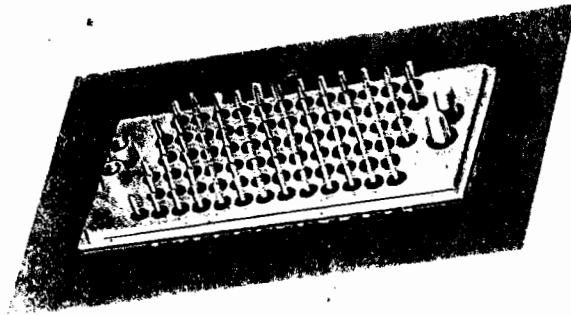
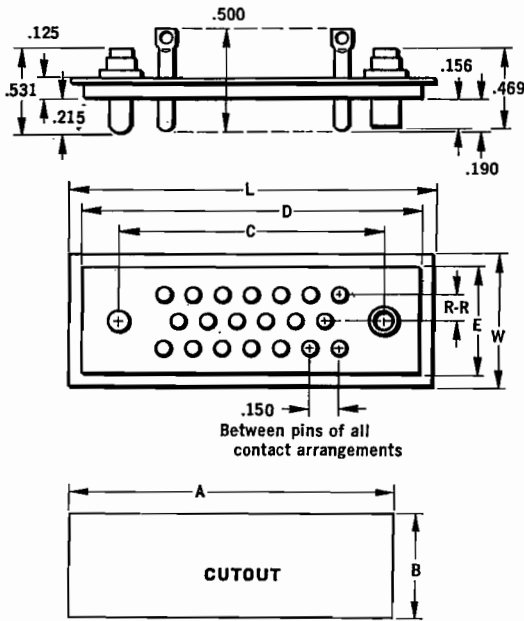


# Miniature Connector - Hermetically Sealed



type **HM**

Reference MIL-C-28748

**Number of Contacts 7, 9, 11, 14, 18, 20, 21, 26, 34, 41, 50, 75, 104**

This miniature hermetically sealed connector line is widely used as a standard connector in such typical "black box" applications as telemetering equipment, mate with MIL-C-8384 non-hermetic types.

## Specifications:

- Body** - C.R. Steel.
- Insulation material** - Glass (compression seal).
- Contacts** - Nickel alloy or C.R. steel (pin contacts only).
- Body plating** - gold over nickel.

- Contact plating** - gold over nickel.
- Wire accommodated** - #20, #16 AWG
- Max. Operating Temperature** - 700°F.
- Contact Diameter** - .040, .0625
- Contact rating** - 5 amps, 10 amps.
- Voltage breakdown** - 1500 V AC RMS, 1100 V AC RMS

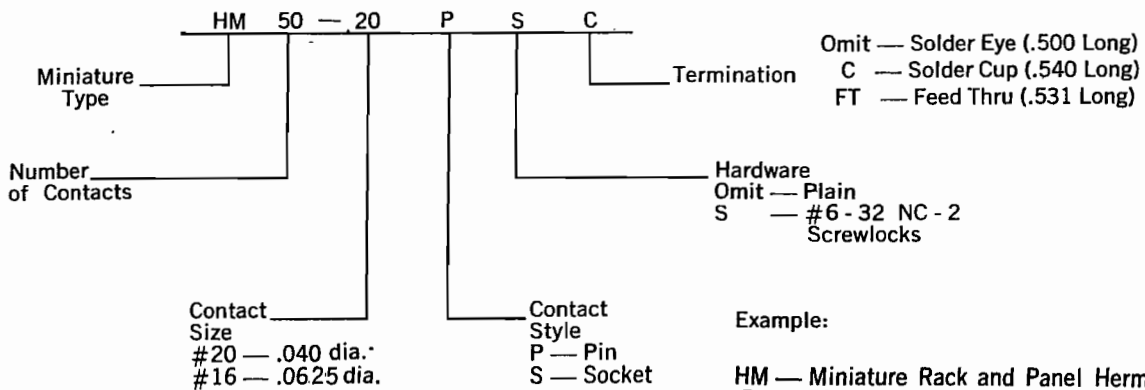
**Leakage rate** - less than 0.1 micron cubic foot of helium per hour at a pressure differential of 1 atmosphere.

**Polarization** - standard - guide pins and sockets: optional - screwlock pins and sockets (#6-32 NC-2 thread).

DIMENSIONS													
Catalog No.	HM7	HM9	HM11	HM14	HM18	HM20	HM21	HM26	HM34	HM41	HM50	HM75	HM104
R-R	.172	.180	.130	.130	.130	.130	.172	.130	.180	.130	.180	.180	.130
No. of Rows	2	2	3	3	4	3	2	4	4	3	4	6	8
L	1.344	1.438	1.219	1.375	1.438	1.687	2.375	1.750	2.125	2.750	2.719	2.719	2.875
W	.500	.500	.562	.562	.688	.562	.500	.688	.875	.562	.875	1.234	1.250
C	.906	1.000	.781	.938	1.000	1.250	1.938	1.312	1.688	2.312	2.281	2.281	2.375
D	1.219	1.312	1.094	1.250	1.312	1.562	2.250	1.625	2.000	2.625	2.594	2.594	2.750
E	.375	.375	.438	.438	.562	.438	.375	.562	.750	.438	.750	1.109	1.130
CUTOUT DIMENSIONS													
A	1.234	1.328	1.109	1.266	1.328	1.578	2.266	1.641	2.016	2.641	2.609	2.609	2.770
B	.391	.391	.453	.453	.578	.453	.391	.578	.766	.453	.766	1.125	1.150

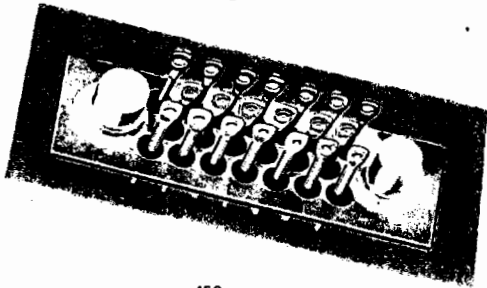
All dimensions are  $\pm .010$ , except those for location of pins and hardware which are  $\pm .005$ .

## HOW TO ORDER



Standard Plating:  
30 millionths gold  
over .0002 nickel

# Micro - Miniature Connector - Hermetically Sealed



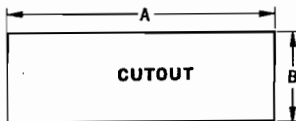
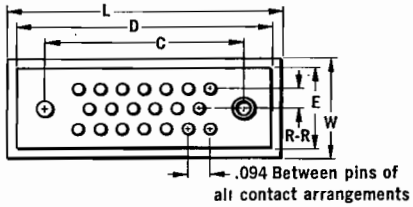
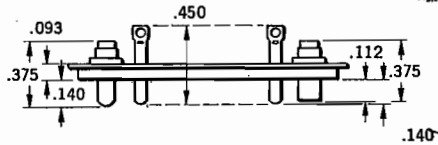
9005

type **HMM**

Reference MIL-C-28748

Number of Contacts - 5, 7, 9, 11, 14, 20, 26, 29, 34, 44

The micro-miniature HMM hermetically sealed connector line offers exceptional space and weight-saving advantages for applications requiring the ultimate in miniaturization. Connectors are compression sealed and bodies and pins are fused to glass, providing a reliability which meets or exceeds the requirements of MIL-C-8384.



## Specifications:

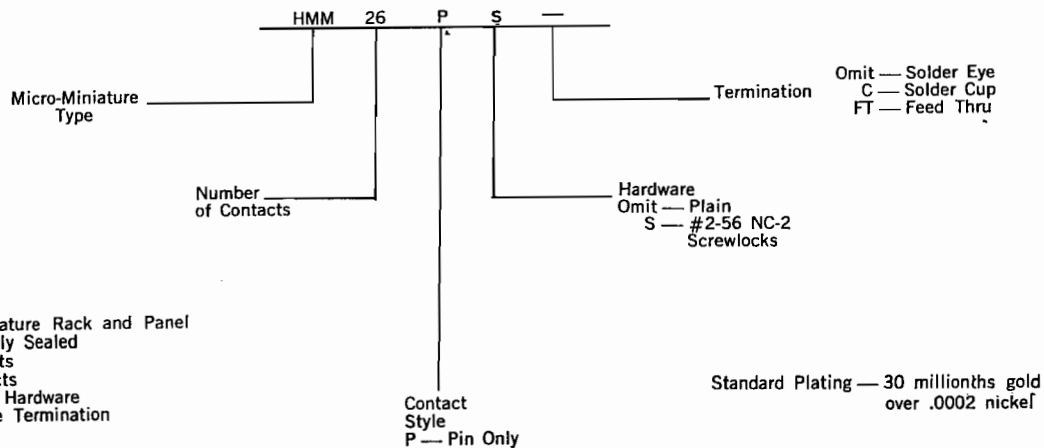
- Body - C.R. Steel.
- Insulation material - Glass (compression seal).
- Contacts - Nickel alloy or C.R. steel (pin contacts only).
- Body plating - gold over nickel.
- Contact plating - gold over nickel.
- Wire accommodated - #22 AWG
- Max. Operating Temperature - 700°F
- Contact diameter - .030"

- Contact rating - 3 Amps
- Voltage breakdown - 800 V AC
- Leakage rate - less than 0.1 micron cubic foot of helium per hour at a pressure differential of 1 atmosphere.
- Polarization - standard - guide pins and sockets: optional - screwlock pins and sockets (#2-56 NC-2 thread).

All dimensions are  $\pm .010$ , except those for location of pins and hardware which are  $\pm .005$ .

DIMENSIONS										
Catalog No.	HMM5P	HMM7P	HMM9P	HMM11P	HMM14P	HMM20P	HMM26P	HMM29P	HMM34P	HMM44P
R-R	.081	.081	.081	.081	.081	.081	.081	.081	.090	.090
No. of Rows	2	2	2	3	3	3	3	3	4	4
L	.770	.860	.950	.860	.955	1.142	1.330	1.423	1.330	1.580
W	.270	.270	.270	.350	.350	.350	.350	.350	.460	.460
C	.468	.562	.656	.532	.625	.814	1.000	1.094	1.032	1.281
D	.690	.781	.875	.780	.875	1.062	1.250	1.343	1.250	1.500
E	.190	.190	.190	.270	.270	.270	.270	.270	.380	.380
CUTOUT DIMENSIONS										
A	.705	.796	.890	.796	.890	1.077	1.265	1.358	1.265	1.515
B	.205	.205	.205	.285	.285	.285	.285	.285	.395	.395

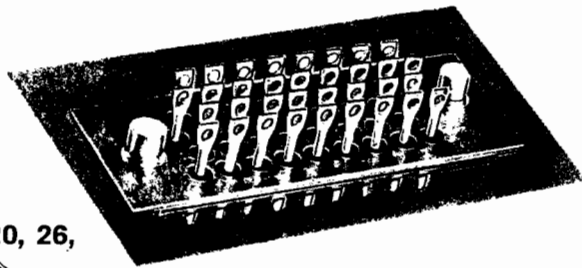
## HOW TO ORDER



# Subminiature Connector - Hermetically Sealed

type **HSM**

Reference MIL-C-28748



Number of Contacts 5, 7, 11, 14, 20, 26, 29, 34, 42, 50, 75, 104

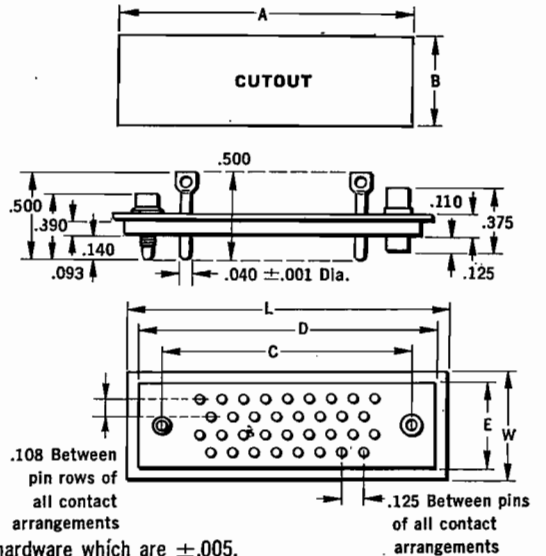
The subminiature HSM hermetically sealed connector line is designed to meet the requirements of MIL-C-8384. Its small, rugged characteristics offer space and weight saving advantages for miniaturized equipment in aircraft, missiles, communication, and instrumentation applications.

