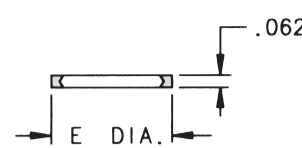


### REPLACEMENT SEAL RING DETAIL #27

Used between manifold and nozzle to prevent leakage. New seal rings must be installed each time manifold is assembled.

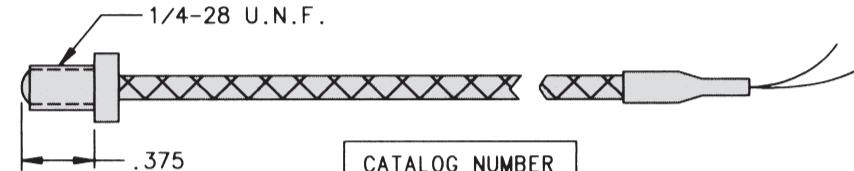


SERIES	CATALOG NUMBER	E DIA.
GATE-MATE 4	EHR0155	.686
250	EHR0154	.561
375	EHR0155	.686
625	EHR0156	1.063

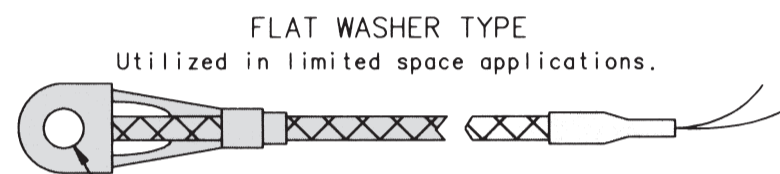
### MANIFOLD THERMOCOUPLE DETAIL #28

TYPE \*J\*, 36° LEADS

Installed between heat source and flow channel for precise control.



CATALOG NUMBER  
ETC0251



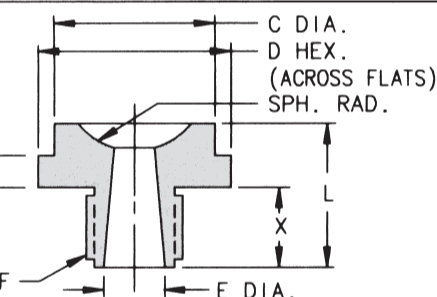
CATALOG NUMBER  
ETC0168

### TERMINAL MOUNTING BOX DETAIL #29

For information on terminal mounting boxes, mold power and thermocouple connectors see D-M-E catalog, section Q.

### NOZZLE SEAT DETAIL #30

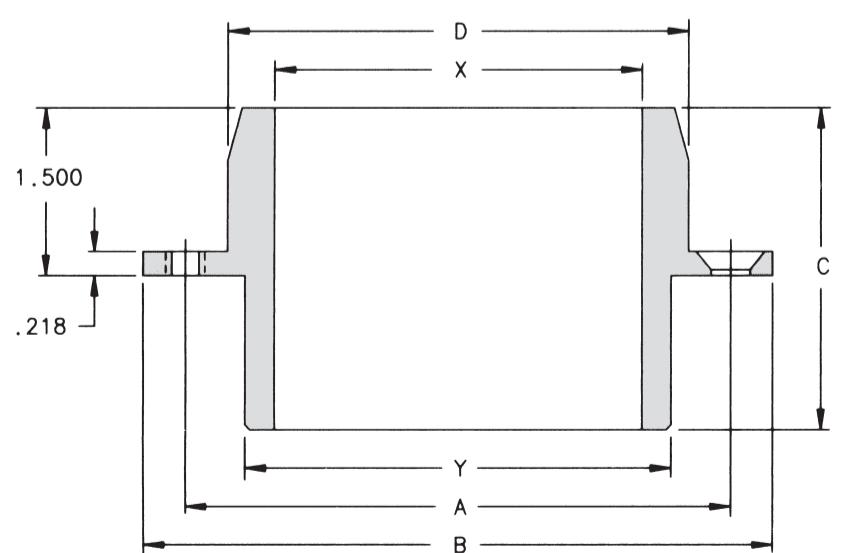
Replaceable interface between manifold and machine nozzle.



CATALOG NUMBER	SPH. RAD.	X	L	C DIM.	D HEX.	E DIA.	THREAD
EHN0011	.500						
EHN0012	.750	.62	1.250	1.250	1.50	.363	3/4-16
EHN0013	.500						
EHN0014	.750	.75	1.750	1.500	1.88	.457	1-12

### LOCATING RING DETAIL #31

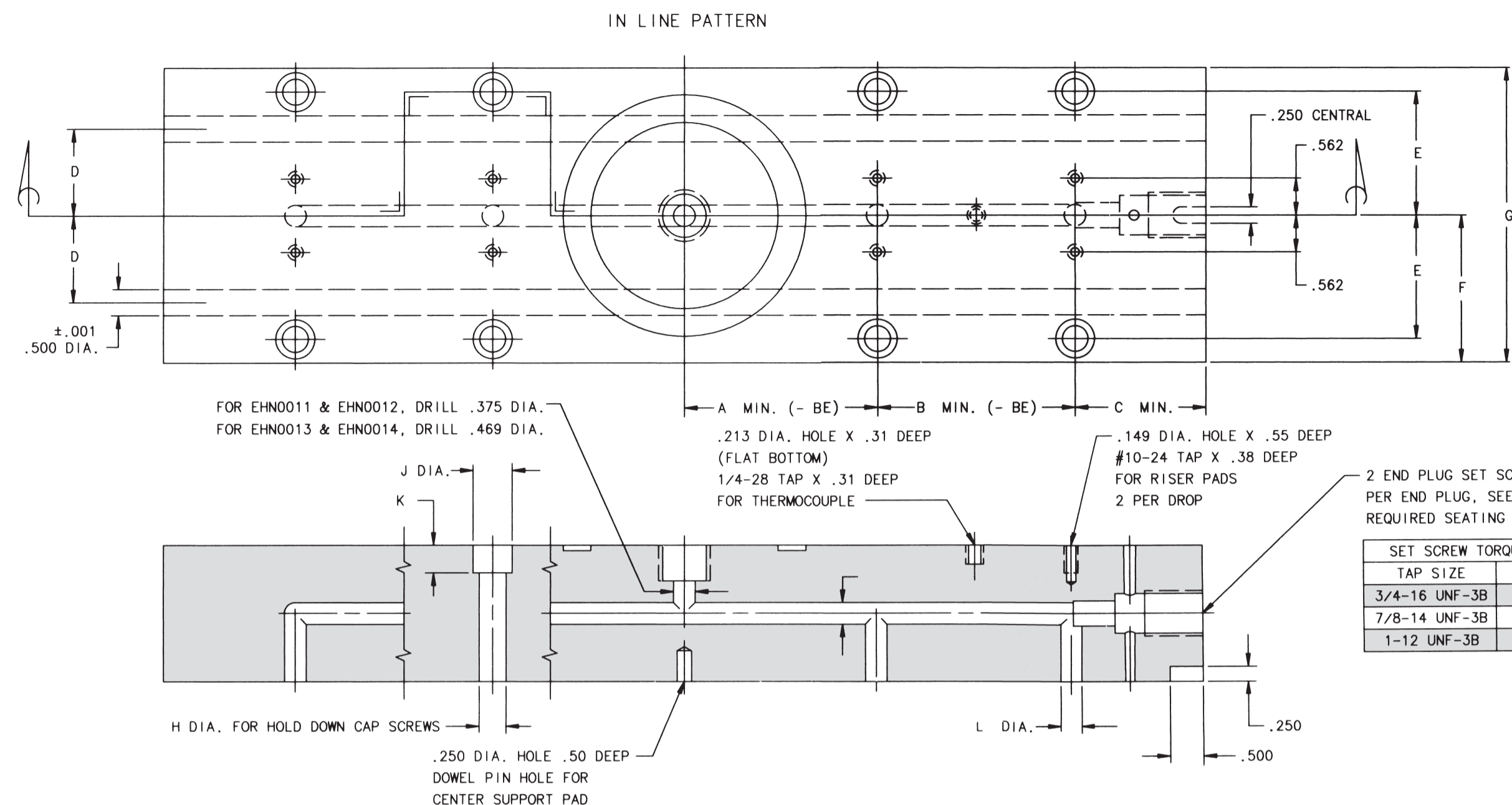
INCLUDES (2) 5/16-18 X 1/2" LG. FLAT HEAD CAP SCREW



