DESIGN & ASSEMBLY GUIDE

DME Stellar® 5000 Hot Sprue Bushings

DME
Every step of the way

TABLE OF CONTENTS

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 may result in serious injury or death.

⚠ DANGER

Failure to comply may 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 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.

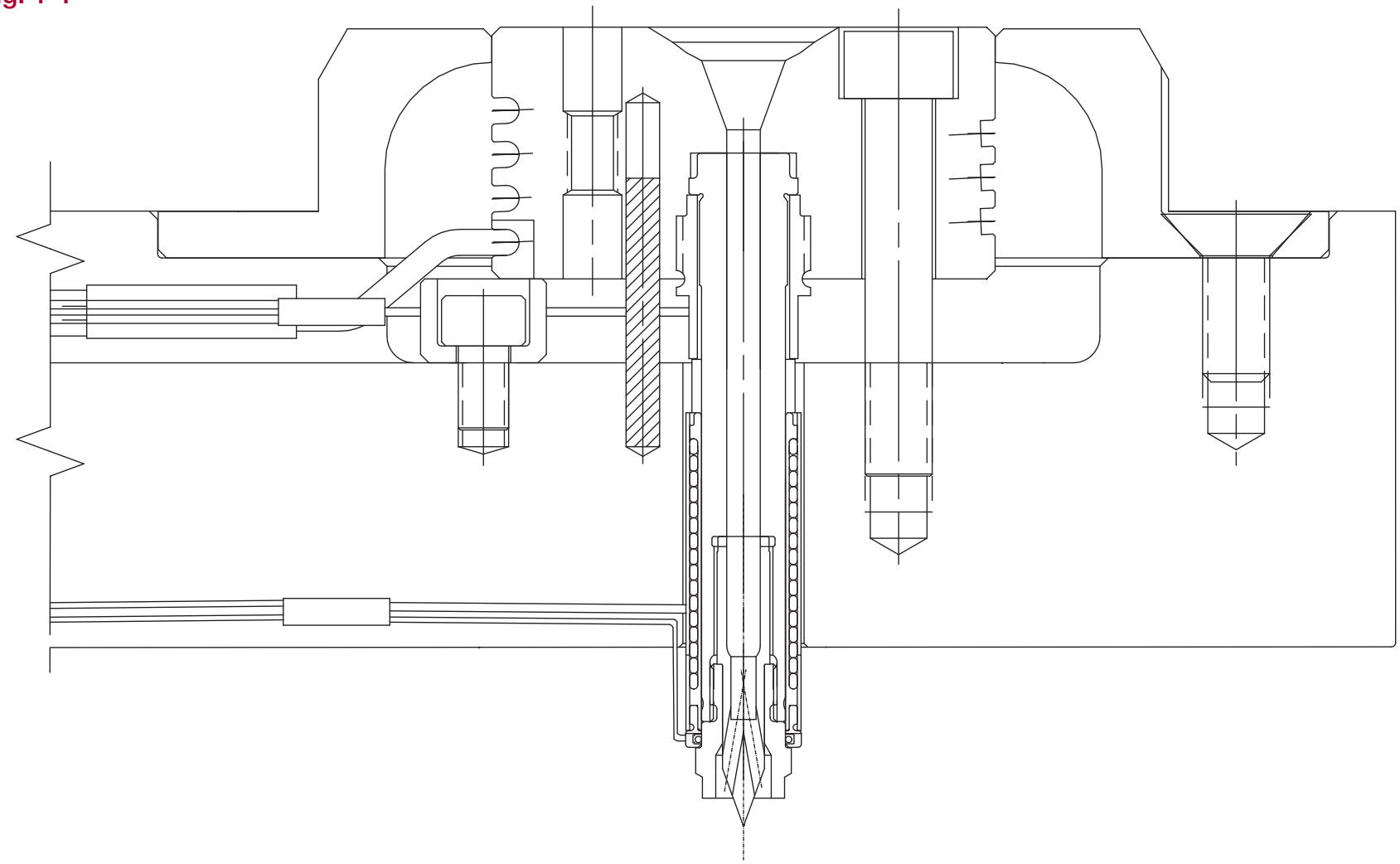
⚠ WARNING

Failure to comply may 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.

General Assembly – Section View
(Showing Point Gate Tip Configuration)

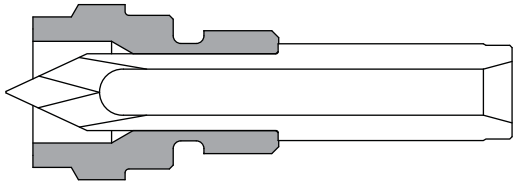
Fig. 1-1



Gating Style Selection

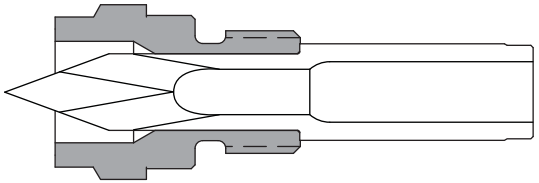
Standard Point Gate Tip Sub-Assembly, SXG5110

- For use with unfilled resins up to 290°C (550°F)
- Fits Gate Details shown in Fig. 1-2



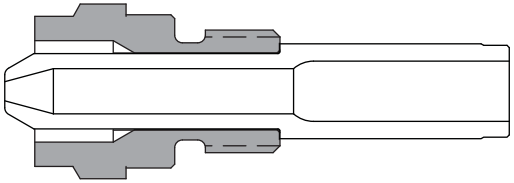
High Performance Point Gate Tip Sub-Assembly, SXG5020

- For use with unfilled and filled resins up to 330°C (625°F)
- Fits Gate Details shown in Fig. 1-2

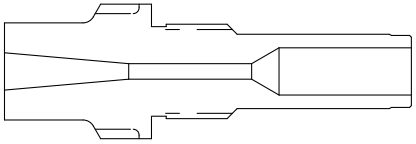


High Performance Thru Hole Tip Sub-Assembly, SXG5201

- For use with unfilled and filled resins up to 330°C (625°F)
- Fits Gate Details shown in Fig. 1-2



- For use with unfilled and filled resins up to 330°C (625°F)
- Fits Gate Details shown in Fig. 1-3



Gating Style Selection – Item Numbers

TIP Sub-Assembly Item Number	Description	TIP Item Number	TIP CTE (10 -6/degC)	Retainer Item Number	Gating Style	Applicable Stellar System
SXG5110	Standard Point Gate Tip Sub-Assembly	SXT4010	17.5	SXF5100	Point Gate	Standard
SXG5020	High Performance Point Gate Tip Sub-Assembly	SXT5010	5.5	SXF5000	Point Gate	High Performance
SXG5201	High Performance Thru Hole Tip Sub-Assembly	SXT5200	5.5	SXF5000	Thru Hole Gate	High Performance
SXT1040	Sprue Gate	SXT1040	12.8	N/A	Sprue Gate	Standard

Design Procedure

1. Select the proper gating style.
2. Calculate the nozzle plate thickness. See pages 8-9 (metric) or pages 12-13 (inch).
3. Follow the machining guidelines for the nozzle plate and the manifold retainer plate for the manifold size required. See pages 8-11 (metric) or pages 12-15 (inch).
4. Add the wire channel paths, assembly bolts, alignment dowels, water lines, guide/leader pins, etc., as needed. For wire channel design, see page 11 (metric) or page 15 (inch).

Gate Details for use with Hardened Steel (50 HRC minimum)

Fig. 1-2 Gate Details for Standard Point Gate and High Performance Point Gate and Thru Hole Gate Tips (SXG5110, SXG5020, SXG5201); For gating onto a flat surface or into a recess ("dimple").

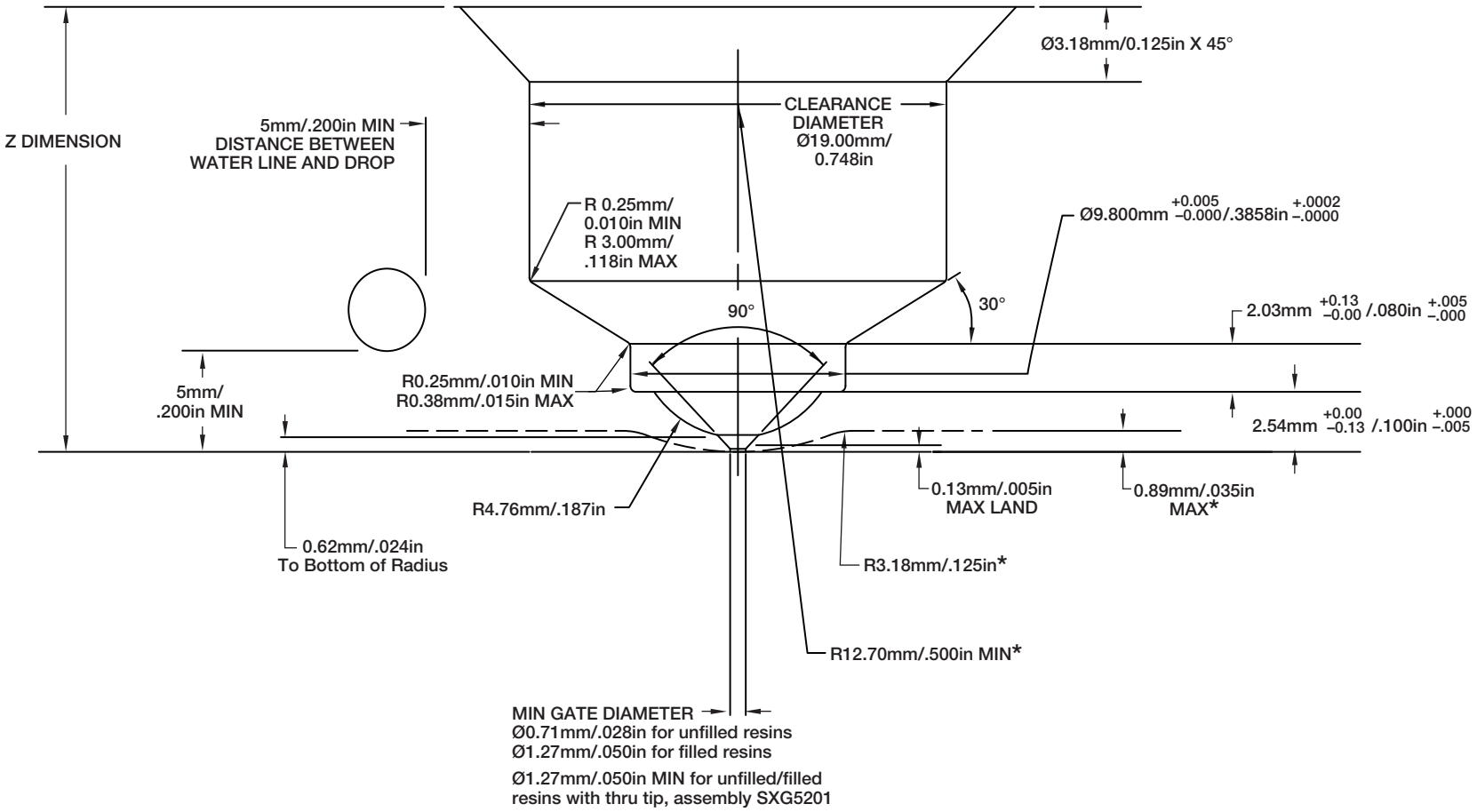
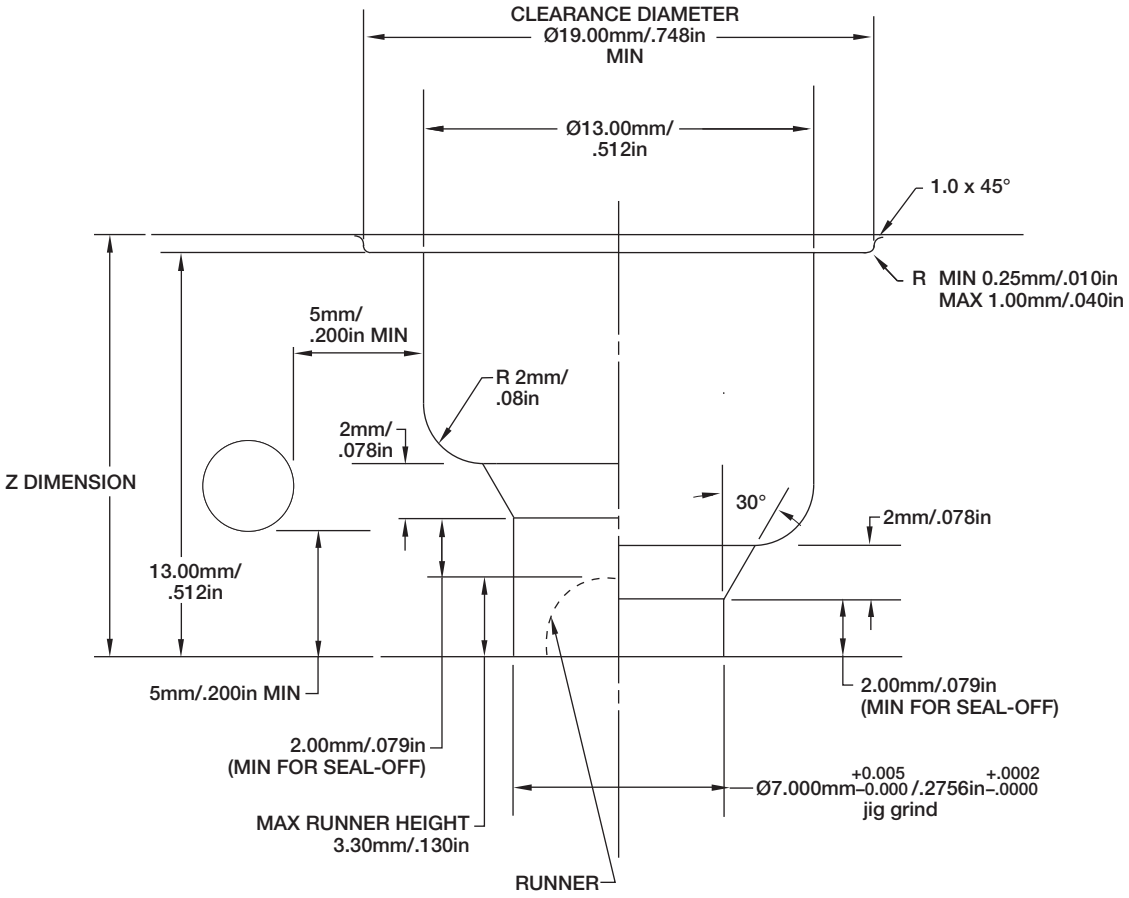