### Specifications:

- Body - C.R. Steel.
- Insulation material - Glass (compression seal).
- Contacts - Nickel alloy or C.R. steel (pin contacts only).
- Body plating - gold over nickel.
- Contact plating - gold over nickel.
- Wire accommodated - #20 AWG
- Max. Operating Temperature - 700°F.

- Contact Diameter - .040".
- Contact rating - 5 amps.
- Voltage breakdown - 1000 V AC RMS
- Leakage rate - less than 0.1 micron cubic foot of helium per hour at a pressure differential of 1 atmosphere.
- Polarization - standard - guide pins and sockets: optional - screwlock pins and sockets (#2-56 NC-2 thread).

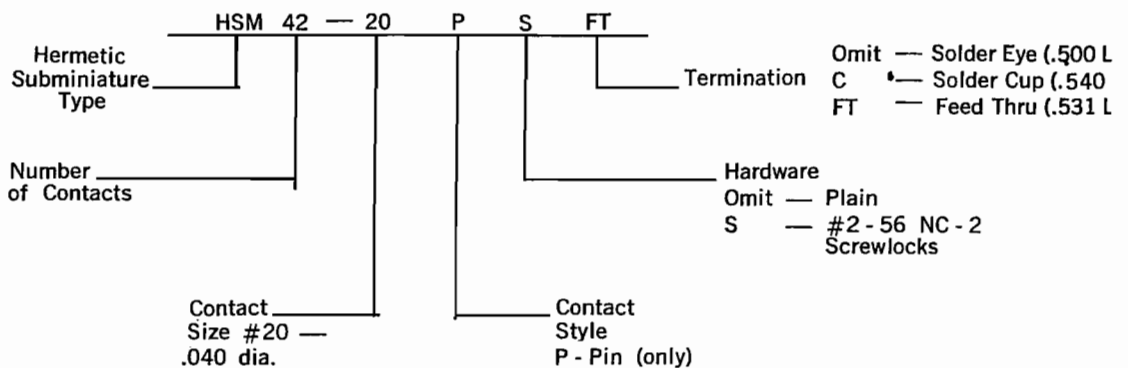
All dimensions are  $\pm .010$ , except those for location of pins and hardware which are  $\pm .005$ .



DIMENSIONS												
Catalog No.	HSM5*	HSM7	HSM11	HSM14	HSM20.	HSM26	HSM29	HSM34	HSM42.	HSM50	HSM75	HSM104
No. of Rows	2	2	3	3	3	3	3	4	4	4	6	8
L	.906	1.000	1.000	1.125	1.375	1.625	1.750	1.680	1.937	2.180	2.187	2.500
W	.359	.359	.460	.460	.460	.460	.468	.625	.625	.625	.845	1.064
C	.531	.625	.625	.750	1.000	1.250	1.375	1.312	1.562	1.812	1.812	2.062
D	.781	.875	.875	1.000	1.250	1.500	1.625	1.562	1.812	2.062	2.060	2.380
E	.234	.234	.343	.343	.343	.343	.343	.500	.500	.500	.720	.940
CUTOUT DIMENSIONS												
A	.797	.891	.891	1.015	1.265	1.515	1.640	1.577	1.827	2.077	2.075	2.395
B	.250	.250	.359	.359	.359	.359	.359	.515	.515	.515	.735	.955

\*HSM5P and HSM7P are standard with two female guide sockets. All others have one male guide pin and one female guide socket.

### HOW TO ORDER



Example:

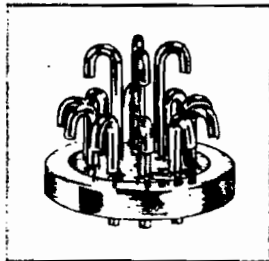
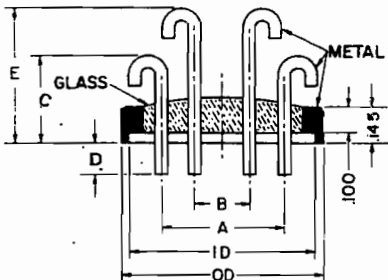
- HSM Subminiature Rack & Panel Hermetically Sealed
- 42 42 Contacts
- 20 #20 Size — .040 dia.
- P Pin Contracts
- S Screwlock Hardware
- FT Feed Thru Termination

Standard Plating:  
30 millionths gold  
over .0002 nickel

## DURO-VAC COMPRESSION SEALED MULTI-HEADERS

A complete line of compression sealed multi-headers in unlimited shapes and sizes, with number of terminals as required; with the all glass or individual glass construction fused by the new Duro-Vac process is available. Glasseal's all glass construction multi-headers offer greater insulation resistance, longer leakage path, and higher breakdown voltage. Glasseal's individual glass construction multi-headers offer greater mechanical strength.

### HEADER ALL GLASS HAG SERIES

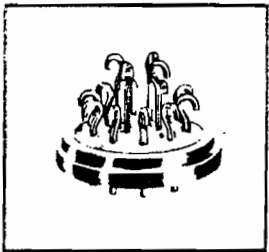
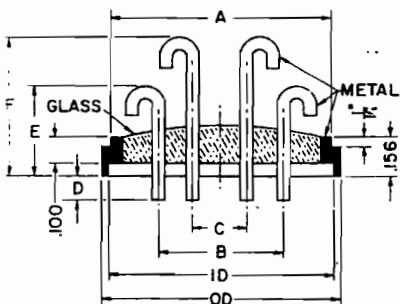


NOTE:  
 BUTTON HOOKS: "C" DIM. SAME "E" DIM. ADD  $\frac{1}{64}$ "  
 ROUNDED PIN: "C" DIM. SAME "E" DIM. SUBTRACT  $\frac{5}{32}$ "  
 TURRET PIN: "D" DIM. EQUALS  $\frac{1}{8}$ "  
 ATTENED & PIERCED PIN: "C" DIM. ADD  $\frac{1}{32}$ " "E" DIM. SUBTRACT  $\frac{1}{8}$ "  
 "C" DIM. SAME "E" DIM. SUBTRACT  $\frac{5}{32}$ "

Code Page 5	O.D.	I.D.	A	B	C	D	E	PIN PATTERN PAGE 5
HAG1000	1.000	.970	.656	.312	$\frac{25}{64}$	$\frac{7}{64}$	$\frac{35}{64}$	9-14, 8B-13B, 1-8, 1A-8A, 3B-7B
HAG900 HAG900-1	.900 "	.870 "	.550 .498	.250 .212	$\frac{25}{64}$ "	$\frac{7}{64}$ "	$\frac{35}{64}$ "	9-14, 8B-13B, 1-8, 1A-8A, 3B-7B
HAG800	.800	.766	.498	.212	$\frac{25}{64}$	$\frac{7}{64}$	$\frac{35}{64}$	9-14, 8B-13B, 1-8, 1A-8A, 3B-7B
HAG750	.750	.720	.350 .300	.140	$\frac{25}{64}$	$\frac{7}{64}$	$\frac{35}{64}$	9-14, 8B-13B, 1-8, 1A-8A, 3B-7B
HAG600	.600	.570	.350 .300	.140	$\frac{25}{64}$	$\frac{7}{64}$	$\frac{35}{64}$	9-14, 8B-13B, 1-8, 1A-8A, 3B-7B
HAG500	.500	.470	.250		$\frac{25}{64}$	$\frac{7}{64}$		1-4, 5-8, 3B-6B

Pin Diameter: .040 for above dimensions, other diameters available.  
 Pin Design: Straight cut, notched and tubing terminals also available.  
 Tolerances: Fractions plus or minus  $\frac{1}{32}$   
 Unless specified decimals plus or minus .005

### HEADER ALL GLASS SKIRTED FLANGE HAGS SERIES

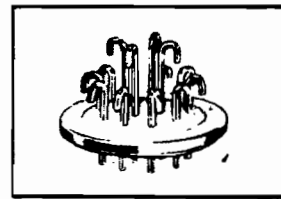
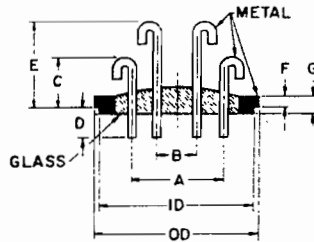


NOTE:  
 BUTTON HOOKS: "E" SAME "F" SUBTRACT  $\frac{1}{32}$ "  
 ROUNDED PIN: "D" ADD  $\frac{1}{64}$ " "E" SUBTRACT  $\frac{1}{32}$ "  
 TURRET PIN: "E" SUBTRACT  $\frac{1}{32}$ " "F" SUBTRACT  $\frac{3}{16}$ "  
 ATTENED & PIERCED PIN: "E" SAME "F" SUBTRACT  $\frac{1}{32}$ "

CODE PAGE 5	O.D.	I.D.	A	B	C	D	E	F	PIN PATTERNS PAGE 5
HAGS1000	1.000	.970	.960	.656	.312	$\frac{3}{32}$	$\frac{13}{32}$	$\frac{5}{8}$	13A-21A
HAGS900	.900	.870	.830	.550	.250	$\frac{3}{32}$	$\frac{13}{32}$	$\frac{5}{8}$	11-14, 9B-13B, 1-10, 1A-8A, 3B-8B
HAGS800	.800	.766	.770	.498	.212	$\frac{3}{32}$	$\frac{13}{32}$	$\frac{5}{8}$	11-14, 9B-13B, 1-10, 1A-8A, 3B-8B
HAGS750	.750	.720	.695	.375		$\frac{3}{32}$	$\frac{3}{8}$		9-14, 8B-13B, 1-8, 1A-8A, 3B-8B
HAGS600	.600	.570	.562	.350 .300	.140	$\frac{3}{32}$	$\frac{3}{8}$		10-14, 8B-13B, 1-8, 1A-8A, 3B-8B
HAGS500	.500	.470	.470	.250 .210		$\frac{3}{32}$	$\frac{3}{8}$		5-8, 3B-7B, 1-4, 2A