CATALOG NUMBER	D DIA.	X DIA.	Y DIA.	A DIM.	B DIA.	C DIM.
EHL0252	2.990	2.000	2.500	3.312	3.990	2.875
EHL0253	3.990	3.250	3.750	4.625	5.495	2.875
EHL0254	2.990	2.000	2.500	3.312	3.990	4.500
EHL0255	3.990	3.250	3.750	4.625	5.495	4.500

### MANIFOLD DESIGN AND MACHINING DIMENSIONS DETAILS #13 THRU #19

MATERIAL: D-M-E #3 STEEL



DIMENSIONS	GATE-MATE 4	250 SERIES	375 SERIES	625 SERIES
A *	2.000	2.000	2.250	2.750
B *	1.500	1.500	2.000	3.000
C	3.250	3.000	3.250	3.875
D	1.000	1.000	1.000	1.125
E	1.625	1.625	1.625	2.000
F	2.000	2.000	2.000	2.500
G	4.000	4.000	4.000	5.000
H DIA.**	.406	.406	.406	.531
J C'BORE	.594	.594	.594	.781
K	.380	.380	.380	.500
L DIA.	.500	.375	.500	.625

\* Allowance must be made for the thermocouple placement between the nozzle seat and the first riser pad or between two riser pads.

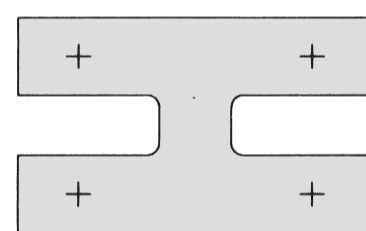
\*\* All hold down cap screws to be hardened and evenly torqued to 45-55 ft. lbs. Diameters shown are for .015 maximum expansion. For expansion greater than .015, modify to suit.

MANIFOLD CONFIGURATION IS DETERMINED BY PLACEMENT OF NOZZLES IN MOLD

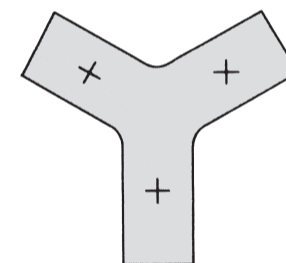
IN LINE PATTERN



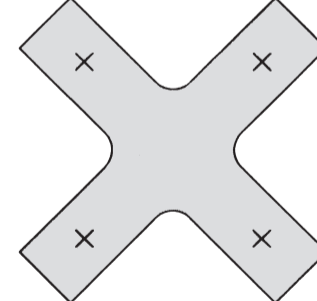
H PATTERN



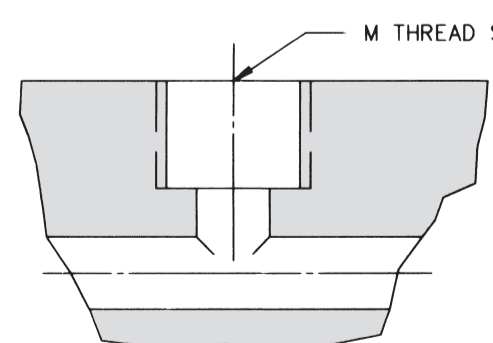
Y PATTERN



X PATTERN



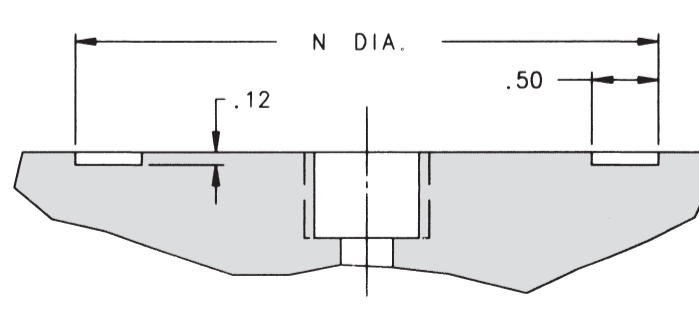
### NOZZLE SEAT MACHINING DETAIL #20



CATALOG NUMBERS	M THREAD SIZE
EHN0011	.687 DIA. HOLE X .56 DEEP
EHN0012	3/4-16 UNF TAP X .50 DEEP
EHN0013	.922 DIA. HOLE X .69 DEEP
EHN0014	1-12 UNF TAP X .62 DEEP