Fig. 1-3 Gate Details for Sprue Gate Tips, SXT1040



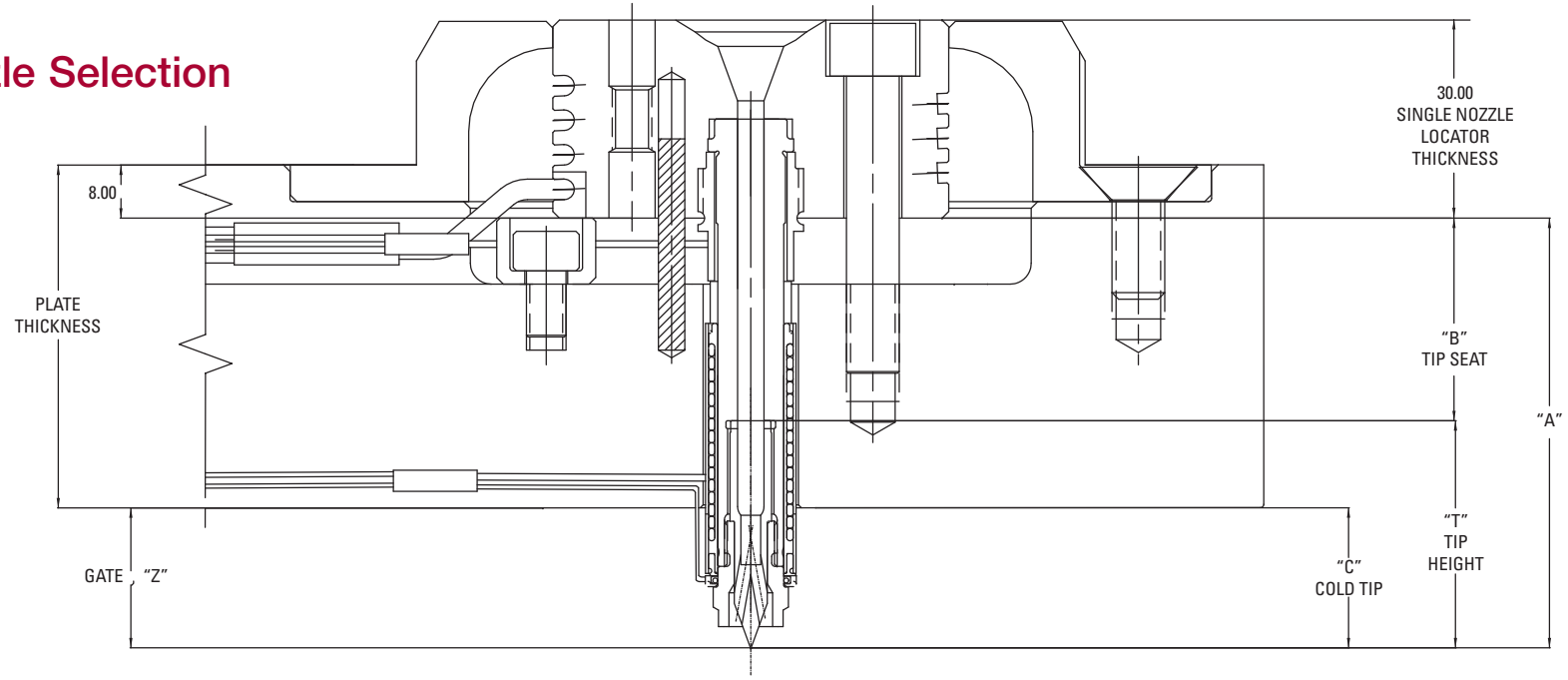
Shown with Runner

Shown without Runner

NOTES for Figures 1-2 and 1-3:

1. If gate detail does not properly fit the application, contact DME for assistance about gate detail options.
2. Position gate detail within ±0.013mm/.0005in from nominal.
3. The gate diameter can be opened by the customer to suit the application. (The 90° angle must be re-machined to maintain the maximum land after increasing the gate diameter.)
4. Water lines are required in “A” plate for proper gate cooling.
5. Position water lines as close as possible but not closer than the minimum distance shown to provide a safe steel condition.
6. For faster color changes, remove (“decone”) the resin from the front of each point gate tip prior to changing colors.
7. See page 9 (Metric) and page 13 (Inch) for minimum and maximum “Z” dimensions.

Nozzle Selection



Tip Information for Gating Styles

TIP Sub-Assembly Item No.	Gating Style	TIP CTE (10-6/degC)	"T" "T" = "A" - "B"	Applicable Stellar System
SXG5110	Standard Point Gate Tip Sub-Assembly	17.5	34.40	Standard
SXG5020	High Performance Point Gate Tip Sub-Assembly	5.5	34.40	High Performance
SXG5201	High Performance Thru Hole Tip Sub-Assembly	5.5	34.40	High Performance
SXT1040	Sprue Gate	12.8	34.40	Standard

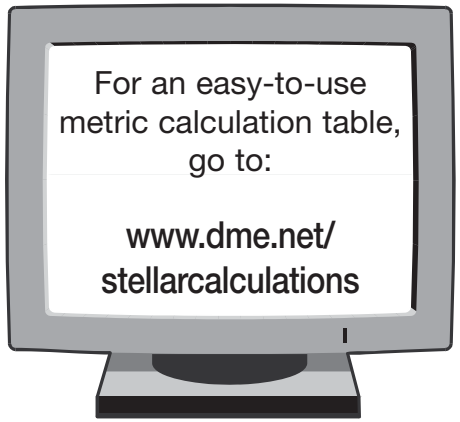
"A" and "B" Chart for Gating Styles

Nozzle Sub-Assembly Item No.	Point Gate "A"	Sprue Gate "A"	"B"	Notes
SXY0065 SXY0965	65.10	N/A	30.70	Standard coil heater; High performance heater
SXY0085 SXY0985	85.10	N/A	50.70	Standard coil heater; High performance heater
SXY0105 SXY0905	105.10	N/A	70.70	Standard coil heater; High performance heater
SXY0125 SXY0925	125.10	N/A	90.70	Standard coil heater; High performance heater
SXY0145 SXY0945	145.10	N/A	110.70	Standard coil heater; High performance heater
SXY8065	N/A	65.10	30.70	Standard coil heater with snap ring
SXY8085	N/A	85.10	50.70	Standard coil heater with snap ring
SXY8105	N/A	105.10	70.70	Standard coil heater with snap ring
SXY8125	N/A	125.10	90.70	Standard coil heater with snap ring
SXY8145	N/A	145.10	110.70	Standard coil heater with snap ring

Metric Calculations

Equations

1. "Z" = "C" + Expansion
   NOTE: The minimum "Z" dimension is 13.00 for the point gate and sprue gate. The maximum "Z" dimension is 115.00 for the point gate and sprue gate.
2. Plate Thickness = 8.00 + "A" – "C,"
3. Expansion = Delta T (°C) x [0.0000115 x (30.00 + "B") + CTE tip x "T"] – 0.09 + 0.0002875 x [T mold (°C) – 20]



Procedure and Notes

1. Calculate expansion
2. Calculate "C"
3. Calculate plate thickness
4. Calculate upper support ring gap

The calculations may need to be repeated in order to maintain the nozzle plate thickness requirement. **NOTE:** Start with the smallest "A" dimension and increase "A" dimension as needed. This approach will generate a design with the minimum stack height.

