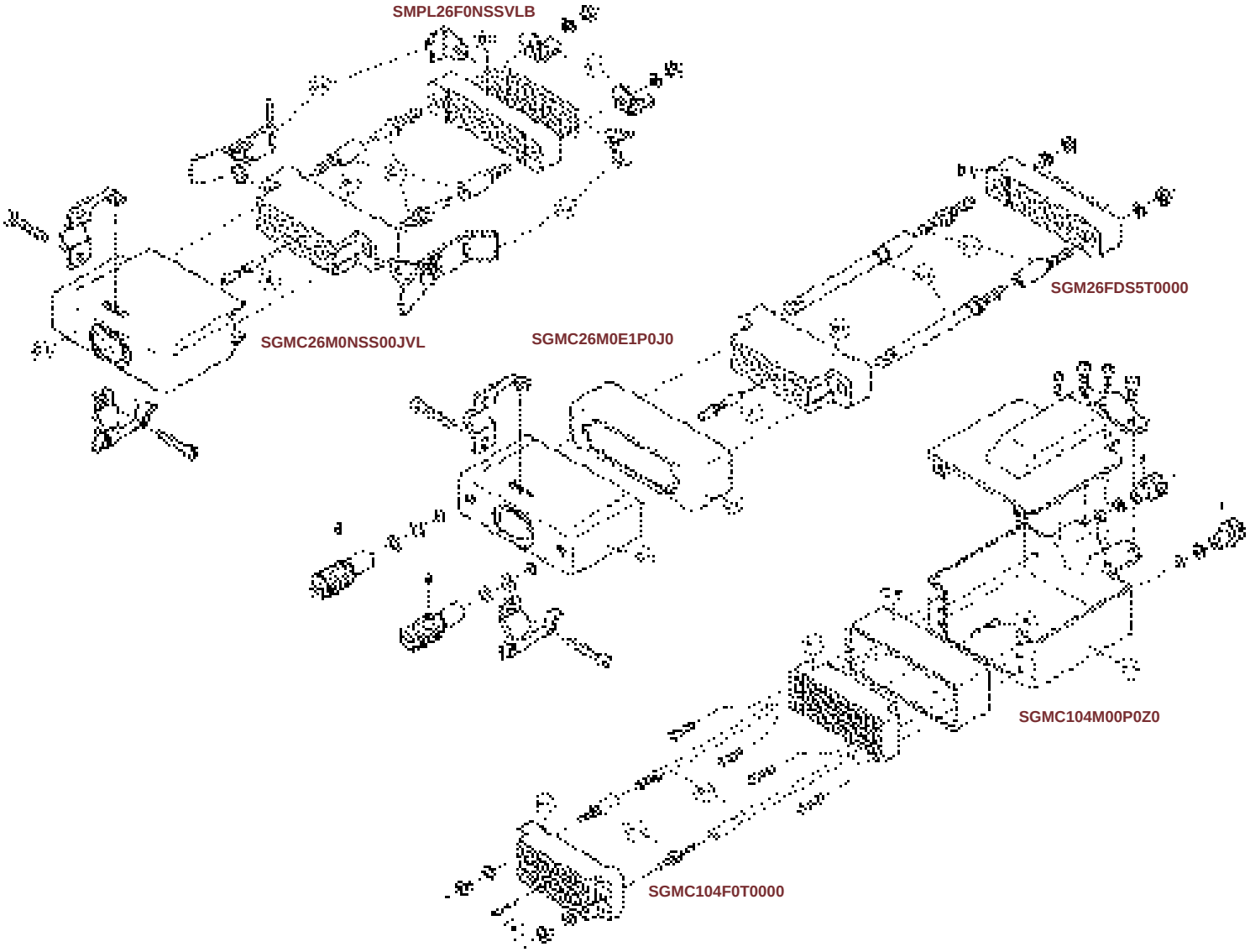
MECHANICAL CHARACTERISTICS:

Removable Contacts:	Insert contact to rear face of insulator, release from front face of insulator. Size 22 (5 amp.) contact. Female contact has "closed entry" design for highest reliability, or "Robi-D Open Entry" design.
Contact Retention in Insulator:	6 lbs. (26.5N) minimum.
Contact Termination:	Crimp all wire sizes from 22 AWG (0.3 mm^2) through 28 AWG (0.08 mm^2). Solder cup style contact for 22 AWG (0.3 mm^2) wire, and printed board terminations.
	Press-Fit.
Locking Systems:	Friction, vibration locks and jackscrews.
Polarization:	Polarized guides, polarized shells and jackscrew system.
Mechanical Operations:	"Closed Entry": 1000 operations
	"Robi-D Open Entry": 500 operations per IEC 512-5
Jackscrews:	Standard threads, 2-56 UNC on all sizes, except 75 and 104 connector variants, which use 6-32 UNC. Metric threads, M2X0.4 and M3X0.5 available.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating:	5 amperes nominal.
Initial Contact Resistance:	0.012 ohms
Flash over Voltage:	2200 V.AC (rms)
Test Voltage:	1000 V.AC (rms)
Insulation Resistance (minimum):	5 G ohms
Clearance and Creepage Distance (minimum):	0.060 inch (1.52 mm)
Working Temperature:	-55°C to 135°C
Working Voltage:	250 V.AC (rms)

EXPLODED VIEWS OF TYPICAL MATED CONNECTOR ASSEMBLIES



CONNECTOR COMPONENT DESCRIPTION AND TERMINOLOGY

A — Male and female signal contacts, size 22. Terminations are crimp, solder cup and printed board straight solder.

B1 — Unloaded connector insulators, male and female. Insulator retention system retains all contact termination types. Insulator may be used as a fixed or free connector.

B2 — Unloaded connector insulators, male and female. Insulators of SGMC, SGM and SMPL series may be preloaded per customer requirements with contacts having terminations of right angle, or straight solder printed board mount and wrap post. Unloaded insulator contact positions remain unloaded and reserved for future use. Connectors are fixed panel and printed board mounted.

C1 — Polarizing guides, male and female, ensure correct alignment and coupling of male and female connectors. They may also be used for keying when used in corner positions of connector variants 75 and 104 poles.

C2 — Fixed jackscrews are stationary threaded members of the jackscrew system. Threaded pilots and sockets of the jackscrew system also provide connector polarization to insure correct connector coupling.

C3 — Long turnable jackscrews, the rotating threaded members of the jackscrew system, are used with a free connector having a hood for a cable support. They may be used on all connector variants of the SGMC and SGM series connectors equipped with hoods.

C4 — Vibration locking system consists of lock tabs on fixed connectors and locking levers on free cable connectors. May be used on all connector variants of SGM, SGMC and SMPLseries.

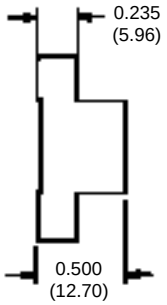
C5 — Hoods (cable adapters) are used on the free connectors to provide cable support and contact protection. May also mechanically support the turnable members of the jackscrew system.

C6 — Shells (shrouds), both male and female, are used to protect male and female contacts from damage. Also used to provide additional polarization combinations.

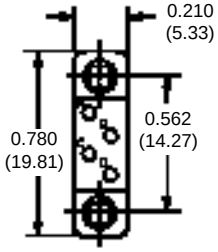
C7 — Mounting angle brackets provide a means of mechanically affixing the fixed connector to the printed board.

SGMC SERIES INSULATOR DIMENSIONS

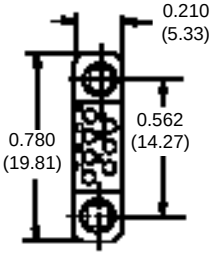
MATING FACE OF FEMALE CONNECTOR OR REAR FACE OF MALE CONNECTOR



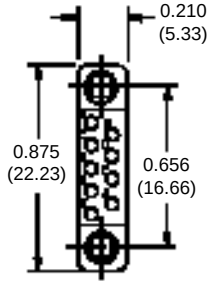
MALE AND FEMALE PROFILE VIEW



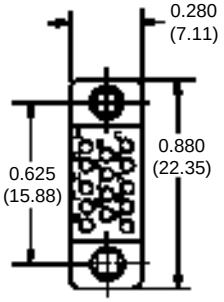
SGMC 4



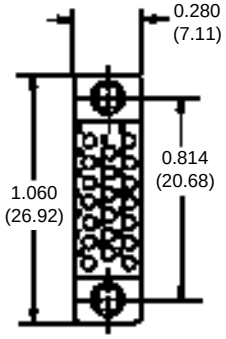
SGMC 7



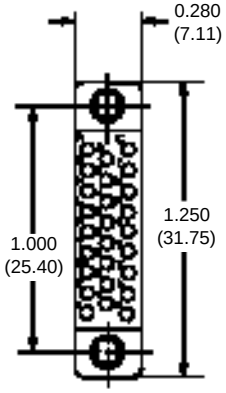
SGMC 9



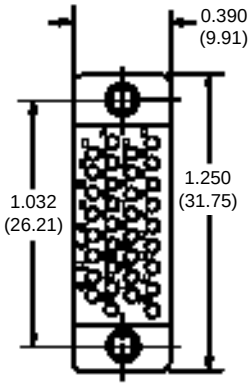
SGMC 14



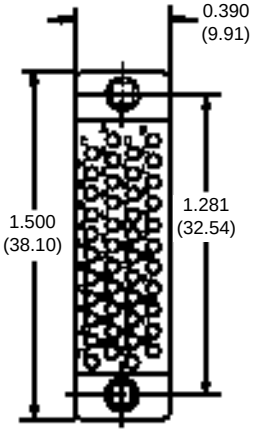
SGMC 20



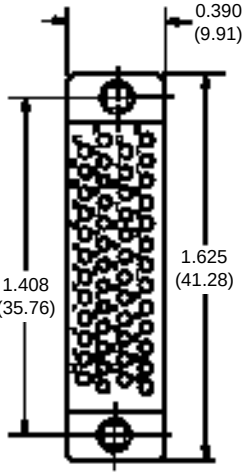
SGMC 26



SGMC 34



SGMC 44



SGMC 50

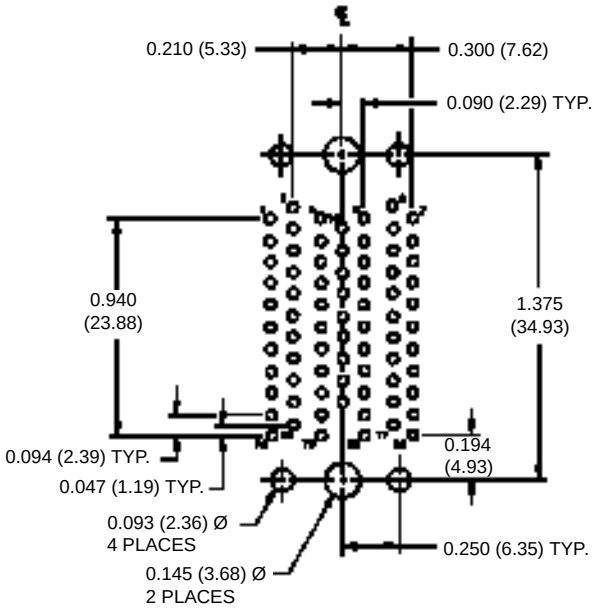
SEE SGM SERIES CONTACT HOLE POSITION PAGE 28 FOR SGMC SERIES CONTACT POSITIONS

MATERIAL: GLASS FILLED DIALLYLPHTHALATE PER ASTM-D-5948 TYPE SDG-F

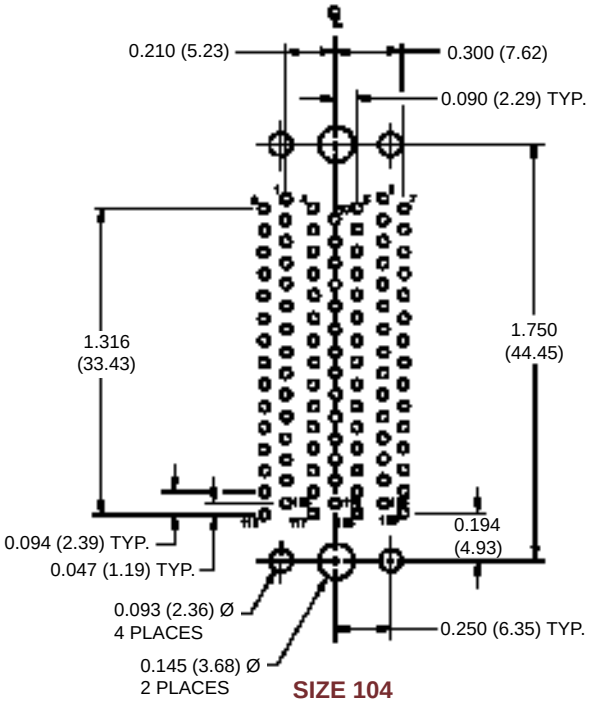
**DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.**

SGMC SERIES 75 AND 104 CONTACT HOLE POSITION DIMENSIONS AND PRINTED BOARD HOLE PATTERN

MATING FACE OF FEMALE CONNECTOR OR REAR FACE OF MALE CONNECTOR



SIZE 75

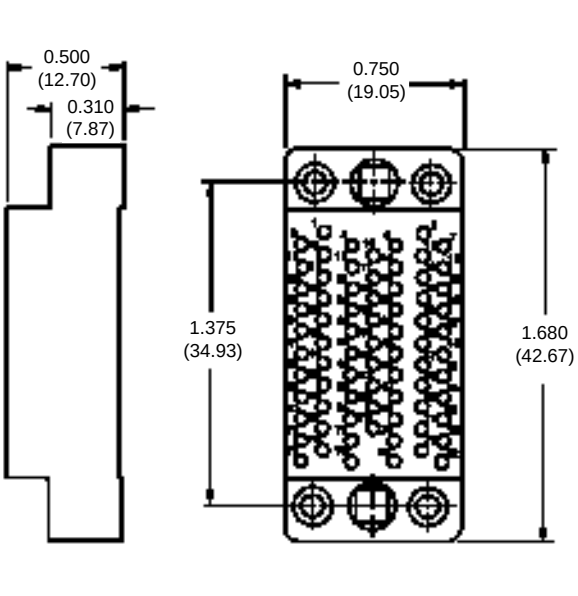


SIZE 104

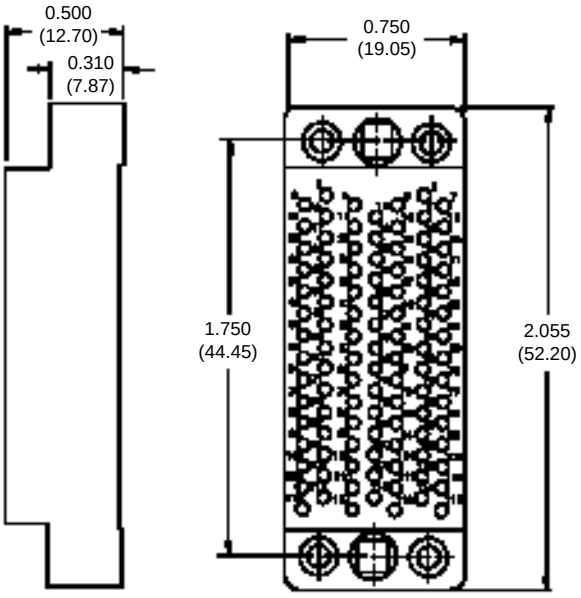
SUGGEST 0.040 (1.01) Ø HOLES IN PRINTED BOARD FOR CONTACT TERMINATIONS

SGMC SERIES 75 AND 104 INSULATOR DIMENSIONS

MATING FACE OF FEMALE CONNECTOR OR REAR FACE OF MALE CONNECTOR



SGMC 75



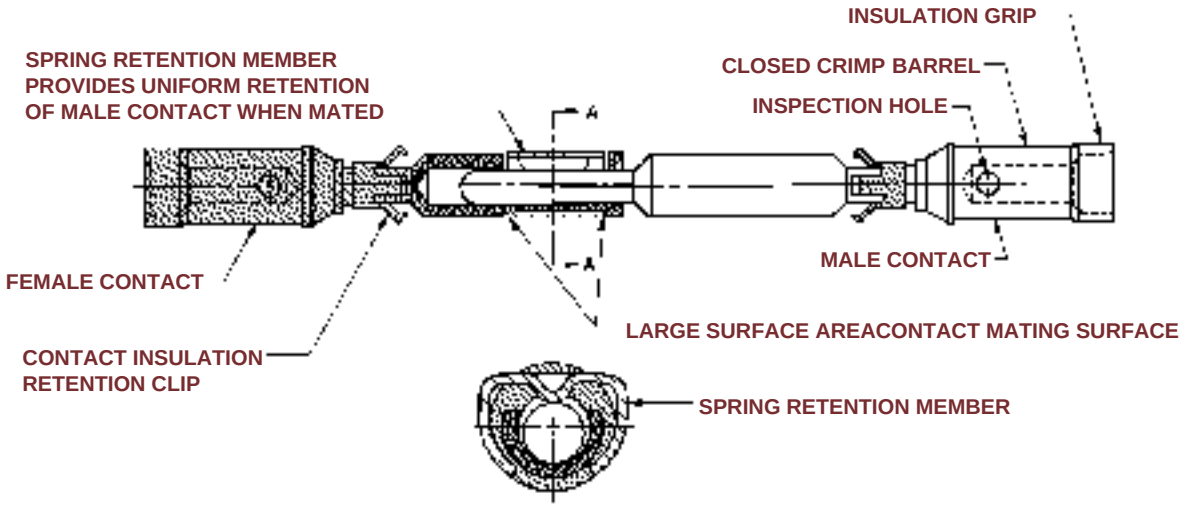
SGMC 104

MATERIAL: GLASS FILLED DIALLYLPHTHALATE PER ASTM-D-5948 TYPE SDG-F

DIMENSIONS ARE IN INCHES (MILLIMETERS). ALLDIMENSIONS ARE SUBJECT TO CHANGE.

