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Miniature Circle Hex Connectors

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Featuring high performance, lightweight, composite construction

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Unless otherwise specified, dimensional tolerances are:

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

CATALOG NUMBER:
C–013 REV. A

PUBLISHED IN THE UNITED STATES OF AMERICA

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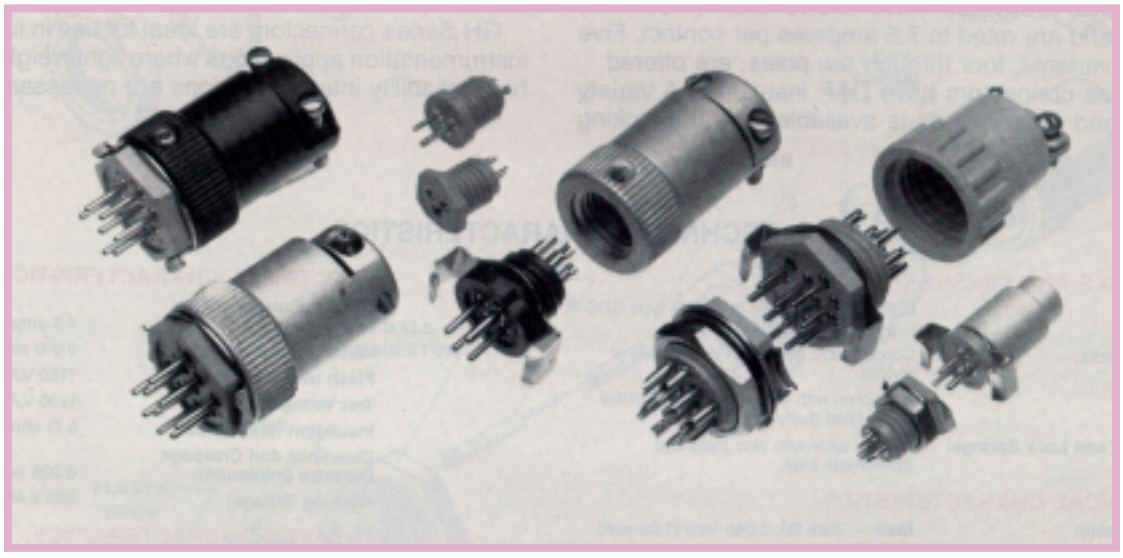
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GH SERIES

PROFESSIONAL QUALITY, FIXED CONTACT CIRCLE HEX CONNECTORS

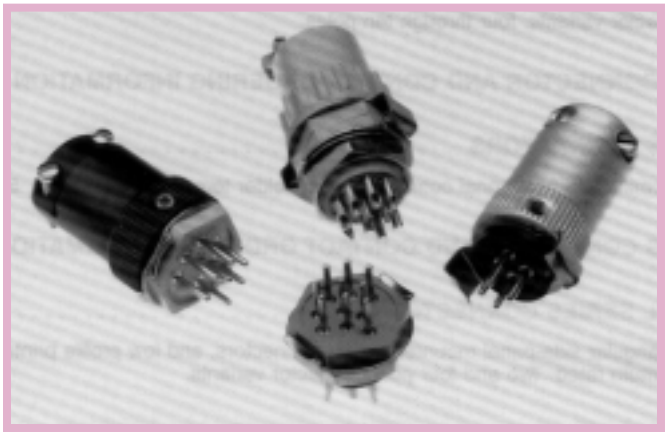
Size 20 Contacts

High Performance Construction

5 Insulator Variants

4 through 10 Contacts

U.L. Recognized
File #E49351



GH Series connectors are high reliability, hexagonal connectors offered with solder and straight solder terminations. Contacts have 0.040 inch (1.02 mm) diameters and are rated to 7.5 amperes per contact. Five connector variants, four through ten poles, are offered.

GH Series connectors have DAP insulators. A variety of plastic and metal hoods are available, and the locking system is achieved by a lock-ring spring mechanism. Polarization is accomplished by contact layouts or by an oversized contact.

GH Series connectors are ideal for use in industrial and instrumentation applications where light weight, miniature, high reliability interconnections are necessary.

TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator:	Glass-filled DAP per ASTM-D-5948, Type SDG-F. Grey color is standard.
Fixed Contacts:	Copper alloy, gold flash over nickel or copper.
Hoods:	Aluminium with yellow or black anodize. Glass-filled diallyl phthalate.
Lock Rings and Lock Springs:	Copper alloy with zinc plate and dichromate seal.

MECHANICAL CHARACTERISTICS:

Fixed Contacts:	
Male:	Size 20: 0.040 inch (1.02 mm) diameter.
Female:	Open entry is standard. “Closed Entry” is available on solder-style contacts for high reliability applications.
Contact Retention in Insulator:	10 lbs. (44.5N), minimum.
Contact Termination:	0.046 inch (1.17 mm) internal diameter on solder style contacts for 20 AWG (0.5 mm^2) wire maximum
	0.025 inch (0.64 mm) diameter straight solder, printed board mount style contact.
Locking Systems:	Friction, lock spring with lock ring.