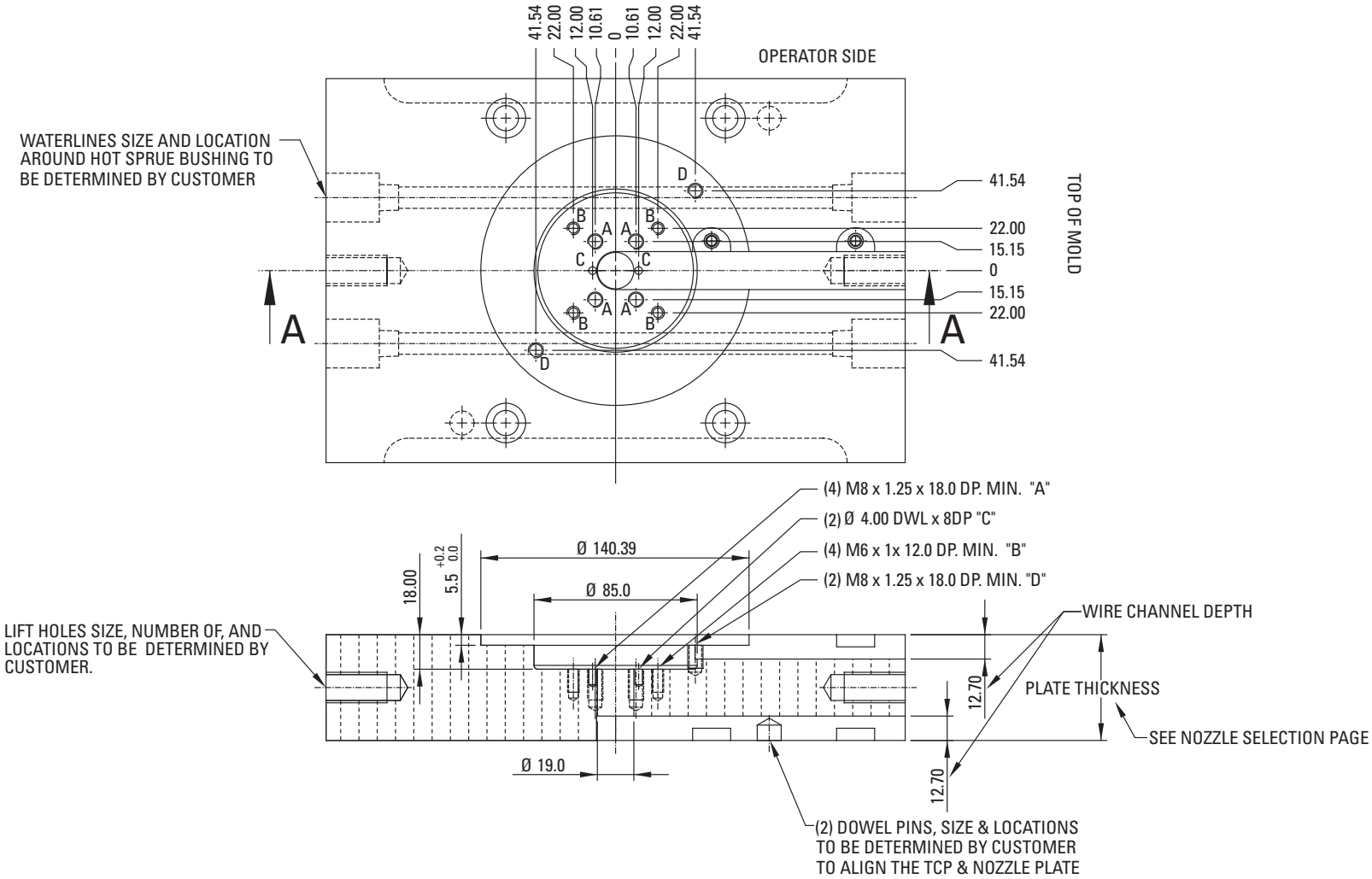
Design Suggestions

The most difficult area of design will be the layout of the wire channels in the nozzle plate. Please evaluate the wire channel depth and path carefully. Three possible scenarios (1 = simplest; 2 = more difficult; 3 = most difficult):

1. If the nozzle plate thickness is >65.00, the wire channel will be 19.0 deep throughout its path.
2. If the nozzle plate thickness is 60.00 to 65.00, the wire channel will be 19.0 deep throughout its path, but the wire channel cannot cross under the support pad taps because the screws will protrude into the wire channel.
3. If the nozzle plate thickness is 55.00 to <60.00, the wire channel will be 12.7 deep underneath the manifold clearance pocket. The wire channel can be 19.0 deep only outside of the pocket. Also, the wire channel cannot cross under the support pad taps because the screws will protrude into the wire channel.

In order to avoid scenarios 2 and 3, choose the next longer "A" dimension, which will increase the stack height by approximately 20.00mm.

Nozzle Top Clamp Plate (TCP) Machining Detail

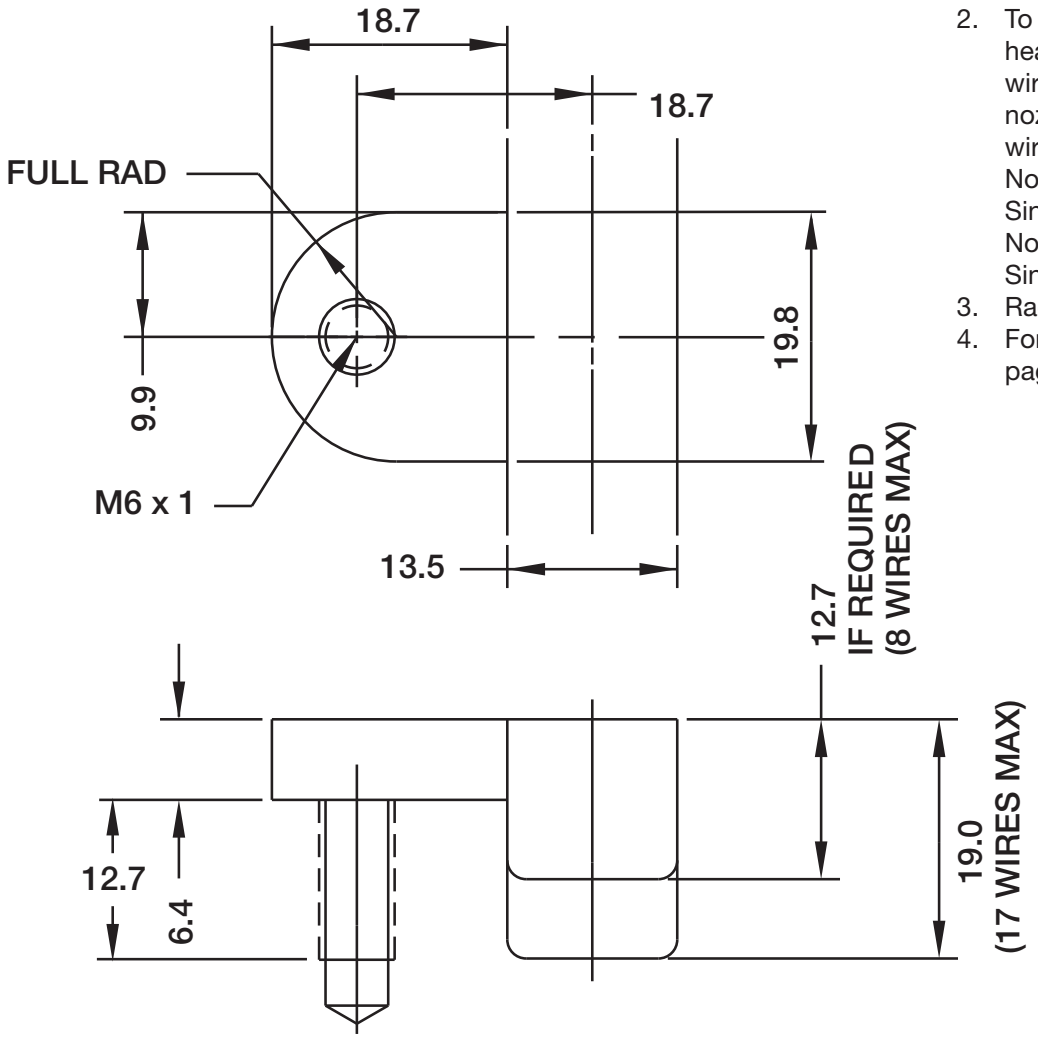


NOTES:

1. Wire channels, waterlines, lift holes shown as example only. 7-7/8" x 11-7/8" mold shown.
2. Extra assembly screws may be required on larger molds.
3. Chamfer all taped holes.

Wire Cover Pocket Machining Details

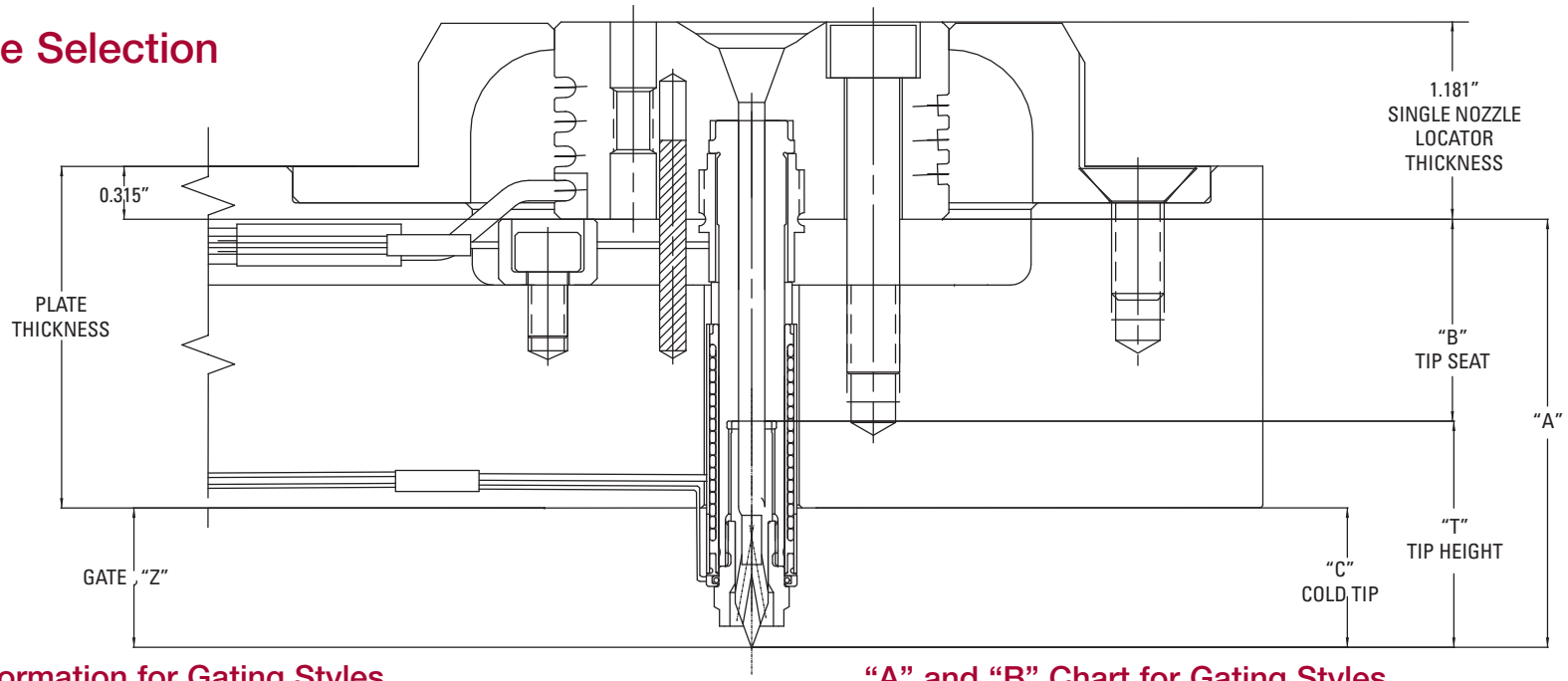
WC0001



NOTES:

1. Use M6 x 12mm long BHCS and torque to 16 N.m (11.7 ft.-lbs.) for each wire cover.
2. To facilitate assembly place sprue bushing heater and thermocouple leads into the top wire channel and the nozzle heater leads and nozzle thermocouple leads into the bottom wire channel.
   Nozzle heater = 2 wires;
   Single Nozzle Locator heater = 2 wires (total);
   Nozzle thermocouple = 1 wire;
   Single Nozzle Locator thermocouple = 1 wire.
3. Radius all wire channels to suit.
4. For inch dimensions, see pages 12-15.