SGMC SERIES CONTACTS
"LARGE SURFACE AREA CONTACT MATING SYSTEM"
HIGH RELIABILITY "CLOSED ENTRY" DESIGN

PRECISION MACHINED, SOLID COPPER ALLOY



SECTION A-A
ENLARGED

All contacts of the SGMC series connector family utilize the "Large Surface Area (L.S.A.) Contact Mating System." The "L.S.A. Contact Mating System" insures the lowest level of contact resistance during mechanical endurance tests of 1000 coupling cycles or more. Contact insertion/withdrawal forces remain substantially the same during the life of the connector.

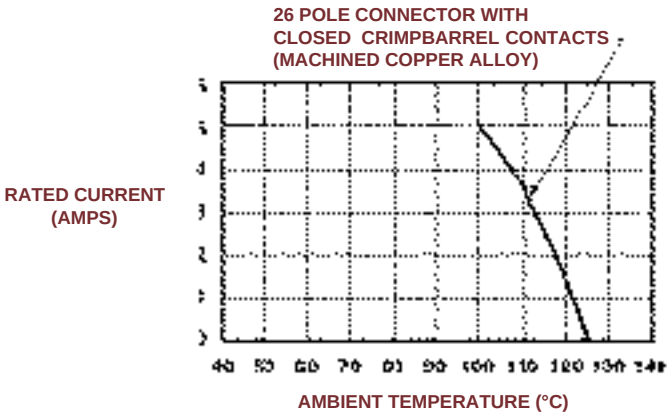
The SGMC Series uses "Closed Entry" and "Open Entry" design female contacts. The "Closed Entry" design prevents probe damage to the female contacts, and will not allow the female contact to accept misaligned or bent male contacts.

All SGMC series contacts are precision machined from solid, copper alloy barstock. They are durable, smooth in construction, and have greater amperage capacities than hollow, sheet metal style contacts.

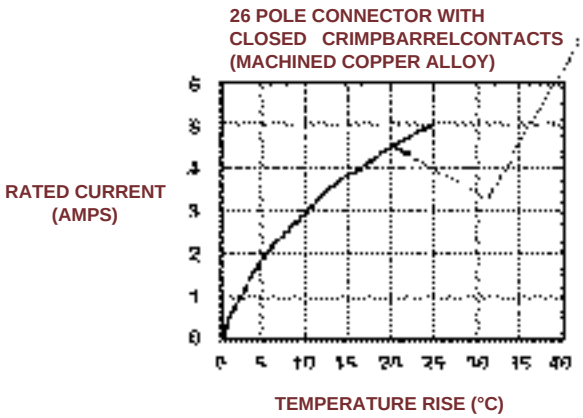
The precision machined, removable contact is retained in the connector insulator by a durable retention system. After ten removal cycles from its insulator, the contact will withstand axial forces in excess of 6 lbs. (26.5N).

CURRENT-TEMPERATURE DERATING CURVE

(TESTED PER IEC PUBLICATION 512-3, TEST 5b)



TEMPERATURE RISE CURVE

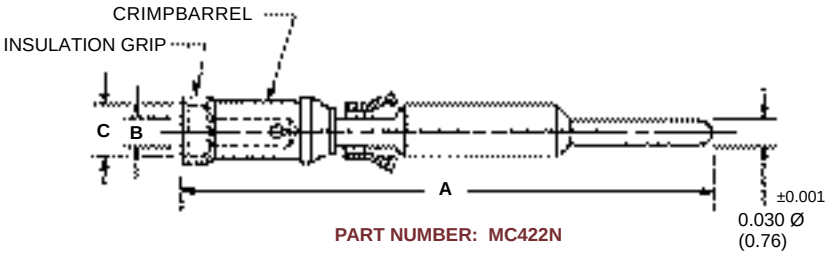


CURVE DEVELOPED USING SIZE 22 CONTACT WITH 22 AWG (0.3 mm²) SIZE WIRE

SGMC SERIES CRIMP CONTACTS

CLOSED CRIMP BARREL WITH INSULATION GRIP (SUPPORT)
PRECISION MACHINED, SOLID COPPER ALLOY

MALE CONTACT



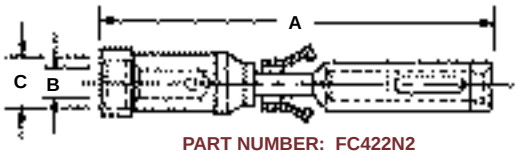
PART NUMBER: MC422N

CONTACTS ARE NOT SUPPLIED WITH CONNECTOR AND MUST BE ORDERED SEPARATELY

MATERIAL: COPPER ALLOY

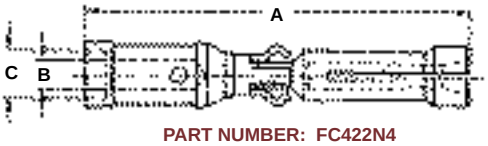
FINISH: 0.000015 (0.38 MICRONS) GOLD OVER NICKEL

FEMALE CONTACT
("CLOSED ENTRY" DESIGN)



PART NUMBER: FC422N2

FEMALE CONTACT
("ROBI-D OPEN ENTRY" DESIGN)

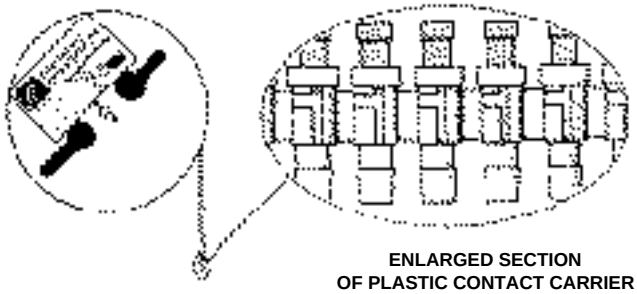


PART NUMBER: FC422N4

CONTACT DESIGNATION	PART NUMBER	WIRE SIZE AWG (mm^2)	A	B	C
MALE	MC422N	22 - 28 (0.3) - (0.08)	0.615 (15.62)	0.035 (0.89)	0.056 (1.42)
FEMALE	FC422N2	22 - 28 (0.3) - (0.08)	0.450 (11.43)	0.035 (0.89)	0.056 (1.42)
FEMALE	FC422N4	22 - 26 (0.3) - (0.12)	0.450 (11.43)	0.035 (0.89)	0.056 (1.42)

DIMENSIONS ARE IN INCHES (MILLIMETERS). ALLDIMENSIONS ARE SUBJECT TO CHANGE.

REELS FOR FEEDING AUTO-CRIMPING TOOLS



ENLARGED SECTION OF PLASTIC CONTACT CARRIER

REELED CONTACTS

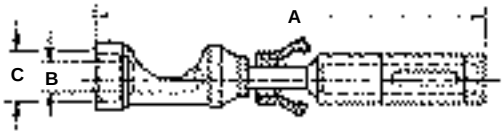
Contacts may be supplied on plastic carriers, packaged on reels of 2,000 contacts for use with bench mounted automatic crimp tool part number 9550-1. The same type carrier is used for both male and female contacts of the same size and type, and requires no change in crimping tool.

All male and female crimp style contacts can be ordered in reels by adding the letter "R" after the contact part number, such as MC422NR for a male contact and FC422N2R or FC422N4R for a female contact. Wire sizes 22 AWG (0.3mm^2) to 28 AWG (0.08mm^2) can be accommodated by the crimping.

SGMC SERIES SOLDER CUP CONTACTS

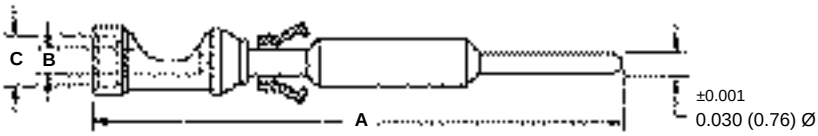
PRECISION MACHINED, SOLID COPPER ALLOY

FEMALE CONTACT
("CLOSED ENTRY" DESIGN)



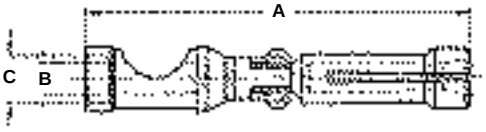
PART NUMBER: FS422N2

MALE CONTACT



PART NUMBER: MS422N

FEMALE CONTACT
("ROBI-D OPEN ENTRY" DESIGN)



PART NUMBER: FS422N4

CONTACTS ARE NOT SUPPLIED WITH CONNECTOR AND MUST BE ORDERED SEPARATELY

MATERIAL: COPPER ALLOY

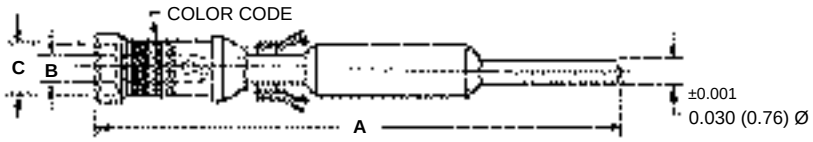
FINISH: 0.000015 (0.38 MICRONS) GOLD OVER NICKEL

CONTACT DESIGNATION	PART NUMBER	WIRE SIZE MAX.	A	B	C
MALE	MS422N	22 AWG (0.3 mm²)	0.615 (15.62)	0.035 (0.89)	0.056 (1.42)
FEMALE	FS422N2	22 AWG (0.3 mm²)	0.450 (11.43)	0.035 (0.89)	0.056 (1.42)
FEMALE	FS422N4	22 AWG (0.3 mm²)	0.450 (11.43)	0.035 (0.89)	0.056 (1.42)

MILITARY CRIMP CONTACTS

(QUALIFIED TO MIL-C-39029)

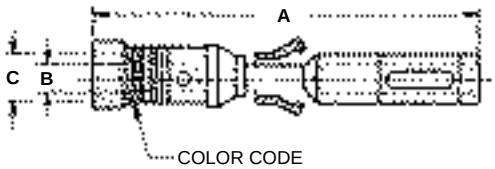
MALE CONTACT



MATERIAL: COPPER ALLOY

FINISH: 0.000050 (1.27 MICRONS) GOLD OVER COPPER

FEMALE CONTACT



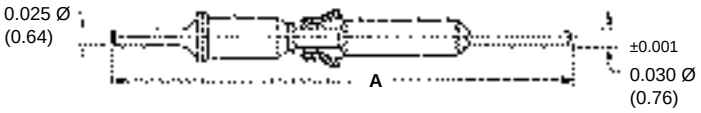
CONTACT DESIGNATION	PART NUMBER	A	B	C	COLOR CODE
MALE	M39029/34-440	0.615 (15.62)	0.035 (0.89)	0.056 (1.42)	YELLOW/YELLOW/BLACK
FEMALE	M39029/35-441	0.450 (11.43)	0.035 (0.89)	0.056 (1.42)	YELLOW/YELLOW/BROWN

DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.

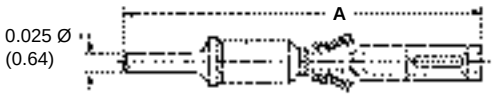
SGMC SERIES STRAIGHT SOLDER CONTACTS

PRECISION MACHINED, SOLID COPPER ALLOY

MALE CONTACT



FEMALE CONTACT



CONTACT DESIGNATION	PART NUMBER	A	B
MALE	MDS425N	0.78 (19.8)	0.125 (3.18)
FEMALE	FDS425N2	0.61 (15.5)	0.125 (3.18)
MALE	MDS456N	0.81 (20.6)	0.156 (3.96)
FEMALE	FDS456N2	0.64 (16.3)	0.156 (3.96)
MALE	MDS487N	0.84 (21.3)	0.187 (4.75)
FEMALE	FDS487N2	0.67 (17.0)	0.187 (4.75)

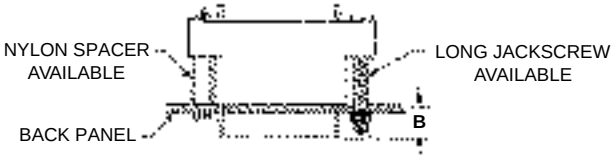
FEMALE PRINTED BOARD MOUNTED CONNECTOR

MATERIAL: COPPER ALLOY

FINISH: 0.000015 (0.38 MICRONS) GOLD OVER NICKEL

SEE SGM SERIES PAGE 27 FOR CONTACT HOLE POSITIONS

MALE PRINTED BOARD MOUNTED CONNECTOR



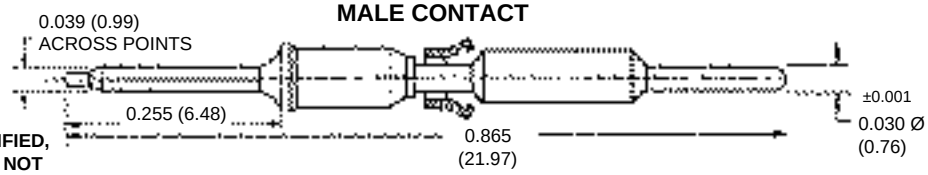
CONTACTS ARE NOT SUPPLIED WITH CONNECTORS AND MUST BE ORDERED SEPARATELY

CONTACT TECHNICALSALES FOR PART NUMBERS FOR THE LONG JACKSCREW OR NYLON SPACER

SGMC SERIES PRESS-FIT CONTACTS

PRECISION MACHINED, SOLID COPPER ALLOY

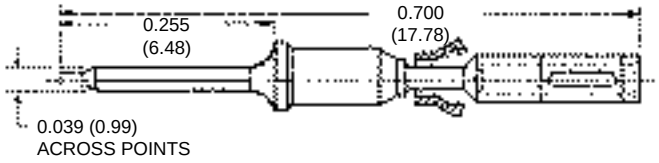
MALE CONTACT



UNLESS OTHERWISE SPECIFIED, PRESS-FIT CONTACTS ARE NOT SUPPLIED WITH CONNECTORS AND MUST BE ORDERED SEPARATE-LY. CONTACTS MAY BE INSTALLED IN CONNECTOR TO CUSTOM ORDER.

CONSULT TECHNICALSALES FOR AVAILABILITYOF COMPLIANT PIN TERMINATION CONTACTS. ADDITIONALCONTACT EXTENSION LENGTHS AVAILABLE.

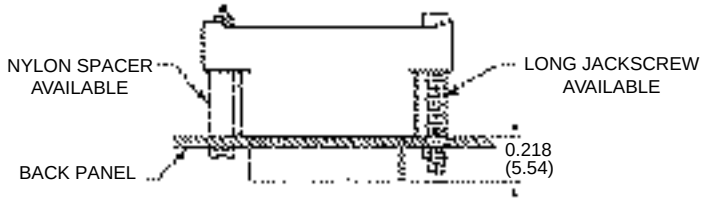
FEMALE CONTACT



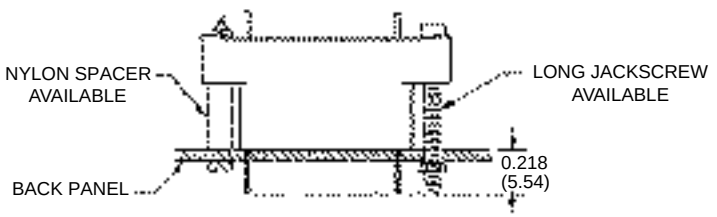
MATERIAL: COPPER ALLOY

FINISH: 0.000015 (0.38 MICRONS) GOLD OVER NICKEL

FEMALE PRINTED BOARD MOUNTED CONNECTOR



MALE PRINTED BOARD MOUNTED CONNECTOR



DIMENSIONS ARE IN INCHES (MILLIMETERS). ALLDIMENSIONS ARE SUBJECT TO CHANGE.