MECHANICAL CHARACTERISTICS, continued:

Polarization:	0.056 inch (1.42 mm) diameter male contact in position “A” on Size 4 connector. Molding configuration provides polarization on other sizes.
Mechanical Operations:	
Open Entry Contacts:	250 operations per IEC 512-5.
Closed Entry Contacts:	500 operations per IEC 512-5.

ELECTRICAL CHARACTERISTICS:

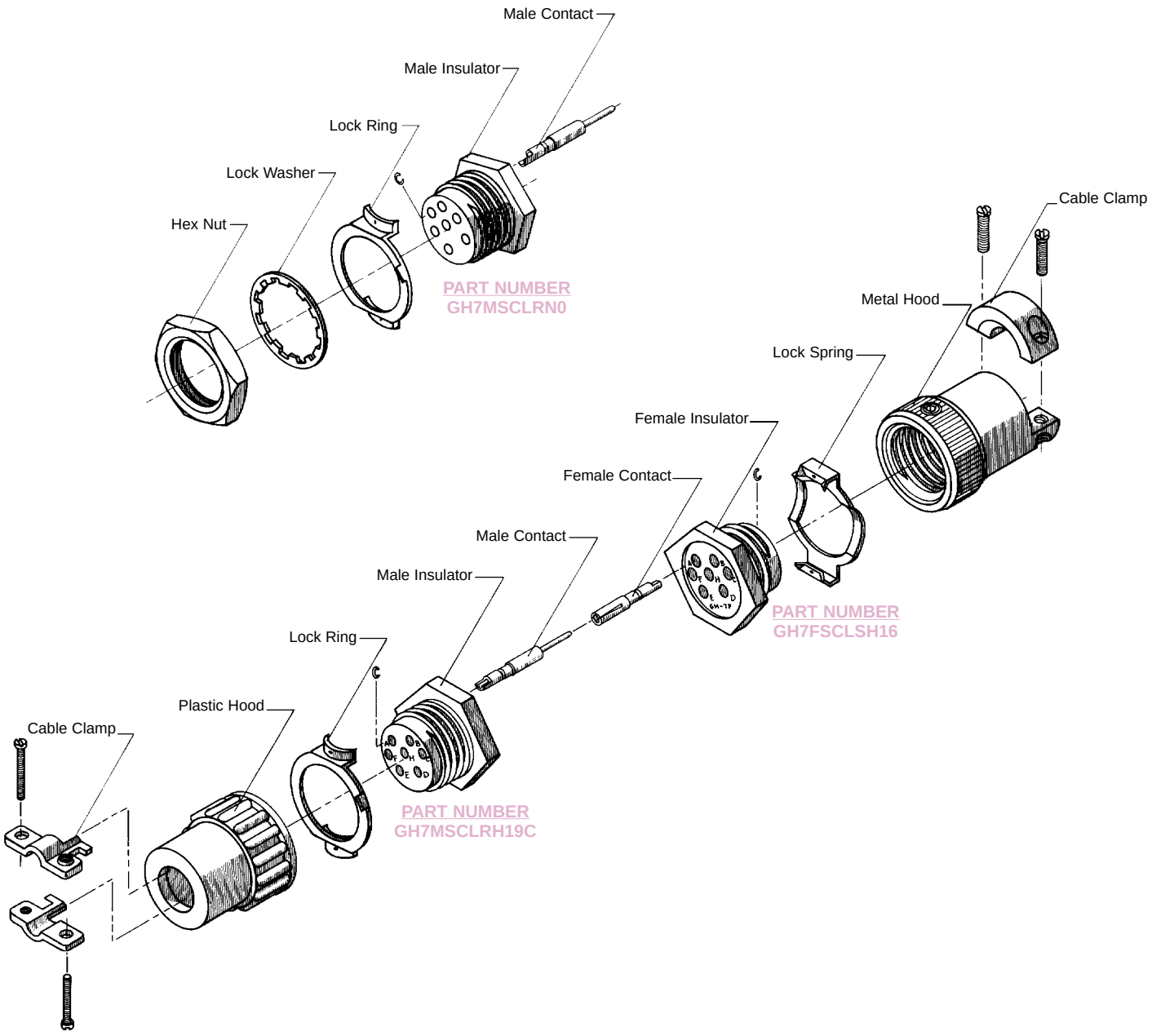
Contact Current Rating:	7.5 amps, maximum.
Initial Contact Resistance:	0.010 ohms, maximum.
Flash over Voltage:	1,750 VAC (rms).
Test Voltage:	1,200 VAC (rms).
Insulation Resistance:	5 G ohms.
Clearance and Creepage Distance:	0.025 inch (0.64 mm), minimum.
Working Voltage:	300 VAC (rms).