Nozzle Selection



Tip Information for Gating Styles

TIP Sub-Assembly Item No.	Gating Style	TIP CTE (10-6/degF)	"T" "T" = "A" - "B" (inch)	Applicable Stellar System
SXG5110	Standard Point Gate Tip Sub-Assembly	9.72	1.3543	Standard
SXG5020	High Performance Point Gate Tip Sub-Assembly	3.06	1.3543	High Performance
SXG5201	High Performance Thru Hole Tip Sub-Assembly	3.06	1.3543	High Performance
SXT1040	Sprue Gate	7.11	1.3543	Standard

"A" and "B" Chart for Gating Styles

Nozzle Sub-Assembly Item No.	Point Gate "A"	Sprue Gate "A"	"B"	Notes
SXY0065 SXY0965	2.563	N/A	1.209	Standard coil heater; High performance heater
SXY0085 SXY0985	3.350	N/A	1.996	Standard coil heater; High performance heater
SXY0105 SXY0905	4.138	N/A	2.783	Standard coil heater; High performance heater
SXY0125 SXY0925	4.925	N/A	3.570	Standard coil heater; High performance heater
SXY0145 SXY0945	5.712	N/A	4.358	Standard coil heater; High performance heater
SXY8065	N/A	2.563	1.209	Standard coil heater with snap ring
SXY8085	N/A	3.350	1.996	Standard coil heater with snap ring
SXY8105	N/A	4.138	2.783	Standard coil heater with snap ring
SXY8125	N/A	4.925	3.570	Standard coil heater with snap ring
SXY8145	N/A	5.712	4.358	Standard coil heater with snap ring

NOTE: All units are in inches.

Inch Calculations

Equations

1. "Z" = "C" + Expansion
   NOTE: The minimum "Z" dimension is 0.512 for the point gate and sprue gate. The maximum "Z" dimension is 4.528 for the point gate and sprue gate.
2. Plate Thickness = 0.315 + "A" – "C,"
3. Expansion = Delta T (°F) x [0.00000639 x (1.181 + "B") + CTE tip x "T"] – 0.0035 + 0.00000629 x [T mold (°F) – 68]

Procedure and Notes

1. Calculate expansion
2. Calculate "C"
3. Calculate plate thickness
4. Calculate upper support ring gap

The calculations may need to be repeated in order to maintain the nozzle plate thickness requirement. **NOTE:** Start with the smallest "A" dimension and increase "A" dimension as needed. This approach will generate a design with the minimum stack height.

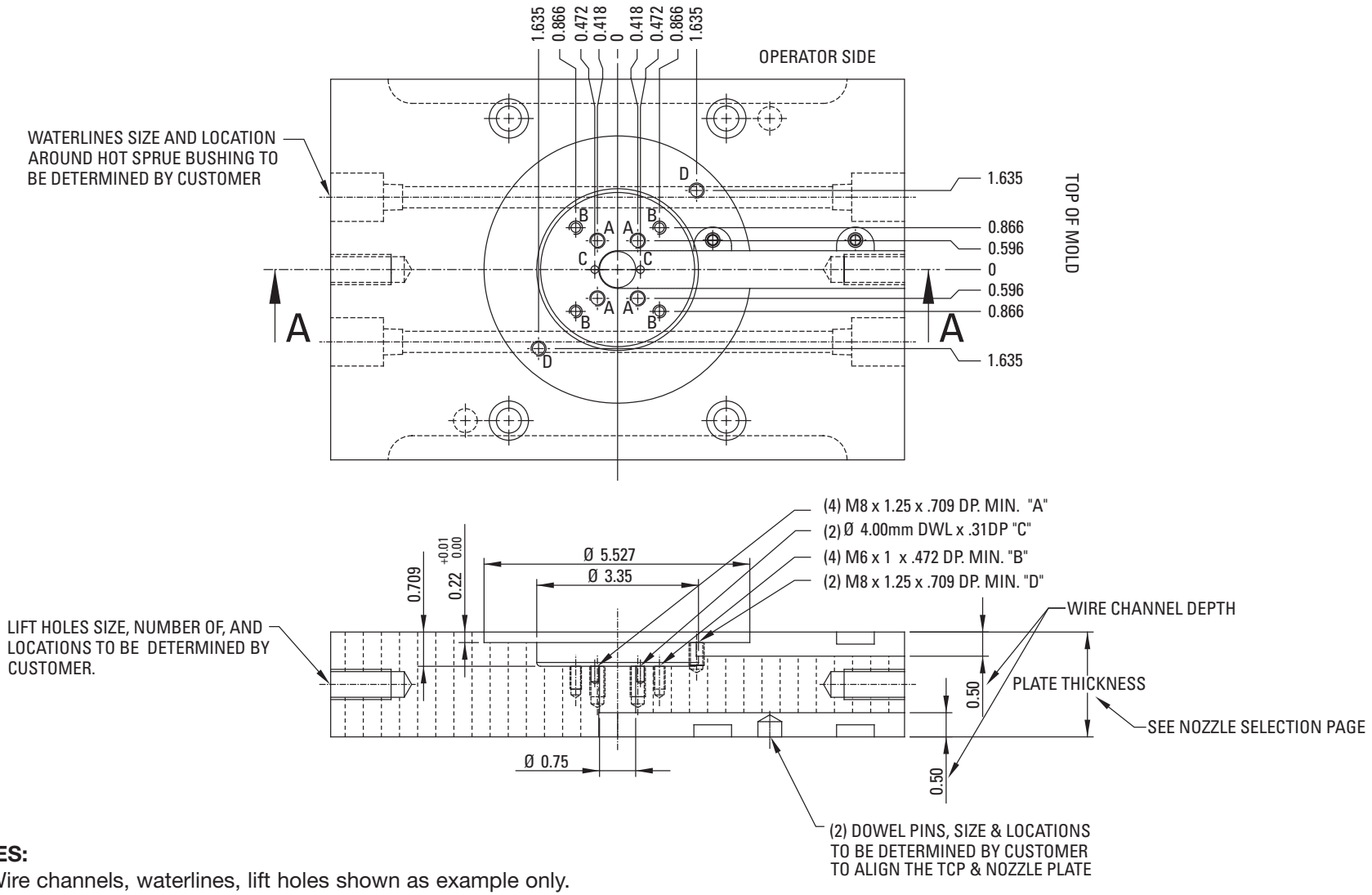
Design Suggestions

The most difficult area of design will be the layout of the wire channels in the nozzle plate. Please evaluate the wire channel depth and path carefully. Three possible scenarios (1 = simplest; 2 = more difficult; 3 = most difficult):

1. If the plate thickness is >2.559, the wire channel will be 0.75 deep throughout its path.
2. If the plate thickness is 2.362 to 2.559, the wire channel will be 0.75 deep throughout its path, but the wire channel cannot cross under the support pad taps because the screws will protrude into the wire channel.
3. If the plate thickness is 2.165 to <2.362, the wire channel will be .50 deep underneath the manifold clearance pocket. The wire channel can be 0.75 deep only outside of the pocket. Also, the wire channel cannot cross under the support pad taps because the screws will protrude into the wire channel.

In order to avoid scenarios 2 and 3, choose the next longer "A" dimension, which will increase the stack height by approximately 0.787 inches.

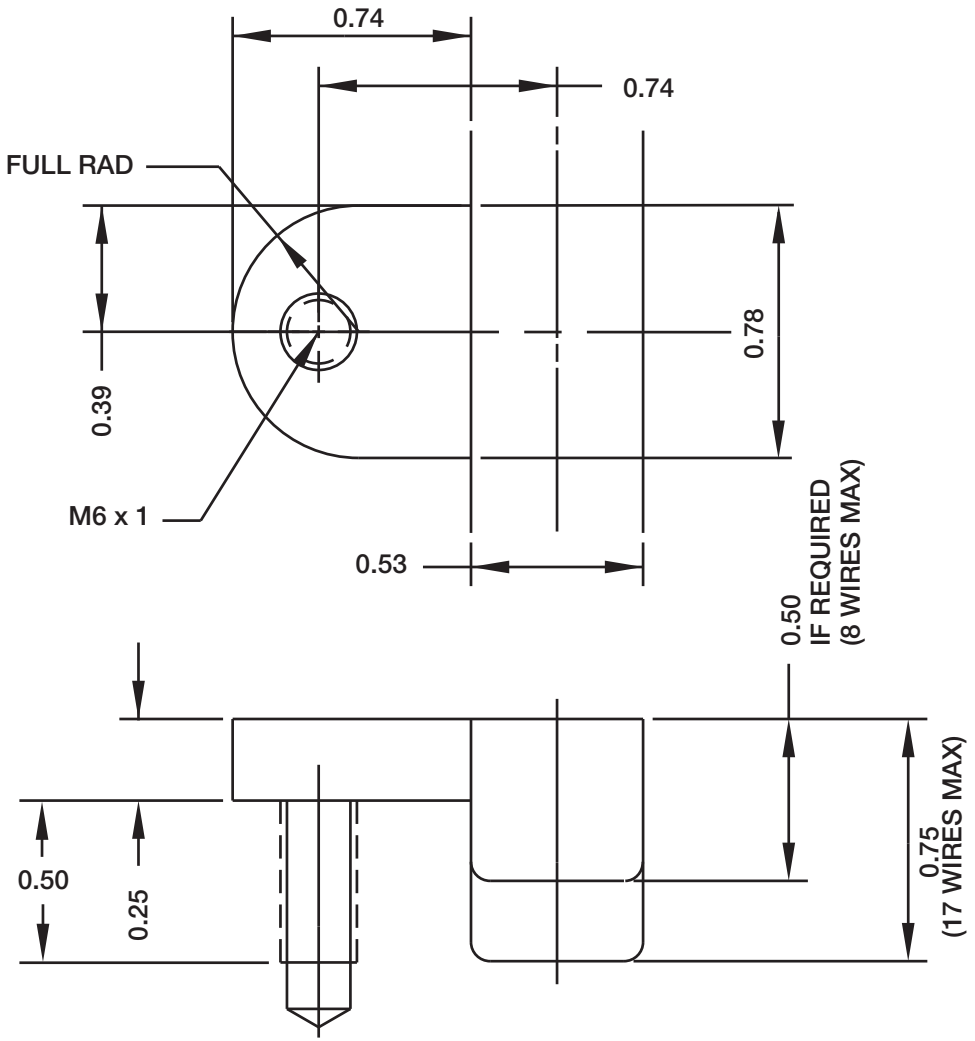
Top Clamp Plate Machining Detail



NOTES:

1. Wire channels, waterlines, lift holes shown as example only. 7-7/8" x 11-7/8" mold shown.
2. Extra assembly screws may be required on larger molds.
3. Chamfer all taped holes.