SUGGEST 0.0394 (1.000) Ø HOLE, PLATED TO 0.035 ±0.002(0.90) Ø HOLE FOR PRESS-FIT CONTACT TERMINATION IN PRINTED CIRCUIT BOARD

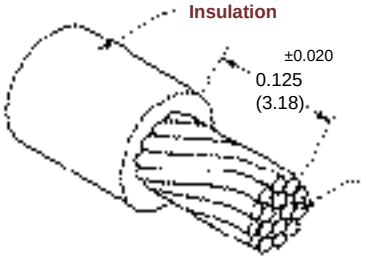
SEE SGM SERIES PAGE 27 FOR CONTACT HOLE POSITIONS

CRIMPING INFORMATION FOR SGMC SERIES CRIMP CONTACTS

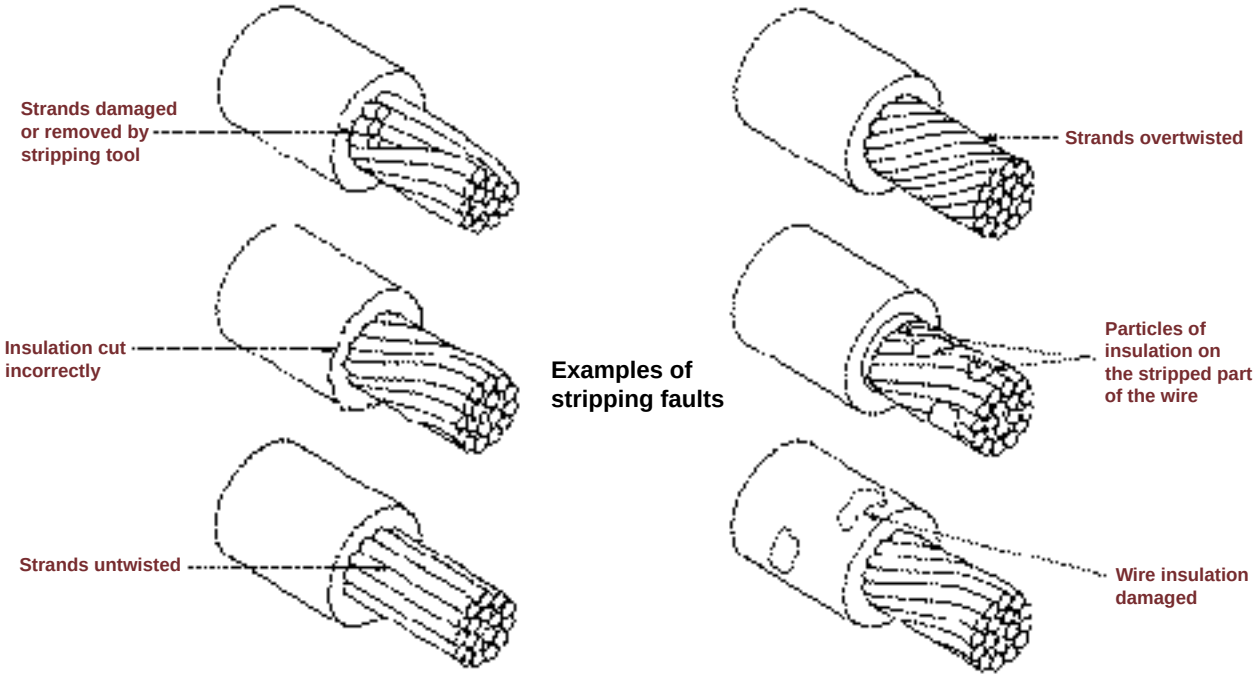
USE INDICATED POSITRONIC TOOLS FOR BEST RESULTS

Step 1: Strip wire to indicated length

Take care not to:
- -Damage or remove strands
- -Untwist or overtwist strands
- -Leave insulation particles on strands
- -Damage insulation



Correctly stripped wire



Examples of stripping faults

Step 2: Crimp wire to contact

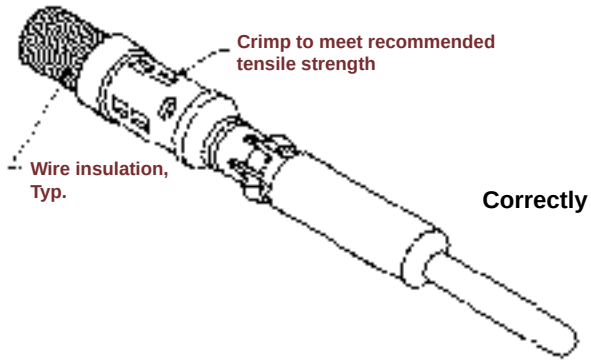
For hand crimp tool:
- -Place contact into crimping tool
- -Insert wire into contact
- -Center contact by slowly closing crimping tool until crimp indenters make contact with crimp barrel
- -Complete the cycle of the crimping tool in one smooth motion
- -Remove crimped contact

For automatic feed pneumatic crimp tool:
- -Insert wire into the contact, positioned in the crimp tool by the plastic carrier
- -Depress the activating device of the crimping tool to start crimping cycle
- -Remove crimped contact

CRIMPING INFORMATION FOR SGMC SERIES CRIMP CONTACTS

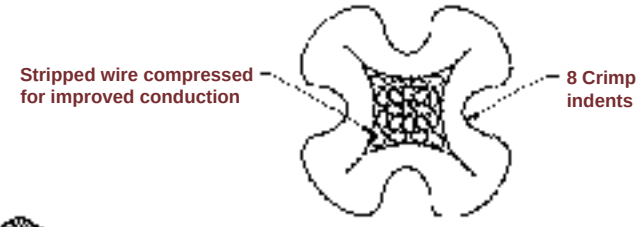
Step 3: Inspect crimp

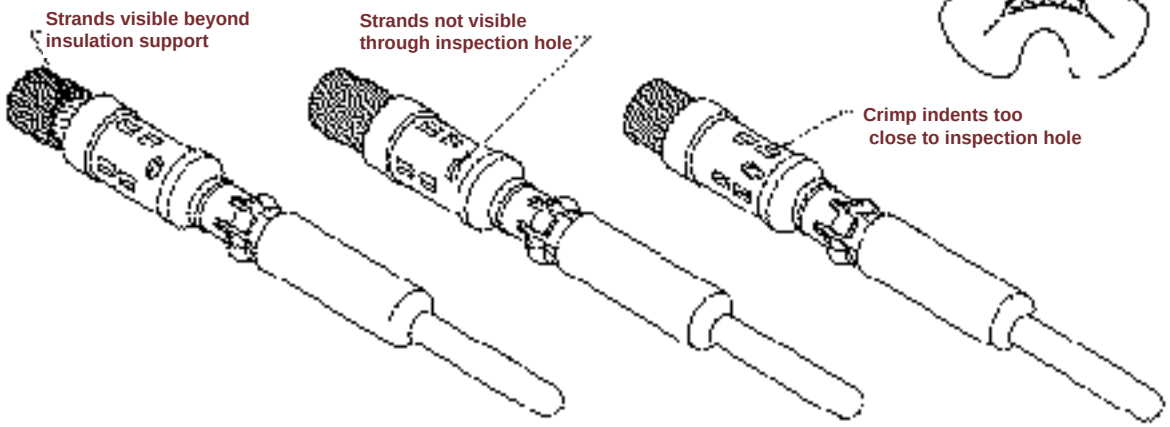
For all tools:
- -Strands to be visible through the inspection hole
- -Strands not to be visible beyond the insulation support
- -Crimped contact to meet recommended conductor tensile force shown in chart
- -Check for peeled gold and bent contact



Correctly crimped contact

Cross section of correctly crimped contact





Stripped part of the wire too long | **Stripped part of the wire too short** | **Crimp indents incorrectly located**

Examples of crimping faults

Positronic recommended conductor tensile strength

WIRE SIZE	AXIAL LOAD
22AWG (0.3mm²)	12 lbs. (53 N)
24AWG (0.25mm²)	8 lbs. (36 N)
26AWG (0.12mm²)	5 lbs. (22 N)
28AWG (0.08mm²)	3 lbs. (13 N)

Positronic recommended tools

Hand crimp tools:	9507 with 9502-12 positioner 9507 with 9502-13 positioner
Automatic feed pneumatic crimp tool:	9550-1
Insertion tool:	9099-1
Extraction tool:	9081-1

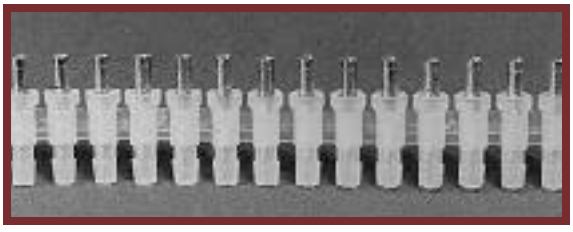
Conductor tensile strength values are derived using silver-tin plated copper wires. Values may change depending upon what type of wire is used.

CYCLE-CONTROLLED STEP ADJUSTABLE HAND CRIMP TOOL
M22520/2-01
Part No. 9507

Features of this positive ratchet action tool include accommodations for wire sizes 22 AWG (0.3 mm^2) through 28 AWG (0.08 mm^2), and eight (8) impression crimp on wires and contacts of various compositions. Required for use with this basic tool is the turret positioner part numbers 9502-12 for the male contacts and 9502-13 for the female contacts.

CONTACT CARRIERS FOR AUTOMATIC FEED TOOL

Molded thermoplastic carriers in a continuous belt feed contacts to the crimp station of the automatic feed tool. They also locate the contacts in respect to the tool's indenters. The carriers are color coded red, blue, yellow, green, orange or natural for contact identification for both MS and proprietary applications.



AUTOMATIC FEED CRIMP TOOL, PNEUMATICALLY ACTUATED
Part No. 9550-1

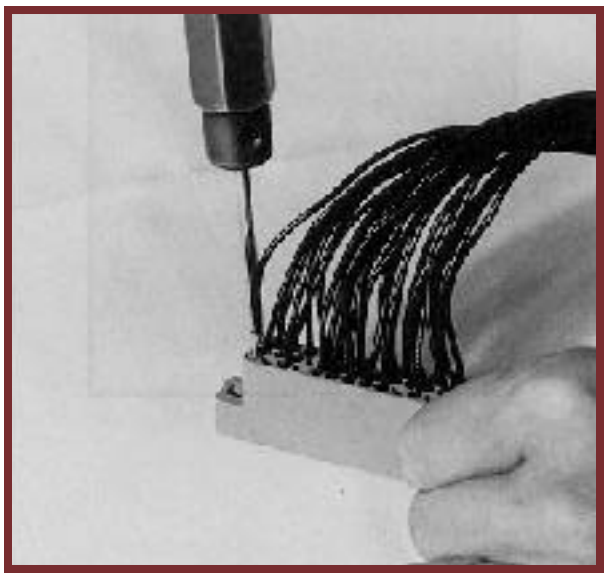
This fast cycling automatic crimp tool produces an 8 indent crimp on wire sizes 22 AWG (0.3 mm^2) through 32 AWG (0.03 mm^2).

To order, specify part number 9550-1. Foot control valve is supplied as a standard accessory.

CONTACT INSERTION TOOL

Part No. 9099-1

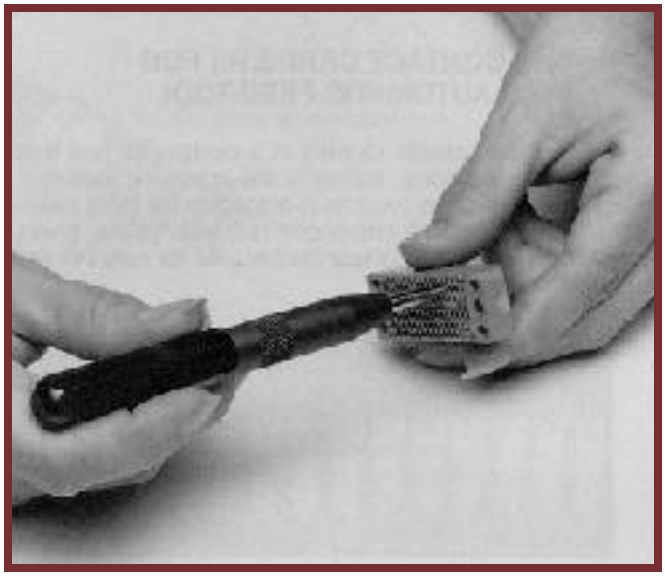
An easy to use contact insertion tool for 22 AWG (0.3 mm^2) and smaller wires. See photographic demonstration shown below for recommended insertion procedures.



CONTACT EXTRACTION TOOL

Part No. 9081-1

The spring loaded contact extraction tool simplifies the extraction of removable contacts from the connector insulators. Simply insert the hollow tool tip over the male or female contact from the front face of the insulator, rotate the tool slightly while increasing the pushing force against the butt of the extraction tool. The contact will be released from the insulator retention system and “pop out” of the rear face of the insulator. See photo below for recommended removal procedure.



ORDERING INFORMATION – CODE NUMBERING SYSTEM

Specify Complete Connector By Following Steps 1 Through 9
Insert "0" When Step Is Not Used

STEP	1	2	3	4	5	6	7	8	9	10
	SGMC	7	M	0	NSS	0	0	J	0	

STEP 1 - Basic Series
SGMC Series.

STEP 2 - SGMC Series Connector Variants
4, 7, 9, 14, 20, 26, 34, 44, 50, 75, 104

STEP 3 - Connector Gender
M – Male insulator.
F – Female insulator.

STEP 4 - Contact Termination Type
0 – Contacts are to be ordered separately, see contact ordering charts.

***STEP 5 - Polarizing Guides and Jackscrew System**
N – Polarizing guides.
NSS – Stainless steel polarizing guides.
T – Fixed jackscrews.
E – Short turnable jackscrews.
E1 – Turnable jackscrews used with hoods only. Not offered on 75 and 104 variants.
ESS – Short turnable jackscrews.
0 – If no polarizing guides or jackscrews are required. Also use "0" if ordering hoods equipped with jackscrews, for variants 75 and 104, see STEP8.

***STEP 6 - Shells**
P – Male shell.
R – Female shell.
0 – If no shells are required.

***STEP 7 - Polarization Positions of Shells**
Select letter to designate position of male pin or female slot for polarization system.
A, B, C, D, E, F, G
0 – If no polarization is required or if no shells are required.

***STEP 8 - Cable Adapters (Hoods)**
V – Side opening hood equipped with stainless steel jackscrew system offered on 104 variant only.
Z – Top opening hood equipped with stainless steel jackscrew system offered on 75 and 104 variants only.
J – Top opening hood offered on all variants except 75 and 104.
0 – If no hoods are required.

***STEP 9 - Additional Options**
B – For black anodized aluminum parts.
V – Lock tab, not offered on 75 and 104 variants.
VL – Lock lever, not offered on 75 and 104 variants.
0 – If no additional options are required.
M – Jackscrews with metric threads.

***NOTE: FOR DETAILS OF ITEMS LISTED IN STEPS 5 THROUGH 9, SEE HIGH DENSITY RECTANGULAR CONNECTOR ACCESSORIES SECTION ON FOLLOWING PAGES.**

REMOVABLE CONTACT ORDERING ASSISTANCE CHART

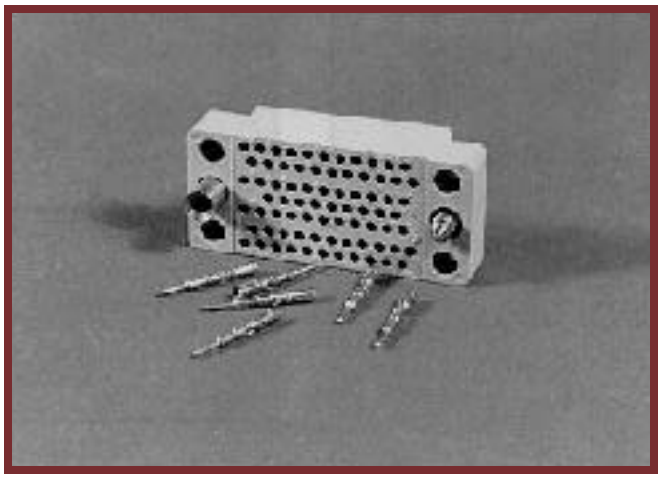
SGMC SERIES CRIMP AND SOLDER CUP CONTACT TERMINATIONS

TERMINATION TYPE	CONTACT SIZE	WIRE SIZE	MALE PART NUMBER	FEMALE PART NUMBER
CRIMP	22	22 AWG(0.3 mm^2) – 28 AWG (0.08 mm^2)	MC422N	FC422N2 or FC422N4
MILITARY CRIMP	22	22 AWG(0.3 mm^2) – 28 AWG (0.08 mm^2)	M39029/34-440	M39029/35-441
SOLDER CUP	22	22 AWG (0.3 mm^2) max.	MS422N	FS422N2 or FS422N4

FOR ORDERING CRIMPCONTACTS ON REELS, ADD R TO PART NUMBER.
EXAMPLES: MC422NR, FC422N2R, OR FC422N4R.

SGMC SERIES PRINTED BOARD MOUNT CONTACT TERMINATIONS

TERMINATION TYPE	CONTACT SIZE	USABLE TERMINATION LENGTH	TERMINATION DIMENSION	MALE PART NUMBER	FEMALE PART NUMBER
STRAIGHT SOLDER	22	0.125 (3.18)	0.025 Ø (0.64)	MDS425N	FDS425N2
		0.156 (3.96)	0.025 Ø (0.64)	MDS456N	FDS456N2
		0.187 (4.75)	0.025 Ø (0.64)	MDS487N	FDS487N2
PRESS-FIT	22	0.141 MAX (3.58)	0.039 (1.00) ACROSS CORNERS	MPF422N	FPF422N2



SGMC75M0T0000 connector and MC422N contacts

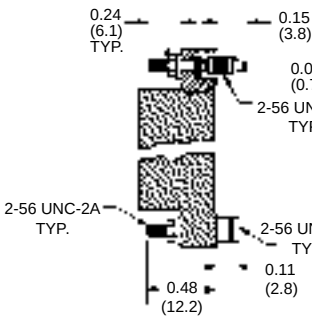
DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.