### LOCATING RING MACHINING DETAIL #21

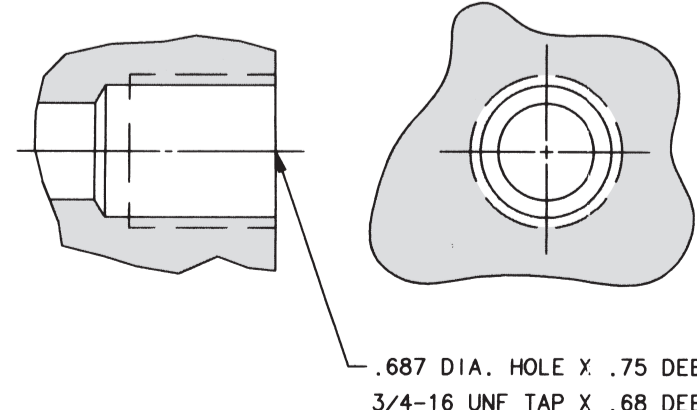
RELIEF IN TOP OF MANIFOLD FOR LOCATING RING



CATALOG NUMBER	N DIA. <sup>+0.005</sup> / <sub>-.000</sub>
EHL0252	2.505
EHL0253	3.755
EHL0254	2.505
EHL0255	3.755

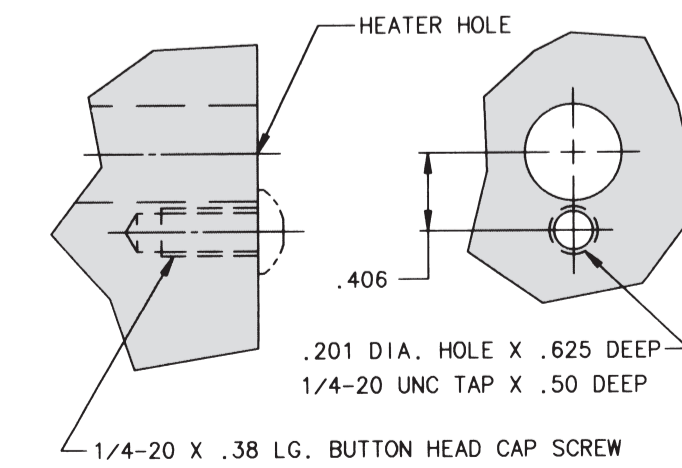
### HEATER PULLER MACHINING DETAIL #22

USED FOR CHS-SERIES CARTRIDGE HEATERS  
RECOMMENDED FOR HEATERS INSTALLED IN BLIND HOLES



### HEATER STOP MACHINING DETAIL #25

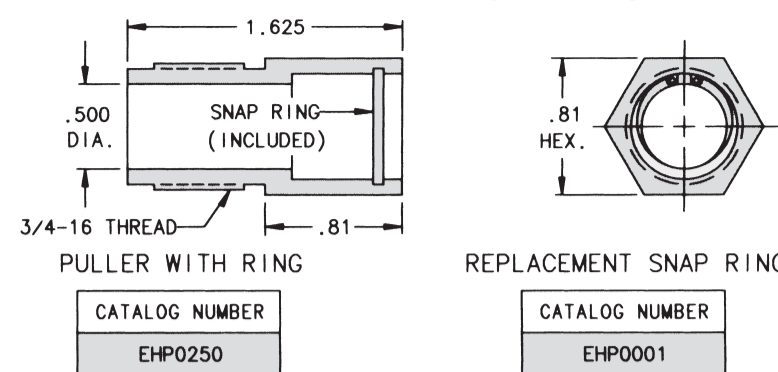
USED FOR ECH-SERIES CARTRIDGE HEATERS



MINI-PRINT 1800 (SHEET 2 OF 2)

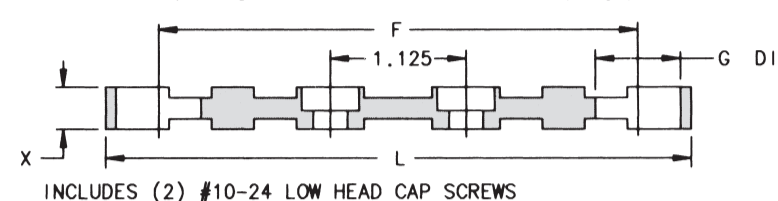
### HEATER PULLER DETAIL #33

Assists in the removal of shoulder style cartridge heater.



### RISER PAD DETAIL #34

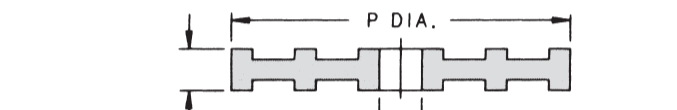
Supports manifold opposite nozzles. Prevents heat loss and maintains spacing between manifold and clamping plate.



CATALOG NUMBER	X DIM. <sup>+0.010</sup> / <sub>-.000</sub>	L DIM.	F DIM.	G DIA.	USED WITH
ERP0163	.250				GATE-MATE 4, 250 SERIES AND 375 SERIES
ERP0167	.375	4.000	3.250	.625	
ERP0164	.750				
ERP0165	.250				
ERP0168	.375	5.000	4.000	.781	625 SERIES
ERP0166	.750				

### CENTER SUPPORT PAD DETAIL #35

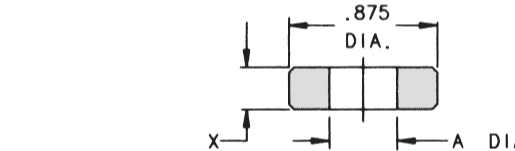
Aligns and supports manifold center while minimizing heat transfer from manifold.



CATALOG NUMBER	X DIM. <sup>+0.010</sup> / <sub>-.000</sub>	P DIA.
ECB0161	.250	2.500
ECB0162	.750	2.500
ECB0163	.250	1.500
ECB0164	.750	1.500

### SPACER RING DETAIL #36

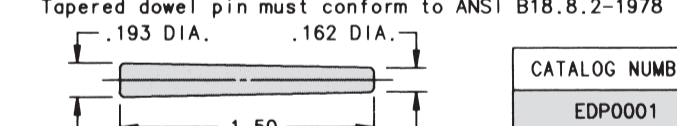
Maintains spacing between manifold and nozzle plate.



CATALOG NUMBER	X DIM. <sup>+0.010</sup> / <sub>-.000</sub>	A DIA.	USED WITH
ESR0157	.250	.406	GATE-MATE 4, 250 SERIES AND 375 SERIES
ESR0158	.750		
ESR0159	.250	.531	625 SERIES
ESR0160	.750		

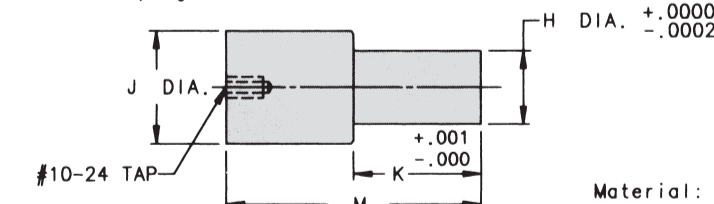
### TAPERED DOWEL PIN DETAIL #37

Aligns and prevents end plug from rotating. Tapered dowel pin must conform to ANSI B18.8.2-1978 standard.