Pin Diameter: .040 for above dimensions, other diameters available.  
 Pin Design: Straight cut, notched and tubing terminals also available.  
 Tolerances: Fractions plus or minus  $\frac{1}{32}$   
 Unless specified decimals plus or minus .005

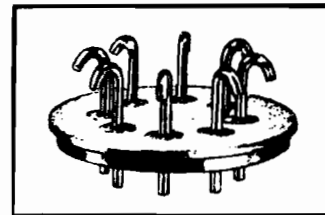
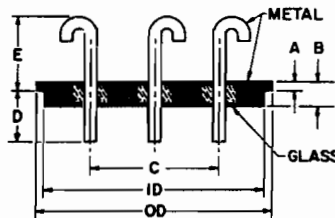
**LEADER  
ALL GLASS  
REVERSE FLANGE  
HAGRF SERIES**



Code Page 5	O.D.	I.D.	A	B	C	D	E	F	G	PIN PATTERN PAGE 5
HAGRF1000	1.000	.960	.656	.312	1/64	13/64	33/64	.062	.100	13-A-21A
HAGRF900	.900	.840	.550	.250	1/64	13/64	33/64	.062	.100	9-14, 8B-13B, 1-8, 1A-8A, 3B-7B
HAGRF900-1	.900	.840	.468	.212	1/64	13/64	33/64	.062	.100	9-14, 8B-13B, 1-8, 1A-8A, 3B-7B
HAGRF800	.800	.770	.498	.212	1/64	13/64	33/64	.062	.100	9-14, 8B-13B,
HAGRF800-1	"	"	.468	"	"	"	"	"	"	1-8, 1A-8A, 3B-7B
HAGRF730	.730	.625	.468	"	1/4	7/32	"	.030	.093	1-8, 1A, 2A, 8A, 3B-8B
HAGRF730-1	.730	.625	.375	"	1/4	7/32	"	.030	.093	1-8, 1A, 2A, 8A, 3B-8B
HAGRF600	.600	.570	.300	"	1/4	7/32	"	.030	.093	1-8, 1A-8A, 3B-7B
HAGRF600-1	.600	.570	.350	.140	1/4	7/32	3/64	.030	.093	9-14, 8B-13B, 1-8, 3B-7B
HAGRF500	.500	.470	.250	"	1/4	7/32	"	.030	.093	1-8, 2A, 8A, 3B-7B
HAGRF400	.400	.343	.150	"	1/64	13/64	"	.050	.100	1-4, 2A
HAGRF375	.375	.345	.150	"	1/64	13/64	"	.050	.100	1-4, 2A

BUTTON HOOKS "C" DIM. SAME "E" DIM. SUBTRACT 1/32"  
 ROUNDED PIN "C" DIM. ADD 1/64" "E" DIM. SUBTRACT 1/64"  
 TURRET PIN "C" DIM. ADD 1/32" "E" DIM. SUBTRACT 3/16"  
 FLATTENED & PIERCED PIN "C" DIM. SAME "E" DIM. SUBTRACT 1/32"

**LEADER  
INDIVIDUAL GLASS  
REVERSE FLANGED  
HIGRF SERIES**

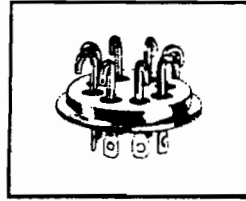
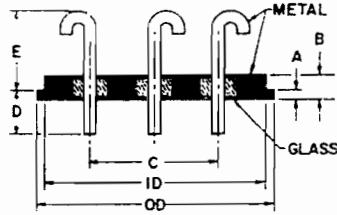


CODE PAGE 5	O.D.	I.D.	A	B	C	D	E	PIN PATTERNS PAGE 5
HIGRF1250	1.250	1.175	.040	.125	.750	13/64"	1/4"	1-8, 11A, 12A, 1A-10A, 3B-7B
HIGRF1250-1	1.250	.998	.040	.125	.750	13/64"	1/4"	1-8, 11A, 12A, 1A-10A, 3B-7B
HIGRF1235	1.235	1.062	.045	.125	.750	13/64"	1/4"	1-8, 11A, 12A, 1A-10A, 3B-7B
HIGRF1125	1.125	.998	.080	.125	.750	11/64"	19/64"	1-8, 11A, 12A, 1A-10A, 3B-7B
HIGRF1062	1.062	.998	.080	.125	.750	11/64"	19/64"	1-8, 11A, 12A, 1A-10A, 3B-7B
HIGRF960	.960	.862	.030	.093	.562	3/16"	9/32"	1, 2, 1A, 3A-7A
HIGRF900	.900	.840	.062	.093	.550	3/32"	5/16"	1, 2, 9, 10, 1A, 8B, 10B
HIGRF850	.850	.750	.040	.093	.375	13/64"	1/4"	1-8, 1A, 2A, 3B-6B
HIGRF730	.730	.625	.030	.093	.375	3/16"	9/32"	1-8, 1A, 2A, 3B-6B, 1, 2, 9, 10, 1A, 8B, 10B
HIGRF600	.600	.560	.030	.093	.375	3/16"	9/32"	1-8, 1A, 2A, 3B-6B

NOTE:  
 BUTTON HOOK "E" SAME TURRET PIN "E" SAME  
 ROUNDED PIN "E" SUBTRACT 1/32" FLATTENED & PIERCED PIN "E" SUBTRACT 1/32"

Tolerances:  
 Unless specified decimals plus or minus .005  
 Fractions plus or minus 1/32

## HEADER INDIVIDUAL GLASS FLANGED HIGF SERIES



CODE PAGE 5	O.D.	I.D.	A	B	C	$\pm .015$	$\pm .015$	PIN PATTERNS PAGE 5
						D	E	
HIGF1250	1.250	1.175	.040	.125	.750 .687	.165	.303	11A, 12A, 1-8, 1A-10A, 3B-7B
HIGF1250-1	1.250	.998	.040	.125	.750 .687	.165	.303	11A, 12A, 1-8, 1A-10A, 3B-7B
HIGF1235	1.235	1.062	.045	.125	.750 .687	.170	.298	11A, 12A, 1-8, 1A-10A, 3B-7B
HIGF1125	1.125	.998	.080	.125	.750 .687	.205	.263	11A, 12A, 1-8, 1A-10A, 3B-7B
HIGF1062	1.062	.998	.080	.125	.750 .687	.205	.263	11A, 12A, 1-8, 1A-10A, 3B-7B
HIGF960	.960	.862	.030	.093	.562	.155	.313	1, 2, 1A, 3A-7A
HIGF900	.900	.840	.062	.093	.550	.187	.281	1, 2, 9, 10, 1A, 8B, 10B
HIGF850	.850	.750	.040	.093	.375	.165	.303	1-8, 1A, 2A, 3B-6B
HIGF730	.730	.620	.030	.093	.375 .468	.155	.313	1-8, 1A, 2A, 3B-6B, 1, 2, 9, 10, 1A, 8B, 10B
HIGF600	.600	.560	.030	.093	.375	.155	.313	1-8, 1A, 2A, 3B-6B

NOTE: BUTTON HOOK "E" SAME  
 ROUNDED PIN "E" SUBTRACT  $\frac{1}{32}$ "  
 TURRET PIN "E" ADD  $\frac{1}{32}$ "  
 FLATTENED AND PIERCED PIN "E" SUBTRACT  $\frac{1}{32}$ "  
 Tolerances: Unless specified decimals plus or minus .005  
 Fractions plus or minus  $\frac{1}{32}$ .

NOTE: For flattened and pierced terminals add  $\frac{1}{2}$  wire diameter to "D" dimension, the pierced hole will be the wire diameter plus .003".

For hooked terminals, the dimensions will be the same as listed above.

Tolerances: Unless specified decimals plus or minus .005 Fractions plus or minus  $\frac{1}{32}$

### INDIVIDUAL GLASS STRAIGHT BODY

Headers are available with individual glass straight body (no flange) to the same OD dimensions as the flange and reversed flange individual glass multi-headers and to the same pin patterns.

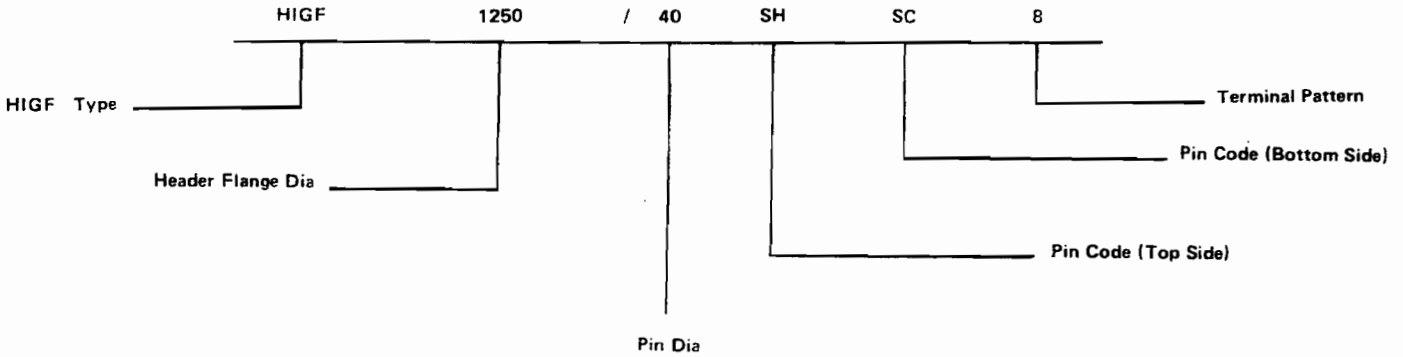
A large variety of custom designs are available in individual glass headers square and rectangular as well as the round.

Headers are hot tin dipped to assure easy soldering and to meet specifications of salt spray tests. Other types of finish can be supplied upon request.

**Color Coding** is available for identification of terminals.

Numbering or Lettering can be supplied on certain individual glass multi-headers.