JACKSCREW SYSTEM DIMENSIONS WHEN MOUNTED ON CONNECTOR VARIANTS

(QUALIFIED TO MIL-DTL-28748)

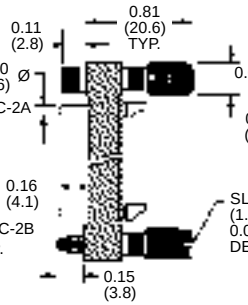
4 TO 50 CONTACTS

(T) FIXED JACKSCREWS



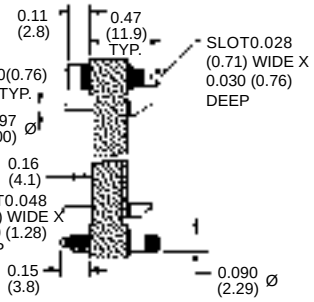
(STAINLESS STEEL)

(E) ROTATING JACKSCREWS



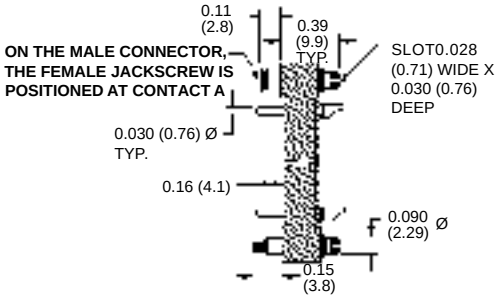
(STAINLESS STEELWITH ALUMINUM KNOBS)

(ESS) ROTATING JACKSCREWS



(STAINLESS STEEL)

(ESS-756.2) ROTATING JACKSCREWS

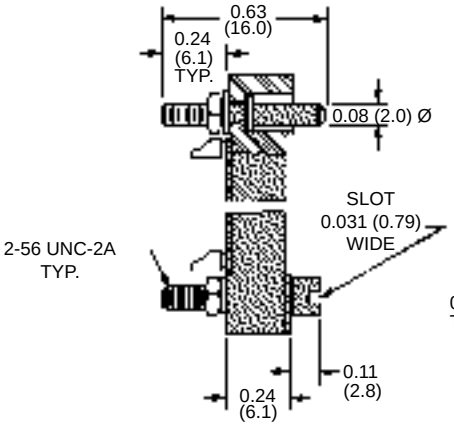


(STAINLESS STEEL)

CONSULT TECHNCIALSALES FOR ORDERING INFORMATION

POLARIZING GUIDE DIMENSIONS WHEN MOUNTED ON CONNECTOR VARIANTS

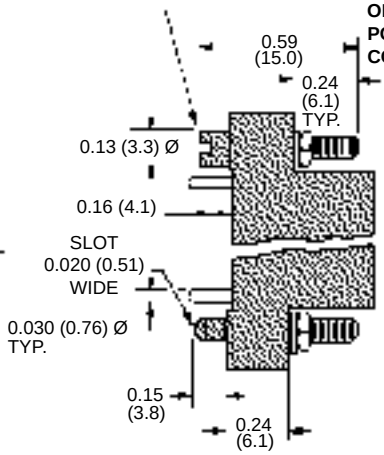
(QUALIFIED TO MIL-DTL-28748)
4 TO 50 CONTACTS



(N) GUIDES

(BRASS)

ON THE MALE CONNECTOR, THE FEMALE POLARIZING GUIDE IS POSITIONED AT CONTACT A



(NSS) GUIDES

(STAINLESS STEEL)

SHORTER VERSIONS OF JACKSCREWS AND GUIDES AVAILABLE AS SPECIALOPTIONS

M 2x0.4 METRIC THREADS AVAILABLE

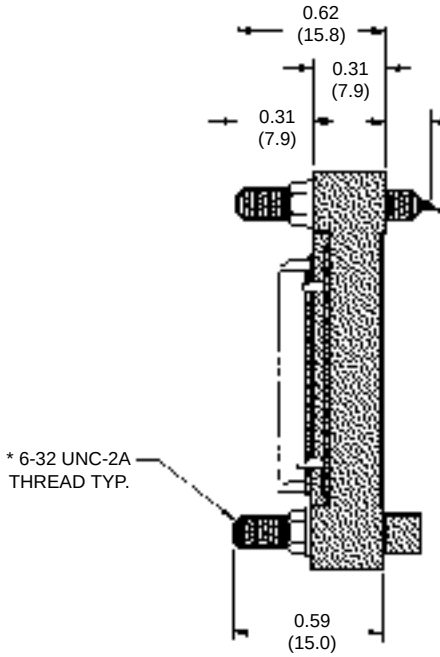
DIMENSIONS ARE IN INCHES (MILLIMETERS). ALLDIMENSIONS ARE SUBJECT TO CHANGE.

JACKSCREW SYSTEM DIMENSIONS WHEN MOUNTED ON CONNECTOR

SGM 75 AND SGMC 75 AND 104 CONTACT VARIANTS

(T)

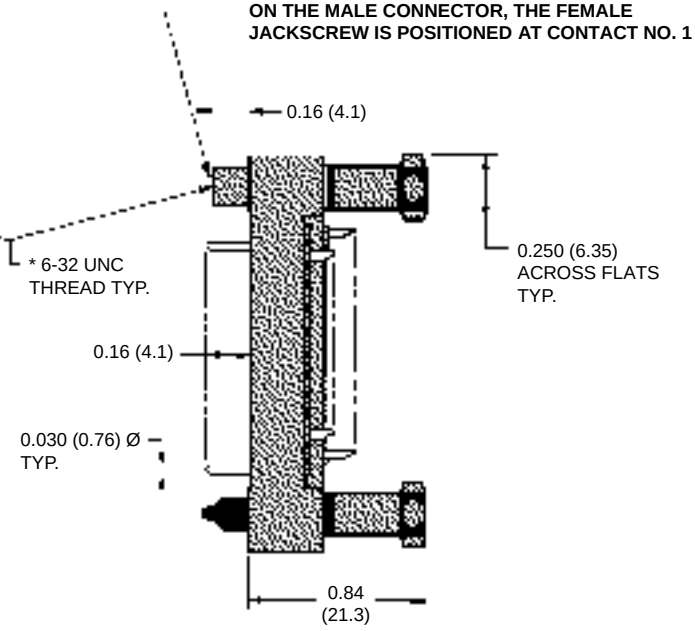
FIXED JACKSCREWS



(STAINLESS STEEL)

(E)

ROTATING JACKSCREWS

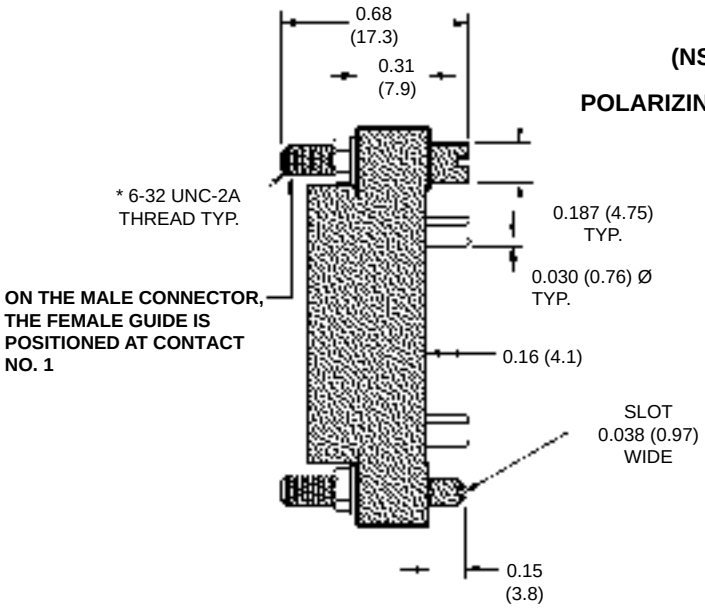


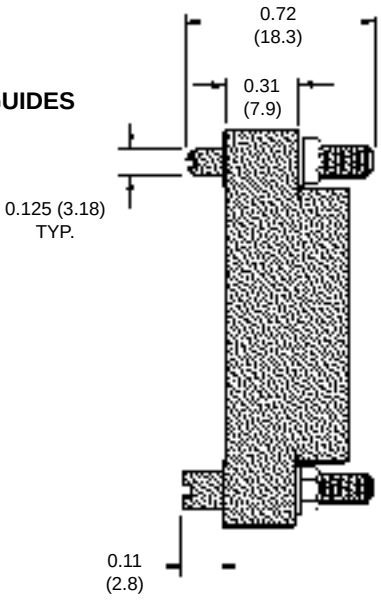
(STAINLESS STEEL)

SGMC 75 AND 104 POLARIZING GUIDE DIMENSIONS WHEN MOUNTED ON CONNECTOR

(NSS)

POLARIZING GUIDES





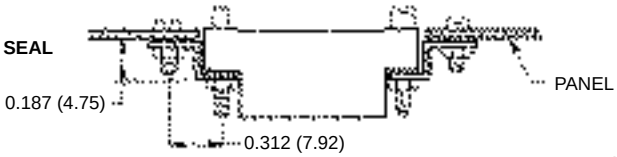
(STAINLESS STEEL)

*** M 3 x 0.5 METRIC THREADS AVAILABLE**

DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.

FLUSH PANEL CONNECTOR MOUNTING BRACKETS

MATERIAL: COPPER ALLOY
FINISH: ZINC WITH DICHROMATE SEAL



PART NUMBER 80217-0

TYPICAL MATING ASSEMBLIES

SGM50MSCE100J0

SMPL50F0T0LB

SGM14F0N00JB

SMPL14M0N00

SGM20MSCE100J0

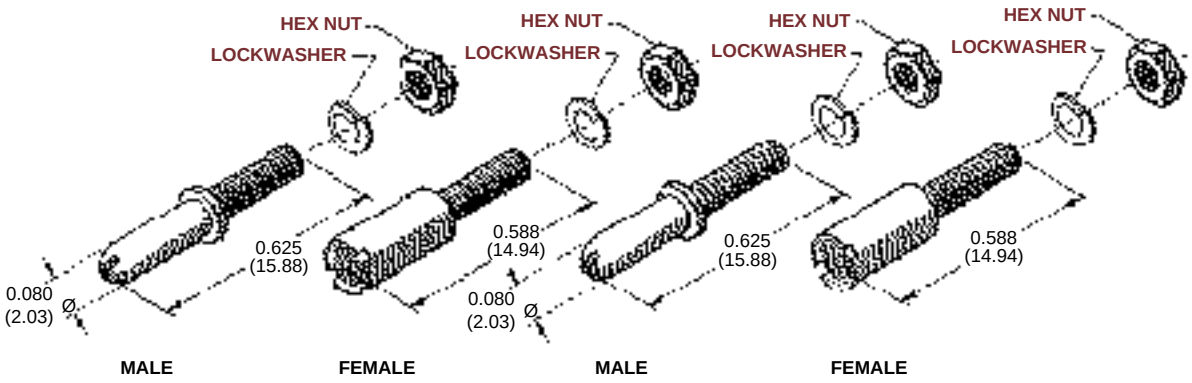
SGM20FSCT0000

SGMC26M0EP000

SGMC26F0TR000

HIGH DENSITY RECTANGULAR CONNECTOR ACCESSORIES FOR SGMC, SGM and SMPL SERIES CONNECTORS

POLARIZING GUIDES



N - POLARIZING GUIDES

NSS - STAINLESS STEEL POLARIZING GUIDES

TYPE	MATERIAL AND FINISH	AVAILABILITY	USED ON CONNECTOR VARIANTS
N - GUIDE MALE	COPPER ALLOY WITH NICKEL PLATE	X	* 4 THROUGH 50
		—	—
N - GUIDE FEMALE	COPPER ALLOY WITH NICKEL PLATE	X	* 4 THROUGH 50
		—	—
NSS - GUIDE MALE	STAINLESS STEEL PASSIVATED	X	* 4 THROUGH 50
		X	* * 75 AND 104
NSS - GUIDE FEMALE	STAINLESS STEEL PASSIVATED	X	* 4 THROUGH 50
		X	* * 75 AND 104

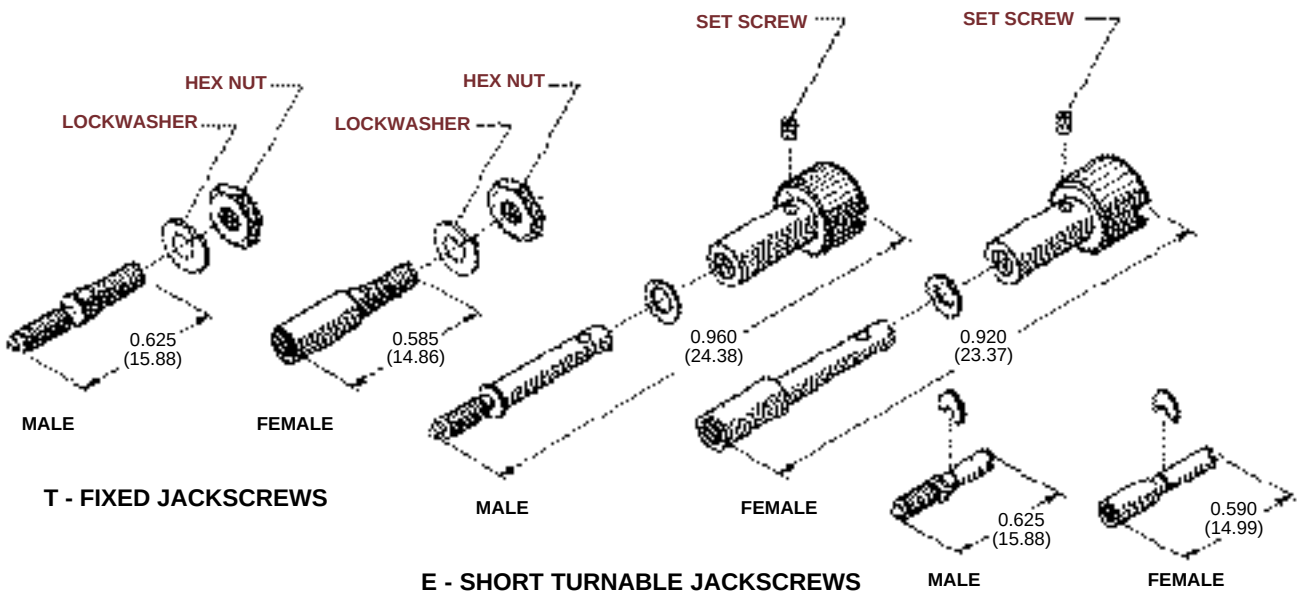
*** STUD THREAD OF 2-56 UNC-2A IS STANDARD, METRIC THREADS M2X0.4 AVAILABLE UPON REQUEST**

*** * STUD THREAD OF 6-32 UNC-2A IS STANDARD, METRIC THREADS M3X0.5 AVAILABLE UPON REQUEST**

DIMENSIONS ARE IN INCHES (MILLIMETERS). ALLDIMENSIONS ARE SUBJECT TO CHANGE.

