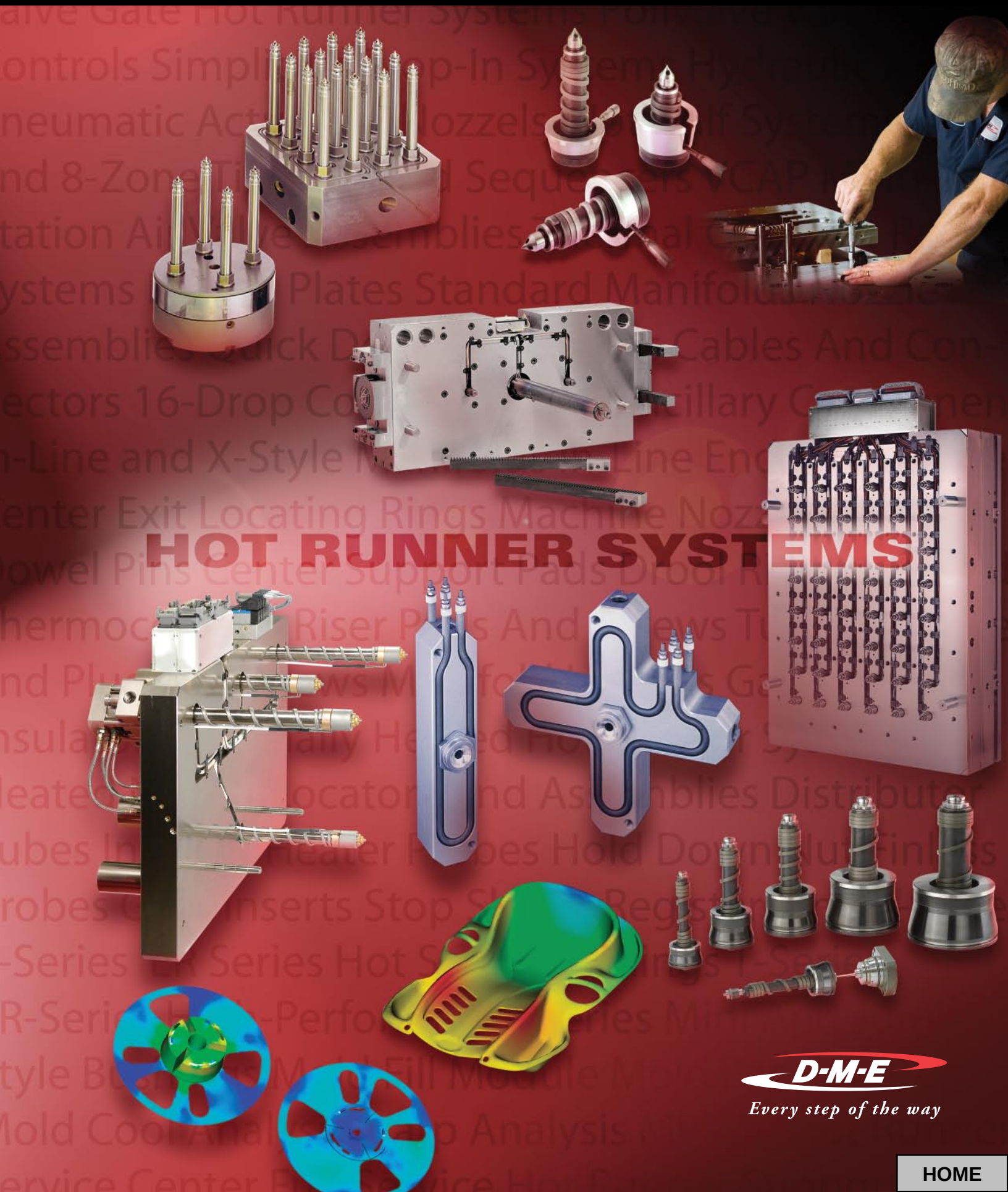
D-M-E Hot Runner Systems



D-M-E

Every step of the way

HOME

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Customer Commitment

Applications Engineering

When you call D-M-E with a new application for a hot runner system, many systems go into action. D-M-E has its own design and applications engineering group consisting of professional engineers and experienced designers. After you have given us the information necessary for proper application design and analysis, the D-M-E applications engineering team goes to work diligently analyzing, designing and manufacturing a hot runner system that will best suit your needs and requirements.

Technical Service

D-M-E is proud to say that it is an industry model for technical service coverage and response. The D-M-E technical service department covers the entire United States and Canada, with additional service representatives in Europe, Asia and throughout the world. Because D-M-E knows you need assistance starting, operating, and maintaining hot runner systems it has made a great effort to strategically staff a Technical Service Department that is responsible for the success of D-M-E's molding systems.