# HOW TO ORDER



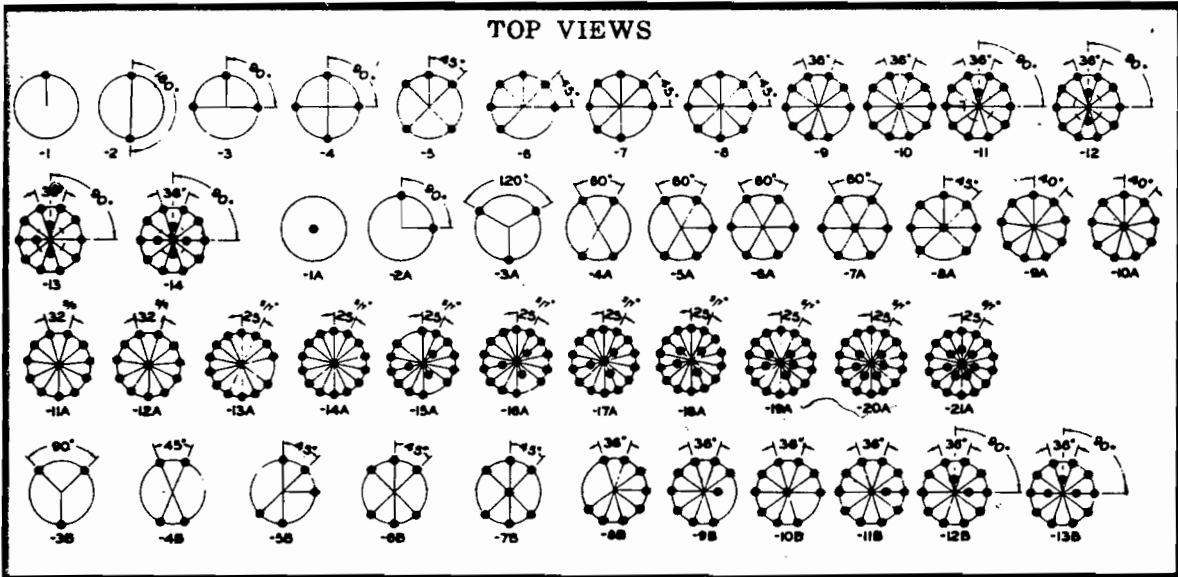
## PIN CODING SYSTEM -

SC ~~straight cut~~  
 SH straight hook  
 T turret  
 RE round end  
 N notched

BH button hook  
 FB ~~flattened and pierced~~  
 OE one end  
 BE both ends  
 TU tubing

CCA copper cored #52 alloy

## TERMINAL PATTERN DIAGRAMS



### MULTI-HEADER Voltage Ratings

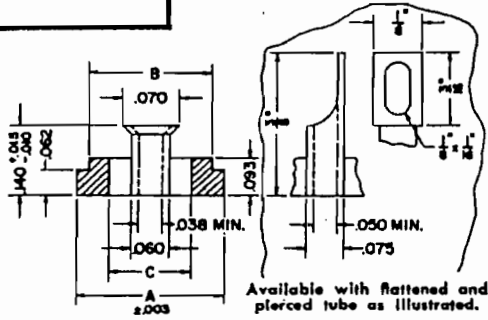
BODY TYPES	BODY DIAMETER	MAXIMUM NUMBER OF TERMINALS	PITCH CIRCLE DIAMETER	TEST VOLTAGE *	
				.080 TERMINALS	.048 TERMINALS
AG IG	1.000	21	.312 .656	1100	1400
	.900	14	.312 .656	1100	1400
	.900	10	.375	2000	2500
	.900	14	.212 .498	1500	2000
	.900	14	.250 .550	1500	2000
	.800	14	.212 .498	1200	1600
	.800	10	.498	1200	1600
	.800	8	.468	1500	2000
	.750	8	.375	1250 **	1750
	.600	14	.140 .350	-	1000
	.600	10	.350	-	1500
	.600	8	.300	1250	1500
	.500	4	.210	1250	1500
	.375	4	.150	1000	1500
	All Diameters	9	.687	1500	-
	12	.750	1500	-	

### Current Ratings

TERMINAL DIAMETER	CURRENT RATING AMPS. CONTINUOUS DUTY	
	STANDARD	HIGH CONDUCTIVITY
.030	3	4.5
.040	5.5	8.2
.050	7.5	11.2
.060	10	15
.080	15	22.5
.093	20	30

Voltage and Current Ratings for headers are RMS voltage at sea level with 90% humidity and maximum current for 40°C. temperature rise.

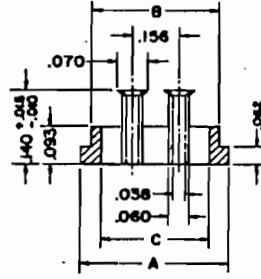
# CONDENSER SEALS



Available with flattened and pierced tube as illustrated.

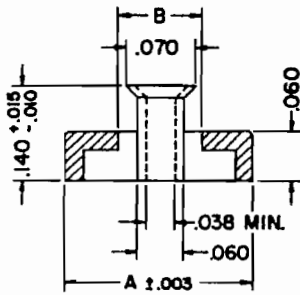
PART NO.	A	B	C
377ES1/60	.377	.307	.270
470ES1/60	.470	.420	.387
535ES1/60	.535	.442	.387
628ES1/60	.628	.535	.387
643ES1/60	.643	.550	.387
723ES1/60	.723	.630	.387
962ES1/60	.962	.869	.387

Available with .050 Min. I.D.  
.075" O.D. Tubing (ES1/075 Series)



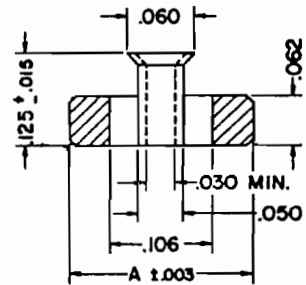
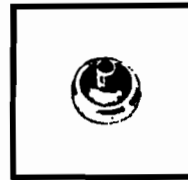
PART NO.	A	B	C
535ES1/60-2	.535	.442	.387
628ES1/60-2	.628	.535	.387
643ES1/60-2	.643	.550	.387
723ES1/60-2	.723	.630	.387
962ES1/60-2	.962	.869	.387

Available with 3-.038 I.D.  
.060" O.D. Tubes on .156" circle



PART NO.	A	B
212CES/60	.212	.142
265CES/60	.265	.168
292CES/60	.292	.207
320CES/60	.320	.229
377CES/60	.377	.296
470CES/60	.470	.352
*535CES/60	.535	.389
*643CES/60	.643	.389
*723CES/60	.723	.389
*962CES/60	.962	.389

\*Available with .050 Min. I.D.  
.075" O.D. Tubing (CES/75 Series)  
Also with pierced tubing. See  
ES1/60 Series



PART NO.	A
112ES/50	.112
152ES/50	.152
158ES/50	.158
165ES/50	.165
172ES/50	.172

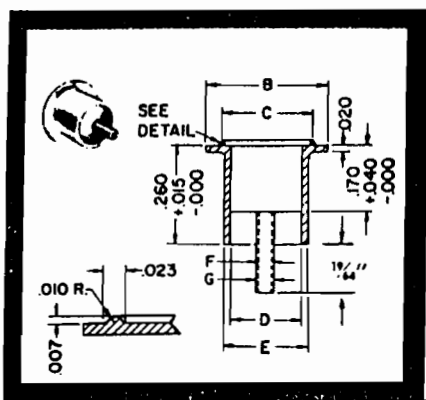
Tolerances: Unless specified decimals plus or minus .003  
Fractions plus or minus 1/32

Finishes Available: Hot Solder Dip,  
other finishes available to your  
specifications.

*Donna - Hassel* Page 7

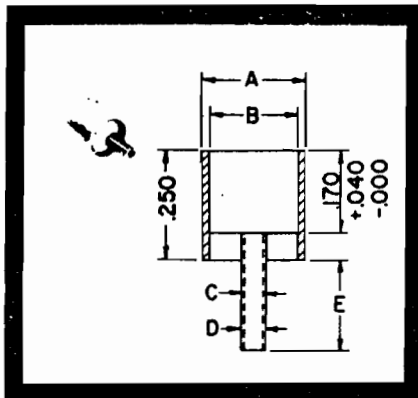


## DIODE TERMINATIONS

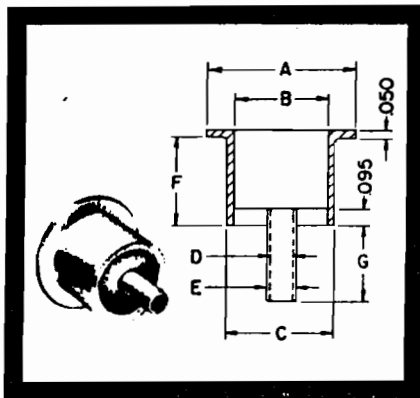


PART NO.	B	C	D	E	F MIN.	G
DT375-270/604TU	.375	.325	.212	.270	.038	.060
DT375-270/603TU	.375	.325	.212	.270	.030	.060
DT375-270/503TU	.375	.325	.212	.270	.030	.050
DT375-250/604TU	.375	.325	.185	.250	.038	.060
DT375-250/603TU	.375	.325	.185	.250	.030	.060
DT375-250/503TU	.375	.325	.185	.250	.030	.050
DT250-185/603TU	.250	.220	.140	.185	.030	.060
DT250-185/503TU	.250	.220	.140	.185	.030	.050

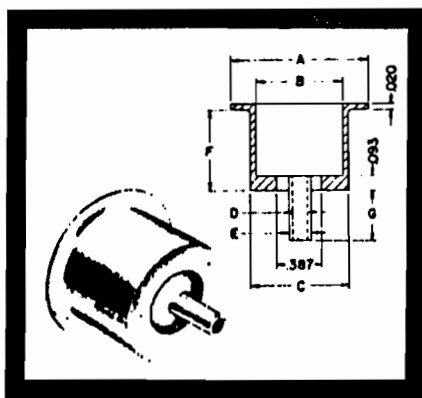
All of the above parts are available with a bar welded flattened and pierced tubing.



PART NO.	A	B	C MIN.	D	E
DT270S/604TU	.270	.212	.038	.060	.187
DT250S/604TU	.250	.185	.038	.060	.187
DT218S/603TU	.218	.157	.030	.060	.190



PART NO.	A	B	C	D MIN.	E	F	G
DT682-500/125TU	.682	.390	.500	.095	.125	.405	1/4"
DT680-500/125TU-1	.680	.460	.500	.095	.125	.343	3/16"
DT682-500/125TU-2	.682	.390	.500	.095	.125	.250	1/4"
DT375-250/604TU-1	.375	.185	.250	.038	.060	.236	3/16"
DT375-270/503TU-1	.375	.212	.270	.030	.050	.240	1/4"
DT682-500/125TU-1	.682	.390	.500	.095	.125	.200	1/4"



PART NO.	A	B	C	D MIN.	E	F	G
DT950-730/1255TU	.950	.688	.730	.095	.125	.545	3/8"

Tolerances: Unless specified decimals plus or minus .005  
Fractions plus or minus 1/32

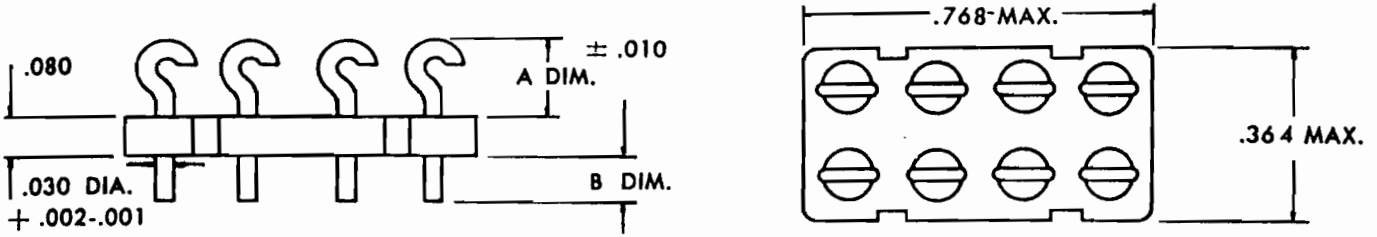
Finishes Available: Nickel Plated, Nickel Plated  
and Gold Flash or to your specifications.