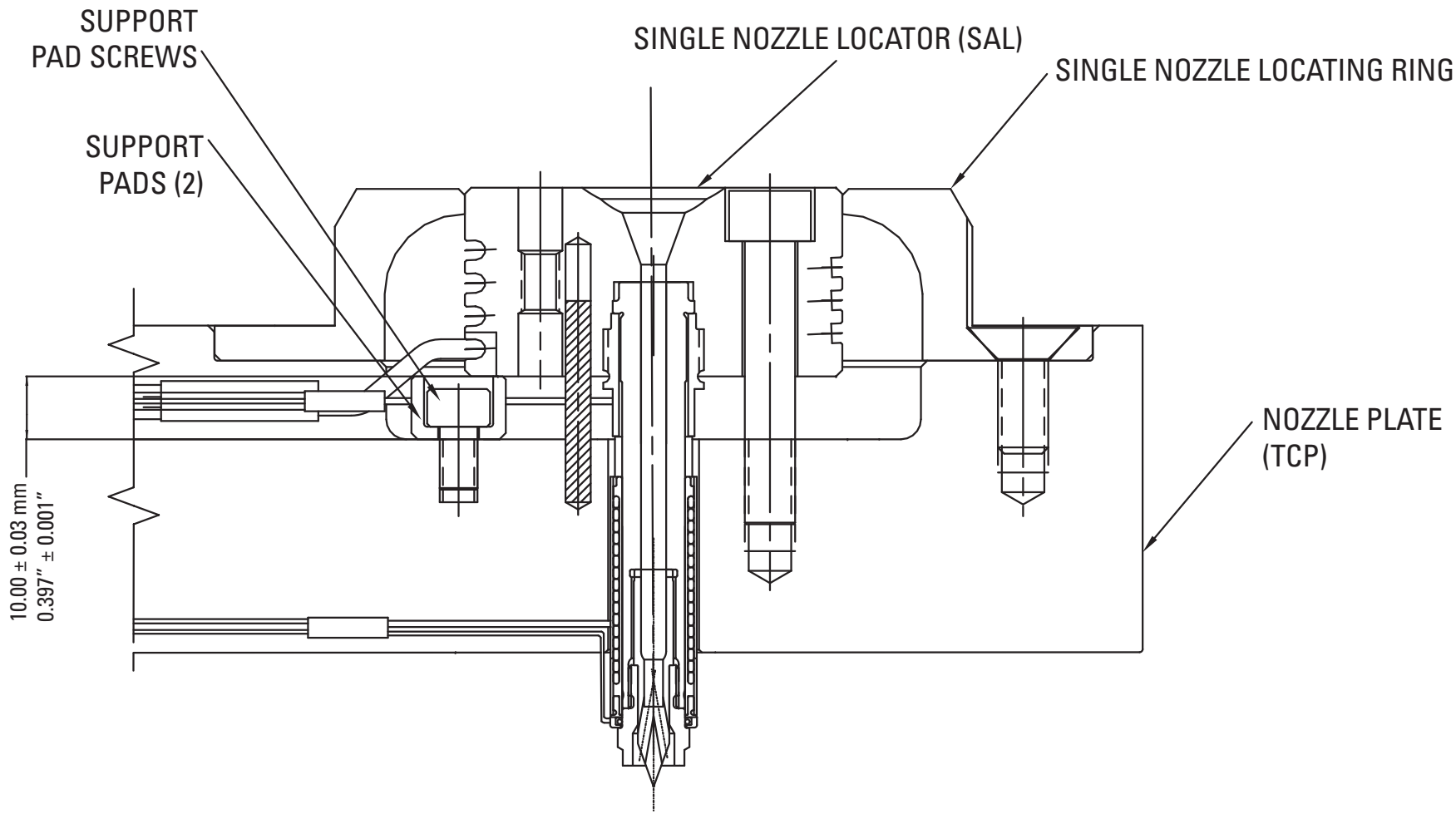
Wire Cover Pocket Machining Details



NOTES:

1. Use M6 x 12mm long BHCS and torque to 11.7 N.m (105 in.-lbs.) for each wire cover.
2. To facilitate assembly place sprue bushing heater and thermocouple leads into the top wire channel and the nozzle heater leads and nozzle thermocouple leads into the bottom wire channel.
   Nozzle heater = 2 wires (total);
   Single Nozzle Locator heater = 2 wires (total);
   Nozzle thermocouple = 1 wire;
   Single Nozzle Locator thermocouple = 1 wire.
3. Radius all wire channels to suit.
4. For metric dimensions, see pages 9-11.

Fig. 2-1



NOTE: Support pads, support pad screws and single nozzle locator (SAL) are included in Hot Sprue Bushing assembly (SNL). See page 27.

Inspection of the Stellar Manifold and Components

Prior to system assembly, DME strongly suggests that you complete the following inspection and establish the procedures that will facilitate proper system assembly.

1. Ensure that all components provided are the correct part numbers and quantities.
2. Check all the supplied heaters for proper resistance in ohms (Ω) and for insufficient resistance to ground conditions by doing the following:
   - Measure each heater's resistance and determine if they are equivalent. Record on Master Inspection Sheet. (Insufficient resistance to ground is defined as a reading to ground of 20,000 Ω or less.)

Assembly Instructions

(Refer to numbered items in Fig 2-7 and Table 2-2)

Nozzle(TCP) Plate

1. Place (2) locating dowels (Item 3F) into bore in the nozzle plate.
2. Grind the support pads (Item 3G) to 10.000±0.013. Grind together to ensure even height.
3. Attach the (4) support pads (Item 3G) into the nozzle plate pocket using the support pad screws (Item 3H). Torque the screws equally to 16 N.m [12 ft-lbs].

Hot Sprue Bushing

4. Attach the Hot Sprue Bushing Thermocouple (Item 3D) using the thermocouple screw (Item 3E). Torque the screw to 16 N.m [12 ft-lbs].
5. Place the Single Nozzle Locator in a vise and mount the nozzle body (Item 1) without the heater following Nozzle Assembly Instructions (Page 19 and Fig. 2-2). Preassembling the nozzle body to the Single Nozzle Locator will prevent breaking the locating dowel pins (Item 3F) when tightening the thread.
6. Place the Hot Sprue Bushing Assembly on top of the dowel pins (Item 3F). Bend the heater and thermocouple wires into the plate channel.
7. Ensure there is no gap between the Hot Sprue Bushing Assembly and the support pads. Use a soft head hammer if needed to lower down the Hot Sprue Bushing Assembly.
8. Attach the Hot Sprue Bushing Assembly to the Nozzle Plate (TCP) with (4) SHCS (Item 3B). Torque the screws equally to 39 N.m [29 ft-lbs].
9. If applicable, tag the wires of the Hot Sprue thermocouple and heater and route into the wire channel, bending as necessary.

Assembly Instructions (continued)

(Refer to numbered items in Fig. 2-7 and Table 2-2.)

Locating Ring

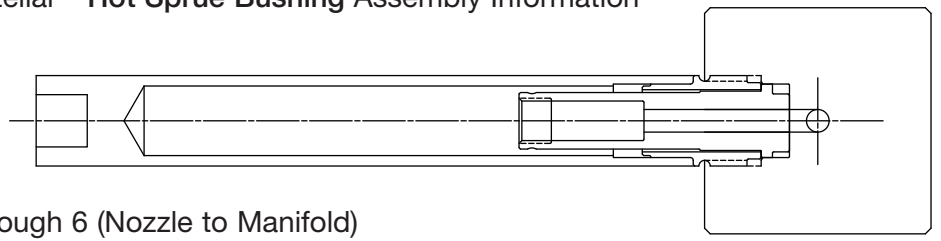
10. Attach the single nozzle locating ring (item 4) to the manifold retainer plate with (2) M8 flat head cap screws (item 9). Torque the screws equally to 39 N.m [29 ft. lbs].

Nozzles

11. Verify gate detail dimensions as shown in Figs. 1-2 and 1-3.
12. With the nozzle body already mounted on the Hot Sprue Bushing Assembly, place the nozzle heater and nozzle thermocouple tip and retainer on the nozzle body. For high performance heaters the thermocouple is already attached to the heater. Tag and place wires into the lower plate wire channel.
13. Install wire covers (item 5) to retain wires into the channel using wire covers screws (item 6).
14. Connect all wires to electrical connectors in the terminal mounting box. See wire schematics, Table 2-1.

Nozzle Assembly

Fig. 2-2

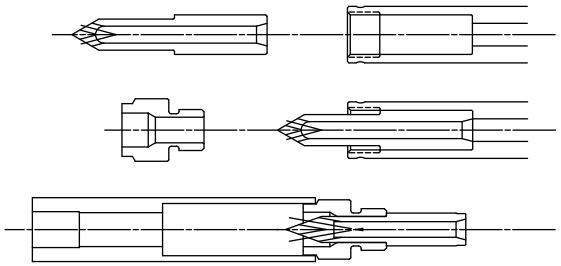


Steps 1 through 6 (Nozzle to Manifold)

1. Safety glasses should be worn when assembling components.
2. Threads and counterbore of manifold must be clean of any plastic.
3. Place nozzle body into manifold.
4. Apply high temperature anti-seize compound to nut threads to prevent galling or seizing. Use Fel-Pro C5-A or equivalent anti-seize compound.
5. Hold nozzle body down by threading nut into manifold.
6. Torque nut to 81 N.m [60 ft. lbs.] using nut socket tool (SXW0002).

Point Gate Tip and Thru Hole Tip Sub-Assembly

Fig. 2-2a



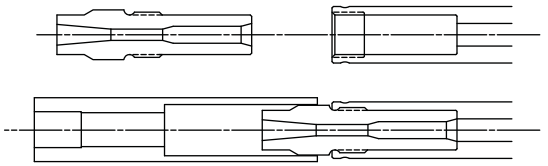
Steps 7 through 11
(Tip Sub-assembly and Retainer to Nozzle)

7. Safety glasses should be worn when assembling components.
8. Threads and counterbore of nozzle must be clean of any plastic.
9. Slide tip into nozzle body.
10. Thread retainer into nozzle body.
11. Place socket tool carefully over retainer so as to not damage tip. Torque retainer to 11.3 N.m [100 in. lbs.] using a 10mm deep well 6-point socket tool and torque wrench.

NOTE: For Thru Hole Tip follow same instructions as for Point Gate Tip.

Sprue Gate Tip

Fig. 2-2b



Steps 12 through 15
(Sprue Gate Tip to Nozzle)

12. Safety glasses should be worn when assembling components.
13. Threads and counterbore of nozzle must be clean of any plastic.
14. Thread sprue gate tip into nozzle body.
15. Place socket tool carefully over tip so as to not damage front surface and edge of tip. Torque tip to 14 N.m [125 in. lbs.]. For sprue gate tip, use socket tool (SXW0003).

Nozzles with Standard Coil Heater and Point Gate Tip

Tip, Retainer, Heater and Thermocouple Removal Instructions

Fig. 2-3

Fig. 2-3a

Fig. 2-3b

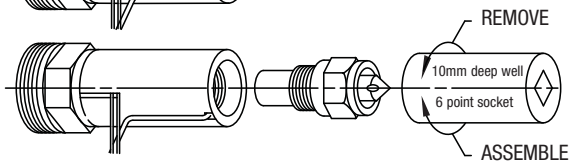


Fig. 2-3c

Fig. 2-3d

Fig. 2-3e

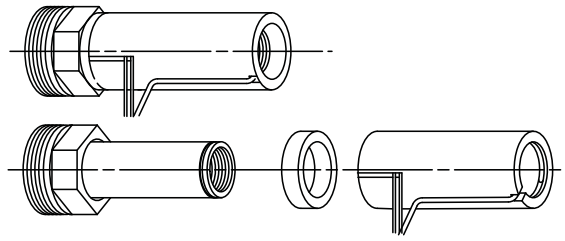


Fig. 2-3f

Fig. 2-3g

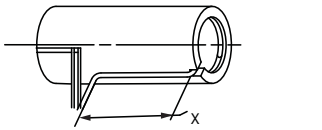


Fig. 2-3h

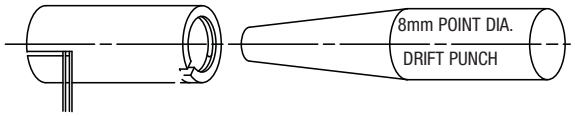
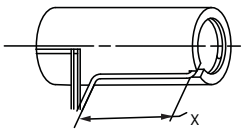


