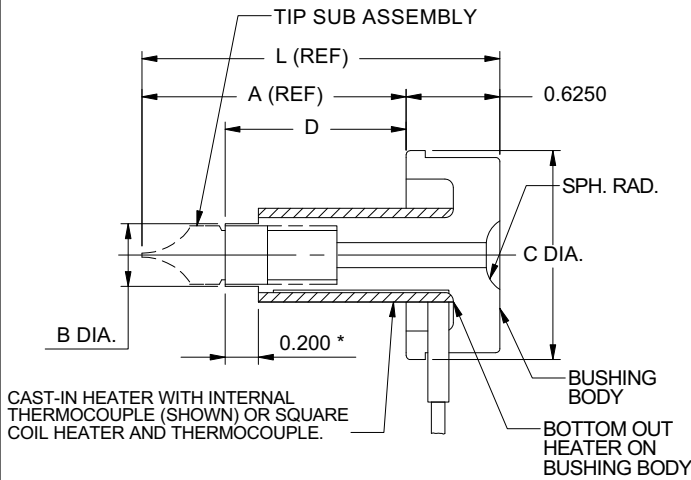


ME-0739-PS-311-E 02-10 GMB9998
GATE-MATE BUSHING SUB-ASSEMBLIES
INSTALLATION DATA
 Please read carefully before installing bushings.



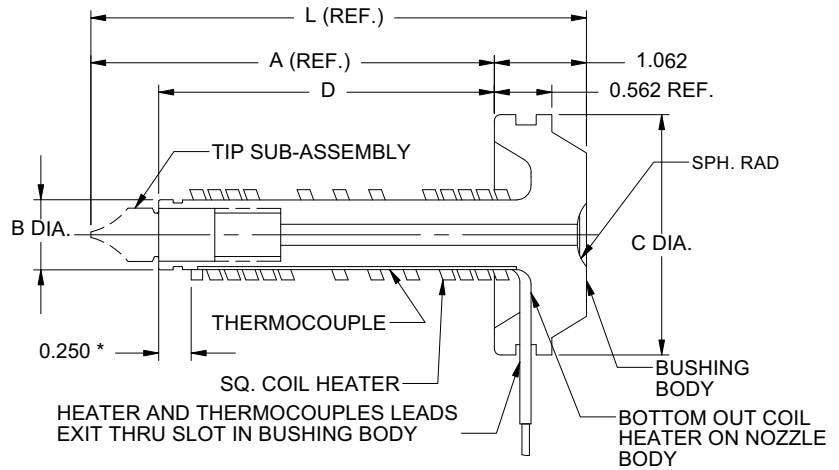
Note: Dimensions shown in Inches.

MINI GATE-MATE SUB-ASSEMBLY



* DIMENSION INDICATES CORRECT HEATER DISTANCE

MEDIUM AND JUMBO GATE-MATE ASSEMBLY



* DIMENSION INDICATES CORRECT HEATER DISTANCE.

SQ. COIL HEATERS INCLUDE INSTALLATION/REMOVAL WRENCH							SUB-ASSEMBLY REFERENCE	SQ. COIL HEATERS (240 VAC)		THERMOCOUPLES (40" LEADS)	SUB-ASSEMBLY TIPS	
L DIM.	A DIM.	B DIA.	C DIA.	D DIM.	SPH. RAD.	BUSHING STYLE		CAT. NO.	WATTS	CAT. NO.	CAT. NO.	STYLE
4.562	3.500	1.2500	2.625	2.645	1/2 & 3/4	JUMBO	GMB0114	SCH0001	315	TC0001	GMT0004	STANDARD WEAR RESISTANT * THRU HOLE ***
3.562	2.500			1.645			GMB0113	SCH0002	315	TC0002	GMT0006 GMT0007	
4.437	3.375	0.7500	2.156	2.645	1/2 & 3/4	MEDIUM	GMB0030	SCH3242	315	TC-9700	GMT-2 GMT0300 GMT0301 GMT0302 GMT0303	
3.437	2.375			1.645			GMB0020	SCH3142	315	TC-9600	GMT0100	STANDARD
2.000	1.375	0.6250	1.500	1.094	1/2	MINI	GMB0116	SCH0004	225	TCG0100	GMT0100	STANDARD
				FLAT			GMB0117					
				1/2			GMB0111					
				FLAT			GMB0112	CAST-IN	225	N/A	GMT0101	WEAR RESISTANT *