# RELAY HEADERS

**RH764/30BHSC-8**

CATALOG NO.	"A" DIM.	"B" DIM.
RH764/30BHSC-8	.187"	.108"
RH764/30BHSC-8-1	.215"	.080"

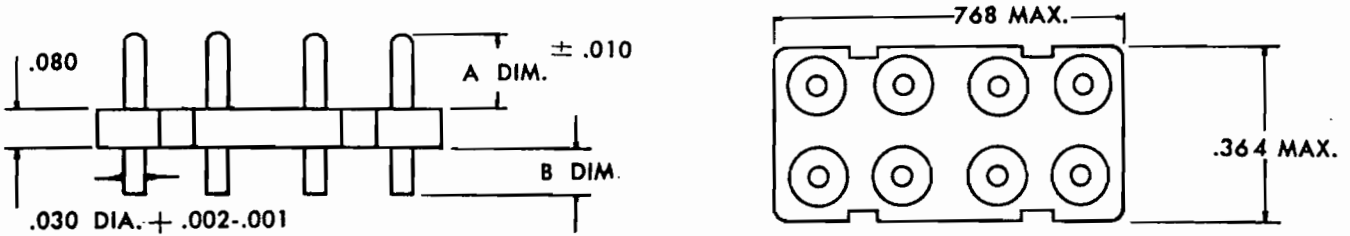
Voltage Breakdown  
Sea Level - 1250 Volts RMS



**RH764/30RESC-8**

CATALOG NO.	"A" DIM.	"B" DIM.
RH764/30RESC-8	.187"	.108"
RH764/30RESC-8-1	.215"	.080"
RH764/30RESC-8-2	.500"	.110"

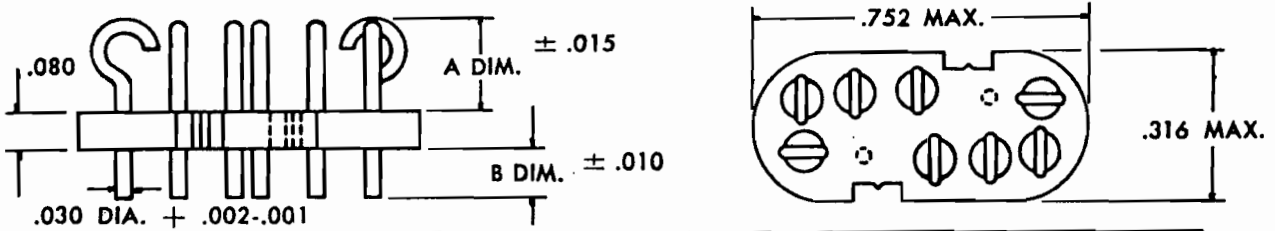
Voltage Breakdown  
Sea Level - 1250 Volts RMS



**RH750/30BHSC-8**

CATALOG NO.	"A" DIM.	"B" DIM.
RH750/30BHSC-8	.187"	.108"
RH750/30BHSC-8-1	.215"	.080"

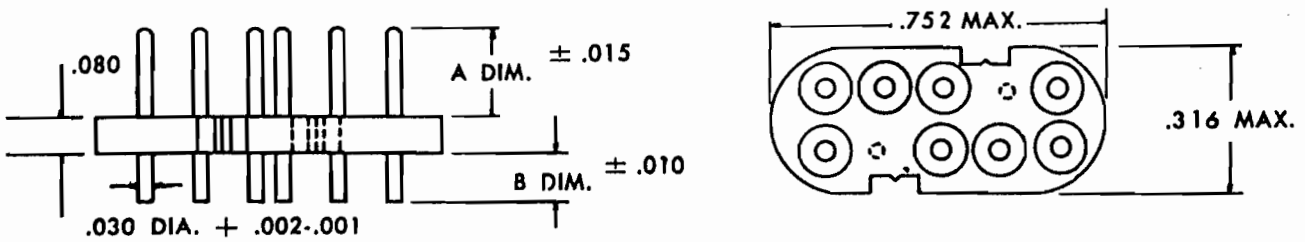
Voltage Breakdown  
Sea Level - 1000 Volts RMS



**RH750/30RESC-8**

CATALOG NO.	"A" DIM.	"B" DIM.
RH750/30RESC-8	.205"	.118"
RH750/30RESC-8-1	1.000"	.110"
RH750/30RESC-8-2	3.000"	.110"

Voltage Breakdown  
Sea Level - 1000 Volts RMS

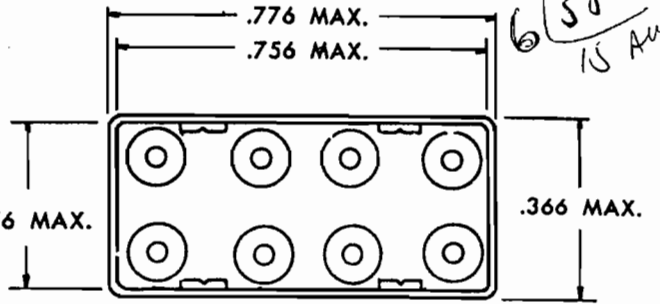
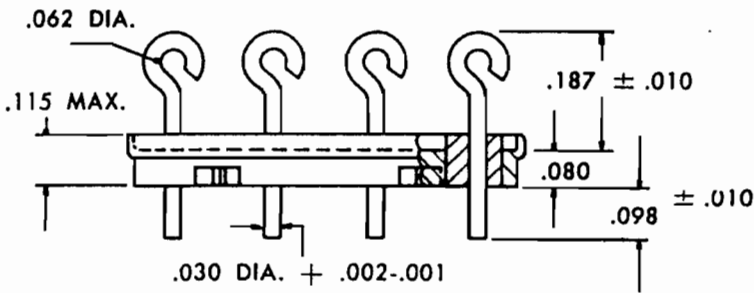


Insulation Resistance - 5000 Megohms at 50% Relative Humidity at 25°C  
 Current Rating - 3 AMPS High Conductivity 4.5 AMPS  
 Body Material - C.R.S.  
 Pins - Nickel - Iron Alloy  
 Standard Finish - Electro-Tin, Pused  
 Color Coding available on request  
 Other terminations and pins not shown, also available.

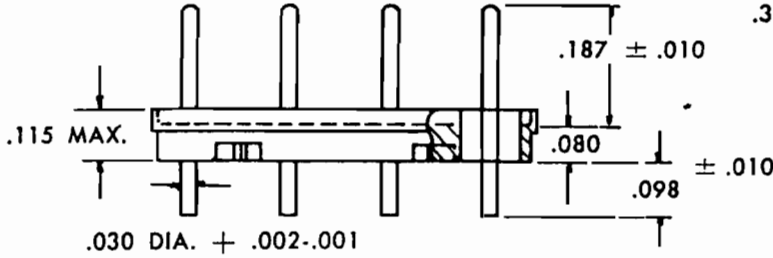
# RELAY HEADERS

3 1/2" WIDE  
1.572  
3 DEPTH  
(2) 3 PINS  
RELAY  
6/50 AMP  
15 AMP

## RH763/30BHSC-8 NON MAGNETIC RELAY HEADER



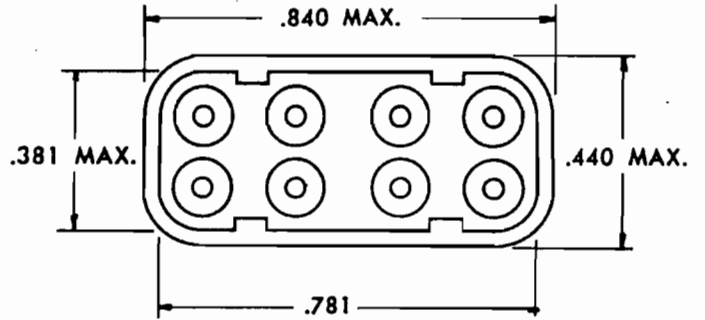
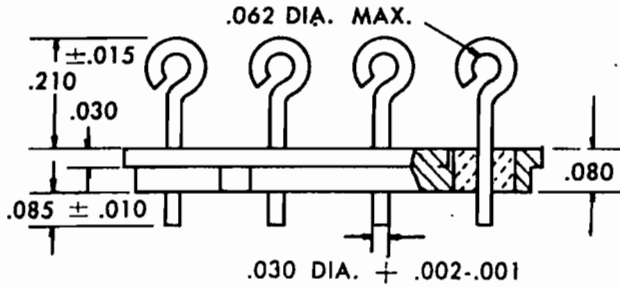
## RH763/30RESC-8



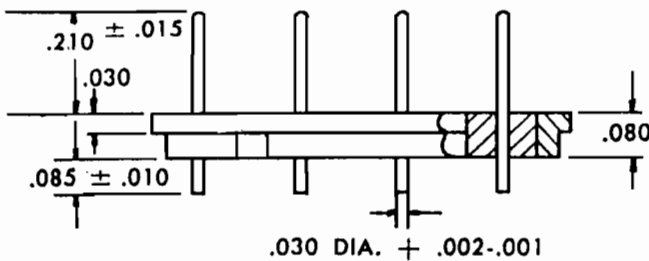
**Voltage Breakdown**  
 Sea Level 1300V RMS  
**Current Rating** - 4.5 AMPS  
**Body Material** - Monel

**Pins** - Copper Core Stainless Steel Alloy  
**Standard Finish** - Electro-Tin, Fused  
**Insulation Resistance** - 5000 Megohms at 50%  
 Relative Humidity at 25°C  
 Color Coding available on request  
 Other terminations, pins, materials also available:

## RH837/30BHSC-8



## RH837/RESC-8



**Voltage Breakdown**  
 Sea Level 1100 Volts RMS  
**Current Rating** - 3 AMPS  
**Body Material** - C.R.S.

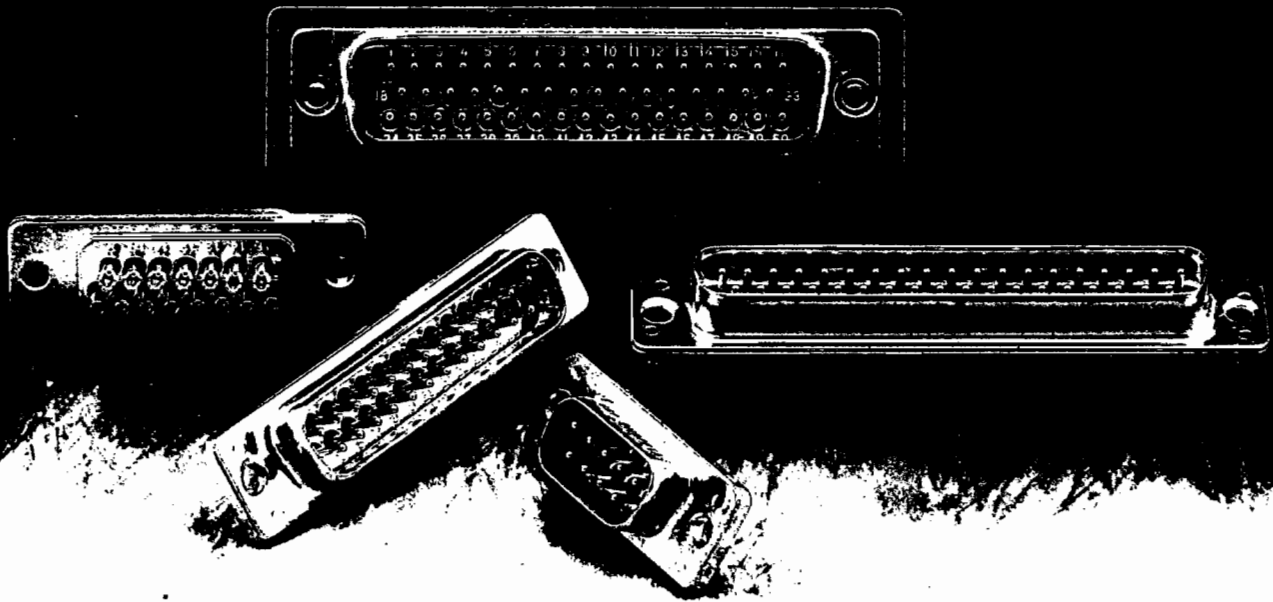
**Pins** - Nickel Iron Alloy  
**Standard Finish** - Gold over Nickel  
**Insulation Resistance** - 5000 Megohms at 50%  
 Relative Humidity at 25°C  
 Color Coding available on request  
 Other terminations, pins, materials also available.