HIGH DENSITY RECTANGULAR CONNECTOR ACCESSORIES FOR SGMC, SGM and SMPL SERIES CONNECTORS

FIXED AND TURNABLE JACKSCREW SYSTEMS



THREAD CHART

TYPE	MATERIAL AND FINISH	AVAILABILITY				USED ON CONNECTOR VARIANTS
		2-56 THREAD	M2x0.4 METRIC THD.	6-32 THREAD	M3x0.5 METRIC THD.	
T JACKSCREW MALE	STAINLESS STEEL PASSIVATED	X	X	—	—	4 THROUGH 50
		—	—	X	X	75 AND 104
T JACKSCREW FEMALE	STAINLESS STEEL PASSIVATED	X	X	—	—	4 THROUGH 50
		—	—	X	X	75 AND 104
E JACKSCREW MALE	STAINLESS STEEL PASSIVATED	X	X	—	—	4 THROUGH 50
		—	—	X	X	75 AND 104
E JACKSCREW FEMALE	STAINLESS STEEL PASSIVATED	X	X	—	—	4 THROUGH 50
		—	—	X	X	75 AND 104
ESS JACKSCREW MALE	STAINLESS STEEL PASSIVATED	X	X	—	—	*4 THROUGH 50
		NOT AVAILABLE				75 AND 104
ESS JACKSCREW FEMALE	STAINLESS STEEL PASSIVATED	X	X	—	—	*4 THROUGH 50
		NOT AVAILABLE				75 AND 104

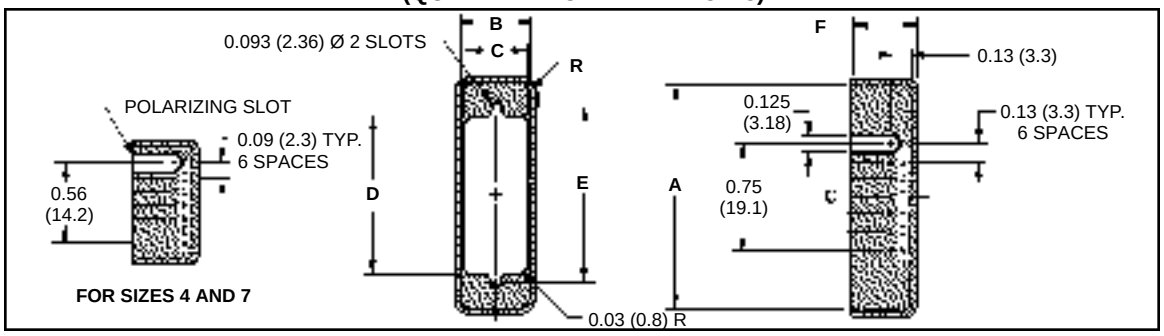
***ESS JACKSCREW IS NOT OFFERED IN KITS AND MUST BE FACTORY INSTALLED ON CONNECTORS**

**DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.**

HIGH DENSITY RECTANGULAR CONNECTOR ACCESSORIES FOR SGMC, SGM and SMPL SERIES CONNECTORS

DIMENSIONS FOR FEMALE SHELLS (R)

(QUALIFIED TO MIL-DTL-28748)



PART NUMBER	A MIN.	B MIN.	C MIN.	D MIN.	E	F	R
SG4000R000	0.88 (22.4)	0.31 (7.9)	0.23 (5.8)	0.43 (10.9)	0.562 (14.27)	0.44 (11.2)	0.031 (0.79)
SG7000R000	0.88 (22.4)	0.31 (7.9)	0.23 (5.8)	0.43 (10.9)	0.562 (14.27)	0.44 (11.2)	0.031 (0.79)
SG14000R000	0.98 (24.9)	0.38 (9.7)	0.30 (7.6)	0.53 (13.5)	0.625 (15.88)	0.44 (11.2)	0.062 (1.57)
SG20000R000	1.17 (29.7)	0.38 (9.7)	0.30 (7.6)	0.73 (18.5)	0.814 (20.68)	0.44 (11.2)	0.062 (1.57)
SG26000R000	1.35 (34.3)	0.38 (9.7)	0.30 (7.6)	0.91 (23.1)	1.000 (25.40)	0.44 (11.2)	0.062 (1.57)
SG34000R000	1.35 (34.3)	0.48 (12.2)	0.41 (10.4)	0.90 (22.9)	1.032 (26.21)	0.44 (11.2)	0.062 (1.57)
SG44000R000	1.60 (40.6)	0.48 (12.2)	0.41 (10.4)	1.14 (29.0)	1.281 (32.54)	0.44 (11.2)	0.062 (1.57)
SG50000R000	1.72 (43.7)	0.48 (12.2)	0.41 (10.4)	1.27 (32.3)	1.408 (35.76)	0.44 (11.2)	0.062 (1.57)
SG75000R000	1.78 (45.2)	0.85 (21.6)	0.77 (19.6)	1.12 (28.4)	1.375 (34.93)	0.51 (13.0)	0.062 (1.57)
SG104000R000	2.16 (54.9)	0.85 (21.6)	0.77 (19.6)	1.49 (37.8)	1.750 (44.45)	0.51 (13.0)	0.062 (1.57)

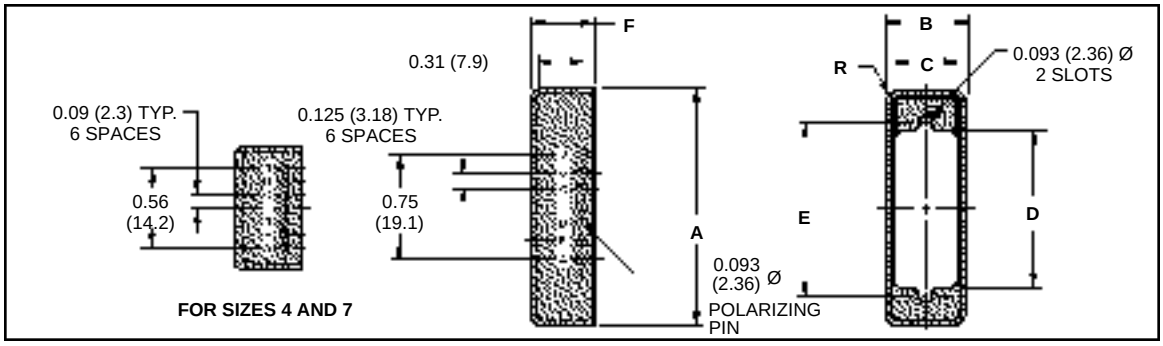
POLARIZATION

Polarization is accomplished with shells by a pin and slot arrangement. Female shells are slotted to accept non-magnetic stainless steel polarizing pins mounted on the male shells.

There are 7 polarizing positions available which are designated by the letters A, B, C, D, E, F or G. Nonpolarized shells are designated by "O" and are supplied without slot and pin. See ordering chart.

DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.

DIMENSIONS FOR MALE SHELLS (P)



PART NUMBER	A MAX.	B MAX.	C MIN.	D MIN.	E	F	R
SG4000P000	0.87 (22.1)	0.30 (7.6)	0.23 (5.8)	0.43 (10.9)	0.562 (14.27)	0.44 (11.2)	0.031 (0.79)
SG7000P000	0.87 (22.1)	0.30 (7.6)	0.23 (5.8)	0.43 (10.9)	0.562 (14.27)	0.44 (11.2)	0.031 (0.79)
SG14000P000	0.97 (24.6)	0.37 (9.4)	0.30 (7.6)	0.53 (13.5)	0.625 (15.88)	0.44 (11.2)	0.062 (1.57)
SG20000P000	1.16 (29.5)	0.37 (9.4)	0.30 (7.6)	0.73 (18.5)	0.814 (20.68)	0.44 (11.2)	0.062 (1.57)
SG26000P000	1.34 (34.0)	0.37 (9.4)	0.30 (7.6)	0.91 (23.1)	1.000 (25.40)	0.44 (11.2)	0.062 (1.57)
SG34000P000	1.35 (34.3)	0.48 (12.2)	0.41 (10.4)	0.90 (22.9)	1.032 (26.21)	0.44 (11.2)	0.062 (1.57)
SG44000P000	1.59 (40.4)	0.48 (12.2)	0.41 (10.4)	1.14 (29.0)	1.281 (32.54)	0.44 (11.2)	0.062 (1.57)
SG50000P000	1.71 (43.4)	0.48 (12.2)	0.41 (10.4)	1.27 (32.3)	1.408 (35.76)	0.44 (11.2)	0.062 (1.57)
SG75000P000	1.77 (45.0)	0.84 (21.3)	0.77 (19.6)	1.12 (28.4)	1.375 (34.93)	0.51 (13.0)	0.062 (1.57)
SG104000P000	2.15 (54.6)	0.84 (21.3)	0.77 (19.6)	1.49 (37.8)	1.750 (44.45)	0.51 (13.0)	0.062 (1.57)

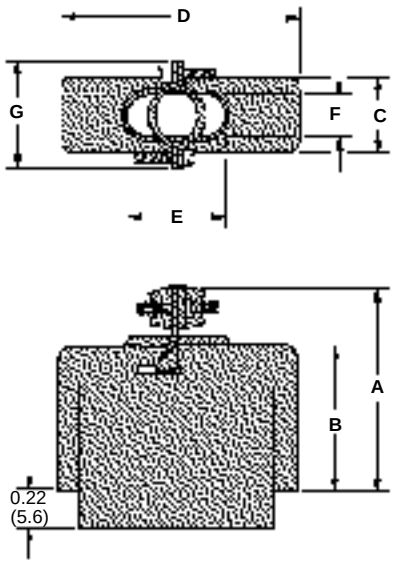
SHELLMATERIAL: 0.030 (0.76) THK ALUMINUM

SHELLFINISH: YELLOW OR BLACK ANODIZE

CABLE ADAPTERS

DIMENSIONS FOR ALUMINUM HOODS

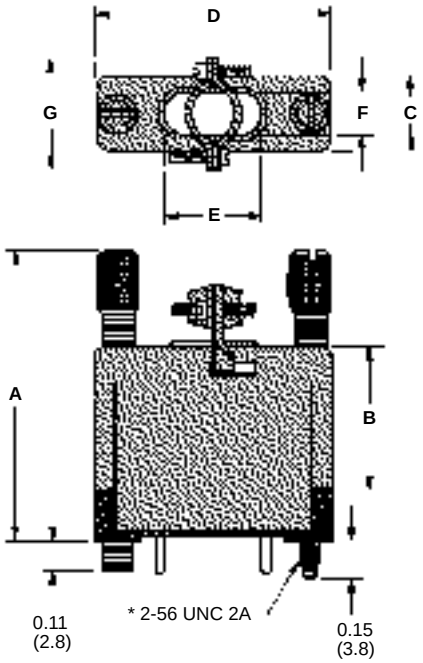
(QUALIFIED TO MIL-DTL-28748)



CATALOG NUMBER	DIMENSIONS					CABLE OPENING	
	A	B	C	D	G	E	F
SG400000J0	1.05 (26.7)	0.75 (19.1)	0.25 (6.4)	0.78 (19.8)	0.41 (10.4)	0.25 (6.4)	0.19 (4.8)
SG700000J0	1.05 (26.7)	0.75 (19.1)	0.25 (6.4)	0.78 (19.8)	0.41 (10.4)	0.25 (6.4)	0.19 (4.8)
SG900000J0	1.05 (26.7)	0.75 (19.1)	0.27 (6.9)	0.88 (22.4)	0.55 (14.0)	0.38 (9.7)	0.19 (4.8)
SG1400000J0	1.05 (26.7)	0.75 (19.1)	0.34 (8.6)	0.88 (22.4)	0.55 (14.0)	0.38 (9.7)	0.25 (6.4)
SG2000000J0	1.05 (26.7)	0.75 (19.1)	0.34 (8.6)	1.06 (26.9)	0.55 (14.0)	0.38 (9.7)	0.25 (6.4)
SG2600000J0	1.05 (26.7)	0.75 (19.1)	0.34 (8.6)	1.25 (31.8)	0.55 (14.0)	0.41 (10.4)	0.25 (6.4)
SG2900000J0	1.05 (26.7)	0.75 (19.1)	0.34 (8.6)	1.34 (34.0)	0.55 (14.0)	0.41 (10.4)	0.25 (6.4)
SG3400000J0	1.05 (26.7)	0.75 (19.1)	0.45 (11.4)	1.25 (31.8)	0.71 (18.0)	0.75 (19.1)	0.38 (9.7)
SG4400000J0	1.50 (38.1)	1.20 (30.5)	0.45 (11.4)	1.50 (38.1)	0.71 (18.0)	0.75 (19.1)	0.38 (9.7)
SG5000000J0	1.50 (38.1)	1.20 (30.5)	0.45 (11.4)	1.62 (41.1)	0.71 (18.0)	1.00 (25.4)	0.39 (9.9)

DIMENSIONS FOR ALUMINUM HOODS WITH JACKSCREW SYSTEM

(QUALIFIED TO MIL-DTL-28748)



CATALOG NUMBER	DIMENSIONS					CABLE OPENING	
	A	B	C	D	G	E	F
SG400E100J0	1.57 (39.9)	0.75 (19.1)	0.25 (6.4)	0.78 (19.8)	0.41 (10.4)	0.25 (6.4)	0.19 (4.8)
SG700E100J0	1.57 (39.9)	0.75 (19.1)	0.25 (6.4)	0.78 (19.8)	0.41 (10.4)	0.25 (6.4)	0.19 (4.8)
SG900E100J0	1.57 (39.9)	0.75 (19.1)	0.27 (6.9)	0.88 (22.4)	0.55 (14.0)	0.38 (9.7)	0.19 (4.8)
SG1400E100J0	1.57 (39.9)	0.75 (19.1)	0.34 (8.6)	0.88 (22.4)	0.55 (14.0)	0.38 (9.7)	0.25 (6.4)
SG2000E100J0	1.57 (39.9)	0.75 (19.1)	0.34 (8.6)	1.06 (26.9)	0.55 (14.0)	0.38 (9.7)	0.25 (6.4)
SG2600E100J0	1.57 (39.9)	0.75 (19.1)	0.34 (8.6)	1.25 (31.8)	0.55 (14.0)	0.41 (10.4)	0.25 (6.4)
SG2900E100J0	1.57 (39.9)	0.75 (19.1)	0.34 (8.6)	1.34 (34.0)	0.55 (14.0)	0.41 (10.4)	0.25 (6.4)
SG3400E100J0	1.57 (39.9)	0.75 (19.1)	0.45 (11.4)	1.25 (31.8)	0.71 (18.0)	0.75 (19.1)	0.38 (9.7)
SG4400E100J0	2.02 (51.3)	1.20 (30.5)	0.45 (11.4)	1.50 (38.1)	0.71 (18.0)	0.75 (19.1)	0.38 (9.7)
SG5000E100J0	2.02 (51.3)	1.20 (30.5)	0.45 (11.4)	1.62 (41.1)	0.71 (18.0)	1.00 (25.4)	0.39 (9.9)

MATERIAL: HOODS, CABLE CLAMPS AND KNOBS - ALUMINUM, GOLD OR BLACK ANODIZE

JACKSCREWS - STAINLESS STEEL, PASSIVATED

DIMENSIONS ARE IN INCHES (MILLIMETERS). ALLDIMENSIONS ARE SUBJECT TO CHANGE.

*** M 2 x 0.4 METRIC THREADS AVAILABLE**

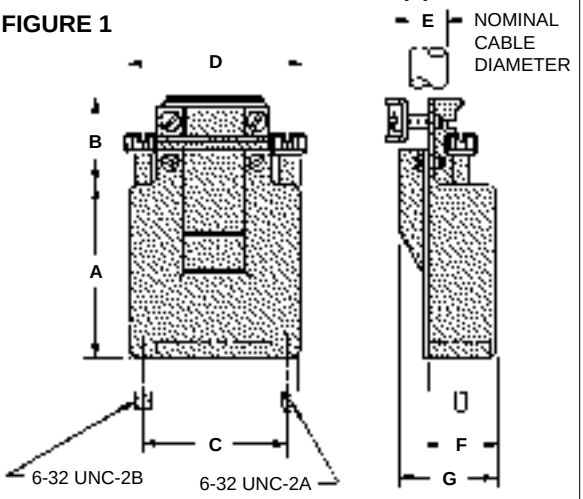
HIGH DENSITY RECTANGULAR CONNECTOR ACCESSORIES FOR SGMC, SGM and SMPL SERIES CONNECTORS

CABLE ADAPTERS

DIMENSIONS FOR SIDE ACCESS HOODS WITH JACKSCREW SYSTEM

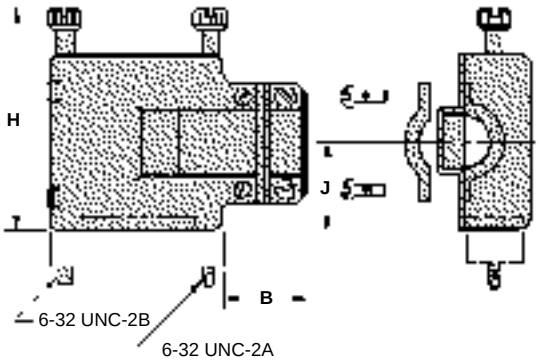
TOP OPENING HOODS (Z)

FIGURE 1



SIDE OPENING HOODS (V)

FIGURE 2



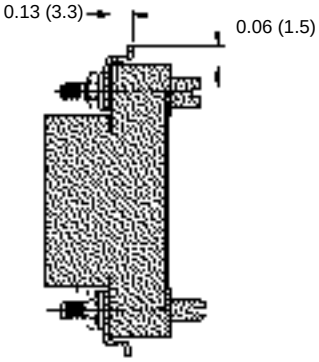
PART NUMBER	FIGURE	A	B	C	D	E	F	G	H	J
SG7500000Z0	1	2.10 (53.3)	0.81 (20.6)	1.38 (35.1)	1.79 (45.5)	0.61 (15.5)	0.86 (21.8)	1.22 (31.0)	2.60 (66.0)	
SG10400000Z0	1	2.10 (53.3)	0.81 (20.6)	1.75 (44.5)	2.16 (54.9)	0.71 (18.0)	0.86 (21.8)	1.32 (33.6)	2.60 (66.0)	
SG10400000V0	2	2.10 (53.3)	0.81 (20.6)	1.75 (44.5)	2.16 (54.9)	0.71 (18.0)	0.86 (21.8)	1.32 (33.6)	2.60 (66.0)	1.05 (26.7)

MATERIAL: HOODS, CABLE CLAMPS AND KNOBS- ALUMINUM, YELLOW OR BLACK ANODIZE

JACKSCREWS- STAINLESS STEEL, PASSIVATED
M 3x0.5 METRIC THREADS AVAILABLE

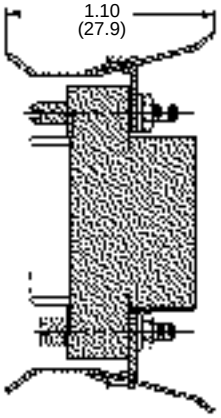
VIBRATION LOCKS (V, VL)

TYPICAL PART NUMBER: SGMC14F0N000V



(V) – VIBRATION TABS

TYPICAL PART NUMBER: SGMC14M0N000VL



(VL) – VIBRATION LEVER ASSEMBLY

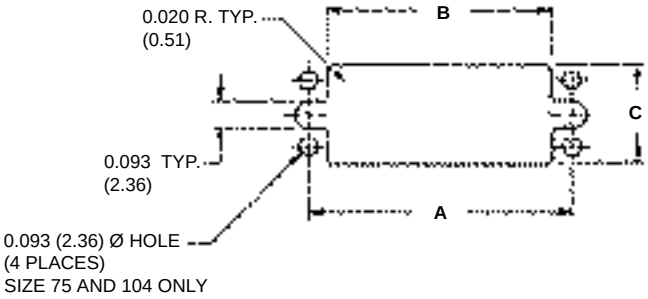
SPECIFY CODE "V" OR "VL" IN STEP9 OF ORDERING INFORMATION

MATERIAL: COPPER ALLOY

FINISH: NICKELPLATE

DIMENSIONS ARE IN INCHES (MILLIMETERS). ALLDIMENSIONS ARE SUBJECT TO CHANGE.