* WEAR RESISTANT TIP IS RECOMMENDED FOR ABRASIVE MATERIALS.
 ** SEE RECOMMENDATIONS AND GUIDELINES NOTE # 8

*** SEE RECOMMENDATIONS AND GUIDELINES NOTE # 10
 *** SEE RECOMMENDATIONS AND GUIDELINES NOTE # 11

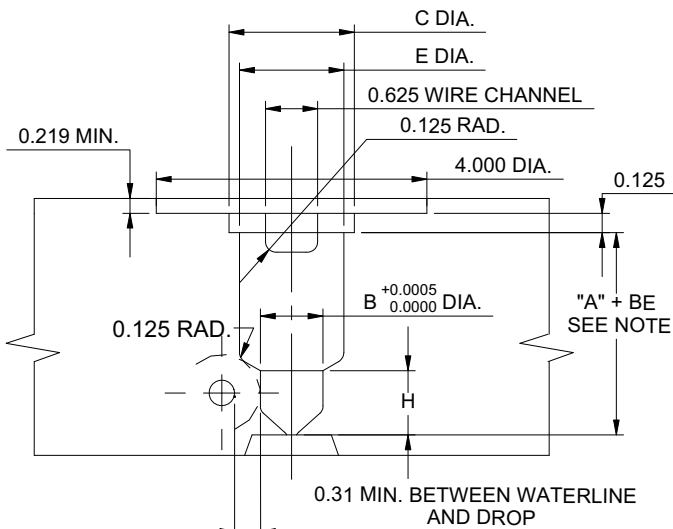
RECOMMENDATIONS AND GUIDELINES

- Bushing (single-application) body must be cleaned of any material in the seal-off area and threaded areas before reassembling.
- 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.
- Do **NOT** lubricate or use anti-seize compound on the threads.
- Tip must be torqued into the bushing body using a torque wrench at 20 to 25 ft-lbs for the wear resistant tips, and 35 ± 5 ft-lbs for all other tips when reassembling. For protection of the tip point, use a 9 mm deep well 6 point thin wall socket for the Mini, 11 mm deep well 6 point socket for the medium and 17 mm deep well 6 point socket for the jumbo.
- Careful attention should be taken to the heater and thermocouple leads as damage could occur when working on bushing assembly.
- Machine the "C" diameter directly into the mold to fit the bushing's head.
- Machine the "B" diameter + 0.0005 -0.0000 directly into the cavity carefully, as this is a seal-off dimension to fit the bushing's seat.
- A 0.030 min dia. gate is recommended when using the GMT0301 Super Sharp tip.
- For best processing and lowest gate vestige, tip must be 0.000 to 0.005 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.
- Use the GMT-2 standard tip machining dimensions when using the GMT0302 thru hole tip and use the GMT0004 jumbo tip machining dimensions when using the GMT0007 thru hole tip. These tips are designed 0.040 shorter in length to be a direct replacement for the standard and jumbo tips. Given an "A" dimension of 2.000 + BE (NOT 1.960 + BE) using a GMT0302 tip. For best processing and lowest gate vestige a 0.030 to 0.060 diameter gate is recommended for the GMT0302 thru hole tip and a 0.080 to 0.125 diameter gate for the GMT0007 thru hole tip.
- Using the GMT0303 no hale tip allows for flow hole alignment in the cavity. The gate-mate body must be keyed into the nozzle plate. "A" plate and/or cavity insert should be removed to expose tip from parting line. Determine location of flow hole on the circumference of the tip and mark that position. Remove body from the mold and machine a 0.125 diameter hole into the tip at the marked location. See packing slip number GMT-PS for more details. Do **NOT** remove tip from body. Remove any burrs around 0.125 diameter hole and clean all chips from tip and body. Reassembly body back into the mold and wire heater and thermocouple into the terminal mounting box.
- Provide maximum water cooling in the cavity insert around gate.
- Constrain bushing in the mold by clamping with the appropriate D-M-E locating ring. Locating rings are supplied with additional stock allowing for machining to suit application.
- When bushing must be recessed deeper than the "W" dimension, alter the "W" and the 0.219 dimension to suit the application.
- Route wires through wire channel in clamping plate. In the event that the bushing would extend beyond the clamping plate, add another plate to the clamp plate and route wires through that plate. A wire slot may be machined into the locating ring.
- Provide a gate dimple on core/cavity opposite gate. This will allow for best material flow.
- Wait a minimum of 5 minutes after set point has been achieved for sufficient heat to transfer into the tip before molding.