GLASSEAL PRODUCTS™



# Military Qualified Hermetic Rack & Panel Connectors MIL-C-24308/9

D (Subminiature)  
QPL (Qualified Product Listing)



## Product Description

Glasseal Type DH Subminiature Rack and Panel D Connectors are manufactured to the requirements of MIL-C-24308. The standard cold rolled steel body material comes with #52 alloy contacts. Standard

finish is electro-tin fused. Other finishes are available. The insulator is made of a compression sealed glass.

Use—Ideal for electronic and electrical equipment, for commercial and defense,

airborne, ground support or shipboard. The size and weight lends the connector to various applications and the D shape ensures a positive polarization.

# MIL-C-24308/9

## Specifications

### Air Leakage (Hermeticity):

Leakage rate less than 0.1 micron cubic foot per hour ( $1 \times 10^{-6}$  cc/sec) at 15 psi.

### Dielectric Withstanding Voltage:

Connectors show no evidence of breakdown or flashover when tested at voltages shown per MIL-STD-1344, method 3001.

### Max. Operating Temperature: 400° F.

### Insulation Resistance:

Greater than 5,000 megohms per MIL-STD-1344, method 3003.

### Salt Spray:

Connectors will meet salt spray test per MIL-STD-1344, method 1001.

### Permeability:

Magnetic permeability less than 2.0 Mu when non-magnetic metals are used.

### Shock:

Mated connectors are not damaged per MIL-STD-1344, method 2004.

### Thermal Shock:

No evidence of damage detrimental to operation of connector after test per MIL-STD-1344, method 1003.

### Contact Retention:

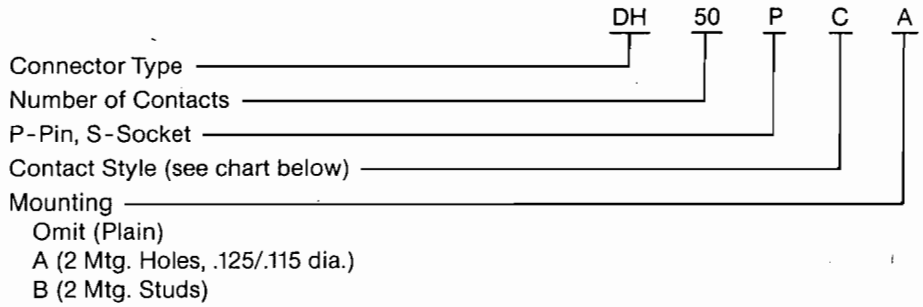
Contacts will withstand axial loads shown:

Mating End Size	Pounds
20	10

### Contact Resistance

Contact Size	Test Current AMPS (Max.)	Initial Volts (Max.)	After Conditioning Volts (Max.)
20	7.5	.055	.065

## Part Numbering System



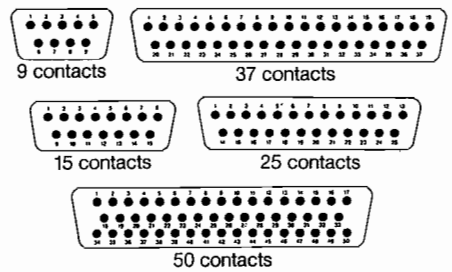
### Typical Contact Dimensions:

- Flatten and Pierce— .500 long #20 contact, .450 long #22 contact
- Solder Pot— .555 long #20 contact, .450 long #22 contact
- Feed Thru— .531 long
- Turned Down— .531 overall

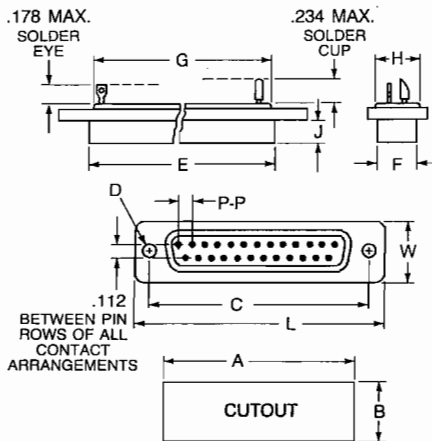
## Contact Styles

- Omit-Flatten & Pierce
- C-Std. Solder Pot
- FT-Feed Thru
- B-Turned Down

## Insert Arrangements



## DH Series



Cat No.	DH9P	DH15P	DH25P	DH37P	DH50P
No. of Contacts	9	15	25	37	50
P-P	.108	.108	.108	.109	.109
L	1.208	1.545	2.092	2.732	2.640
W	.498	.498	.498	.498	.610
C	.984	1.312	1.852	2.500	2.406
D	To customers' specifications				
G	.725	.933	1.479	2.124	2.000
H	.370	.370	.370	.370	.500
E	.695	1.035	1.575	2.223	2.135
F	.360	.370	.370	.370	.480
J	.234	.234	.234	.234	.234
A	.745	.955	1.495	2.145	2.015
B	.385	.385	.385	.385	.515

All dimensions are  $\pm .010$ , except those for location of pins and hardware which are  $\pm .005$ .

**GLASSEAL PRODUCTS™** Glasseal Products, Inc. An HCC Industries Company  
 485 Oberlin Avenue, P.O. Box 978, Lakewood, NJ 08701, 908-370-9100 FAX: 908-370-7107



GLASSEAL PRODUCTS



# Hermetic Rack & Panel Connectors MIL-C-28748

HM (Miniature)  
HSM (Subminiature)  
HMM (Micro-Miniature)

## Product Description

### Type HM (Miniature)

This line of miniatures has found broad acceptance among manufacturers as the standard connector in many "black box" applications, including telemetering equipment. All Type HM connectors mate with MIL-C-28748 non-hermetic connectors. Contact numbers are: 7, 9, 11, 14, 18, 20, 21, 26, 34, 41, 50, 75 and 104.

### Type HSM (Subminiature)

As space and weight considerations increase in importance, these subminiatures often are the answer. Their small size and rugged characteristics make them ideal for miniaturized equipment in aircraft, missiles, communications, and many other instrumentation applications. Meets MIL-C-28748. Contact numbers are: 5, 7, 11, 14, 20, 26, 29, 34, 42, 50, 75 and 104.

### Type HMM (Micro-Miniature)

Exceptional space and weight savings, for the ultimate in miniaturization. These micro-miniatures are compression-sealed. The bodies and pins are fused to glass, thereby providing reliability that meets or exceeds MIL-C-28748. Contact numbers are: 5, 7, 9, 11, 14, 20, 26, 29, 34 and 44.

# MIL-C-28748

## Hermetic Connector Specifications

**Body:**  
C.R. steel, stainless steel, Inconel or Monel.

**Insulation Material:**  
Glass (compression seal).

**Contacts:**  
Nickel alloy.

**Body Plating:** Gold over nickel.

**Contact Plating:** Gold over nickel.

**Wire Accommodated:**  
Type HM—#20, #16 AWG  
Type HSM—#20 AWG  
Type HMM—#22 AWG

**Contact Diameter:**  
Type HM—.040", .0625"  
Type HSM—.040"  
Type HMM—.030"

**Contact Rating:**  
Type HM—5 amps, 10 amps  
Type HSM—5 amps  
Type HMM—3 amps

**Voltage Breakdown:**  
Type HM—1500 V AC RMS,  
1100 V AC RMS  
Type HSM—1000 V AC RMS  
Type HMM—800 V AC RMS

**Max. Operating Temperature:** 400°F.

**Leakage Rate (Hermeticity):**  
Less than 0.1 micron cubic foot of helium per hour ( $1 \times 10^{-6}$  cc/sec) at a pressure differential of 1 atmosphere.

**Polarization:**  
Standard-guide pins and sockets.

**Optional:** Screwlock pins and sockets.  
Type HM—#6-32 NC-2 thread  
Type HSM—#2-56 NC-2 thread  
Type HMM—#2-56 NC-2 thread

**Dielectric Withstanding Voltage:**  
No evidence of connector breakdown or flashover when tested at voltages shown, per MIL-STD-1344, method 3001.

Contact Size	Test Voltage 60 Hz (RMS) Sea Level	
	Initial Volts	After Conditioning Volts
22	1000	500
20	1200	600
16	1000	500

**Insulation Resistance:**  
Greater than 5,000 megohms, per MIL-STD-1344, method 3003.

**Salt Spray:**  
Passes salt spray test, per MIL-STD-1344, method 1001.

**Permeability:**  
Magnetic permeability is less than 2.0 Mu, when non-magnetic metals are used.

**Shock:**  
Mated connectors survive shock, per MIL-STD-1344, method 2004.

**Thermal Shock:**  
No evidence of damage detrimental to connector operation after testing, per MIL-STD-1344, method 1003.