CLIMATIC CHARACTERISTICS:

Temperature Range:	-55˚C to +125˚C.
Damp Heat, Steady State:	21 days.

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EXPLODED VIEW OF TYPICAL CONNECTOR ASSEMBLY

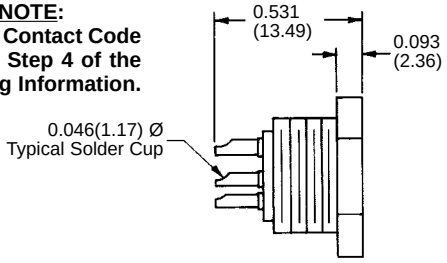


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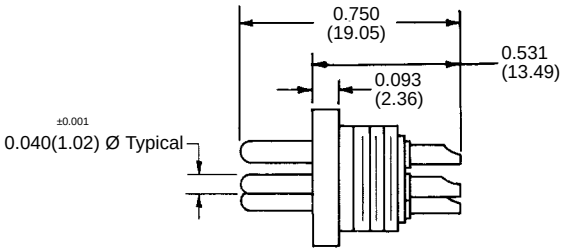
PROFESSIONAL QUALITY, FIXED CONTACT MINIATURE CIRCLE-HEX CONNECTORS

GH SERIES CONNECTOR WITH SOLDER CONTACTS

NOTE:
Specify Contact Code "SC" in Step 4 of the Ordering Information.



TYPICAL PART NUMBER: GH4FSC00



TYPICAL PART NUMBER: GH4MSC00

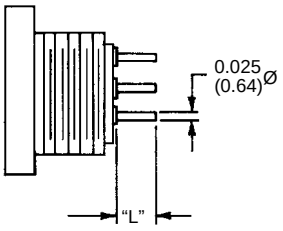
MATERIAL: Copper alloy.
FINISH: Gold flash over nickel or copper.

GH4 has 0.056 ±0.001 (1.42) Ø Pin in "A" position for polarization.

GH SERIES CONNECTOR WITH STRAIGHT SOLDER CONTACTS

NOTE:
Specify Contact Code for desired length of contact termination in Step 4 of the Ordering Information.

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



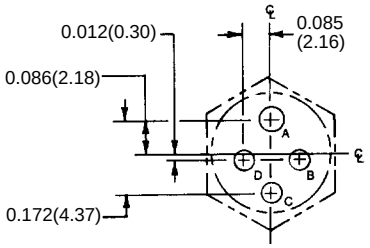
TYPICAL PART NUMBER: GH5FDS400

MATERIAL: Copper alloy.
FINISH: Gold flash over nickel or copper.

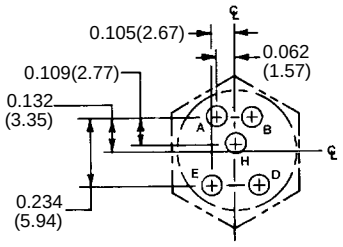
Straight solder contacts are not available in GH4 connector.

GH SERIES CONTACT HOLE POSITION DIMENSIONS AND PRINTED BOARD HOLE PATTERN

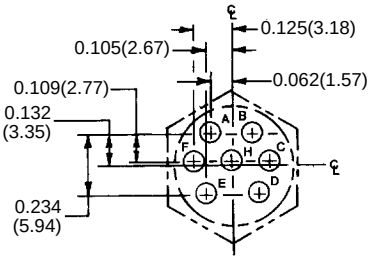
Hole Identification shown is for mating face of female connector. Use mirror image for male connector.