### END PLUG DETAIL #38

Used to plug horizontal flow channels.



SERIES	CATALOG NUMBER	H DIA.	J DIA.	K DIM.	M DIM.
GATE-MATE 4	EEP0002	.5615	.800	.750	1.500
250	EEP0001	.4365	.675	.750	1.500
375	EEP0002	.5615	.800	.750	1.500
625	EEP0003	.6875	.894	1.125	1.875

### END PLUG SET SCREW DETAIL #39

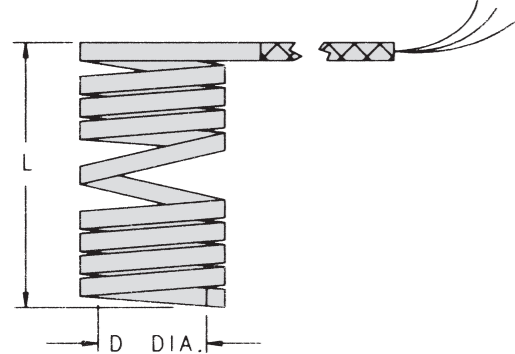
Used to secure end plug into manifold (2 required). End plug set screw must conform to the following standards, ANSI B1.1, ANSI B18.3 and ASTM F912.

SERIES	CATALOG NUMBER	THREAD	N DIM.
GATE-MATE 4	SSS7878	7/8-14 UNF-3A	.875
250	SSS3434	3/4-16 UNF-3A	.750
375	SSS7878	7/8-14 UNF-3A	.875
625	SSS11	1-12 UNF-3A	1.000

REPLACEMENT SQUARE COIL NOZZLE HEATER DETAIL #26

GATE-MATE 4™ NOZZLE HEATER

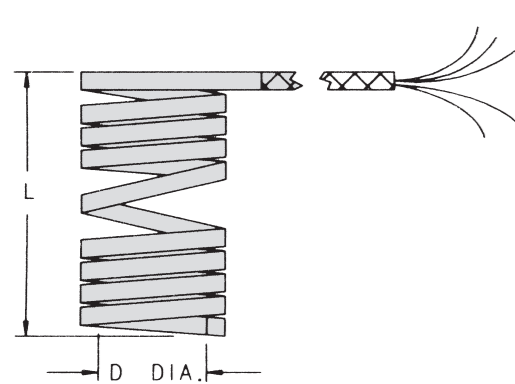
240 VAC, 36" LEADS  
WIRING INFORMATION:  
POWER LEADS ARE BLACK  
GROUND LEAD IS GREEN



SEE SHEET 1, SIDE 2 (DETAIL #2)  
FOR REPLACEMENT THERMOCOUPLES

250, 375 AND 625 NOZZLE HEATER

240 VAC, T/C TYPE "J", 36" LONG  
WIRING INFORMATION:  
POWER LEADS ARE BLACK  
GROUND LEAD IS GREEN  
THERMOCOUPLE LEADS ARE RED AND WHITE  
RED IS NEGATIVE (-) AND CONSTANTAN  
(NON-MAGNETIC)  
WHITE IS POSITIVE (+) AND IRON  
(MAGNETIC)

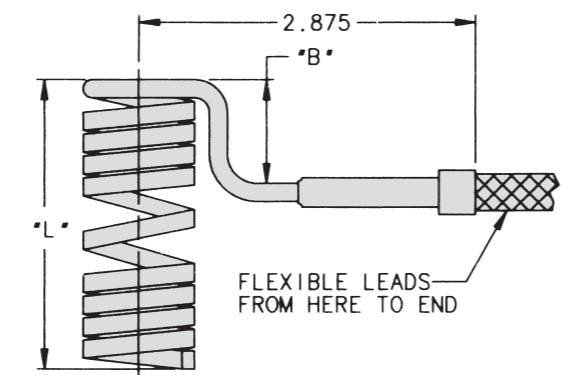


SERIES	CATALOG NUMBER	D DIA. NOMINAL NOZZLE	L DIM.	WATTS	USED WITH NOZZLE SUB-ASSEMBLY
GATE-MATE 4	SCH0060	.750	1.437	250	GMB0050 GMB0150
	SCH0061	.750	1.937	300	GMB0051 GMB0151
	SCH0062	.750	2.437	350	GMB0052 GMB0152
	SCH0063	.750	2.937	400	GMB0053 GMB0153
	SCH0064	.750	3.437	425	GMB0054 GMB0154
	SCH0065	.750	4.437	500	GMB0055 GMB0155
250	SCH0066	.750	5.437	500	GMB0056 GMB0156
	SCH0081	.625	2.000	300	EHA0001
	SCH0082	.625	2.500	350	EHA0002
	SCH0083	.625	3.000	400	EHA0003
	SCH0084	.625	3.500	425	EHA0004
	SCH0085	.625	4.000	500	EHA0005
375	SCH0086	.625	5.000	500	EHA0006
	SCH0087	.625	6.000	550	EHA0007
	SCH0088	.625	2.125	400	EHA0008
	SCH0089	.625	2.625	450	EHA0009
	SCH0090	.625	3.125	550	EHA0010
	SCH0091	.625	3.625	700	EHA0011
625	SCH0092	.625	4.125	800	EHA0012
	SCH0093	.625	5.125	900	EHA0013
	SCH0094	.625	6.125	1000	EHA0014
	SCH0095	.625	7.125	1100	EHA0015
	SCH0096	.625	4.000	1000	EHA0016
	SCH0097	.625	5.000	1030	EHA0017
SCH0098	.625	6.000	1100	EHA0018	
SCH0099	.625	7.000	1000	EHA0019	
SCH0100	.625	8.000	1200	EHA0020	
SCH0101	.625	9.000	1200	EHA0021	
SCH0102	.625	10.000	1200	EHA0022	