Field Sales and Customer Service

When you need a knowledgeable person to help you order parts and components, D-M-E has you covered. Our direct field sales force puts a local sales representative in your area. One who understands your business and can offer valuable assistance in helping you select the molding system best suited to your application and your budget. In addition, D-M-E provides a customer service department that has been extensively trained on all of D-M-E's products and systems, making it easier for you to order and have your questions answered. We can provide you price and delivery information on all D-M-E items quickly and accurately.

To take advantage of any or all of these services, or if you have any questions, problems, or ideas please call D-M-E at:

- 800-626-6653 (U.S.)
- 800-387-6600 (Canada)

Part prints or system design prints may be sent in the following ways:

- appl_eng@dme.net
- 248-544-5707 (U.S.) fax
- 905-677-5280 (Canada) fax

D-M-E offers you a wide range of services from component selection to on-site system installation. Our ever-growing list of services include the ability to:

- Analyze the best system to fit your needs
- Assist in system design
- Perform computerized system analysis and resin qualification before any metal is cut
- Marry your system to the mold base, plates and components required
- Provide quotations for and perform all of the special machining required
- Assemble and wire the system
- Check mechanical fit of all components and perform electrical load testing
- Assist with system start-up and maintenance

All of which gives you ... more time to concentrate on cavities and cores!

Terms and Conditions of Sale

1. **FOB POINT / PRICES:** Products are sold F.O.B. point of origin. Any taxes are in addition to the prices and may be invoiced later.
2. **SHIPPING SCHEDULE:** The shipping schedule is our current estimate of delivery dates and we agree to use reasonable efforts to comply with the schedule.
3. **WARRANTY:**
   (a) Any D-M-E trademarked or tradenamed product or part thereof manufactured by or for us which, under normal operating conditions in the plant of the Buyer thereof, proves defective in material or workmanship, as determined by our inspection, within 12 months from the date of shipment will be replaced or repaired free of charge to Buyer.

   This warranty is contingent upon the following conditions: *that we promptly receive notice of the defect; that Buyer establish that the product has been properly installed, maintained, and operated within the limits of related and normal usage as specified by us; and that, upon our request, Buyer will return to us at our expense the defective product or part thereof.*

   (b) The terms of this warranty do not in any way extend to any product or part thereof which have a life, under normal usage, inherently shorter than 12 months.
   (c) The conditions of actual production in each end user's plant vary considerably. Therefore, descriptions of the production or performance capabilities of any product or software materials are estimates only and are not warranted.
4. **EXCLUSIONS OF WARRANTIES:** THE WARRANTIES TO REPAIR OR REPLACE DEFECTIVE PRODUCTS OR PARTS AS SET FORTH IN PARAGRAPH 3, AND ANY ADDITIONAL WARRANTY EXPRESSLY STATED TO BE A WARRANTY AND SET FORTH IN WRITING AS PART OF THESE TERMS HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
5. **LIMITATION OF REMEDIES AND LIABILITIES:**
   UNDER NO CIRCUMSTANCES SHALL WE OR ANY AFFILIATE OF OURS HAVE ANY LIABILITY WHATSOEVER FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES HOWSOEVER CAUSED OR ARISING (INCLUDING CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE), such as, but not limited to, loss of profit or revenue; loss of use of the product, part thereof; cost of capital; cost of replacement equipment; or claims resulting from contracts between Buyer, its customers and/or suppliers. Unless expressly provided for herein, in no event shall we or any affiliate of ours assume responsibility or liability for (a) penalties, penalty clauses or liquidated damages clauses of any description, (b) certifications or (c) indemnification of Buyer or others for costs, damages or expenses arising out of or related to the product or part thereof.
6. **CANCELLATION:** Unless otherwise agreed, Buyer may cancel all or any part of the order by written notice received by us before our completion of the order or applicable portion of the order. On receipt of such notice, all work on the order or part thereof canceled will be stopped as promptly as is reasonably possible. Buyer will then be invoiced for and will pay to us a cancellation charge. For completed items, the charge will be equal to their established prices. For items not completed, the charge will be equal to our full cost plus a premium in addition to a charge for any packing and storage and less a credit for the balance of the material as scrap.
7. **PAYMENT TERMS:** Payment is due in accordance with any applicable progress, advance or other agreed upon payment schedule, or, if no such schedule has been agreed to, upon Acceptance as specified in Paragraph 8, but in no event later than 30 days from the date of invoice. No cash discount is provided. If, in our judgment, Buyer's financial condition changes, we may stop work until financial arrangements satisfactory to us are made.
8. **ACCEPTANCE OF PRODUCT:** Each such product shall be deemed to be accepted within seven days after delivery of the product to the Buyer, unless we receive written notification of rejection for cause from Buyer within the seven day period.