Fig. 2-3i



1. Stellar nozzle sub-assembly with tip sub-assembly (see Fig. 2-3a). Threaded style nozzle with SXF5100 Retainer and SXT4010 Tip shown. Same instructions apply to SXT5010 or SXT5200 tips using SXF5000 Retainer.
2. Safety glasses and gloves should be worn when working on the mold.
3. Turn nozzle heater on, and set at 10-38°C (50-100°F) below set point of processing temperature to allow for easier tip removal.
4. Carefully clean plastic material from around tip and retainer.
5. Remove retainer with 10mm deep well 6-point socket turning counterclockwise (see Fig. 2-3b). Socket will fit over the front seal-off area when placed on retainer hex. DO NOT DAMAGE SEAL-OFF AREA.
6. Carefully remove tip from retainer (see Fig. 2-3c). Inspect seal-off area for out of roundness and/or score marks on seal area, and replace retainer if either condition occurs. Inspect tip for any wear and replace if wear has occurred.
7. Clean plastic material from thread and counterbore areas in nozzle body to ensure proper assembly (see Fig. 2-3d).
8. Turn off nozzle heater and disconnect heater and thermocouple leads from connectors on mold. Allow nozzle time to cool down.
9. Remove heater, thermocouple and spacer from nozzle body (see Fig. 2-3e).
10. Measure thermocouple leads "X" (see Fig. 2-3f).
11. Remove thermocouple from heater end cap groove (see Fig. 2-3g).
12. Carefully place new thermocouple into heater end cap groove with lead coming out the slot. Use an 8mm (5/16") point diameter drift punch by hand to spread the thermocouple into the heater end cap groove. This will allow the heater with thermocouple to slide onto nozzle body (see Fig. 2-3h).
13. Bend thermocouple lead 90° along the length of the heater (see Fig. 2-3i). Bend heater and thermocouple leads to the correct "X" length at 90° angle to the heater. Do not rebend rigid leads. Rebending leads can result in damage to circuit.
14. Slide spacer and heater with thermocouple over nozzle body (see Fig. 2-3e).
15. DO NOT LUBRICATE OR USE ANTI-SEIZE ON RETAINER THREADS.
16. Assemble tip into retainer.
17. Thread retainer clockwise into the nozzle body and torque to 11.3N.m (8.3 ft-lbs/100 in-lbs) using a 10mm deep well 6-point socket tool and torque wrench (see Fig. 2-3b).
18. Wire heater and thermocouple leads to connectors on mold. Do not connect thermocouple leads to electric power.
19. Product may absorb moisture when cool. Use low voltage or power to drain out residual moisture before applying full power. Failure to do so may cause damage to this product.

NOTE: Drift Punch not supplied by DME.

Nozzles with Standard Coil Heater and Sprue Gate Tip

Tip, Retainer, Heater and Thermocouple Removal Instructions

Fig. 2-4

Fig. 2-4a

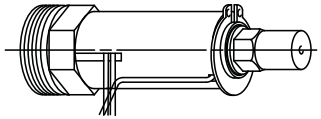


Fig. 2-4b

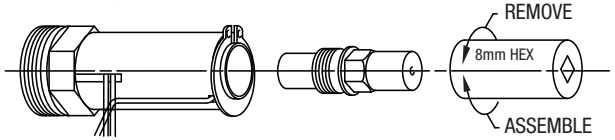


Fig. 2-4c

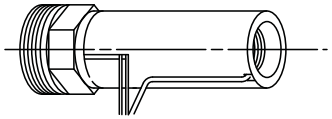


Fig. 2-4d

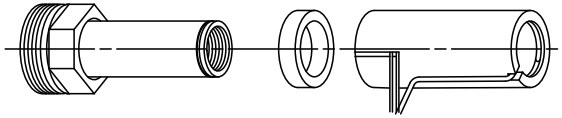


Fig. 2-4e

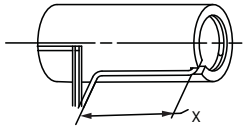


Fig. 2-4f

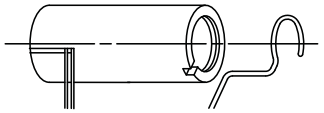


Fig. 2-4g

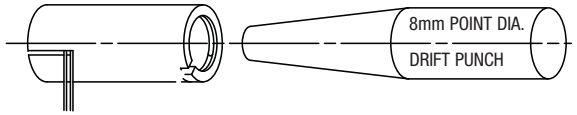
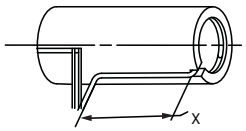


Fig. 2-4h



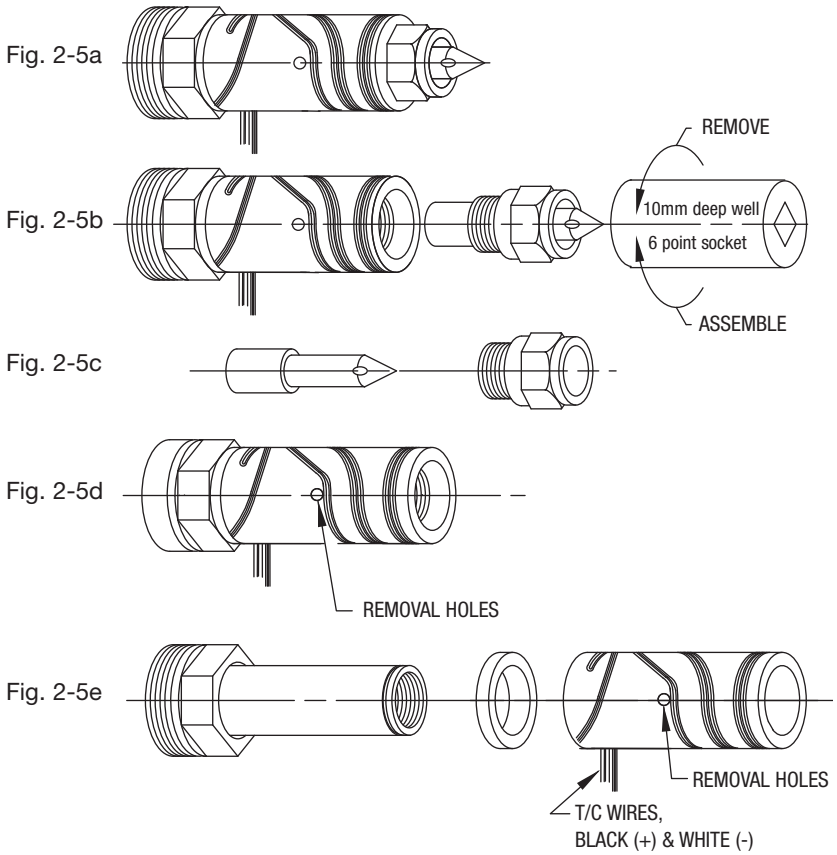
1. Stellar nozzle sub-assembly with tip sub-assembly (see Fig. 2-4a). Threaded style nozzle with sprue gate tip shown.
2. Safety glasses and gloves should be worn when working on the mold.
3. Turn nozzle heater on, and set at 10-38°C (50-100°F) below set point of processing temperature to allow for easier tip removal.
4. Carefully clean plastic material from around tip and retainer.
5. Remove sprue gate tip with a 8mm deep well socket turning counterclockwise. Do not damage 7mm diameter seal-off area or front molding surface (see Fig. 2-4b).
6. Clean plastic material from nozzle and tip threads. Also, clean plastic material from tip counterbore in nozzle body to ensure proper assembly.
7. Turn off nozzle heater and allow to cool down (see Fig. 2-4c).
8. Remove heater, snap ring, thermocouple and spacer from nozzle body (see Fig. 2-4d).
9. Measure thermocouple leads "X" (see Fig. 2-4e).
10. Remove thermocouple from heater end cap groove (see Fig. 2-4f).
11. Carefully place new thermocouple into heater end cap groove with lead coming out the slot. Use an 8mm (5/16") point diameter drift punch by hand to spread the thermocouple into the heater end cap groove. This will allow the heater with thermocouple to slide onto nozzle body (see Fig. 2-4g).
12. Bend thermocouple lead 90° along the length of the heater (see Fig. 2-4h). Bend heater and thermocouple leads to the correct "X" length at 90° angle to the heater. Do not rebend rigid leads. Rebending leads can result in damage to circuit.
13. Slide spacer and heater with thermocouple over nozzle body (see Fig. 2-4d). Add snap ring.
14. DO NOT LUBRICATE OR USE ANTI-SEIZE ON THREADS.
15. Thread tip clockwise into the nozzle body and torque to 14 N.m [10.42 ft-lbs/125 in-lbs] using an 8mm deep well socket tool (see Fig 2-4b).
16. Wire heater and thermocouple leads to connectors on mold. Do not connect thermocouple leads to electric power.
17. Product may absorb moisture when cool. Use low voltage or power to drain out residual moisture before applying full power. Failure to do so may cause damage to this product.

NOTE: Drift Punch not supplied by DME.

Nozzles with High Performance Heater and Point Gate Tip

Tip, Retainer and Heater Removal Instructions

Fig. 2-5



1. Stellar nozzle sub-assembly with tip sub-assembly (see Fig. 2-5a). Threaded style nozzle with SXF5000 retainer and SXT5010 tip shown. Same instructions apply to SXT5200 Tips.
2. Safety glasses and gloves should be worn when working on the mold.
3. Turn nozzle heater on, and set at 10-38°C (50-100°F) below set point of processing temperature to allow for easier tip removal.
4. Carefully clean plastic material from around tip and retainer.
5. Remove retainer with 10mm deep well 6-point socket turning counterclockwise (see Fig. 2-5b). Socket will fit over the front seal-off area when placed on retainer hex. DO NOT DAMAGE SEAL-OFF AREA.
6. Carefully remove tip from retainer (see Fig. 2-5c). Inspect seal-off area for out of roundness and/or score marks on seal area, and replace retainer if either condition occurs. Inspect tip for any wear and replace if wear has occurred.
7. Clean plastic material from thread and counterbore areas in nozzle body to ensure proper assembly (see Fig. 2-5d).
8. Turn off nozzle heater and disconnect heater and thermocouple leads from connectors on mold. Allow nozzle time to cool down.
9. Remove heater and spacer from nozzle body (see Fig. 2-5e).
10. If the heater is hard to remove use the removal holes placed 180° apart on the heater body (see Fig. 2-5d). Do not use the leads to pull the nozzle off.
11. Bend heater and thermocouple leads only if needed to better fit in the wire channel. For most cases, the heater leads will exit into the wire channel. CAUTION: REPEATED BENDING OF THE HEATER AND THERMOCOUPLE LEADS CAN FRACTURE LEAD WIRES.
12. Slide spacer and heater with thermocouple over nozzle body (see Fig. 2-5e).
13. DO NOT LUBRICATE OR USE ANTI-SEIZE ON RETAINER THREADS.
14. Assemble tip into retainer.
15. Thread retainer clockwise into the nozzle body and torque to 11.3 N.m (8.3 ft-lbs/100 in-lbs) using a 10mm deep well 6-point socket tool and torque wrench (see Fig. 2-5b).
16. Wire heater and thermocouple leads to connectors on mold. Do not connect thermocouple leads to electric power.
17. Product may absorb moisture when cool. Use low voltage or power to drain out residual moisture before applying full power. Failure to do so may cause damage to this product.