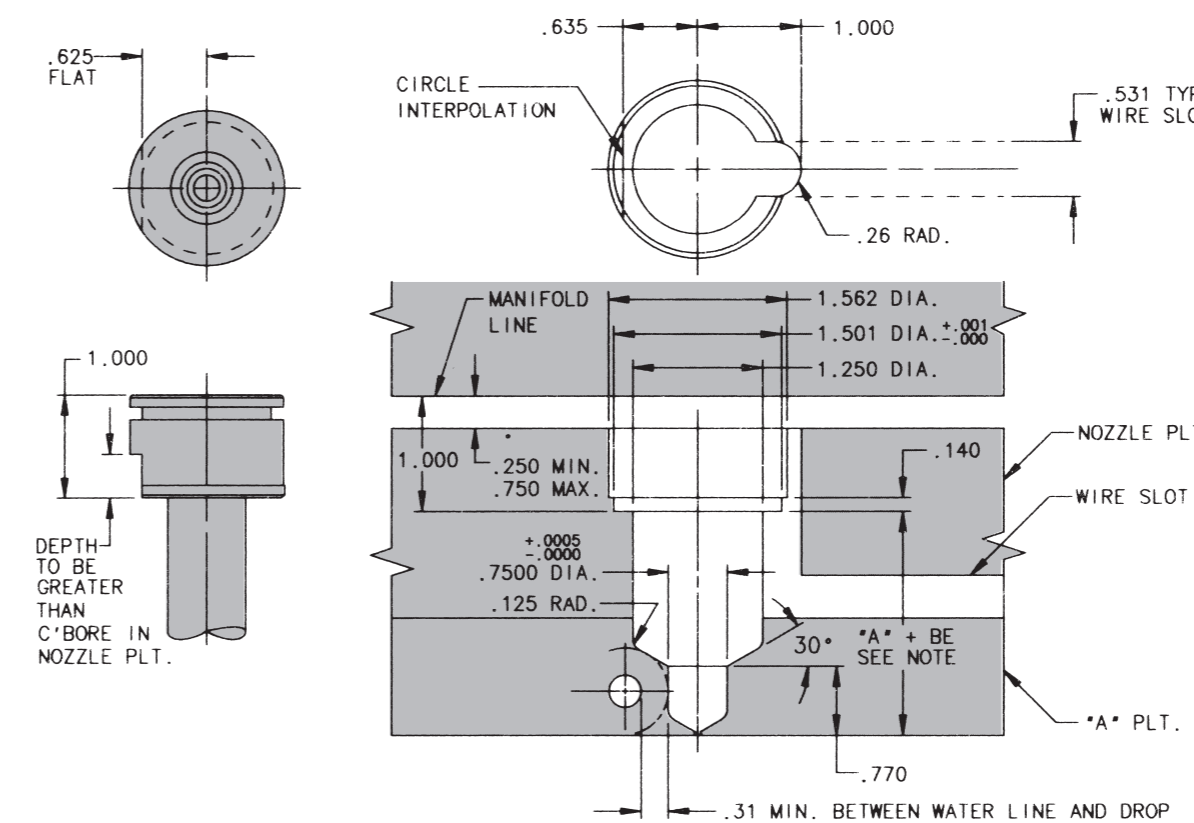
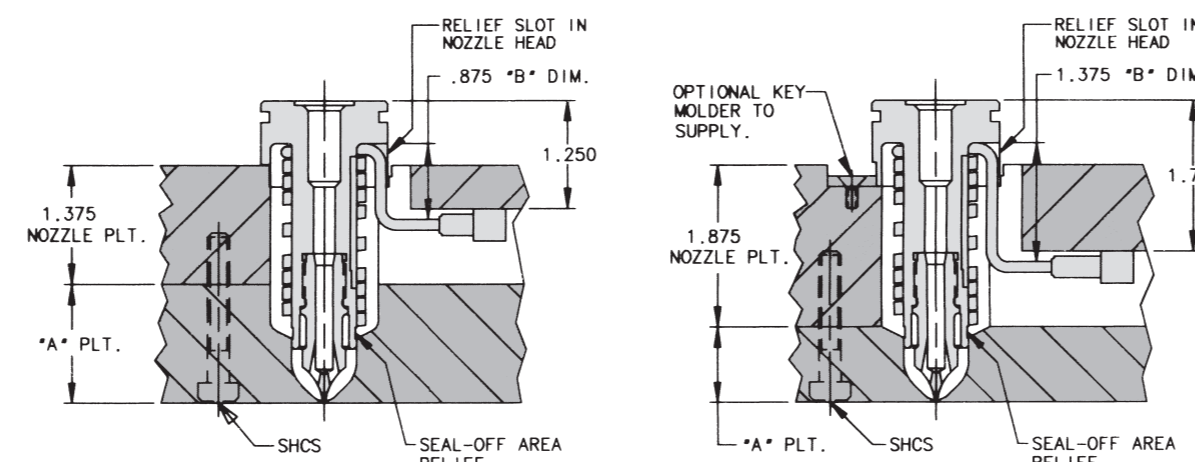
GATE-MATE 4™ OPTIONS DETAIL #2

FRONT LOAD SQUARE COIL HEATER

240 VAC, T/C TYPE "J", 36" LONG  
WIRING INFORMATION:  
POWER LEADS ARE BLACK  
GROUND LEAD IS GREEN  
THERMOCOUPLE LEADS ARE RED AND WHITE  
RED IS NEGATIVE (-) AND CONSTANTAN  
(NON-MAGNETIC)  
WHITE IS POSITIVE (+) AND IRON  
(MAGNETIC)



CATALOG NUMBER	USED WITH NOZZLE SUB-ASSY.	'B' DIM.	'L' DIM.	WATTS
SCH1060	GMB1050	.875	1.594	250
SCH1061	GMB1051	.875	2.094	300
SCH2061	GMB2051	1.375	2.594	350
SCH1062	GMB1052	.875	2.594	350
SCH2062	GMB2052	1.375	3.094	400
SCH1063	GMB1053	.875	3.094	400
SCH2063	GMB2053	1.375	3.594	425
SCH1064	GMB1054	.875	3.594	425
SCH2064	GMB2054	1.375	4.594	500
SCH1065	GMB1055	.875	4.594	500
SCH2065	GMB2055	1.375	5.594	500
SCH1066	GMB1056	.875	5.594	500
SCH2066	GMB2056	1.375	5.594	500