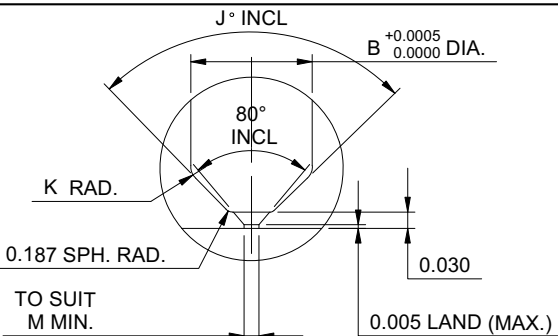
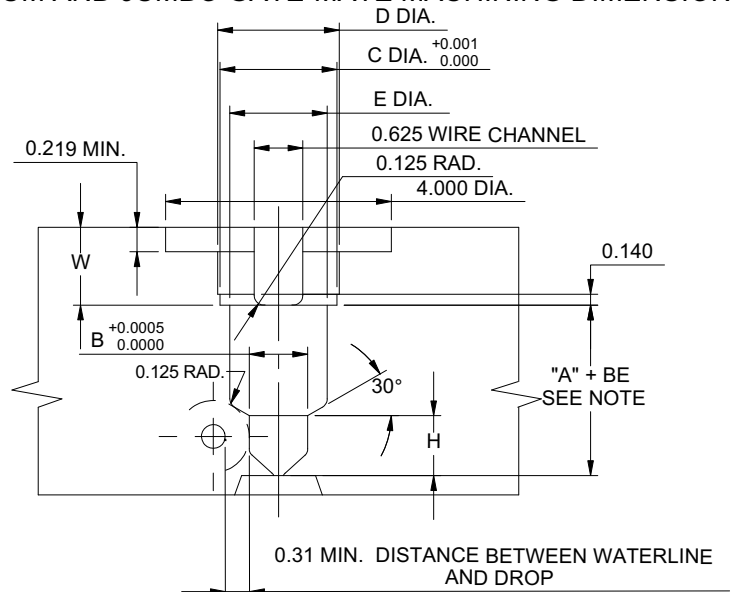
ME-0739-PS-311-E 02-10 GMB9998
GATE-MATE BUSHING SUB-ASSEMBLIES
INSTALLATION DATA
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MINI GATE-MATE MACHINING DIMENSIONS



MEDIUM AND JUMBO GATE-MATE MACHINING DIMENSIONS



GATE MACHINING DIMENSIONS

BUSHING STYLE	SUB-ASSEMBLY CAT. NO.	A DIM.	B DIA.	C DIA.	D DIA.	E DIA.	H DIM.	J°	K RAD.	M DIA.	W DIM
JUMBO	GMB0114	3.500	1.2500	2.626	2.750	2.000	1.000	90°	0.375	0.070	0.407
	GMB0113	2.500									
MEDIUM	GMB0030	3.375	0.7500	2.157	2.187	1.625	0.875	90°	0.375	0.044	0.563
	GMB0020	2.375									
MINI	GMB0111	1.375	0.6250	1.501	N/A	1.125	0.400	118°	0.125	0.030	0.407
	GMB0112										
	GMB0116										
	GMB0117										

For proper position of hot sprue bushings in mold, dowel top clamp plate to "A" plate in (2) places.