Nozzle Body (Threaded Style)

Removal Instructions

Fig. 2-6

Fig. 2-6a

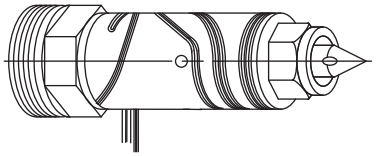


Fig. 2-6b

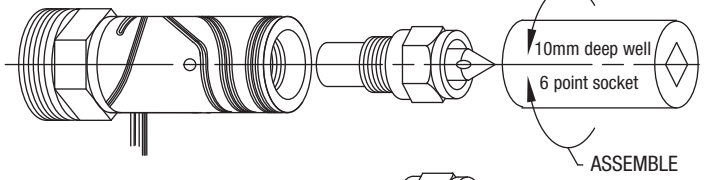


Fig. 2-6c

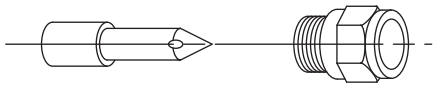


Fig. 2-6d

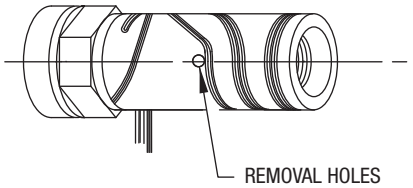


Fig. 2-6e

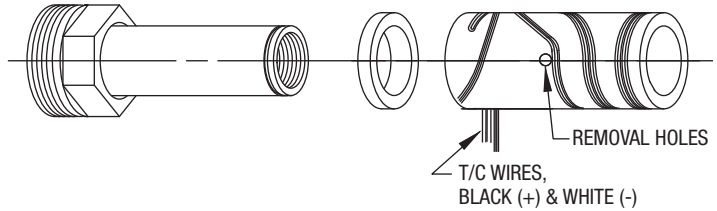
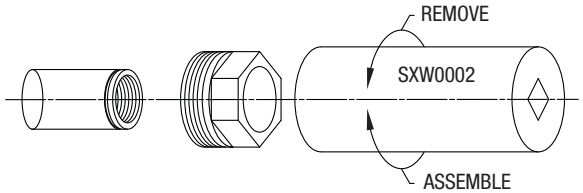


Fig. 2-6f



1. Stellar nozzle sub-assembly with tip sub-assembly (see Fig. 2-6a). Threaded style nozzle with SXF5000 Retainer and SXT5010 Tip shown. Instructions also apply to SXT5200 Tip.
2. Safety glasses and gloves should be worn when working on the mold.
3. Turn nozzle heater on, and set at 10-38°C (50-100°F) below set point of processing temperature to allow for easier tip removal.
4. Carefully clean plastic material from around tip and retainer.
5. Remove retainer with 10mm deep well 6-point socket turning counterclockwise (see Fig. 2-6b). Socket will fit over the front seal-off area when placed on retainer hex. DO NOT DAMAGE SEAL-OFF AREA.
6. Carefully remove tip from retainer (see Fig. 2-6c). Inspect seal-off area for out of roundness and/or score marks on seal area, and replace retainer if either condition occurs. Inspect tip for any wear and replace if wear has occurred.
7. Clean plastic material from thread and counterbore areas in nozzle body to ensure proper assembly (see Fig. 2-6d).
8. Turn off nozzle heater and disconnect heater and thermocouple leads from connectors on mold. Allow nozzle time to cool down.
9. Remove heater, thermocouple and spacer from nozzle body (see Fig. 2-6e).
10. Remove nut counterclockwise with socket tool DME Item No. SXW0002 (see Fig. 2-6f).
11. Remove nozzle body from manifold.
12. Clean plastic materal from thread and counterbore areas in manifold to ensure proper assembly.
13. Place nozzle body into manifold.
14. Thread nut clockwise into the manifold and torque to 81N.m (60 ft-lbs) using nut socket tool and torque.
15. Slide spacer and heater with thermocouple over nozzle body (see Fig. 2-6e).
16. DO NOT LUBRICATE OR USE ANTI-SEIZE ON RETAINER THREADS.
17. Assemble tip into retainer.
18. Thread retainer clockwise into the nozzle body and torque to 11.3 N.m (8.3 ft-lbs/100 in-lbs) using a 10mm deep well 6-point socket tool and torque wrench (see Fig. 2-6b).
19. Wire heater and thermocouple leads to connectors on mold. Do not connect thermocouple leads to electric power.
20. Product may absorb moisture when cool. Use low voltage or power to drain out residual moisture before applying full power. Failure to do so may cause damage to this product.

Wiring Schematics

Wiring into the terminal box to be as shown in the table below.

Table 2-1

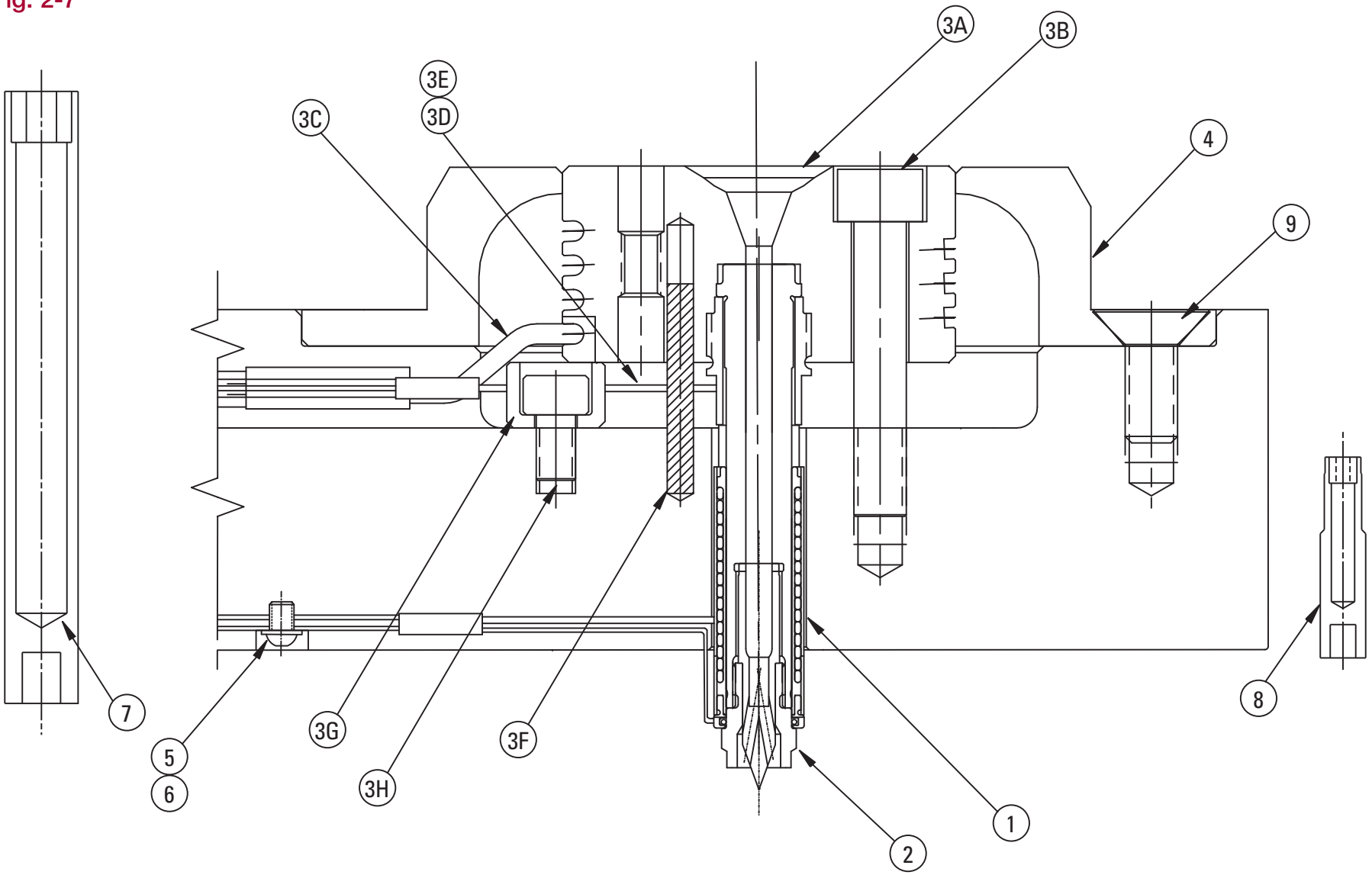
LAYOUT	DME- CONTROLLER	Zone #1	Zone #2	Zone #3	Zone #4	Zone #5
1 Drop	2 Zones	Nozzle	Bushing Head			

1. Designed to operate on a 230-volt supply.
2. Thermocouple leads are black and white. White is negative (-); black is positive (+).

J TYPE THERMOCOUPLE STANDARDS			
	STANDARD	**+ LEAD (MAGNETIC)**	**– LEAD**
INTERNATIONAL	IEC 584-3	Black	White
	ASTM E230	White	Red
	BS 1843	Yellow	Blue
	DIN 43710	Red	Blue
	JIS C 1610-1981	Red	White
	NFC 42-324	Yellow	Black

Parts List

Fig. 2-7



Parts List

CALLOUT NO.	DESCRIPTION	QTY	ITEM NO.
1	**Nozzle sub-assembly (A = 65) (standard heater)**	1	SXY0065
	Nozzle body	1	SXB4068
	Nozzle heater	1	SHH1039
	Nozzle body nut*	1	SXE2013
	Nozzle thermocouple	1	SXC1001
	Nozzle heater stop*	1	SXD6501
1	**Nozzle sub-assembly (A = 85) (standard heater)**	1	SXY0085
	Nozzle body	1	SXB4088
	Nozzle thermocouple	1	SXC1001
	Nozzle heater	1	SHH1059
1	**Nozzle sub-assembly (A = 105) (standard heater)**	1	SXY0105
	Nozzle body	1	SXB4108
	Nozzle thermocouple	1	SXC1001
	Nozzle heater	1	SHH1079
1	**Nozzle sub-assembly (A = 125) (standard heater)**	1	SXY0125
	Nozzle body	1	SXB4128
	Nozzle thermocouple	1	SXC1001
	Nozzle heater	1	SHH1099
1	**Nozzle sub-assembly (A = 145) (standard heater)**	1	SXY0145
	Nozzle body	1	SXB4148
	Nozzle thermocouple	1	SXC1001
	Nozzle heater	1	SHH1119

CALLOUT NO.	DESCRIPTION	QTY	ITEM NO.
1	**Nozzle sub-assembly (A = 65) (high performance heater)**	1	SXY0965
	Nozzle body	1	SXB4068
	Nozzle heater	1	SXE1039
1	**Nozzle sub-assembly (A = 85) (high performance heater)**	1	SXY0985
	Nozzle body	1	SXB4088
	Nozzle heater	1	SXE1059
1	**Nozzle sub-assembly (A = 105) (high performance heater)**	1	SXY0905
	Nozzle body	1	SXB4108
	Nozzle heater	1	SXE1079
1	**Nozzle sub-assembly (A = 125) (high performance heater)**	1	SXY0925
	Nozzle body	1	SXB4128
	Nozzle heater	1	SXE1099
1	**Nozzle sub-assembly (A = 145) (high performance heater)**	1	SXY0945
	Nozzle body	1	SXB4148
	Nozzle heater	1	SXE1119

CALLOUT NO.	DESCRIPTION	QTY	ITEM NO.
1	**Nozzle sub-assembly (A = 65) (standard heater)**	1	SXY8065
	Nozzle body	1	SXB4068
	Nozzle heater	1	SHH1039
	Nozzle body nut*	1	SXE2013
	Nozzle thermocouple	1	SXC1001
	Snap ring*	1	SXR1001
1	**Nozzle sub-assembly (A = 85) (standard heater)**	1	SXY8085
	Nozzle body	1	SXB4088
	Nozzle thermocouple	1	SXC1001
	Nozzle heater	1	SHH1059
1	**Nozzle sub-assembly (A = 105) (standard heater)**	1	SXY8105
	Nozzle body	1	SXB4108
	Nozzle thermocouple	1	SXC1001
	Nozzle heater	1	SHH1079
1	**Nozzle sub-assembly (A = 125) (standard heater)**	1	SXY8125
	Nozzle body	1	SXB4128
	Nozzle thermocouple	1	SXC1001
	Nozzle heater	1	SHH1099
1	**Nozzle sub-assembly (A = 145) (standard heater)**	1	SXY8145
	Nozzle body	1	SXB4148
	Nozzle thermocouple	1	SXC1001
	Nozzle heater	1	SHH1119

* Common for all Stellar nozzle sub-assemblies in each individual column.