   "Returned Goods": No goods are returnable without prior approval, prepaid transportation and an issued RMA number. All items are subject to our inspection before credit will be allowed. Special mold bases or steel, items involving custom work, or items not shown in our catalog are considered non-returnable. A minimum service charge of 10% will be made on all returned goods.
   NO GOODS ARE RETURNABLE LATER THAN THIRTY DAYS AFTER RECEIPT OF MERCHANDISE.
9. **PATENT INDEMNITY:** We shall defend any suit or proceeding brought against Buyer and pay all costs and damages awarded against Buyer provided that:
   (a) The suit or proceeding is based upon a claim that the product or part thereof is an infringement of any claim of a presently existing U.S. patent;
   (b) The claim of infringement is not based, directly or indirectly, upon (i) the manufacture, use, or sale of any product furnished by us which has been modified without our consent; or, (ii) the manufacture, use, or sale of any combination of a product furnished by us with products not furnished by us; or (iii) performance of a patented process using a product furnished by us or production thereby of a patented product; and,
   (c) We are notified promptly and given information and assistance (at our expense) and the authority to defend the suit or proceeding. We shall not be responsible hereunder for any settlement made without our written consent nor shall we be responsible for costs or expenses incurred without our written consent. If our product is adjudicated to be an infringement and its use in the U.S. by Buyer is enjoined, we shall, at our own expense, either:
   (i) procure for Buyer the right to continue using our product;
   (ii) replace it with a noninfringing product;
   (iii) modify it so it becomes noninfringing;
   (iv) remove the product or part thereof and refund Buyer's net book value and transportation costs attributable to it.
   The foregoing states our entire liability with respect to any patent infringement by our products or any parts thereof. To the extent that our product or any part thereof is supplied according to specifications and designs furnished by Buyer, Buyer agrees to indemnify us in the manner and to the extent set forth above insofar as the terms thereof are appropriate.
10. **FORCE MAJEURE:** We shall not be liable for any delay in performance or nonperformance which is due to war, fire, flood, acts of God, acts of third parties, acts of governmental authority or any agency or commission thereof, accident, breakdown of equipment, differences with employees or similar or dissimilar causes beyond our reasonable control, including but not limited to, those interfering with production, supply or transportation of products, raw materials or components or our ability to obtain, on terms we deem reasonable, material, labor, equipment or transportation.
11. **ACCEPTANCE OF ORDERS:** Buyer agrees that all orders, including any arising from our Proposal, shall include these terms and conditions only, notwithstanding any different or additional terms that may be embodied in Buyer's order. All orders are subject to our acceptance and we reserve the right to reject orders as, in our sole judgement, mandated by business conditions. We reserve the right to not proceed with any order until all necessary information is received from Buyer.
12. **MERGER CLAUSE:** This Agreement entirely supersedes any prior oral representations, correspondence, proposal, quotation, or agreement. This writing constitutes the final and total expression of such agreement between the parties, and it is a complete and exclusive statement of the terms of that agreement.
13. **ASSIGNMENT:** Neither party may assign this Agreement without the written consent of the other party, except that we may assign this Agreement to a third party that acquires substantially all of our assets or we may assign the flow of funds arising out of this Agreement.
14. **GOVERNING LAW:** This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

Sales and Ordering Information

U.S.A.

TERMS AND CONDITIONS OF SALE: See previous page.

PHONE ORDERS – TOLL FREE: 800-626-6653. D-M-E's Customer Service Dept. operates Monday through Friday from 8 a.m. to 8 p.m. E.S.T. Calls can be made from anywhere in the continental U.S. and Puerto Rico (Puerto Rico: use "137" prefix instead of "1"). Our Customer Service Representatives will be happy to answer your questions on D-M-E products or services, provide on-the-spot feedback on product availability and shipping details, or take any messages you wish relayed to your local D-M-E sales, manufacturing or technical service representatives.

MAIL ORDERS: If you prefer to order by mail, please address your order to:

- D-M-E Company, 29111 Stephenson Highway, Madison Heights, Michigan 48071-2330
  ATTN: Customer Service Dept.