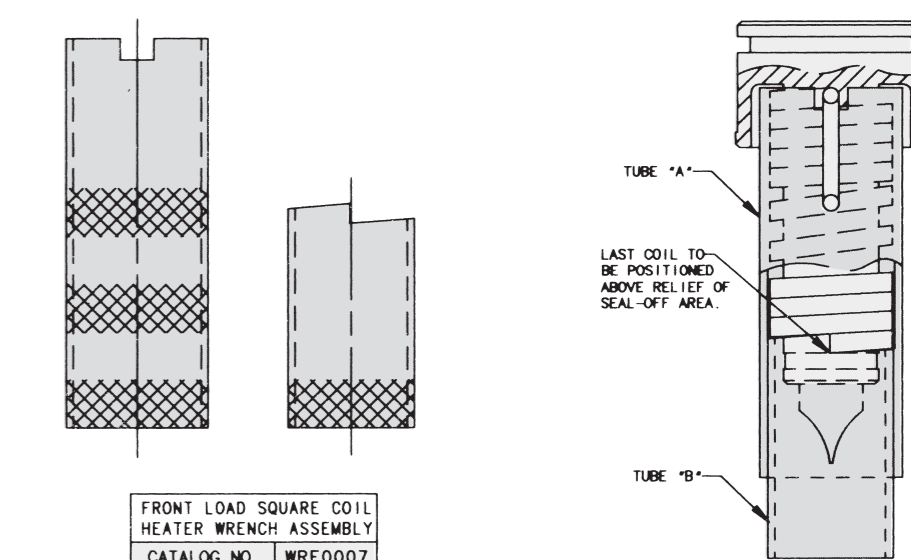


NOTE: The expansion factor must be taken into consideration prior to machining for and installing nozzles. This factor (BE) must then be added to the nominal 'A' dimension. Formula for determining this expansion factor is as follows:  
BE = 'A' dimension x .00000633 x (nozzle setpoint temp. -68°).  
Example: Given a 2.500 inch 'A' dimension with a Nozzle Setpoint Temp. of 500°  
BE = 2.500 x .00000633 x (500-68) = .0068... thus 'A' + BE will be 2.5068.  
Please note that the above information is given as an example. Variations may occur based on mold configurations and cooling factor. In some instances, it may be necessary to obtain an empirical factor.

RECOMMENDATIONS AND GUIDELINES

- Front Load Square Coil Heaters are designed to be used with Gate-Mate 4 Nozzles only.
- The nozzle head must be held in such a manner to keep it from rotating upon installation of the Front Load Square Coil Heater. This may be done by making a key for the head to match the flat on the nozzle's head or by circle interpolation.
- Nozzle plate must be designed so that the heads of the socket head cap screws are exposed when the mold is split on the parting line.
- After the nozzle has been located and positioned in the nozzle plate with manifold secured in place and 'A' plate removed, the heater can be installed on the nozzle body as follows:
  - Place heater within Tube 'A' so that the bending exit lead lies within the slot of the tube.
  - Insert Tube 'B' with angle out within Tube 'A' so that the angle of the tube mates with the last coil of the heater.
  - Rotate Tube 'A' counterclockwise while at the same time rotating tube 'B' clockwise. This action will spring open the coils enough to slide the heater onto the shaft of the nozzle body.
  - Slide the heater onto the nozzle body shaft aligning the heater exit lead within the relief slot in the nozzle's head.
  - Position heater so that the end of the last coil is above the relief of the seal-off area. (See figure above)
- Place wire straps over wire channel to secure heater and thermocouple wires before assembling 'A' plate to the nozzle plate.

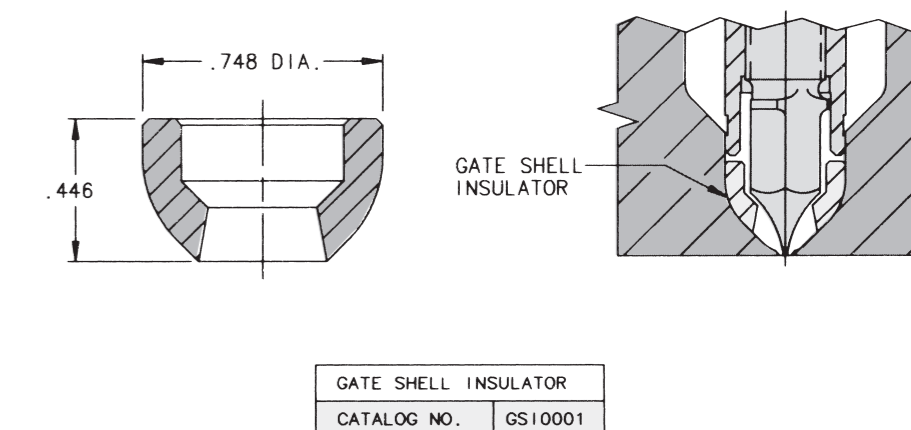
FRONT LOAD SQUARE COIL HEATER WRENCH DETAIL #2



Front Load Square Coil Heater Wrench assembly must be ordered separately from heater.

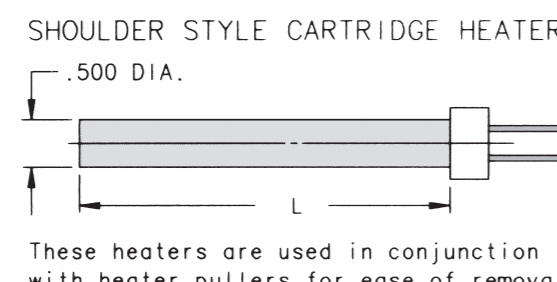
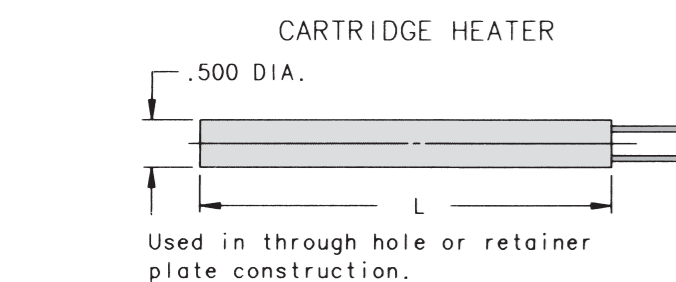
GATE SHELL INSULATOR DETAIL #2

For use with Gate-Mate 4 Nozzles only



MANIFOLD HEATER DETAIL #32

240 VAC, 36" LEADS  
WIRING INFORMATION:  
POWER LEADS ARE MULTICOLORED



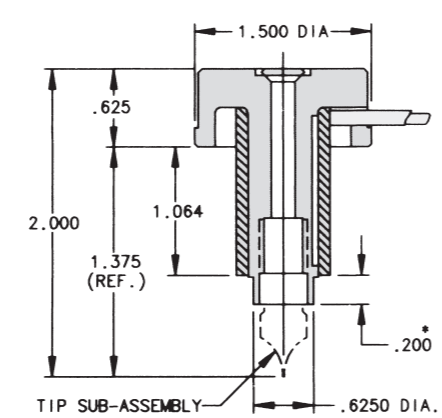
CATALOG NUMBER	'L' LENGTH	WATTS
ECH0103	4.00	500
ECH0119	4.00	750
ECH0104	4.50	575
ECH0105	5.00	650
ECH0120	5.00	1000
ECH0106	5.50	725
ECH0107	6.00	800
ECH0121	6.00	1000
ECH0108	6.50	875
ECH0109	7.00	950
ECH0122	7.00	1000
ECH0110	7.50	1025
ECH0111	8.00	1100
ECH0123	8.00	1500