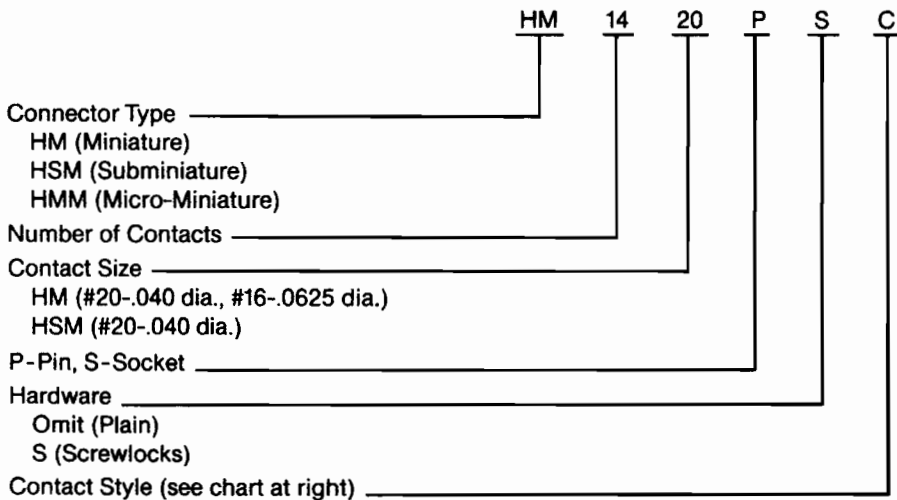
**Contact Retention:**  
Contacts withstand axial loads as follows:

Mating End Size	Pounds
22	6
20	10
16	20

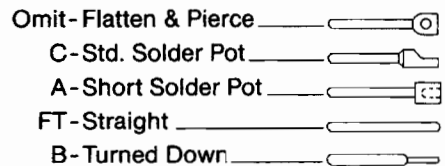
### Contact Resistance

Contact Size	Test Current AMPS (Max.)	Initial Volts (Max.)	After Conditioning Volts (Max.)
22	5.0	.060	.070
20	7.5	.055	.065
16	13.0	.050	.060

## Part Numbering System



## Contact Styles



### Typical Dimensions:

Omit (Flatten and Pierce .500 long, #20 contact and .450 long, #22 contact)

C (Solder Pot .555 long, #20 contact and .450 long, #22 contact)

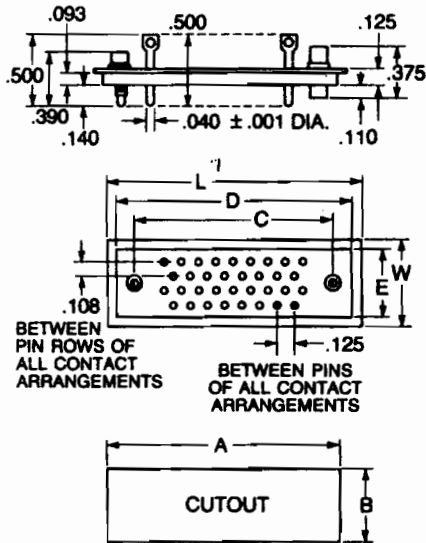
FT (Feed Thru .531 long)

B (Turned Down .531 overall)

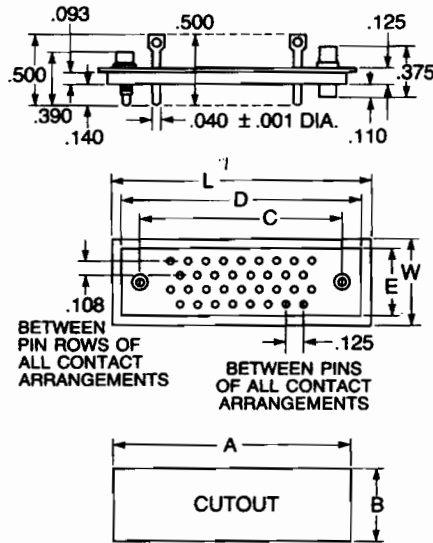


# Rack and Panel Connectors

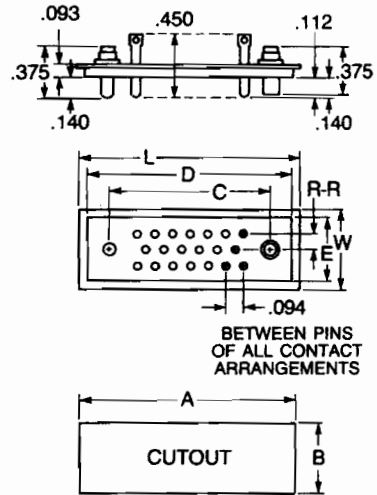
## HM (Miniature)



## HSM (Subminiature)



## HMM (Micro-Miniature)



### HM (Miniature)

Catalog No.	HM7	HM9	HM11	HM14	HM18	HM20	HM21	HM26	HM34	HM41	HM50	HM75	HM104
No. of Contacts	7	9	11	14	18	20	21	26	34	41	50	75	104
R-R	.172	.180	.130	.130	.130	.130	.172	.130	.180	.130	.180	.180	.130
No. of Rows	2	2	3	3	4	3	2	4	4	3	4	6	8
L	1.344	1.438	1.219	1.375	1.438	1.687	2.375	1.750	2.125	2.750	2.719	2.719	2.875
W	.500	.500	.562	.562	.688	.562	.500	.688	.875	.562	.875	1.234	1.250
C	.906	1.000	.781	.938	1.000	1.250	1.938	1.312	1.688	2.312	2.281	2.281	2.375
D	1.219	1.312	1.094	1.250	1.312	1.562	2.250	1.625	2.000	2.625	2.594	2.594	2.750
E	.375	.375	.438	.438	.562	.438	.375	.562	.750	.438	.750	1.109	1.130
A	1.234	1.328	1.109	1.266	1.328	1.578	2.266	1.641	2.016	2.641	2.609	2.609	2.770
B	.391	.391	.453	.453	.578	.453	.391	.578	.766	.453	.766	1.125	1.150

### HSM (Subminiature)

Catalog No.	HSM5*	HSM7	HSM11	HSM14	HSM20	HSM26	HSM29	HSM34	HSM42	HSM50	HSM75	HSM104
No. of Contacts	5	7	11	14	20	26	29	34	42	50	75	104
No. of Rows	2	2	3	3	3	3	3	4	4	4	6	8
L	.906	1.000	1.000	1.125	1.375	1.625	1.750	1.680	1.937	2.180	2.187	2.500
W	.359	.359	.460	.460	.460	.460	.468	.625	.625	.625	.845	1.064
C	.531	.625	.625	.750	1.000	1.250	1.375	1.312	1.562	1.812	1.812	2.062
D	.781	.875	.875	1.000	1.250	1.500	1.625	1.562	1.812	2.062	2.060	2.380
E	.234	.234	.343	.343	.343	.343	.343	.500	.500	.500	.720	.940
A	.797	.891	.891	1.015	1.265	1.515	1.640	1.577	1.827	2.077	2.075	2.395
B	.250	.250	.359	.359	.359	.359	.359	.515	.515	.515	.735	.955

\*HSM5P and HSM7P are standard with two female guide sockets. All others have one male guide pin and one female guide socket.

### HMM (Micro-Miniature)

Catalog No.	HMM5P	HMM7P	HMM9P	HMM11P	HMM14P	HMM20P	HMM26P	HMM29P	HMM34P	HMM44P
No. of Contacts	5	7	9	11	14	20	26	29	34	44
R-R	.081	.081	.081	.081	.081	.081	.081	.081	.090	.090
No. of Rows	2	2	2	3	3	3	3	3	4	4
L	.770	.860	.950	.860	.955	1.142	1.330	1.423	1.330	1.580
W	.270	.270	.270	.350	.350	.350	.350	.350	.460	.460
C	.468	.562	.656	.532	.625	.814	1.000	1.094	1.032	1.281
D	.690	.781	.875	.780	.875	1.062	1.250	1.343	1.250	1.500
E	.190	.190	.190	.270	.270	.270	.270	.270	.380	.380
A	.705	.796	.890	.796	.890	1.077	1.265	1.358	1.265	1.515
B	.205	.205	.205	.285	.285	.285	.285	.285	.395	.395

All dimensions are ±.010, except those for location of pins and hardware which are ±.005.



GLASSEAL PRODUCTS



**MIL-C-26500**

**Hermetic  
Circular  
Connectors**



### Product Description

All connectors in this series meet or exceed the requirements of MIL-C-26500. All 501H and 507H Series are the dimensional equivalent of MS27034 and MS24265, respectively. The 502H Series uses the same mounting dimensions as MS24264.

Connectors in the series are available with either a threaded or a bayonet coupling. Mounting flanges are of three standard

types: weld or solder, square flange, and jam nut. Special flanges are also available.

Standard materials are cold rolled steel shell plated fused tin, 300 Series passivated stainless steel shell, or 300 Series stainless steel shell plated fused tin. Either eyelet or solder pot contact with fused tin plating are standard, though other contact styles and plating combinations are available.

This series provides pressure and vacuum integrity to meet the most demanding requirements.

As with all Glasseal Products connectors, these parts can be modified for reasons of design or economy to the customer's specific drawings, and supplied with a commercial part number. Thermocouple contacts, as well as contact for circuit board and flex-tape applications, are also available.

# MIL-C-26500

## General Specifications

### Insert Retention:

Insert will withstand up to 3,000 psi without damage.

### Air Leakage (Hermeticity):

Leakage rate less than .01 micron per cubic foot per hour ( $1 \times 10^{-7}$  cc/sec) at 15 psi.

### Temperature Life:

Connector will perform satisfactorily after exposure to 200°C (392°F) for 1,000 hrs.

### Insulation Resistance:

Greater than 5,000 megohms/500 VDC, 25°C per MIL-STD-1344, method 3003.

### Dielectric Withstanding Voltage:

Connectors show no evidence of breakdown or flashover when tested at voltages shown in accordance with MIL-STD-1344, method 3001.

Altitude Feet	Unmated		Mated
	Style S	Style P	
Sea Level	1500	1500	1500
10,000	1250	1250	1250
30,000	750	700	1000
50,000	500	450	1000
70,000	350	275	1000
90,000	250	200	1000
110,000	250	200	1000

### Moisture Resistance:

Maintains insulation resistance of 1,000 megohms or greater at 100 VDC.


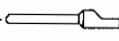
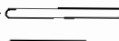
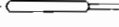
### Thermal Shock:

No evidence of damage detrimental to operation of connector after testing at -55°C (-67°F) to +260°C (+500°F).

### Corrosion:

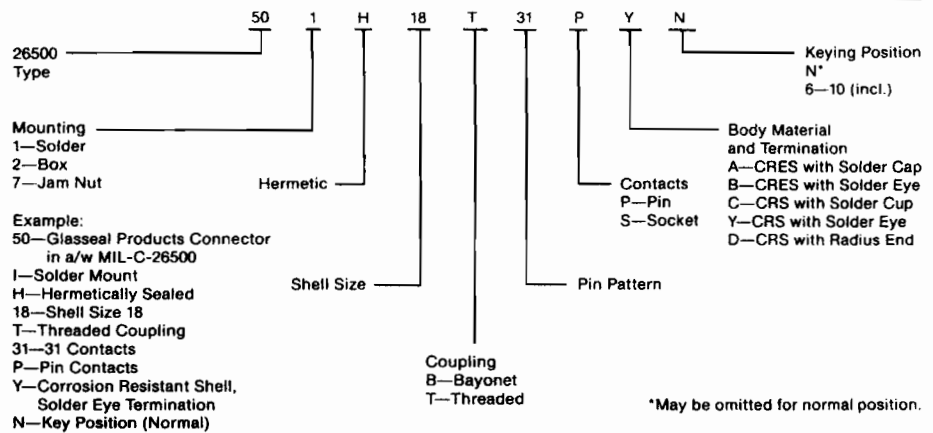
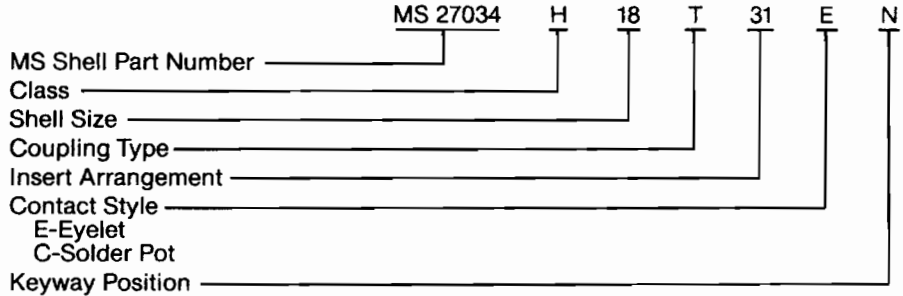
Connectors will meet salt spray test per MIL-STD-1344, method 1001.

