

ME-0741-PS-738-B 09-08 GM4NSA-PS  
**GATE-MATE 4 NOZZLE SUB-ASSEMBLIES**  
**INSTALLATION DATA**  
 Please read carefully before installing components.



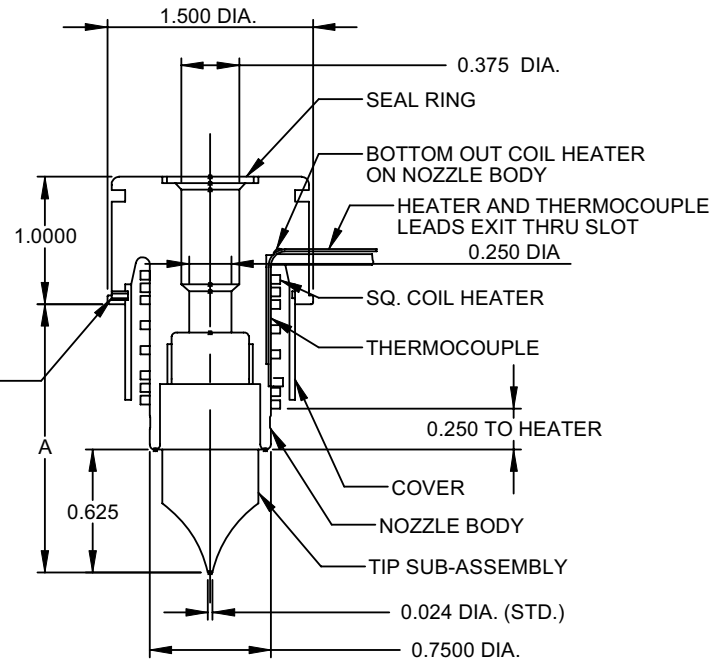
NOTE: Dimensions are shown in Inches.

**GATE-MATE NOZZLE SUB-ASSEMBLY INCLUDES.**

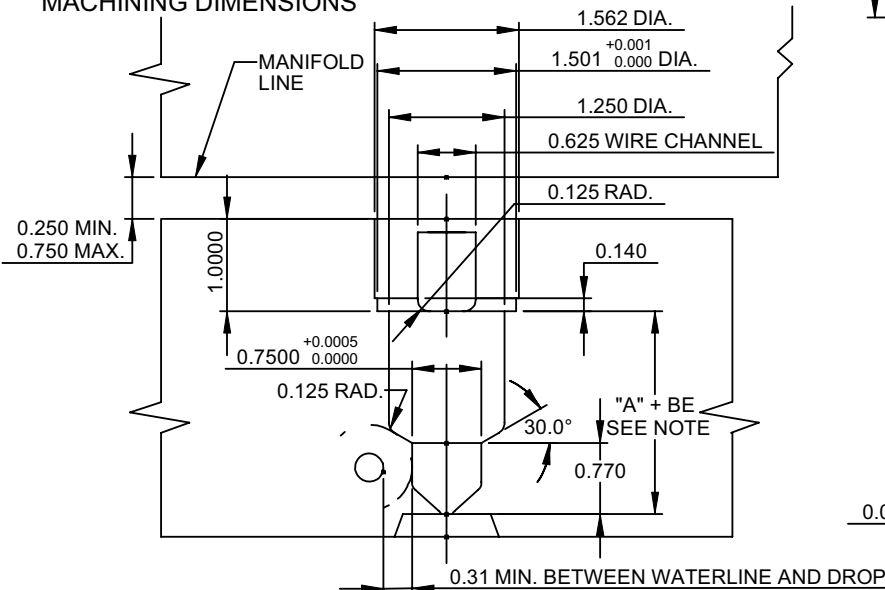
- 1-NOZZLE BODY
- 1-SQ. COIL HEATER
- 1-THERMOCOUPLE
- 1-COVER
- 1-SET SCREW
- 1-SEAL RING

CAT. NO.	"A" DIM.
GMB0150	2.000
GMB0151	2.500
GMB0152	3.000
GMB0153	3.500
GMB0154	4.000
GMB0155	5.000
GMB0156	6.000

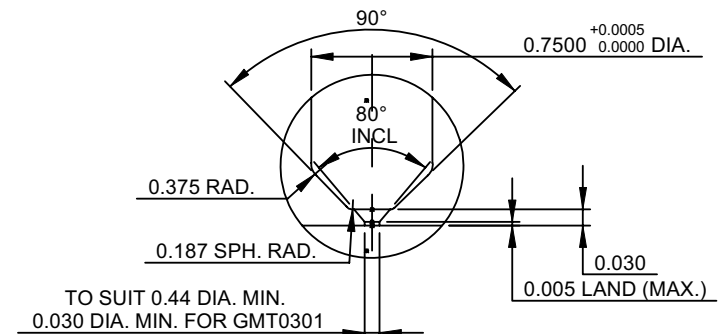
SET SCREW  
SHOWN OUT OF POSITION



**MACHINING DIMENSIONS**



**GATE MACHINING DIMENSIONS**



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

$$BE = "A" \text{ dimension} \times 0.00000633 \times (\text{nozzle setpoint} - 68^\circ \text{ F})$$

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

$$BE = 2.500 \times 0.00000633 \times (500 - 68) = 0.0068.... \text{ thus "A" + BE will be } 2.5068.$$

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.