PANEL CUT-OUT DIMENSIONS FOR SGM SERIES AND SGMC SERIES CONNECTORS

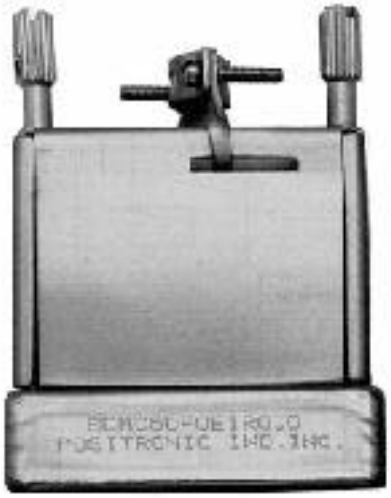


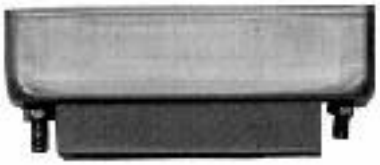
SIZE	A	B MIN.	C MIN.
4	0.562 (14.27)	0.390 (9.91)	0.215 (5.46)
5	0.482 (12.24)	0.315 (8.00)	0.215 (5.46)
7	0.562 (14.27)	0.397 (10.08)	0.215 (5.46)
9	0.656 (16.66)	0.495 (12.57)	0.215 (5.46)
11	0.531 (13.49)	0.401 (10.19)	0.285 (7.24)
14	0.625 (15.88)	0.510 (12.95)	0.285 (7.24)
20	0.814 (20.68)	0.700 (17.78)	0.285 (7.24)
26	1.000 (25.40)	0.885 (22.48)	0.285 (7.24)
29	1.094 (27.79)	0.959 (24.36)	0.285 (7.24)
34	1.032 (26.21)	0.867 (22.02)	0.395 (10.03)
44	1.281 (32.54)	1.105 (28.07)	0.395 (10.03)
50	1.408 (35.76)	1.235 (31.37)	0.395 (10.03)
75	1.375 (34.93)	1.145 (29.08)	0.755 (19.18)
104	1.750 (44.45)	1.520 (37.47)	0.755 (19.18)

DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.

TYPICAL MATING ASSEMBLIES

SGMC50F0E1R0J0



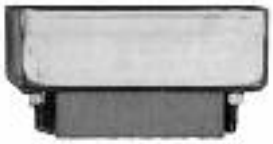


SGMC50M0TP000

SGM34MSCE100J0

SMPL34F0T0LB

SGMC26M0EP000



SGMC26F0TR000

SGMC9M0NSS00JVL

SGMC9F0NSS000V

SGM Series

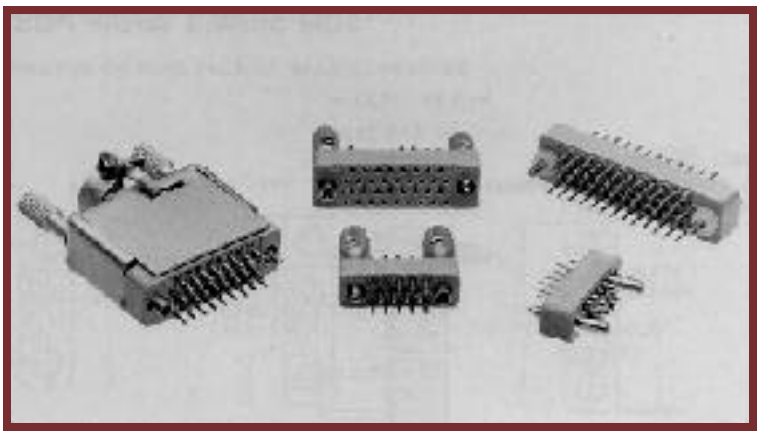
HIGH DENSITY RECTANGULAR CONNECTORS with FIXED CONTACTS

Size 22 Contacts

Qualified to MIL-DTL-28748

IEC Publication 807-1

Telecommunication
U.L. File #E140980



SGM Series connectors are high reliability, high density, rectangular connectors qualified to MIL-DTL-28748 specifications. The SGM Series offers solder cup, wrap post and straight solder termination styles, and is intermateable with Positronic SMPL and SGMC series connectors.

Thirteen connector variants, four through 75 poles, are offered. Contact spacing is 0.094 inch (2.39mm) between centers, and contact diameters are 0.030 inch (0.76mm), rated to five amperes per contact.

A complete array of mounting, locking, polarizing and shrouding accessories is available for the SGM Series. For details, see the High Density Rectangular Connector Accessories section.

Ideal applications for the SGM Series are where low weight and high density are requirements. The high reliability of "closed entry" female contacts insures numerous couplings of the connector without substantial degradation of contact resistance. SGM Series connectors are preferred for use in the aerospace, avionics, telecommunications, instrumentation, medical and robotics industries.

SGM SERIES TECHNICAL CHARACTERISTICS

MILITARY SPECIFICATIONS:

Qualified to MIL-DTL-28748/7 and MIL-DTL-28748/8.

INTERNATIONAL STANDARDS:

IEC 807-1

MATERIALS AND FINISHES:

Insulator:	Glass filled DAP per ASTM-D-5948 type SDG-F. Grey color is standard, black or green available.
Fixed Contacts:	Copper alloy, 0.000015 inch (0.38 microns) gold over nickel.
Hoods, Cable Adapters:	Aluminum with yellow or black anodize.
Shells:	Aluminum with yellow anodize or black anodize.
Jackscrew System:	Passivated stainless steel.
Polarizing Guides:	Copper alloy with nickel plate or passivated stainless steel.
Vibration Locks:	Copper alloy with nickel plate.

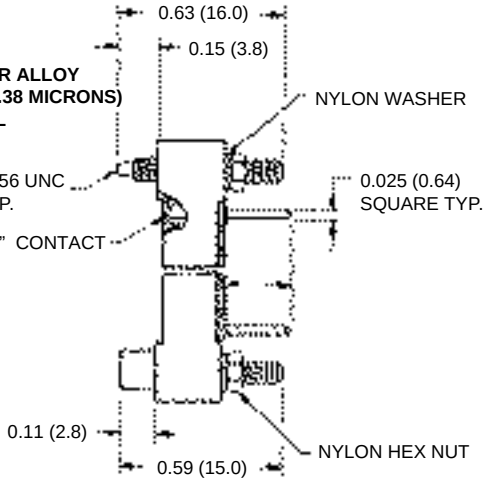
MECHANICAL CHARACTERISTICS:

Fixed Contacts:	**Male** – Size 22: 0.030 inch (0.76 mm) diameter. **Female** – "Closed entry" design for highest reliability.
Contact Retention in Insulator:	6 lbs. (26.5N) minimum.
Contact Termination:	0.037 inch (0.94 mm) internal diameter on solder cup style contact for 22 AWG (0.33 mm^2) wire maximum. 0.025 inch (0.64 mm) diameter for printed board mount style contact. 0.025 inch (0.64 mm) square for wire post style contacts.
Locking Systems:	Friction, vibration locks and jackscrews.
Polarization:	Polarized guides, polarized shells and jackscrew system.
Mechanical Operations:	1000 operations per IEC512-5.
Jackscrews:	Standard threads, 2-56 UNC on all sizes, except 75 connector variant, which uses 6-32 UNC. Metric threads, M2X0.4 and M3X0.5 available.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating (maximum):	5 amps.
Initial Contact Resistance:	0.012 ohms
Flash over Voltage:	2200 V.AC (rms)
Test Voltage:	1000 V.AC (rms)
Insulation Resistance (minimum):	5 G ohms
Clearance and Creepage Distance (minimum):	0.028 inch (0.71 mm)
Working Temperature:	-55°C to 135°C
Working Voltage:	250 V.AC (rms)

SGM SERIES WRAP POST CONTACTS

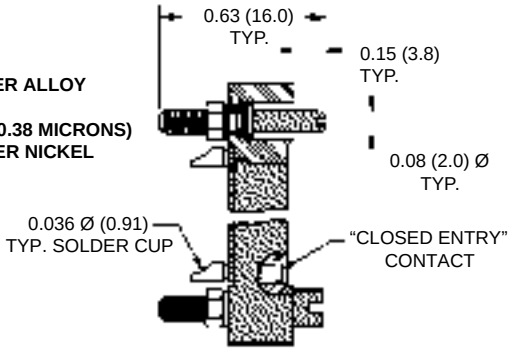


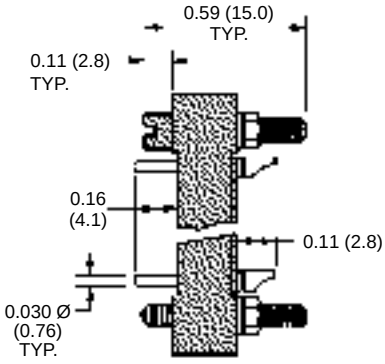
MATERIAL: COPPER ALLOY
FINISH: 0.000015 (0.38 MICRONS) GOLD OVER NICKEL

CONTACT CODE	L
WW1	0.225 (5.72)
WW2	0.355 (9.02)

SPECIFYCONTACT CODE IN STEP 4 OF ORDERING INFORMATION

SGM SERIES SOLDER CUP CONTACTS



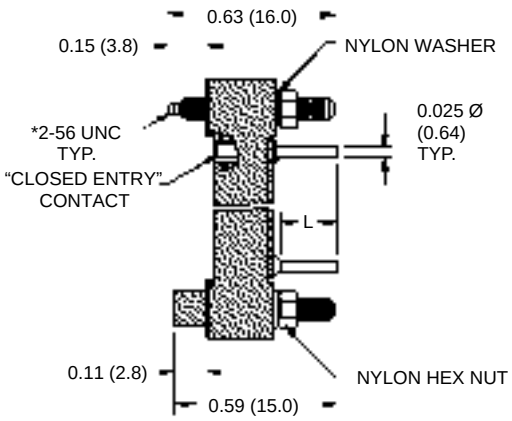


MATERIAL: COPPER ALLOY

FINISH: 0.000015 (0.38 MICRONS) GOLD OVER NICKEL

SPECIFYCONTACT CODE 'SC'IN STEP4 OF ORDERING INFORMATION

SGM SERIES STRAIGHT SOLDER CONTACTS



CONTACT CODE	L
DS3	0.093 (2.36)
DS4	0.125 (3.18)
DS5	0.156 (3.96)
DS6	0.187 (4.75)

SPECIFYCONTACT CODE IN STEP4 OF ORDERING INFORMATION

MATERIAL: COPPER ALLOY

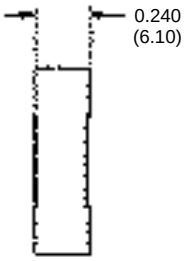
FINISH: 0.000015 (0.38 MICRONS) GOLD OVER NICKEL

***M2X0.4 METRIC THREAD AVAILABLE**

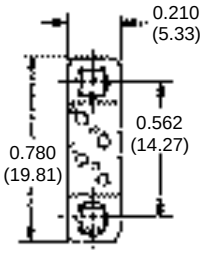
DIMENSIONS ARE IN INCHES (MILLIMETERS). ALLDIMENSIONS ARE SUBJECT TO CHANGE.

SGM (SMPL) SERIES INSULATOR DIMENSIONS

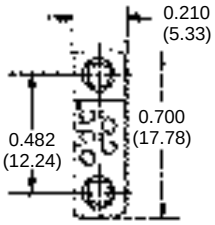
MATING FACE OF FEMALE CONNECTOR OR REAR FACE OF MALE CONNECTOR



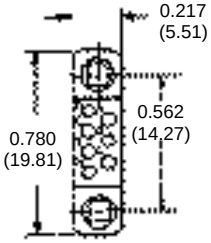
MALE AND FEMALE
PROFILE VIEW



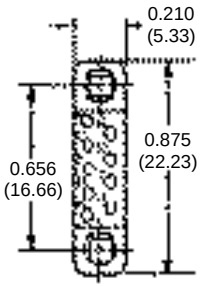
4 CONTACTS



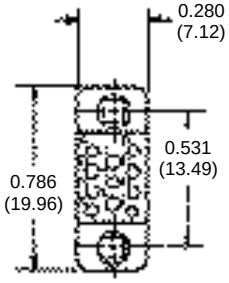
5 CONTACTS

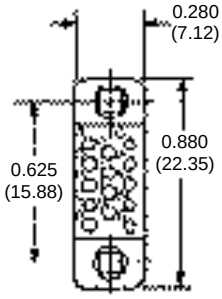


7 CONTACTS

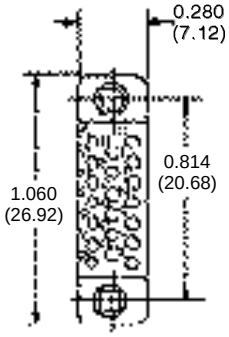


9 CONTACTS

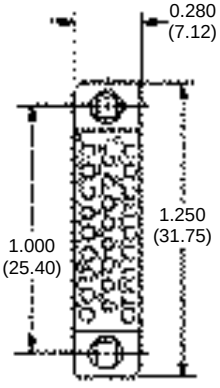




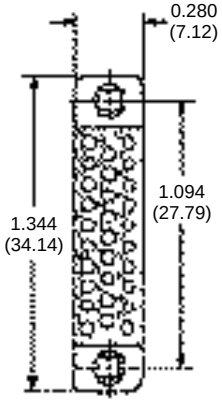
14 CONTACTS



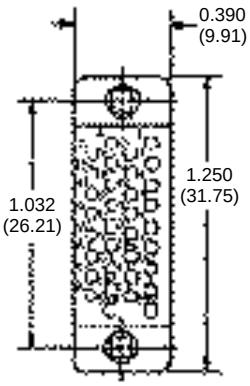
20 CONTACTS



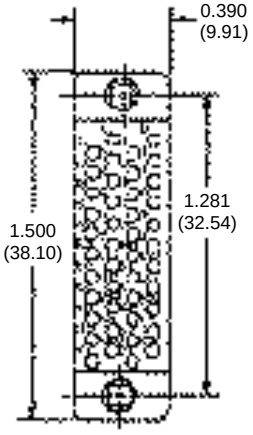
26 CONTACTS



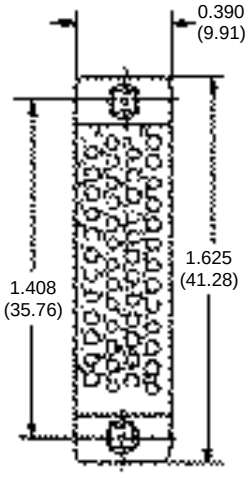
29 CONTACTS



34 CONTACTS



44 CONTACTS



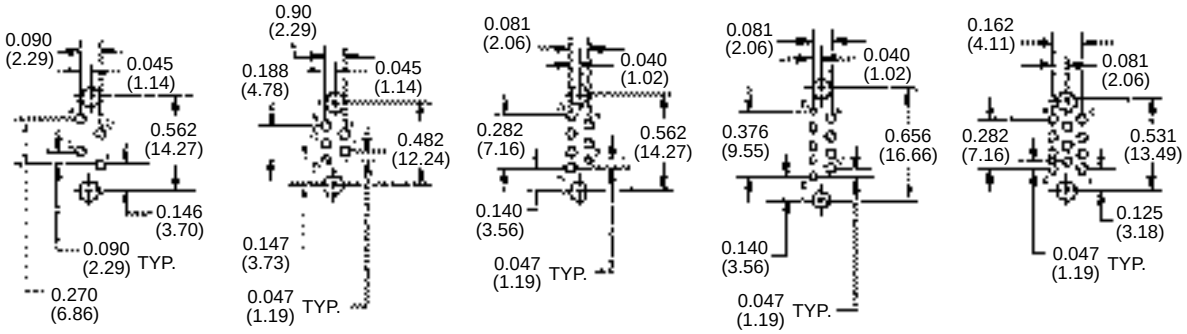
50 CONTACTS

MATERIAL: GLASS FILLED DIALLYLPHTHALATE PER ASTM-D-5948 TYPE SDG-F

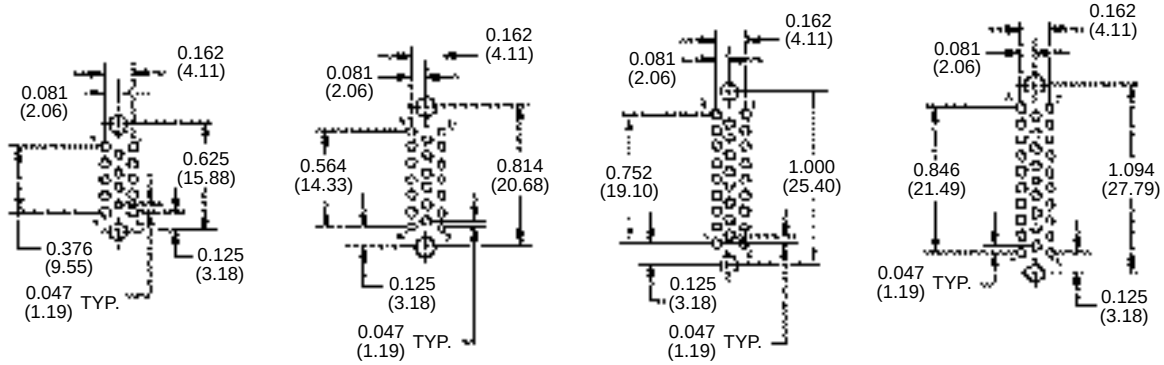
DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.