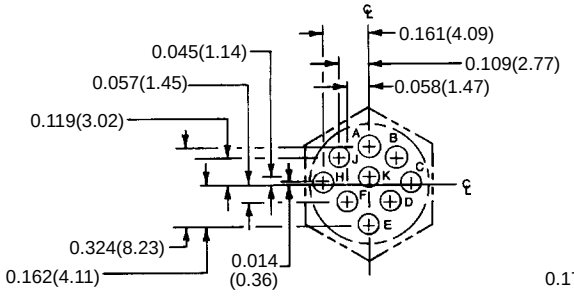
GH4



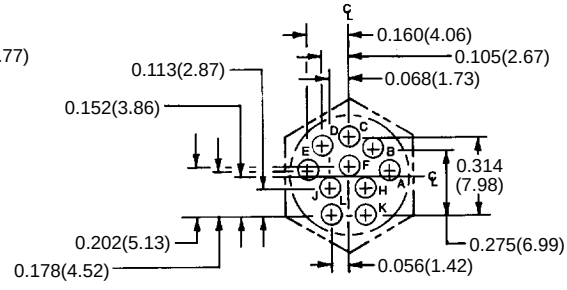
GH5



GH7



GH9



GH10

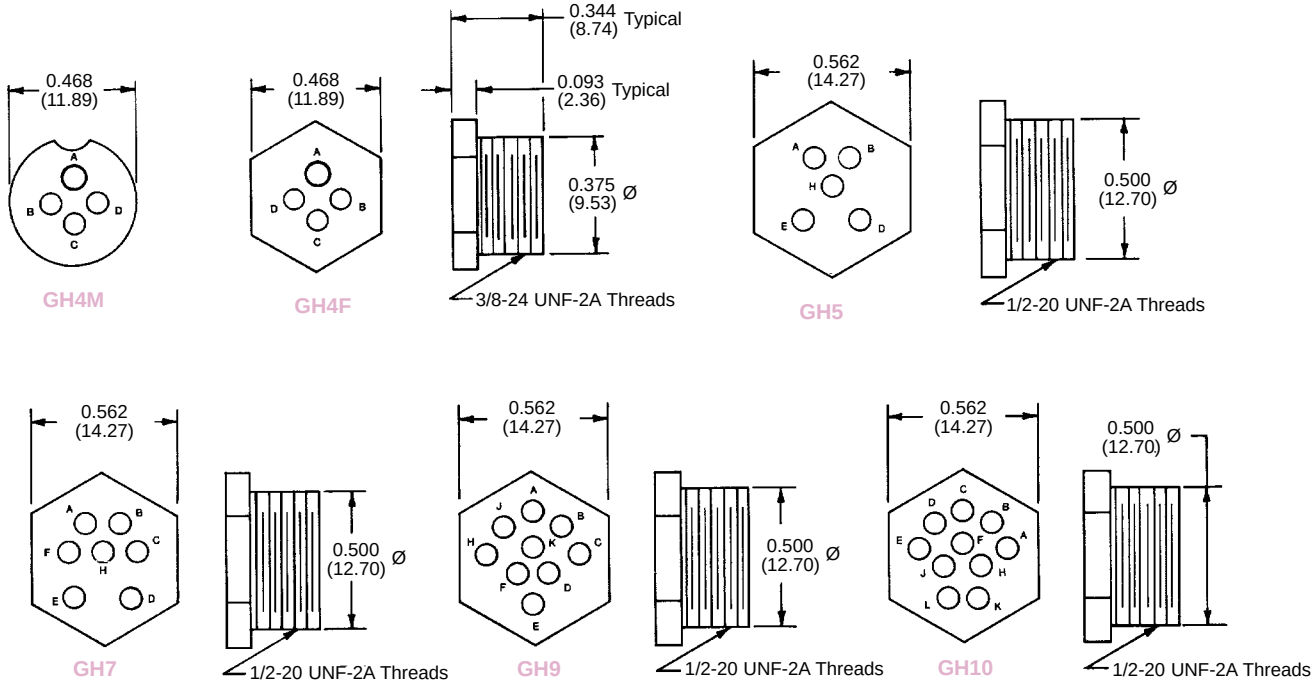
Suggest 0.040(1.01) Ø holes in printed board for contact terminations.

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

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GH SERIES INSULATOR DIMENSIONS

Mating face of female connector for Sizes GH 5, 7, 9, and 10.



See GH Series Printed Board Hole Patterns, page 3 of this catalog, for contact variant hole positions.

For Sizes 5 through 10, male and female connector dimensions are typical.

MATERIAL: Glass-filled diallyl phthalate per ASTM-D-5948, Type SDG-F.

Size GH4 uses 0.056(1.42) Ø pin in position "A" for polarization. For all other sizes, the body design provides polarization.

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

TYPICAL MATING ASSEMBLIES

GH4MSCLSH10C



GH4FSCLRN0



GH5FSCLRH19S



GH5MSCLSH19



GH10FSCLSH16



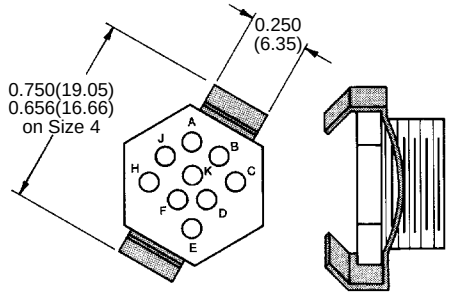
GH10MDS4LRN0



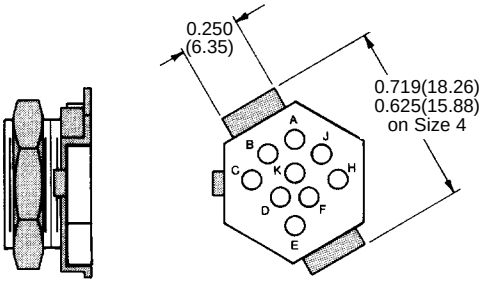
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GH SERIES LOCKING DEVICES