NOTE: Items SXY8065, SXY8085, SXY8105, SXY8125 and SXY8145 for Sprue Gate only.

Parts List

CALLOUT NO.	DESCRIPTION	QTY	ITEM NO.	
			Combination 1/2" & 3/4" Spherical Radius	15.5 mm Spherical Radius
2	Point gate tip sub-assembly - standard	1	SXG5110	
2	Point gate tip sub-assembly - high performance	1	SXG5020	
2	Thru hole tip sub-assembly - high performance	1	SXG5201	
2	Sprue gate tip	1	SXT1040	
	Heated MEN sub-assembly			
3	(Hot Sprue bushing sub-assembly)	1	SNL 1004	SNL 2004
3A	Single nozzle locator	1	SAL 1004	SAL 1004
3B	Locator screws	4	M845	M845
3C	Locator heater	1	MRH0012	MRH0012
3D	Locator thermocouple	1	SXC2001	SXC2001
3E	Locator thermocouple screw	1	M68LH	M68LH
3F	Locator dowels	2	DP432	DP432
3G	Support pads	4	SXS3030	SXS3030
3H	Support pad screws	4	M610	M610
4	Locating ring	1	GXL2001	GXL2001
5	Wire covers	X	WC0001, WC0002 & WC0003	WC0001, WC0002 & WC0003
6	Wire cover screws	X	M612BHCS	M612BHCS
7	Nut socket tool	1	SXW0002	SXW0002
8	Sprue gate tip socket tool	1	SXW0003	SXW0003
9	Locating screws	2	SM820	SM820

NOTE: X item quantitys to be determined by customer.

Ordering Procedure

REQUIRED ORDERING INFORMATION:

1. **Hot Sprue Bushing Sub-Assembly:**
   Select an appropriate gating method. For quick reference see pages 5, 8 (metric) or 12 (inch), "Nozzle Selection."
2. **Nozzle Tip or Nozzle Tip Sub-Assembly:**
   Determine the nozzle body sub-assembly item number required from the calculation sheets. For quick reference see pages 8 (metric) or 12 (inch), "Nozzle Selection" and page 29 "Nozzle Body Information." Determine nozzle heater type: Coil Heater or High Performance Embedded Heater.
3. **Nozzle Body Sub-Assembly:**
4. **Machine Nozzle Spherical Radius:**
   Specify 1/2 in [12.7 mm] or 3/4 in [19.05 mm]

First-Time Customers Will Need:

5. **Sprue Gate Tip Socket Tool** *(see Fig. 3-5)*:
6. **Nut Socket Tool** *(see Fig. 3-6)*:

Additional Items:

7. **Power and Thermocouple Connectors:**
   (5-zone optional)
8. **Combination Terminal Mounting Box with Terminal Strip:**
   (5-zone optional)

	Worksheet	Example:
1.		SSL1004
2.		SXT1040
3.		SXY8085
4.		1/2 in
5.		SXW0003
6.		SXW0002
7.		5-Zone
8.		5-Zone

Nozzle Body Information

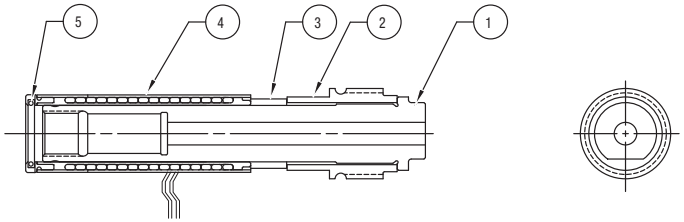


Fig. 3-2

Item Numbers for Threaded Style Standard Heater Nozzle Assemblies

SUB-ASSEMBLY COMPONENT	CALLOUT NO.	SXY0065 ITEM NO.	SXY0085 ITEM NO.	SXY0105 ITEM NO.	SXY0125 ITEM NO.	SXY0145 ITEM NO.
Nozzle Body -SXB4xxx	1	SXB4068	SXB4088	SXB4108	SXB4128	SXB4148
Nut	2	SXE2013	SXE2013	SXE2013	SXE2013	SXE2013
Heater Stop	3	SXD6501	SXD6501	SXD6501	SXD6501	SXD6501
Nozzle Heater	4	SHH1039	SHH1059	SHH1079	SHH1099	SHH1119
Nozzle Thermocouple	5	SXC1001	SXC1001	SXC1001	SXC1001	SXC1001

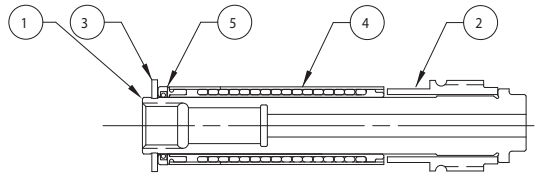


Fig. 3-3

Item Numbers for Threaded Style Standard Heater Nozzle Assemblies SPRUE GATE ONLY

SUB-ASSEMBLY COMPONENT	CALLOUT NO.	SXY8065 ITEM NO.	SXY8085 ITEM NO.	SXY8105 ITEM NO.	SXY8125 ITEM NO.	SXY8145 ITEM NO.
Nozzle Body -SXB4xxx	1	SXB4068	SXB4088	SXB4108	SXB4128	SXB4148
Nut	2	SXE2013	SXE2013	SXE2013	SXE2013	SXE2013
Snap Ring	3	SXR1001	SXR1001	SXR1001	SXR1001	SXR1001
Nozzle Heater	4	SHH1039	SHH1059	SHH1079	SHH1099	SHH1119
Nozzle Thermocouple	5	SXC1001	SXC1001	SXC1001	SXC1001	SXC1001

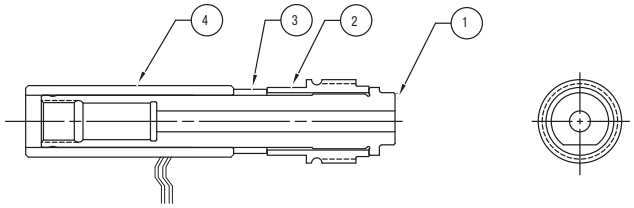


Fig. 3-4

Item Numbers for Threaded Style High Performance Heater Nozzle Assemblies

SUB-ASSEMBLY COMPONENT	CALLOUT NO.	SXY0965 ITEM NO.	SXY0985 ITEM NO.	SXY0905 ITEM NO.	SXY0925 ITEM NO.	SXY0945 ITEM NO.
Nozzle Body -SXB4xxx	1	SXB4068	SXB4088	SXB4108	SXB4128	SXB4148
Nut	2	SXE2013	SXE2013	SXE2013	SXE2013	SXE2013
Heater Stop	3	SXD6501	SXD6501	SXD6501	SXD6501	SXD6501
Nozzle Heater	4	SXE1039	SXE1059	SXE1079	SXE1099	SXE1119

NOTES: For high performance heater, thermocouple is embedded in the heater body.

Tip information and Gating Styles are provided on page 5, Section 1.

Assembly Tools

Fig. 3-5 Sprue Gate Tip Socket Tool (SXW0003)

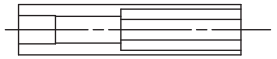
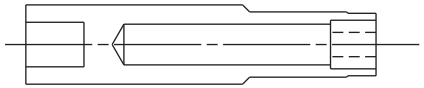
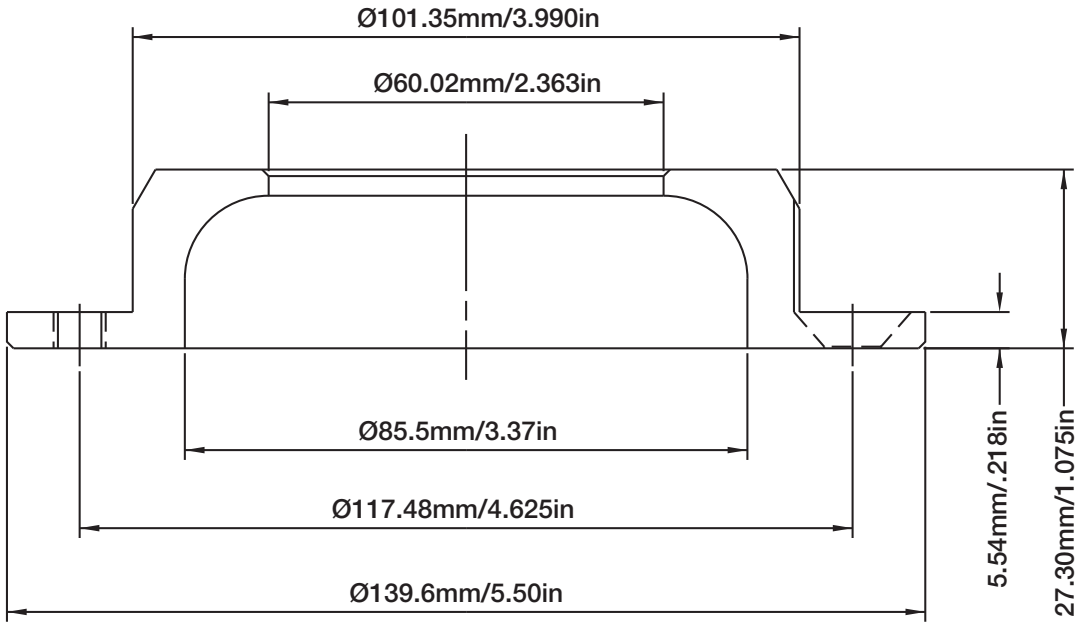


Fig. 3-6 Nut Socket Tool (SXW0002)



Locating Rings

Fig. 3-9
Locating Ring for Hot Sprue Bushing



LOCATING RING	ITEM NO.
For Hot Sprue Bushing	GXL2001

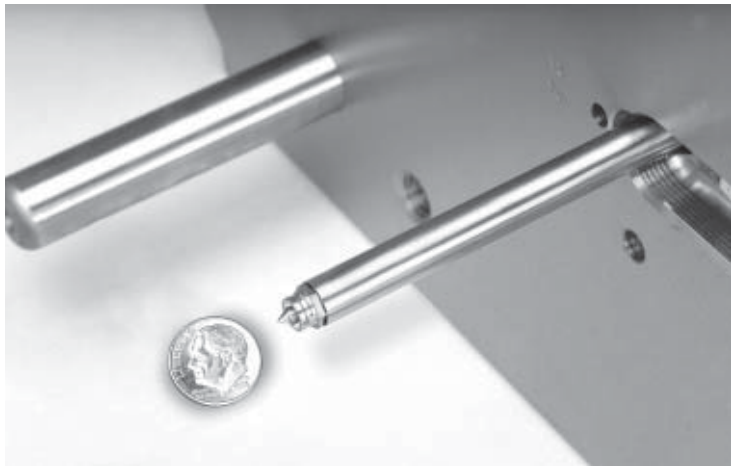
Excellent Results with Engineering Thermoplastics

The complexity of today's very small part molding applications demands the added properties of high performance engineered materials. Stellar was designed for outstanding processing of these materials. Challenging amorphous materials such as PET or crystalline materials including PBT and PA are easily processed with the Stellar Hot Sprue Bushing. Highly conductive tip designs and precise heat profiling in all nozzle lengths ensure consistent processing temperatures.

Modularity Increases Application Flexibility

The Stellar Hot Sprue Bushing System from DME is built on a standardized architecture of modular components. Key features include:

- Choice of standard or high performance nozzle heaters
- Three different "A" dimensions from 65-105mm are available for threaded style nozzles
- Three interchangeable tip styles – Point Gate, Thru Hole Gate and Sprue Gate



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Every step of the way

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