SGM SERIES CONTACT HOLE POSITION DIMENSIONS AND PRINTED BOARD HOLE PATTERN

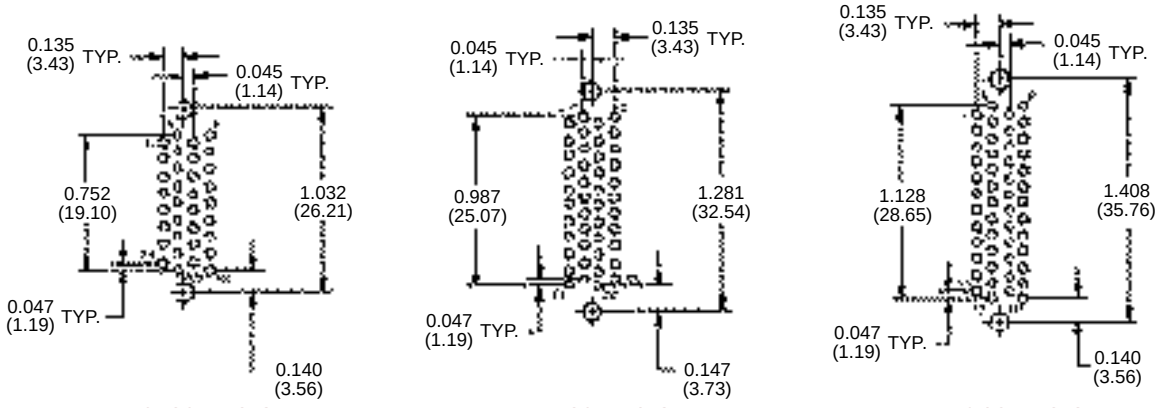
MATING FACE OF FEMALE CONNECTOR OR REAR FACE OF MALE CONNECTOR



4 CONTACTS | 5 CONTACTS | 7 CONTACTS | 9 CONTACTS | 11 CONTACTS



14 CONTACTS | 20 CONTACTS | 26 CONTACTS | 29 CONTACTS



34 CONTACTS | 44 CONTACTS | 50 CONTACTS

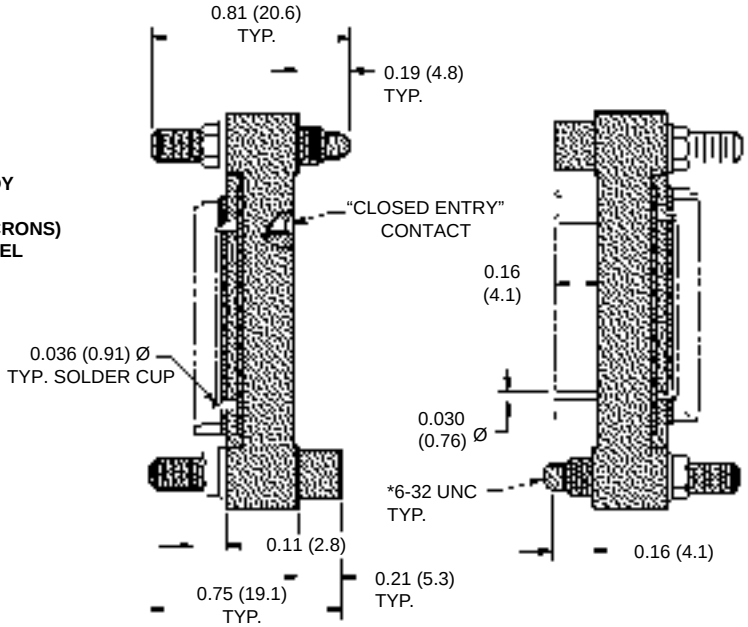
SUGGEST 0.105 (2.66) Ø HOLES IN PRINTED BOARD FOR CONNECTOR MOUNTING HOLES
SUGGEST 0.040 (1.01) Ø HOLES IN PRINTED BOARD FOR CONTACT TERMINATIONS

DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.

SGM 75 WITH SOLDER CUP CONTACTS

MATERIAL: COPPER ALLOY

FINISH: 0.000015 (0.38 MICRONS) GOLD OVER NICKEL

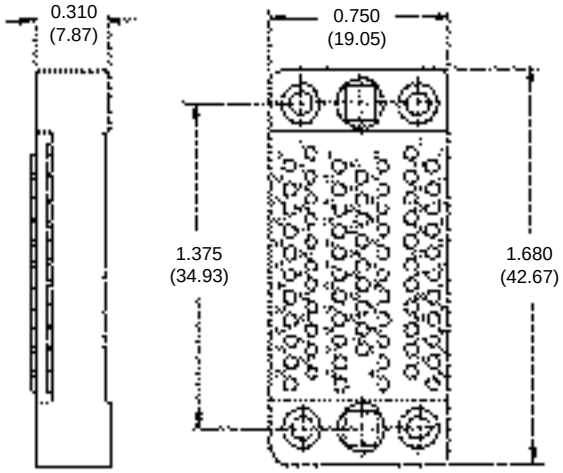


SPECIFYCONTACT CODE 'SC'IN STEP4 OF ORDERING INFORMATION

*** M3X0.5 METRIC THREAD AVAILABLE**

SGM 75 INSULATOR DIMENSIONS

MATING FACE OF FEMALE CONNECTOR OR REAR FACE OF MALE CONNECTOR



SGM 75

SEE SGMC SERIES 75 PRINTED BOARD HOLE PATTERN PAGE 4 FOR CONNECTOR VARIANT CONTACT HOLE POSITIONS

MATERIAL: GLASS FILLED DIALLYLPHTHALATE PER ASTM-D-5948 TYPE SDG-F

DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.

ORDERING INFORMATION – CODE NUMBERING SYSTEM

Specify Complete Connector By Following Steps 1 Through 9
Insert "0" When Step Is Not Used

STEP	1	2	3	4	5	6	7	8	9	–	10
	SGM	20	M	SC	E1	0	0	J	0		

STEP 1 - Basic Series
SGM Series

STEP 2 - SGM Series Connector Variants
4, 5, 7, 9, 11, 14, 20, 26, 29, 34, 44, 50, 75

STEP 3 - Connector Gender
M – Male insulator.
F – Female insulator.

STEP 4 - Contact Termination Style
All female contacts "closed entry" design
SC – Solder cup
DS3 – Straight solder [0.093 (2.76)] not offered on 75 variant.
DS4 – Straight solder [0.125 (3.18)] not offered on 75 variant.
DS5 – Straight solder [0.156 (3.96)] not offered on 75 variant.
DS6 – Straight solder [0.187 (4.75)] not offered on 75 variant.
WW1 – Wrap post [0.225 (5.72)] not offered on 75 variant.
WW2 – Wrap post [0.295 (7.49)] not offered on 75 variant.

***STEP 5 - Polarizing Guides and Jackscrew System**
N – Polarizing guides.
NSS – Stainless steel polarizing guides.
T – Fixed jackscrews.
E – Short turnable jackscrews.
E1 – Turnable jackscrews used with hoods only. Not offered on 75 variant.
ESS – Short turnable jackscrews.
0 – If no polarizing guides or jackscrews are required. Also use "0" if ordering hoods equipped with jackscrews, for 75 variant, see STEP 8.

***STEP 6 - Shells**
P – Male shell.
R – Female shell.
0 – If no shells are required.

***STEP 7 - Polarization Positions of Shells**
Select letter to designate position of male pin or female slot for polarization system.
A, B, C, D, E, F, G
0 – If no polarization is required or if no shells are required.

***STEP 8 - Cable Adapters (Hoods)**
J – Top opening hood offered on all variants except 75.
0 – If no hoods are required.
Z – Top opening hood equipped with jackscrew system offered on 75 variant only.

***STEP 9 - Additional Options**
B – For black anodized aluminum parts.
V – Lock tab, not offered on 75 variant.
VL – Lock lever, not offered on 75 variant.
0 – If no additional options are required.
M – Jackscrews with metric threads.

***NOTE: FOR DETAILS OF ITEMS LISTED IN STEPS 5 THROUGH 9, SEE HIGH DENSITY RECTANGULAR CONNECTOR ACCESSORIES SECTION.**

SMPL Series

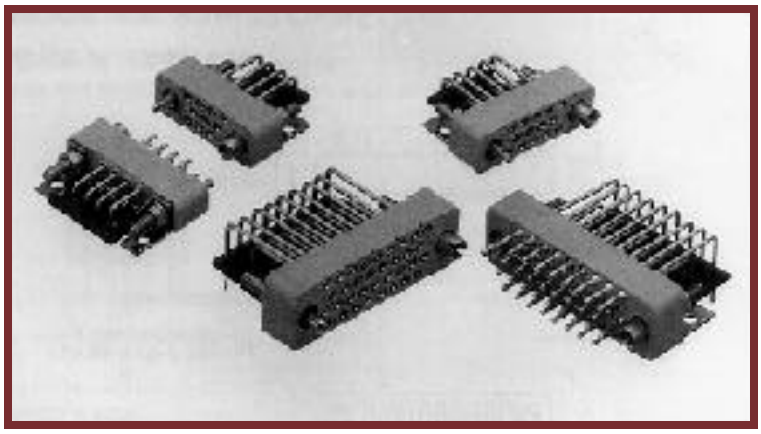
HIGH DENSITY RECTANGULAR RIGHT ANGLE PRINTED BOARD MOUNT CONNECTORS

Size 22 Contacts

Conforms to MIL-DTL-28748

IEC Publication 807-1

Telecommunication
U.L. File #E140980



SMPLSeries connectors are high reliability, high density, rectangular connectors meeting the performance requirements of MIL-DTL-28748. Termination style is right angle printed board mount. SMPL Series connectors are intermateable with Positronic SGM and SGMC series connectors.

Twelve connector variants, four through 50 poles, are offered. Contact spacing is 0.094 inch (2.39mm) between centers, and contact diameters are 0.030 inch (0.76mm), rated to five amperes per contact.

A complete array of mounting, locking and polarizing accessories is available for the SMPL Series. For details, see the High Density Rectangular Connector Accessories section.

Ideal applications for the SMPL Series are where low weight and high density are requirements. The high reliability of the "closed entry" female contacts insures numerous couplings of the connector without substantial degradation of contact resistance. SMPL Series connectors are used in the aerospace, avionics, telecommunications, instrumentation, medical and robotics industries.

SMPL SERIES TECHNICAL CHARACTERISTICS

MILITARY SPECIFICATIONS:

Conforms to MIL-DTL-28748.

INTERNATIONAL STANDARDS:

IEC 807-1

MATERIALS AND FINISHES:

Insulator:	Glass filled DAP per ASTM-D-5948 type SDG-F. Grey color is standard, black or green available.
Fixed Contacts:	Copper alloy, 0.000015 inch (0.38 microns) gold over nickel.
Jackscrew System:	Passivated stainless steel.
Polarizing Guides:	Copper alloy with nickel plate or passivated stainless steel.
Vibration Locks:	Copper alloy with nickel plate.

MECHANICAL CHARACTERISTICS:

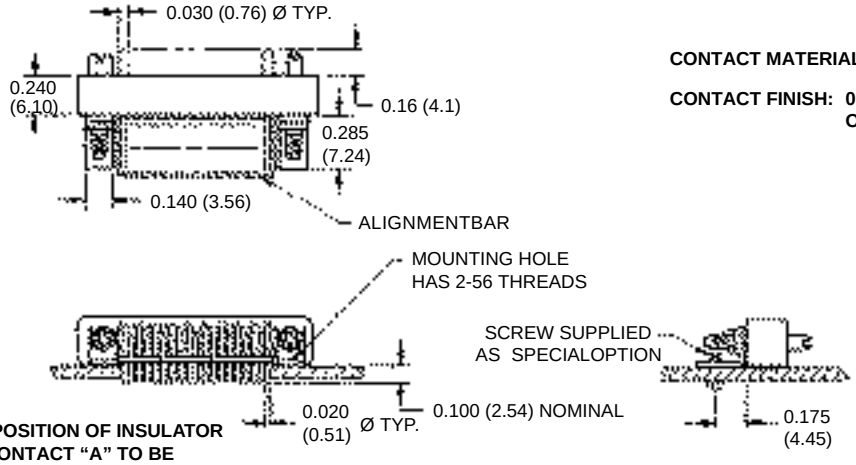
Fixed Contacts:	**Male** – Size 22: 0.030 inch (0.76 mm) diameter. **Female** – "Closed entry" design for highest reliability.
Contact Retention in Insulator:	6 lbs. (26.5N) minimum.
Contact Termination:	0.025 inch (0.64 mm) diameter.
Locking Systems:	Friction, vibration locks and jackscrews.
Polarization:	Polarized guides, polarized shells and jackscrew system.
Mechanical Operations:	1000 operations per IEC512-5.
Jackscrews:	Standard threads, 2-56 UNC. M2X0.4 metric threads available.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating (maximum):	5 amps.
Initial Contact Resistance:	0.012 ohms
Flash over Voltage:	2200 V.AC (rms)
Test Voltage:	1000 V.AC (rms)
Insulation Resistance (minimum):	5 G ohms
Clearance and Creepage Distance (minimum):	0.028 inch (0.71 mm)
Working Temperature:	-55°C to 135°C
Working Voltage:	250 V.AC (rms)

SMPL SERIES RIGHT ANGLE SOLDER CUP CONTACTS

MALE CONNECTOR SHOWN



CONTACT MATERIAL: COPPER ALLOY

CONTACT FINISH: 0.000015 (0.38 MICRONS) GOLD OVER NICKELOR COPPER

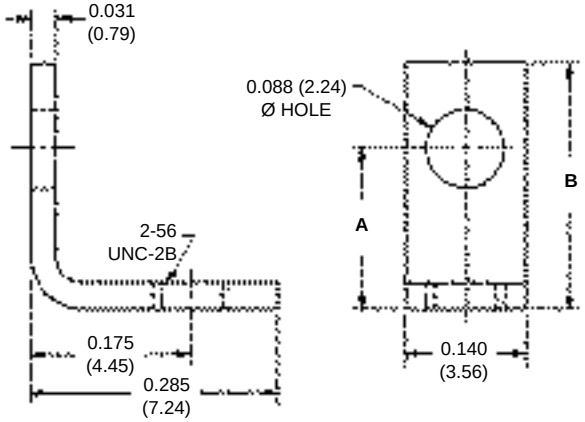
CONTACTS NOT SHOWN FOR CLARITY

STANDARD POSITION OF INSULATOR REQUIRES CONTACT "A" TO BE ADJACENT TO THE PRINTED BOARD

FOR FACE DIMENSIONS OF INSULATOR VARIANT DESIRED, SEE SGM SERIES INSULATOR DIMENSION PAGE 27

ADD 0.030 (0.76) TO THE HOLE LOCATION DIMENSION 0.175 (4.48) WHEN MOUNTING BRACKET (LB) AND VIBRATION LOCK TAB (V) ARE USED IN COMBINATION ON CONNECTOR

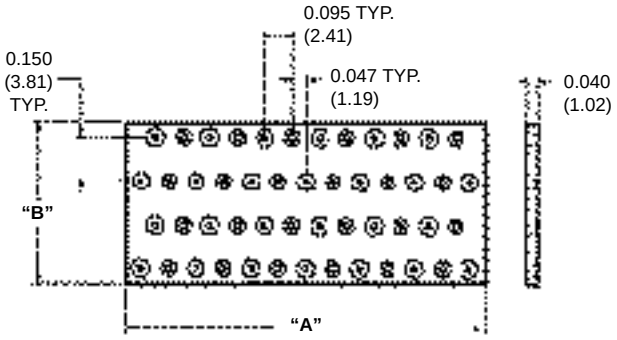
SMPL SERIES CONNECTOR MOUNTING BRACKET



PART NUMBER	A	B	CONNECTOR VARIANTS
80213-0	0.105 (2.67)	0.205 (5.21)	4, 5, 7, 9
80213-1	0.140 (3.56)	0.240 (6.10)	11, 14, 20, 26, 29
80213-2	0.195 (4.95)	0.295 (7.49)	34, 44, 50