LOCK SPRING

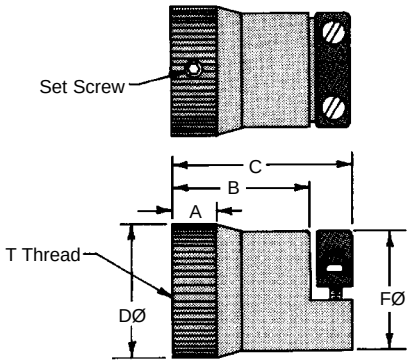


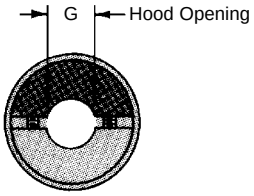
LOCK RING AND NUT



MATERIAL: Copper alloy.
FINISH: Zinc plate with dichromate seal.

GH SERIES ALUMINUM HOODS







HOOD CODE	CONNECTOR SIZE	A	B	C	D	F	G	T THREAD
H14	GH-4	0.25 (6.4)	0.80 (20.3)	1.06 (26.9)	0.59 (15.0)	0.56 (14.2)	0.22 (5.6)	3/8-24 UNF-2B
H16	GH-5, 7, 9, 10	0.25 (6.4)	0.71 (18.0)	0.94 (23.9)	0.67 (17.0)	0.58 (14.7)	0.25 (6.4)	1/2-20 UNF-2B

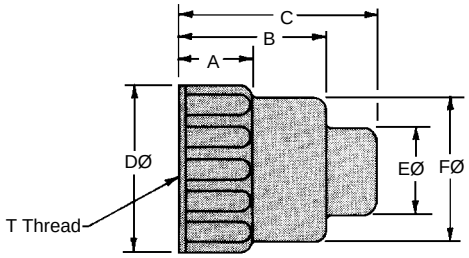
MATERIAL: Aluminum.
FINISH: Yellow anodize is standard.
Black anodize also available.

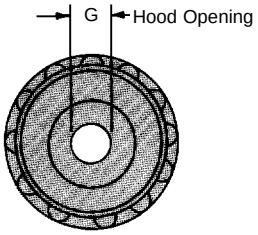
DIMENSIONS ARE IN INCHES (MILLIMETERS).
ALL DIMENSIONS ARE SUBJECT TO CHANGE.

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GH SERIES PLASTIC HOODS

STANDARD HOOD

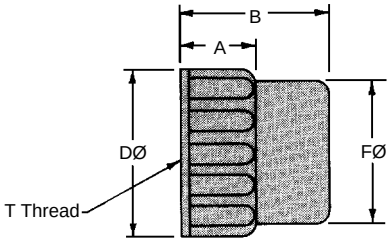


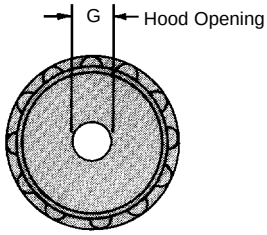




HOOD CODE	CONNECTOR SIZE	A	B	C	D	E	F	G	T THREAD
H10	GH4	0.31 (7.9)	0.69 (17.5)	0.75 (19.1)	0.56 (14.2)	0.25 (6.4)	0.44 (11.2)	0.16 (4.1)	3/8-24 UNF-2B
H19	GH 5, 7, 9, 10	0.28 (7.1)	0.66 (16.8)	0.88 (22.4)	0.66 (16.8)	0.42 (10.7)	0.54 (13.7)	0.30 (7.6)	1/2-20 UNF-2B

SHORT HOOD

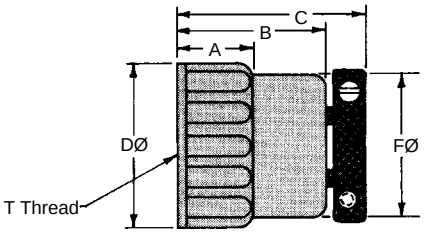


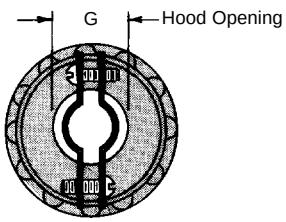




HOOD CODE	CONNECTOR SIZE	A	B	D	F	G	T THREAD
H10S	GH4	0.31 (7.9)	0.69 (17.5)	0.56 (14.2)	0.44 (11.2)	0.16 (4.1)	3/8-24 UNF-2B
H19S	GH 5, 7, 9, 10	0.28 (7.1)	0.66 (16.8)	0.66 (16.8)	0.54 (13.7)	0.30 (7.6)	1/2-20 UNF-2B