NOTE: The expansion factor must be taken into consideration prior to machining for, and installing bushing. This factor (BE) must then be added to the nominal "A" dimension. Formula for determining this expansion is as follows:

$BE = \text{"A" dimension} \times 0.0000633 \times (\text{nozzle setpoint} - 68^\circ \text{ F})$

EXAMPLE: Given a 2.500 Inch "A" dimension, with a nozzle setpoint temperature of 500° F.

$BE = 2.500 \times 0.0000633 \times (500 - 68) = 0.0068....$ thus "A" + BE will be 2.5068.

Please note that the above information is given as an example. Variations may occur based on mold configuration and cooling factor. In some instances it may be necessary to obtain an empirical factor.

IMPORTANT SAFETY INFORMATION

A hot-runner system includes electrical elements and may contain molten plastic at elevated temperature and pressure. To avoid injury, exercise caution by reading these instructions before servicing or operating the system.

These instructions must be passed on to the end user where they should be read before using this product. Failure to do so can result in serious injury or death.



Failure to comply will result in serious injury or death:

ELECTRICAL HAZARDS

Improper voltages or grounding can result in electrical shock. Use only with proper voltage and a proper earth ground.

To avoid electrical shock, do not operate product when wet.

Do not operate this equipment with covers or panels removed.

To avoid electrical shock, turn off main power disconnect and lockout / tag out before servicing this device. Do not connect temperature sensors to electrical power. It will damage the product and it can cause fire, severe injuries or even death.

If green ground wire present wire must be connected to the ground.

Do not rebend rigid leads. Rebending leads might result in damage to circuit. Product might absorb moisture when cool. Use low Voltage or power to drive out residual moisture before applying full power. Failure to do so may cause damage to this product.



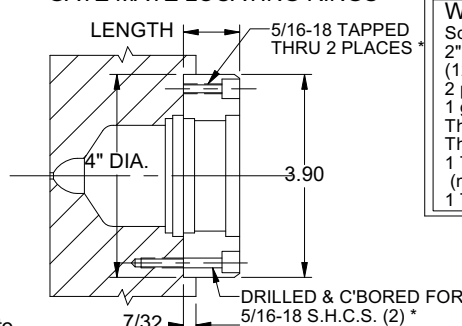
Failure to comply can result in serious injury or death:

STORED ENERGY AND HIGH TEMPERATURE HAZARDS

This product maintains molten plastic at high pressure. Use caution when operating and servicing the system.

Physical contact with molten plastic may result in severe burns. Proper protective equipment, including eye protection, must be worn. This product has heated surfaces. Use caution when operating and servicing the system to avoid severe burns. Proper protective equipment should be worn.

GATE MATE LOCATING RINGS



* ON A 1-21/32 CIRCLE RADIUS, AND 45° FROM CENTERLINE.

(2) 5/16-18 S.H.C.S ARE INCLUDED WITH LOCATING RINGS

CATALOG NUMBER	USED WITH	LENGTH
GMB0007	GMB0113 & GMB0114	1-25/32
6545	GMB0020 & GMB0030	
6548	GMB0111 & GMB0112 GMB0116 & GMB0117	1-1/2

WIRING INFORMATION

Square Coil and Cast-In heaters are supplied with 2" prestripped 42" long leads. Heaters are 240 VAC (120 VAC square coil heaters are available on request).
 2 power leads are MULTI COLOR
 1 ground lead is GREEN.
 Thermocouples are "J" Type.
 Thermocouples are supplied with 40" leads.
 1 T/C lead is WHITE and negative (-) constantan (non-magnetic).
 1 T/C lead is BLACK and positive (+) iron (magnetic).

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