FAX: You may fax your order to:

- D-M-E Customer Service
  248-398-6174 • 888-808-4363

CHECKS OR MONEY ORDERS: When paying invoices by check or money order, please make payable to *D-M-E Company.* Include remittance copy of invoice and mail to:

- D-M-E Company, Department Lock Box 78242, P.O. Box 78000, Detroit, Michigan 48278-0242

WALK-IN ORDERS, PICK-UPS AND RETURNS: If desired, ordered products in stock at your nearest D-M-E Service Center can be picked up rather than shipped. Walk-in orders at Service Center locations can also be processed while you wait. Products being returned for repair or exchange should be processed through Customer Service prior to being returned.

SPECIAL MACHINING SERVICES: Prints for quotation on special machining work can be sent by EDI to dme_cad@dme.net or mailed to the Estimating Department of the D-M-E manufacturing location nearest you. Call our toll-free number if desired to clarify location which serves your area.

Estimating locations are:

- 70 East Hillis Street, Youngwood, Pa 15697, FAX: 724-925-2424
- 1117 Fairplains Street, Greenville, MI 48338, Tel. 616-754-4601, FAX: 616-225-3924
- 3275 Deziel Drive, Windsor, Ont N8W 5A5, Tel. 519-948-5001, FAX: 519-948-4652
- 464-466 Windy Point Drive, Glendale Heights, IL 60139, Tel. 630-469-4280, FAX: 630-469-4740 (estimating only)

Please add "D-M-E Company" and "Attn: Estimating Dept." to above addresses when mailing prints. To obtain prices and delivery on special mold base orders or to check status of special work in progress please contact Customer Service.

CANADA

TERMS AND CONDITIONS OF SALE: See previous page.

PHONE ORDERS: Contact our Mississauga, Ontario office at 800-387-6600, FAX: 800-461-9965.

MAIL ORDERS: Send to: D-M-E of Canada, Ltd., 6210 Northwest Drive, Mississauga, Ontario L4V 1J6.

CHECK OR MONEY ORDERS: Make payable to *D-M-E of Canada, Ltd.* Include remittance copy of invoice and mail to Mississauga address above.

WALK-IN ORDERS, PICK-UPS, RETURNS, AND SPECIAL MACHINING: Contact our Mississauga office.

Hot Runner Warranty

D-M-E
Every step of the way

D-M-E Company
29111 Stephenson Highway, Madison Heights, MI 48071
Tel. 248/398-6000 ▪ FAX 248/398-6174

D-M-E Hot Runner Systems and Temperature Controllers are warranted pursuant to D-M-E Company's standard terms and conditions (see page 5) for the time periods set forth below. The warranty (i) *covers items sold and shipped [supplied in accordance with orders placed by the customer with D-M-E on or after JULY 1, 2003,* (ii) *applies only to the original D-M-E customer and,* (iii) *is not transferable to subsequent owners of the product except as specifically set forth herein (see Transferability below for conditions).*

WARRANTY PERIODS APPLICABLE TO SPECIFIED D-M-E PRODUCTS; COVERAGE STARTS UPON DATE OF SHIPMENT:

Item	Coverage
D-M-E Hot Runner Package Systems (plates designed, machined & assembled by D-M-E, **excluding Electrical Parts**)	Three (3) years
Galaxy & Stellar Hot Runner Package Systems Only (plates designed, machined & assembled by D-M-E, **excluding Electrical Parts**)	Plastic leakage within hot runner plates covered for Three (3) years; **excluding Gate Detail. (Galaxy & Stellar Hot Runner Package Systems Only)**
D-M-E Hot Runner Systems supplied as Manifold and Components Only (neither plates nor assembly supplied by D-M-E, **excluding Electrical Parts**)	One (1) year
D-M-E Electrical Parts (all heaters and thermocouples)	One (1) year
D-M-E Mold Controls (Temperature, Valve Gate & Cavity Pressure Controls, **excluding Fuses & Triacs**)	Three (3) years

Replacement or repair will be made at the election of D-M-E; implemented at a D-M-E facility and/or by shipment of replacement parts to the customer for installation and/or return of defective parts to D-M-E for repair.

Transferability:

This warranty may be transferred by the original D-M-E Customer to a subsequent owner of the product *if all of the following conditions exist:* (i) the original D-M-E Customer purchased the product for purposes of re-sale or other immediate transfer and D-M-E was made aware of these purposes at the time of purchase in writing, (ii) within thirty (30) days from the date of invoice, D-M-E is notified in writing of the transfer and provided with the name of the new owner (hereafter "Transferee"), the contact person of the Transferee and the Transferee's address.