HOODS WITH CABLE CLAMPS







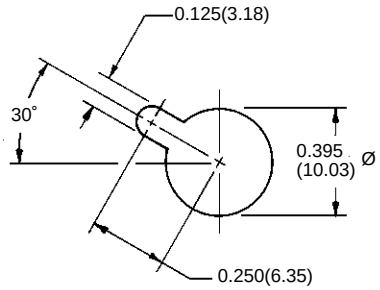
HOOD CODE	CONNECTOR SIZE	A	B	C	D	F	G	T THREAD
H10C	GH4	0.31 (7.9)	0.69 (17.5)	0.83 (21.1)	0.56 (14.2)	0.44 (11.2)	0.21 (5.3)	3/8-24 UNF-2B
H19C	GH 5, 7, 9, 10	0.28 (7.1)	0.66 (16.8)	0.86 (21.8)	0.66 (16.8)	0.54 (13.7)	0.30 (7.6)	1/2-20 UNF-2B

MATERIAL: Glass-filled diallyl phthalate per ASTM-D-5948, Type SDG-F.
CABLE CLAMPS: Aluminum, yellow anodize finish.

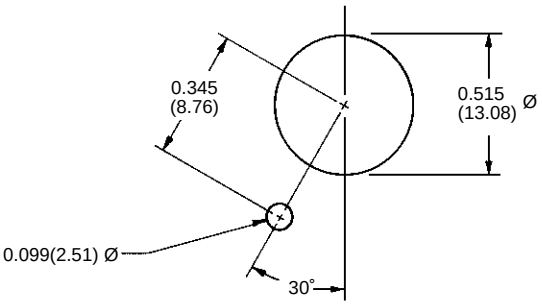
DIMENSIONS ARE IN INCHES (MILLIMETERS). ALL DIMENSIONS ARE SUBJECT TO CHANGE.

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PANEL CUT-OUT DIMENSIONS FOR GH SERIES

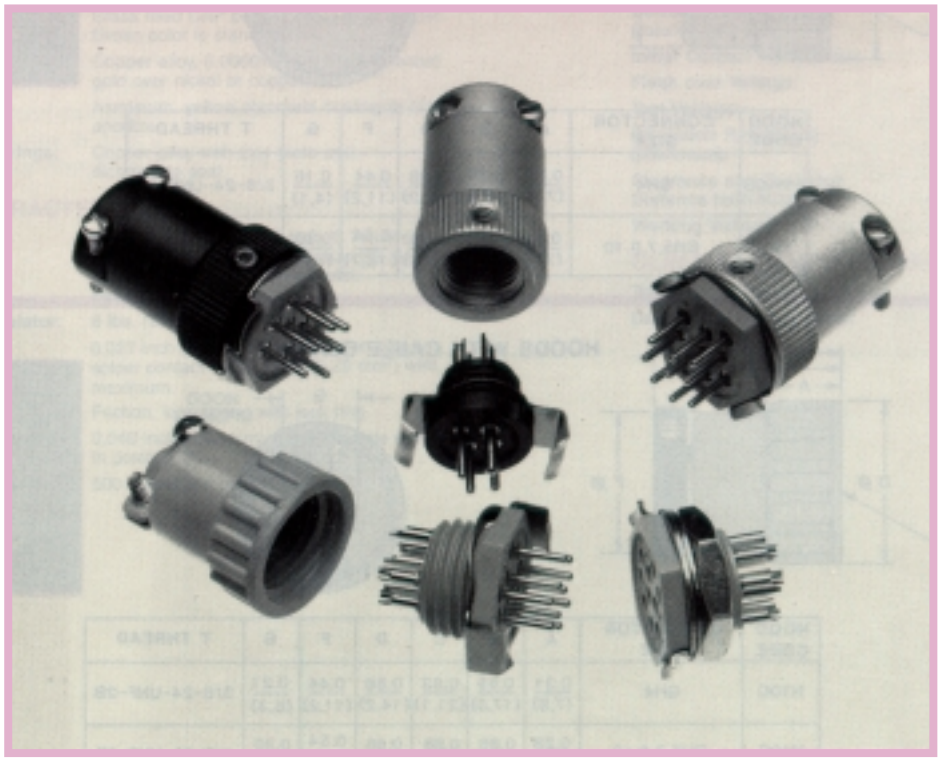


SIZE 4



SIZES 5, 7, 9, & 10

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



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PROFESSIONAL QUALITY, FIXED CONTACT MINIATURE CIRCLE-HEX CONNECTORS

ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify the complete connector by following Steps 1 through 7.
Insert "0" when a step is not used.

STEP	1	2	3	4	5	6	—	7
	GH	10	M	SC	LRN	0		

STEP 1 - Basic Series
GH Series

STEP 2 - GH Series Connector Variants
4, 5, 7, 9, 10

STEP 3 - Connector Gender
M - Male Insulator
F - Female Insulator

STEP 4 - Contact Termination Type
SC - Solder. For "Closed Entry" design, add "CE" in Step 7.
DS3 - Straight Solder, [0.093(2.36)].
DS4 - Straight Solder, [0.125(3.18)].
DS5 - Straight Solder, [0.156(3.96)].
DS6 - Straight Solder, [0.187(4.75)].
NOTE: DS contacts are not available on GH4 connector.