NOZZLE SUB-ASSEMBLY REFERENCE	SQUARE COIL HEATER 240 VAC (INCLUDES WRENCH)		THERMOCOUPLES (36" LEADS)	SEAL RINGS (PKG. OF 4)	SUB-ASSEMBLY TIP	
	CAT. NO.	WATTS	CAT. NO.	CAT. NO.	CAT. NO.	STYLE
GMB0150	SCH0060	250	TCG0060	EHR0155	GMT-2	STANDARD
GMB0151	SCH0061	300	TCG0061		GMT0300	WEAR RESISTANT *
GMB0152	SCH0062	350	TCG0062		GMT0301	SUPER SHARP **
GMB0153	SCH0063	400	TCG0063		GMT0302	THRU HOLE ***
GMB0154	SCH0064	425	TCG0064			
GMB0155	SCH0065	500	TCG0065			
GMB0156	SCH0066	500	TCG0066		GMT0303	NO HOLE ****

\* WEAR RESISTANT TIP RECOMENDED FOR ABRASIVE MATERIALS.  
 \*\* SEE RECOMMENDATIONS AND GUIDLINES NOTE - 9.  
 \*\*\* SEE RECOMMENDATIONS AND GUIDLINES NOTE - 11.  
 \*\*\*\* SEE RECOMMENDATIONS AND GUIDLINES NOTE - 12.

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**RECOMMENDATIONS AND GUIDELINES**

1. Nozzle (multiple-applications) body must be cleaned of any material in the seal off area and threaded areas before reassembling.
2. 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.
3. Do NOT lubricate or use anti-sieze compound on the threads.
4. Tip must be torqued into the nozzle body using a torque wrench at 20 to 25 ft-lbs. For the wear resistant tip, and 35 ± 5 ft-lbs. for all other tips. When reassembling, for protection of the tip point, use a 11 mm deep well 6 point socket.
5. Careful attention should be taken to the heater and thermocouple leads as damage could occur when working on nozzle assembly.
6. Seal ring for nozzle body must be replaced each time nozzle body and/or manifold are removed to ensure seal-off.
7. Machine the 1.501 diameter + 0.001 -0.000 directly into the nozzle plate, 0.250 minimum to 0.750 maximum deep, to fit the nozzle's head.
8. Machine the 0.75500 diameter + 0.0005 -0.0000 directly into the cavity carefully, as this is a seal-off dimension to fit the nozzle's seat.
9. A 0.030 min. gate dia. is recommended when using the GMT0301 Super Sharp Tip.
10. 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.
11. The same machining dimensions are recommended when using the GMT0302 thru hole tip. This tip was designed 0.040 shorter in length to be a direct replacement for the standard tip. Given an "A" dimension of 2.000 + BE (NOT 1.690 + BE) using a GMT0302 tip. For best processing and lowest gate vestige a 0.030 to 0.060 diameter gate is recommended.
12. Using the GMT0303 no hole tip allows for flow hole alignment in the cavity. Gate-mate body must be keyed into 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 the 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.
13. Provide maximum water cooling in the nozzle plate and in cavity insert around plate.
14. Route wires through wire channel in nozzle plate.
15. Provide a gate dimple on core/cavity opposite gate. This will allow for best material flow.
16. Wait a minimum of 5 minutes after set point has been achieved for sufficient heat to transfer into the tip before molding.

**OPERATING PROCEDURE**

The nozzles are supplied with a Square (Flat) Coil heater equipped with a Type J Thermocouple. It is recommended to use a D-M-E closed loop Temperature Controller for optimum Temperature Control. When starting the nozzle, set the temperature to 10% voltage if using in open loop manual type or to 200 °F if using closed loop automatic type. In either case this procedure will allow the heater to dissipate any moisture. Make sure you maintain this start-up setting for 15 minutes. Controller equipped with Step Smart®, Smart Step® or other heater warm-up circuitry will change automatically. It is essential to use controllers with the proper voltage and wattage capabilities. The voltage and wattage of each heater is clearly marked on the heater tag.

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**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.

**WIRING INFORMATION**

Square Coil Heaters are supplied with 2" prestripped 36" long leads. Heaters are 240 VAC. (120 VAC heaters are available on request).  
2 power leads are Multi Color.  
1 ground lead is GREEN.  
Thermocouple is "J" Type.  
Thermocouple is supplied with 36" 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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