CATALOG NUMBER	'L' LENGTH	WATTS
ECH0124	8.00	2000
ECH0112	8.50	1175
ECH0113	9.00	1200
ECH0114	10.00	1350
ECH0125	10.00	1500
ECH0126	11.00	1000
ECH0115	11.00	1500
ECH0128	12.00	1000
ECH0127	12.00	1500
ECH0116	12.00	1650
ECH0129	15.00	1500
ECH0117	15.00	2050
ECH0130	18.00	1700
ECH0118	18.00	2500

CATALOG NUMBER	'L' LENGTH	WATTS
CHS0119	4.00	500
CHS0120	4.50	575
CHS0121	5.00	650
CHS0122	5.50	725
CHS0123	6.00	800
CHS0124	6.50	875
CHS0125	7.00	950
CHS0126	7.50	1025
CHS0127	8.00	1100
CHS0128	8.50	1175
CHS0129	9.00	1200
CHS0130	10.00	1350
CHS0131	11.00	1500
CHS0132	12.00	1650
CHS0133	15.00	2050
CHS0134	18.00	2500

GATE-MATE OPTIONS DETAIL #2

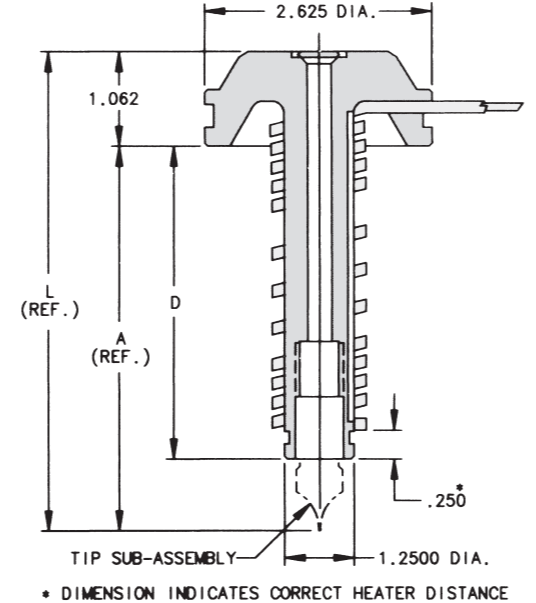
MINI GATE-MATE SUB-ASSEMBLY



\* DIMENSION INDICATES CORRECT HEATER DISTANCE  
CAST-IN HEATER WITH INTERNAL THERMOCOUPLE (SHOWN) OR SQUARE COIL HEATER AND THERMOCOUPLE

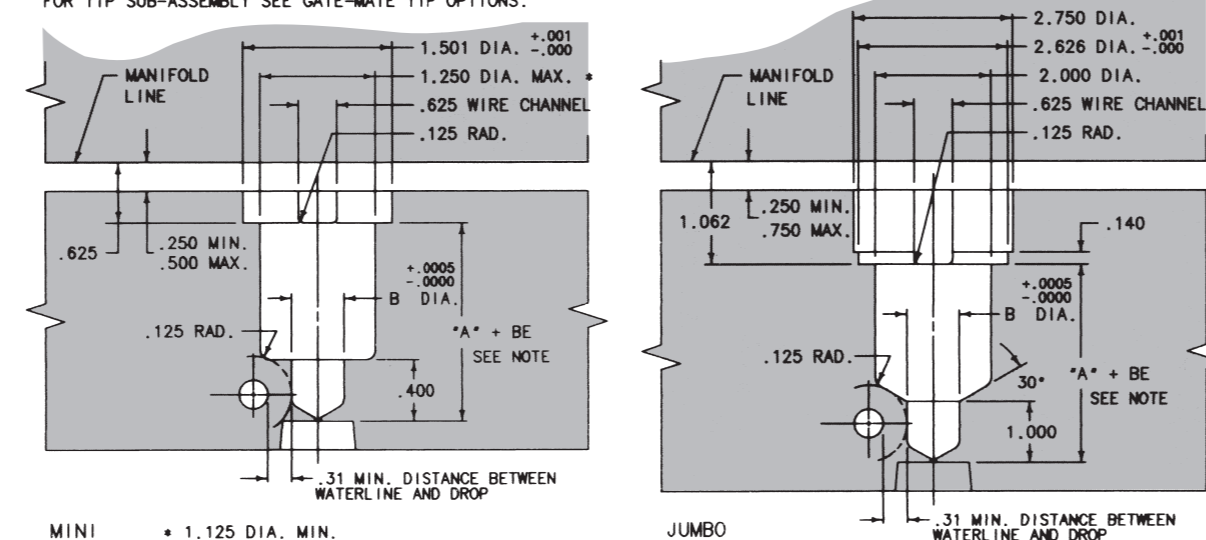
CATALOG NUMBER	HEATER STYLE	HEATER CAT. NO.	THERMOCOUPLE CAT. NO.	SEAL RING CAT. NO.
GMB0110	CAST-IN	CIH0100	N/A	EHR0155
GMB0118	SO. COIL	SCH0004	TC00100	EHR0155

JUMBO GATE-MATE SUB-ASSEMBLY



CATALOG NUMBER	L DIM.	A DIM.	D DIM.	HEATER CAT. NO.	THERMOCOUPLE CAT. NO.	SEAL RING CAT. NO.
GMB0120	4.562	3.500	2.645	SCH0001	TC0001	EHR0001
GMB0119	3.562	2.500	1.645	SCH0002	TC0002	EHR0001

SUB-ASSEMBLY (MINI OR JUMBO) INCLUDES: 1-NOZZLE BODY, 1-SEAL RING, 1-SQ. COIL HE (MINI GATE-MATE ALSO AVAILABLE WITH CAST-IN HEATER WITH INTEGRAL THERMOCOUPLE) FOR TIP SUB-ASSEMBLY SEE GATE-MATE TIP OPTIONS.