STEP 5 - Mounting and Locking Accessories
LR - Lock Ring.
LS - Lock Spring.
N - Mounting Nut.
W - Lockwasher.
0 - If no mounting or locking accessories are required.
NOTE: When the Lock Ring (LR) or Lock Spring (LS) are ordered with the Mounting Nut (N), a Lockwasher (W) is furnished.

STEP 6 - Cable Adapters (Hoods)
H10 - Standard plastic hood offered on 4 variant.
H19 - Standard plastic hood offered on 5, 7, 9, and 10 variants.
H10S - Short plastic hood offered on 4 variant.
H19S - Short plastic hood offered on 5, 7, 9, and 10 variants.
H10C - Plastic hood with cable clamps offered on 4 variant.
H19C - Plastic hood with cable clamps offered on 5, 7, 9, and 10 variants.
✶ H14 - Aluminum hood offered on 4 variant.
✶ H16 - Aluminum hood offered on 5, 7, 9, and 10 variants.
0 - If no hoods are required.

STEP 7 - Special Customer Requirements
✶ B - For black anodized aluminum parts.
CE - "Closed Entry" contacts on female solder contact.
NOTE: Position "A" of GH4 connector is available as "Open Entry" only.

✶ NOTE:
Yellow anodize finish is standard for aluminium parts.

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

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MGH SERIES

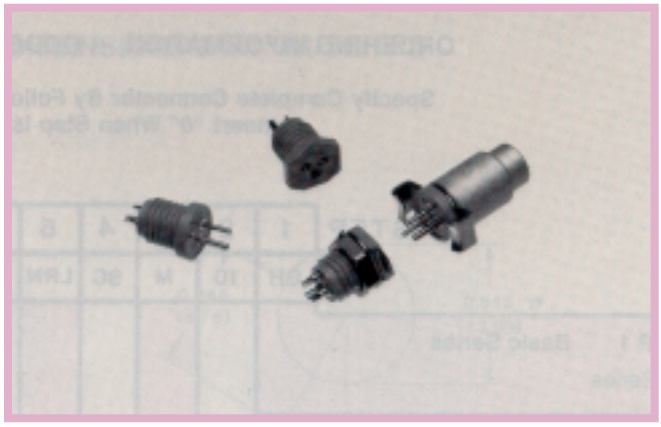
PROFESSIONAL QUALITY, MICROMINIATURE, FIXED CONTACT CIRCLE HEX CONNECTORS

Size 22 Contacts

High Performance Construction

Polarization and Locking Accessories

U.L. Recognized
File #E49351



MGH Series connectors are microminiature, high reliability connectors. They are available with three contacts for providing polarization: two contacts at 0.030 inch (0.76 mm) diameter, and one contact at 0.040 inch (1.02 mm) diameter. The MGH Series is rated to three amperes per contact. Spacing between contacts is 0.102 inch (2.59 mm), and the face diameter of the connector is 0.312 inch (7.92 mm).

MGH Series connectors are ideally applied where limited space is a concern. MGH Series connectors can be used as cable connectors, panel-mounted connectors, or probes. Constructed of high performance materials, MGH Series connectors are widely used in medical, industrial, military, and automotive applications.

TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulator:	Glass-filled DAP per ASTM-D-5948, Type SDG-F. Green color is standard.
Fixed Contacts:	Copper alloy, gold flash over nickel or copper.
Hoods:	Aluminium with yellow or black anodize.
Lock Rings and Lock Springs:	Copper alloy with zinc plate and dichromate seal.

MECHANICAL CHARACTERISTICS:

Fixed Contacts:	
Male:	Two (2) Size 22: 0.030 inch (0.76 mm) diameter contacts, and one (1) Size 20: 0.040 inch (1.02mm) diameter contact.
Female:	Open entry.
Contact Retention in Insulator:	6 lbs. (26.5 N), minimum.
Contact Termination:	0.027 inch (0.69 mm) internal diameter on solder style contact for 24 AWG (0.25 mm^2) wire maximum
Locking Systems:	Friction, lock spring with lock ring.
Polarization:	0.040 inch (1.02 mm) diameter male contact in position “A”.
Mechanical Operations:	250 operations per IEC 512-5.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating:	3 amps, maximum.
Initial Contact Resistance:	0.012 ohms, maximum.
Flash over Voltage:	1,500 VAC (rms).
Test Voltage:	1,000 VAC (rms).
Insulation Resistance:	5 G ohms, minimum.
Clearance and Creepage Distance:	0.021 inch (0.53 mm), minimum.
Working Voltage:	250 VAC (rms).