MATERIAL: PHOSPHOR BRONZE
FINISH: ZINC PLATE WITH DICHROMATE SEAL

SMPL SERIES CONNECTOR ALIGNMENT BAR



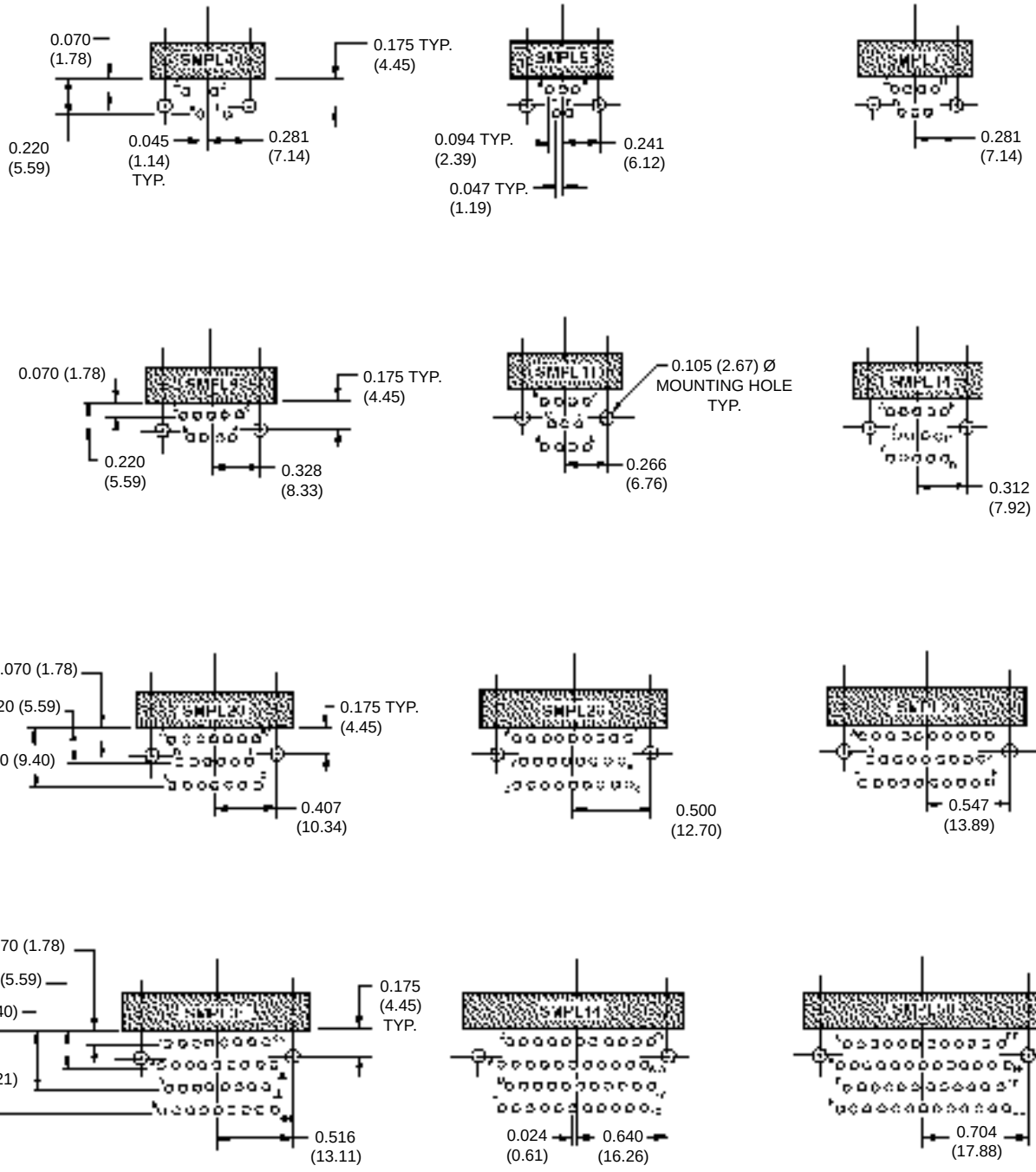
SIZE	"A"	"B"
5	0.314 (7.98)	0.290 (7.37)
7	0.394 (10.01)	0.290 (7.37)
9	0.488 (12.40)	0.290 (7.37)
11	0.364 (9.25)	0.415 (10.54)
14	0.456 (11.58)	0.415 (10.54)
20	0.646 (16.41)	0.415 (10.54)
26	0.832 (21.13)	0.415 (10.54)
29	0.926 (23.52)	0.415 (10.54)
34	0.864 (21.95)	0.550 (13.97)
44	1.112 (28.24)	0.550 (13.97)
50	1.240 (31.50)	0.550 (13.97)

MATERIAL: NYLON, BLACK

DIMENSIONS ARE IN INCHES (MILLIMETERS). ALLDIMENSIONS ARE SUBJECT TO CHANGE.

SMPL SERIES RIGHT ANGLE PRINTED BOARD HOLE PATTERN

HOLE IDENTIFICATION SHOWN IS FOR MALE CONNECTOR
USE MIRROR IMAGE FOR FEMALE CONNECTOR



SUGGEST 0.105 (2.66) Ø HOLES IN PRINTED BOARD FOR CONNECTOR MOUNTING HOLES

SUGGEST 0.040 (1.01) Ø HOLES IN PRINTED BOARD FOR CONTACT TERMINATIONS

ADD 0.030 (0.76) TO THE MOUNTING HOLE POSITION WHEN MOUNTING BRACKET (LB) AND VIBRATION LOCK TAB (V) ARE USED IN COMBINATION ON CONNECTOR

DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALLDIMENSIONS ARE SUBJECT TO CHANGE.

ORDERING INFORMATION – CODE NUMBERING SYSTEM

Specify Complete Connector By Following Steps 1 Through 7
Insert "0" When Step Is Not Used

STEP	1	2	3	4	5	6	7	–	8
	SMPL	50	F	0	T	0	LB		

STEP 1 - Basic Series
SMPL Series.

STEP 2 - SMPL Series Connector Variants
4, 5, 7, 9, 11, 14, 20, 26, 29, 34, 44, 50

STEP 3 - Connector Gender
M – Male insulator.
F – Female insulator.

STEP 4 - Contact Termination Type
0 – Standard termination, 90° angle.

***STEP 5 - Polarizing Guides and Jackscrew System**
N – Polarizing guides.
NSS – Stainless steel polarizing guides.
T – Fixed jackscrews.
0 – If no polarizing guides or jackscrews are required.

***STEP 6 - Locking Devices**
V – Lock tab.
VL – Lock lever.
0 – If no locking devices are required.

STEP 7 - Mounting Bracket
LB – Mounting bracket.
0 – If no mounting bracket is required.

***NOTE: FOR DETAILS OF ITEMS LISTED IN STEPS 5 AND 6, SEE HIGH DENSITY RECTANGULAR CONNECTOR ACCESSORIES SECTION**

MIL-DTL-28748 & MIL-C-39029
QUALIFIED PRODUCTS LISTING

Positronic Industries' Federal Supply Code for Manufacturers is number 28198.

Positronic Industries offers the listing below of connectors and connector accessories, which are products qualified under Military Specification MIL-DTL-28748 and MIL-C-39029. For additional Q.P.L. connectors, please consult the factory sales office.

Positronic SGMC series connectors are Q.P.L. approved to MIL-DTL-28748 per test report number 28748-1446-85.
Positronic SGMC series contacts are Q.P.L. approved to MIL-C-39029 per test report number 39029-1452-85.
Positronic SGMC series connectors are Q.P.L. approved to MIL-DTL-28748 per test report number 28748-346-77 and 28748-204-81.

MILITARY PART NUMBER	MILITARY PART NUMBER	MILITARY PART NUMBER	MILITARY PART NUMBER
M28748/7A10L1A	M28748/7H00S1A	M28748/8H10L1A	M28748/13H00S1A
M28748/7A00F1A	M28748/7H00G1A	M28748/8H00F1A	M28748/13H00G1A
M28748/7A00S1A	M28748/8A10L1A	M28748/8H00S1A	M28748/14B10L1A
M28748/7A00G1A	M28748/8A00F1A	M28748/8H00G1A	M28748/14B00F1A
M28748/7B10L1A	M28748/8A00S1A	M28748/13B10L1A	M28748/14B00S1A
M28748/7B00F1A	M28748/8A00G1A	M28748/13B00F1A	M28748/14B00G1A
M28748/7B00S1A	M28748/8B10L1A	M28748/13B00S1A	M28748/14C10L1A
M28748/7B00G1A	M28748/8B00F1A	M28748/13B00G1A	M28748/14C00F1A
M28748/7C10L1A	M28748/8B00S1A	M28748/13C10L1A	M28748/14C00S1A
M28748/7C00F1A	M28748/8B00G1A	M28748/13C00F1A	M28748/14C00G1A
M28748/7C00S1A	M28748/8C10L1A	M28748/13C00S1A	M28748/14D10L1A
M28748/7C00G1A	M28748/8C00F1A	M28748/13C00G1A	M28748/14D00F1A
M28748/7D10L1A	M28748/8C00S1A	M28748/13D10L1A	M28748/14D00S1A
M28748/7D00F1A	M28748/8C00G1A	M28748/13D00F1A	M28748/14D00G1A
M28748/7D00S1A	M28748/8D10L1A	M28748/13D00S1A	M28748/14E10L1A
M28748/7D00G1A	M28748/8D00F1A	M28748/13D00G1A	M28748/14E00F1A
M28748/7E10L1A	M28748/8D00S1A	M28748/13E10L1A	M28748/14E00S1A
M28748/7E00F1A	M28748/8D00G1A	M28748/13E00F1A	M28748/14E00G1A
M28748/7E00S1A	M28748/8E10L1A	M28748/13E00S1A	M28748/14F10L1A
M28748/7E00G1A	M28748/8E00F1A	M28748/13E00G1A	M28748/14F00F1A
M28748/7F10L1A	M28748/8E00S1A	M28748/13F10L1A	M28748/14F00S1A
M28748/7F00F1A	M28748/8E00G1A	M28748/13F00F1A	M28748/14F00G1A
M28748/7F00S1A	M28748/8F10L1A	M28748/13F00S1A	M28748/14G10L1A
M28748/7F00G1A	M28748/8F00F1A	M28748/13F00G1A	M28748/14G00F1A
M28748/7G10L1A	M28748/8F00S1A	M28748/13G10L1A	M28748/14G00S1A
M28748/7G00F1A	M28748/8F00G1A	M28748/13G00F1A	M28748/14G00G1A
M28748/7G00S1A	M28748/8G10L1A	M28748/13G00S1A	M28748/14H10L1A
M28748/7G00G1A	M28748/8G00F1A	M28748/13G00G1A	M28748/14H00F1A
M28748/7H10L1A	M28748/8G00S1A	M28748/13H10L1A	M28748/14H00S1A
M28748/7H00F1A	M28748/8G00G1A	M28748/13H00F1A	M28748/14H00G1A
			M39029/34-440
			M39029/35-441

ORDERING INFORMATION
FOR MIL-DTL-28748/13 and MIL-DTL-28748/14
FOR MIL-DTL-28748/7 and MIL-DTL-28748/8

CHART #1 MALE CONNECTORS

PART NUMBER EXPLANATIONS

M28748/13	A	1	0	L	1A

Step 1 – Basic Part Number M28748/13

Step 2 – Insert Size
A-4 Contact Variant
B-7 Contact Variant
C-14 Contact Variant
D-20 Contact Variant
E-26 Contact Variant
F-34 Contact Variant
G-44 Contact Variant
H-50 Contact Variant

Step 3 – Shields
1-Top Opening Hood
2-Side Opening Hood
0-None

Step 4 – Shell
0-None Included

Step 5 – Jackscrews/Guide Pins
L-Long Jackscrews/Shields Only
S-Short Jackscrews/No Shields
F-Fixed Jackscrews/No Shields
G-Guide Pins/No Shields
0-None Included

Step 6 – Contacts
1A-100% Size 22 per MIL-C-39029/34-440

CHART #2 FEMALE CONNECTORS

PART NUMBER EXPLANATIONS

M28748/14	B	1	0	L	1A

Step 1 – Basic Part Number M28748/14

Step 2 – Insert Size
A-4 Contact Variant
B-7 Contact Variant
C-14 Contact Variant
D-20 Contact Variant
E-26 Contact Variant
F-34 Contact Variant
G-44 Contact Variant
H-50 Contact Variant

Step 3 – Shields
1-Top Opening Hood
2-Side Opening Hood
0-None

Step 4 – Shell
0-None Included

Step 5 – Jackscrews/Guide Pins
L-Long Jackscrews/Shields Only
S-Short Jackscrews/No Shields
F-Fixed Jackscrews/No Shields
G-Guide Pins/No Shields
0-None Included

Step 6 – Contacts
1A-100% Size 22 per MIL-C-39029/35-441

CHART #3 MALE CONNECTORS

PART NUMBER EXPLANATIONS

M28748/7	C	0	0	S	1A

Step 1 – Basic Part Number M28748/7

Step 2 – Insert Size
A - 4 Contact Variant
B - 7 Contact Variant
C - 14 Contact Variant
D - 20 Contact Variant
E - 26 Contact Variant
F - 34 Contact Variant
G - 44 Contact Variant
H - 50 Contact Variant
N - 4 Contact Variant (No Insert)
P - 7 Contact Variant (No Insert)
Q - 14 Contact Variant (No Insert)
R - 20 Contact Variant (No Insert)
S - 26 Contact Variant (No Insert)
T - 34 Contact Variant (No Insert)
U - 44 Contact Variant (No Insert)
V - 50 Contact Variant (No Insert)
0 - None

Step 3 – Shields
1-Top Opening Hood (With Shell)
2-Side Opening Hood (With Shell)
0-None

Step 4 – Shell
A - A (Polarized Plug)
B - B (Polarized Plug)
C - C (Polarized Plug)
D - D (Polarized Plug)
E - E (Polarized Plug)
F - F (Polarized Plug)
G - G (Polarized Plug)
H - Unpolarized Plug
J - A (Polarized Receptacle)
K - B (Polarized Receptacle)
L - C (Polarized Receptacle)
M - D (Polarized Receptacle)
N - E (Polarized Receptacle)
P - F (Polarized Receptacle)
Q - G (Polarized Receptacle)
R - Unpolarized Receptacle
0 - None

Step 5 – Jackscrews/Guide Pins
L - Long Jackscrews (Shields Only)
S - Short Jackscrews (No Shield)
F - Fixed Jackscrews (No Shield)
G - Guide Pins (No Shield)
E - Miniature Jackscrews, Slotted Head
H - Miniature Jackscrews, Hex Head
0 - None

Step 6 – Contacts
1A- Size 22 Contacts
1L- None

CHART #4 FEMALE CONNECTORS

PART NUMBER EXPLANATIONS

M28748/8	C	0	0	S	1A

Step 1 – Basic Part Number M28748/8

Step 2 – Insert Size
A - 4 Contact Variant
B - 7 Contact Variant
C - 14 Contact Variant
D - 20 Contact Variant
E - 26 Contact Variant
F - 34 Contact Variant
G - 44 Contact Variant
H - 50 Contact Variant
N - 4 Contact Variant (No Insert)
P - 7 Contact Variant (No Insert)
Q - 14 Contact Variant (No Insert)
R - 20 Contact Variant (No Insert)
S - 26 Contact Variant (No Insert)
T - 34 Contact Variant (No Insert)
U - 44 Contact Variant (No Insert)
V - 50 Contact Variant (No Insert)
0 - None

Step 3 – Shields
1-Top Opening Hood (With Shell)
2-Side Opening Hood (With Shell)
0-None

Step 4 – Shell
A - A (Polarized Plug)
B - B (Polarized Plug)
C - C (Polarized Plug)
D - D (Polarized Plug)
E - E (Polarized Plug)
F - F (Polarized Plug)
G - G (Polarized Plug)
H - Unpolarized Plug
J - A (Polarized Receptacle)
K - B (Polarized Receptacle)
L - C (Polarized Receptacle)
M - D (Polarized Receptacle)
N - E (Polarized Receptacle)
P - F (Polarized Receptacle)
Q - G (Polarized Receptacle)
R - Unpolarized Receptacle
0 - None

Step 5 – Jackscrews/Guide Pins
L - Long Jackscrews (Shields Only)
S - Short Jackscrews (No Shield)
F - Fixed Jackscrews (No Shield)
G - Guide Pins (No Shield)
E - Miniature Jackscrews, Slotted Head
H - Miniature Jackscrews, Hex Head
0 - None

Step 6 – Contacts
1A- Size 22 Contacts
1L- None