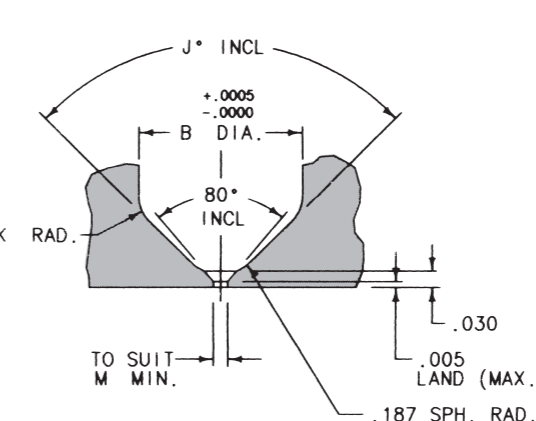
RECOMMENDATIONS AND GUIDELINES

- For the Mini Gate-Mate nozzle, machine the 1.501 diameter +.001 -.000 directly into the nozzle plate, .125 minimum to .375 maximum deep, to fit the nozzle's head. For the Jumbo Gate-Mate nozzle, machine the 2.626 diameter +.001 -.000 directly into the nozzle plate, .250 minimum to .750 maximum deep, to fit the nozzle's head.
- Machine the 'B' diameter +.0005 -.0000 directly into the cavity carefully, as this is a seal off dimension to fit the nozzle's seat.
- For best processing and lowest gate vestige, tip must be .000 to .005 into the cavity at processing temperature. The smallest gate diameter will yield the best gate vestige. Depending on part configuration and plastic being used, the gate may have to be enlarged to achieve greater flow. This increase in diameter may result in a larger gate vestige.
- Provide maximum water cooling in the nozzle plate and in the cavity insert around gate.
- Route wires through wire channel in the nozzle plate.
- Provide a gate dimple on core / cavity opposite gate. This will allow for best material flow.
- Use the GMT0004 jumbo tip machining dimensions when using the GMT0007 thru hole tip. This tip was designed .040 shorter in length to be a direct replacement for the jumbo tip. Given a 'A' dimension of 2.500 + BE (NOT 2.460 + BE) using the GMT0007 tip. For best processing and lowest gate vestige a .080 to .125 diameter gate is recommended.
- Careful attention should be taken to the tip as damage could occur if tip is dropped or strikes a rigid material. Treat tip like a glass or ceramic material.
- Careful attention should be taken to the heater and thermocouple leads as damage could occur when working on nozzle assembly.
- Seal ring for nozzle body must be replaced each time nozzle body and / or manifold are removed to ensure seal off.

WIRING INFORMATION:

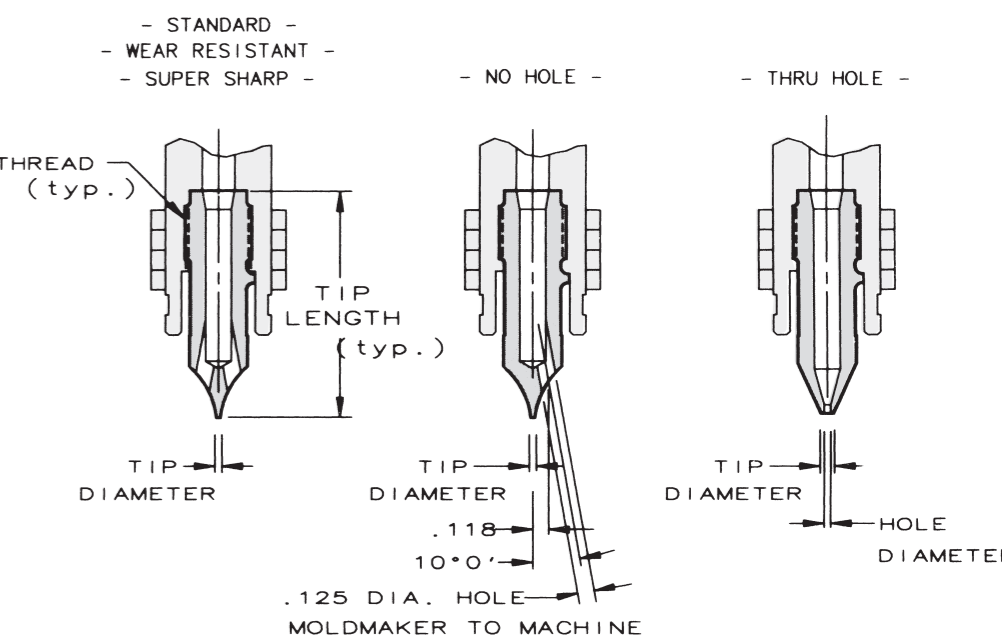
HEATERS ARE 240 VAC (120 VAC SQ. COIL HEATERS AVAILABLE ON REQUEST), 42" LEADS, T/C TYPE "J" (T/C LEADS ARE 40" LONG)  
POWER LEADS ARE BLACK  
GROUND LEAD IS GREEN  
THERMOCOUPLE LEADS ARE RED AND WHITE  
RED IS NEGATIVE (-) AND CONSTANTAN (NON-MAGNETIC)  
WHITE IS POSITIVE (+) AND IRON (MAGNETIC)

NOZZLE STYLE	CATALOG NUMBER	A DIM.	B DIM.	J°	K RAD.	M DIM.
JUMBO	GMB0120	3.500	1.2500	90°	.375	.070
	GMB0119	2.500	1.2500	90°	.375	.070
MINI	GMB0110	1.375	.6250	118°	.125	.030
	GMB0118	1.375	.6250	118°	.125	.030



Note: Expansion factor calculations are the same as detailed under Gate-Mate 4 options.

GATE-MATE TIPS DETAIL #2



TIP STYLE	CATALOG NUMBER	"O" DIAMETER	TIP LENGTH	TIP DIAMETER	HOLE DIAMETER	THREAD	BODY STYLE
STANDARD	GMT-2						
WEAR RESISTANT	GMT0400	.044 MIN.		.024	N/A		MEDIUM GATE-MATE & GATE-MATE 4
HIGHLY WEAR RESISTANT	GMT0300		1.730				
SUPER SHARP	GMT0301	.030 MIN.		.010		1/2 - 20	
SUPER SHARP WEAR RESISTANT	GMT0401						
THRU HOLE	GMT0302*	.030 MIN. - .050 MAX.	1.690	.090	.050		
THRU HOLE WEAR RESISTANT	GMT0402*						
NO HOLE	GMT0303	.044 MIN.	1.730	.024	N/A		

Wear resistant tips are recommended for abrasive materials.  
\*Contact D-M-E for details to modify thru hole tips for larger "O" diameters.