CLIMATIC CHARACTERISTICS:

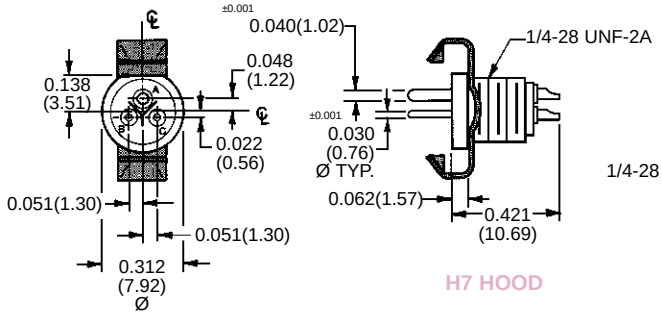
Temperature Range:	-55˚C to +125˚C.
Damp Heat, Steady State:	21 days.

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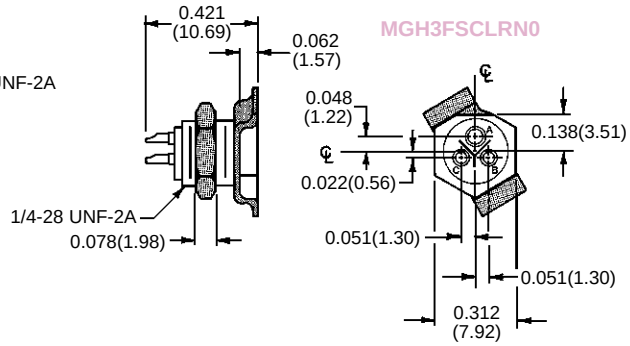
PROFESSIONAL QUALITY, FIXED CONTACT MINIATURE CIRCLE-HEX CONNECTORS

TYPICAL ASSEMBLIES

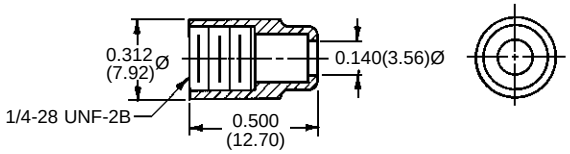
MGH3MSCLS0



MGH3FSCLRN0

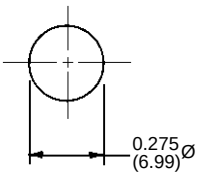


H7 HOOD



PANEL CUTOUTS

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



ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify the complete connector by following Steps 1 through 7.
Insert "0" when a step is not used.

STEP	1	2	3	4	5	6	—	7
	MGH	3	M	SC	LRN	0		

STEP 1 - Basic Series
MGH Series

STEP 2 - MGH Series Connector Variants
3 - Contact Connector Variant

STEP 3 - Connector Gender
M - Male Insulator
F - Female Insulator

STEP 4 - Contact Termination Type
SC - Solder.

STEP 5 - Mounting and Locking Accessories
LR - Lock Ring.
LS - Lock Spring.
LRN - Lock Ring and Nut.
0 - If no mounting or locking accessories are required.

STEP 6 - Cable Adapters (Hoods)
H7 - Aluminium hood, yellow anodize.
H7B - Aluminium hood, black anodize.
0 - If no hoods are required.

STEP 7 - Special Customer Requirements

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NORTH AMERICAN HEADQUARTERS

UNITED STATES, Springfield, Missouri

Factory Sales and Engineering Offices	(800)641-4054

PUERTO RICO, Ponce Factory

Factory Sales and Engineering Offices	(787)841-0920

MEXICO

Factory Sales and Engineering Offices	(800)872-7674

CANADA

Factory Sales and Engineering Offices	(800)327-8272

PACIFIC BASIN HEADQUARTERS

SINGAPORE, Asian Factory

Factory Sales and Engineering Offices	65-6842-1419
Malaysia Sales Office	65-6842-1419
Taiwan Sales Office	8862-2937-8775
China (Shanghai) Sales Office	8621-6308-3640
Japan Sales Office	8135-661-3047

*Additional Technical Agents in Australia, New Zealand, India South Korea,Thailand, Philippines, Hong Kong and Indonesia.

EUROPEAN HEADQUARTERS

FRANCE, Auch Factory

Factory Sales and Engineering Offices	33 5 62 63 44 91

EUROPE, Direct Sales Offices

Northern France Sales Office	33 1 45 88 13 88
Southern France Sales Office	33 4 67 72 80 28
Italy Sales Office	39 2 54 116 106
Germany Sales Office	49 2351 63 47 39

EUROPE, Technical Agents

Technical Agents in Austria, Benelux, Denmark, Finland, Greece, Ireland, Scotland, Slovenia, Spain, Sweden, Switzerland and the United Kingdom

MIDEAST, Technical Agents

Technical Agents in Israel and Turkey

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