## Contact Styles

- Solder Eye 
- Std. Solder Cup 
- Straight 
- Pig Tail 

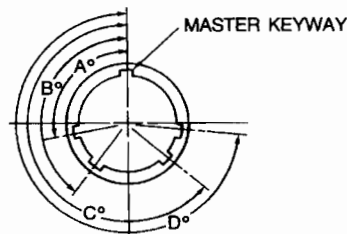
## Part Numbering System

### Example

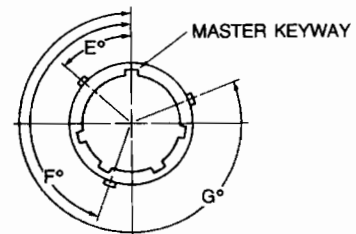


## Master Keyway Positions

### Keyway Position



### Bayonet Position



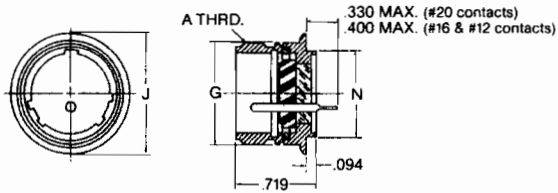
Keyway Position	Size 8				Size 10				Size 12 thru 24			
	A°	B°	C°	D°	A°	B°	C°	D°	A°	B°	C°	D°
Normal	105	140	215	265	105	140	215	265	105	140	215	265
6	102	132	248	320	102	132	248	320	18	149	192	259
7	80	118	230	312	80	118	230	312	92	152	222	342
8	35	140	205	275	35	140	205	275	84	152	204	334
9	64	155	234	304	64	155	234	304	24	135	199	240
Y	—	—	—	—	25	115	220	270	98	152	268	338

Bayonet Position	Size 8			Size 10			Size 12 thru 24		
	E°	F°	G°	E°	F°	G°	E°	F°	G°
Normal	60	180	300	60	180	300	50	170	290
6	46	166	286	46	166	286	50	170	290
7	46	166	286	46	166	286	50	170	290
8	60	180	300	60	180	300	50	170	290
9	89	209	329	89	209	329	50	170	290
Y	—	—	—	60	180	300	50	170	290



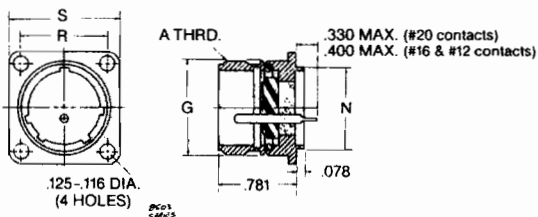
## Threaded Coupling Dimensions

### 501H



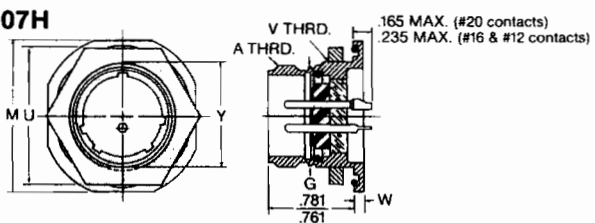
Shell Size	A Thread Class 2A	G Max.	J ±.020	N Max.
10	.688-24 NEF	.696	.840	.562
12	.875-20 UNEF	.875	1.045	.750
14	.938-20 UNEF	.935	1.090	.812
16	1.063-18 UNEF	1.062	1.210	.937
18	1.188-18 UNEF	1.187	1.340	1.062
22	1.438-18 UNEF	1.437	1.590	1.312

### 502H



Shell Size	A Thread Class 2A	G Max.	N Max.	R ±.005	S ±.005
10	.688-24 NEF	.696	.562	.719	.937
12	.875-20 UNEF	.875	.750	.812	1.031
14	.938-20 UNEF	.935	.812	.906	1.125
16	1.063-18 UNEF	1.062	.937	.969	1.250
18	1.188-18 UNEF	1.187	1.062	1.062	1.343
22	1.438-18 UNEF	1.437	1.312	1.250	1.562

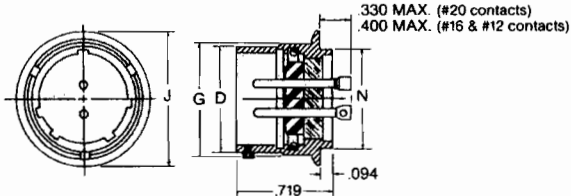
### 507H



Shell Size	A Thread Class 2A	G Max.	M ±.005	U Max.	V Thread Class 2A	W ±.020	Y ±.003
10	.688-24 NEF	.696	1.104	.953	.750-20 UNEF	.117	.718
12	.875-20 UNEF	.875	1.291	1.140	.938-20 UNEF	.117	.905
14	.938-20 UNEF	.935	1.391	1.250	1.000-20 UNEF	.117	.968
16	1.063-18 UNEF	1.062	1.516	1.329	1.125-20 UNEF	.117	1.093
18	1.188-18 UNEF	1.187	1.641	1.455	1.250-20 UNEF	.117	1.217
22	1.438-18 UNEF	1.437	1.954	1.705	1.500-20 UNEF	.148	1.467

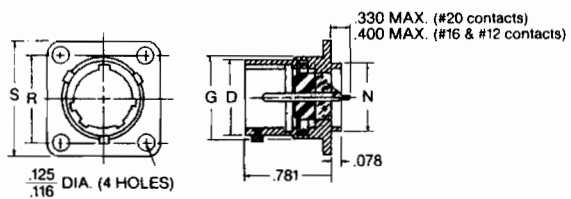
## Bayonet Coupling Dimensioning

### 501H



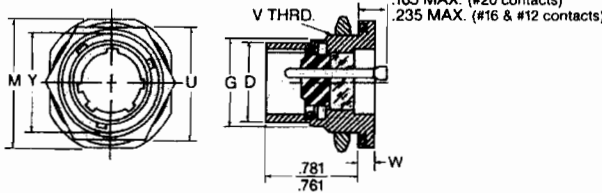
Shell Size	D +.000 - .005	G Max.	J ±.020	N Max.
10	.659	.696	.840	.562
12	.829	.875	1.045	.750
14	.898	.935	1.090	.812
16	1.025	1.062	1.210	.937
18	1.131	1.187	1.340	1.062
22	1.381	1.437	1.590	1.312

### 502H



Shell Size	D +.000 - .005	G Max.	N Max.	R ±.005	S ±.005
10	.659	.696	.562	.719	.937
12	.829	.875	.750	.812	1.031
14	.898	.935	.812	.906	1.125
16	1.025	1.062	.937	.969	1.250
18	1.131	1.187	1.062	1.062	1.343
22	1.381	1.437	1.312	1.250	1.562

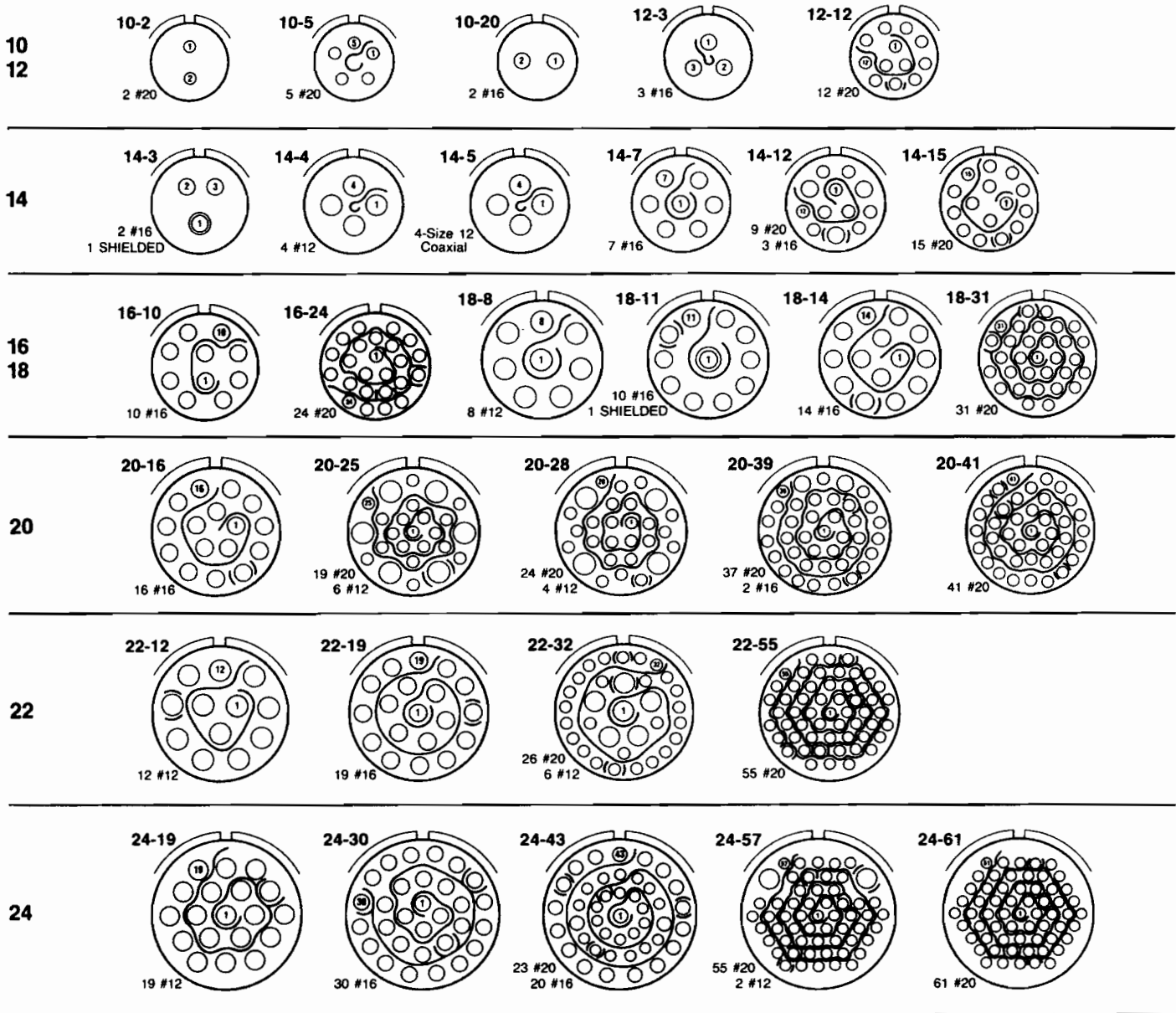
### 507H



Shell Size	V Thread Class 2A	G Max.	U Max.	D +.000 - .005	M ±.005	W ±.020	Y ±.003
10	.750-20 UNEF	.696	.953	.659	1.104	.117	.718
12	.938-20 UNEF	.875	1.140	.829	1.291	.117	.905
14	1.000-20 UNEF	.935	1.250	.898	1.391	.117	.968
16	1.125-20 UNEF	1.062	1.329	1.025	1.516	.117	1.093
18	1.250-20 UNEF	1.187	1.455	1.131	1.641	.117	1.217
22	1.500-20 UNEF	1.437	1.705	1.381	1.954	.148	1.467

# Insert Arrangements

Engaging face of pin insert shown



## GLASSEAL PRODUCTS™

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