Exclusions:

- Normal wear of the system and components including, but not limited to: Nozzle Tips, Gate Shell Insulators, Nozzle Seal Rings, O-rings, Piston Seals, Valve Stems and Electrical connectors
- Damage to the critical seal-off areas on the manifold, nozzle bodies, or in the mating cavities or cavity inserts caused by improper assembly, operation, disassembly and maintenance
- Wear or damage resulting from corrosion or processing of abrasive/aggressive resins
- Damage due to failure to follow recommended operation and maintenance procedures specified in the D-M-E Hot Runner Manual, Hot Runner Nameplate, Service Bulletins, User Manuals or failure to follow standard industry operation and maintenance procedure
- Damage caused by abuse, neglect, and failure to adhere to D-M-E instructions and operational recommendations
- Damage caused by improper installation, operation and maintenance
- Damage resulting from modifications to the product or component parts, abuse or neglect
- Failure caused by modifications made to the product without the prior written approval of D-M-E
- Damage resulting from operation of products at injection pressures greater than 20,000 psi (1360 bar) on 250, 375, and 625 Series, Gate-Mate 4, Valve Gate, Galaxy and Stellar Systems; unless specifically designed and manufactured for higher pressure applications in agreement with manufacturer
- Damage or failure caused by the product's inability to perform as a component of a system design not supplied by D-M-E
- Operator absence or operator error
- Operator maintenance and training capability
- Electrical interruptions
- Events beyond the control of D-M-E
- Errors or actions by a third party
- Non-compliance with local laws, codes, ordinances or regulations codes or bylaws unless D-M-E is informed of them by our customer at the time of order placement

D-M-E Hot Runner...

D-M-E
Every step of the way

Whether your application requires best-in-class components or a turnkey hot-half system, D-M-E has a hot runner solution that meets your needs.

D-M-E: An Essential Resource for Hot Runner Productivity

Moldmakers, molders and mold designers worldwide look to D-M-E for essential hot runner solutions — whether that is a single, best-in-class component or a complete, fully functioning hot half system. Offering the industry's broadest range of hot runner products and services as well as an unsurpassed knowledge and expertise, D-M-E is committed to helping customers achieve maximum productivity, reliable operation, and better performance.

System Solutions

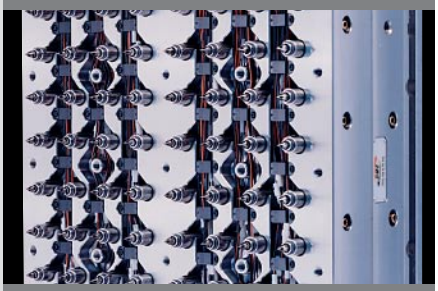
D-M-E offers a comprehensive family of hot runner systems built on our modular architecture making custom configuration easy and quick. Systems include:

- **Galaxy™ High Cavitation Systems** proven successful on 96-cavity molds
- **Gate-Mate™ Lite Nozzles** the most economical choice for direct gating
- **Stellar™ Micromolding Systems** engineered for tight pitch molding
- **The Hot One**
- **The Cool One**

Quick Delivery Systems

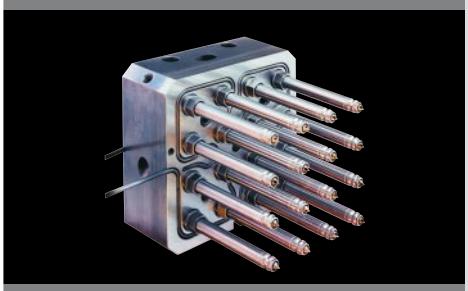
From hot halves to standard manifolds, several of D-M-E's hot runner systems are available for rapid shipment to help you meet the demands of your business.

- **Stellar Quick Delivery Systems** for the challenges of tight pitch molding; ship in as little as three weeks
- **Meteor™ Quick Delivery Systems** full range of hot runners from simple nozzle-and manifold systems up to turnkey hot halves



Galaxy Systems offer reliable high cavitation solutions

A wide range of D-M-E nozzles allows versatility in system selection



Stellar multi-nozzle assemblies provide application flexibility

...from components and manifolds to turnkey hot halves

Our goal is simple: to be an essential resource for your molding challenges.
Every step of the way.

Specialized Systems

As one of the world's leading hot runner manufacturers, we recognize that some application challenges demand specialized solutions. Offerings include:

- **Stack Mold Systems** double molding machine output to optimize utilization; available in a wide range of actuation methods
- **Polivalve Valve Gate Systems** for improved part cosmetics and more precise control of mold filling

Knowledge That Gives You an Advantage

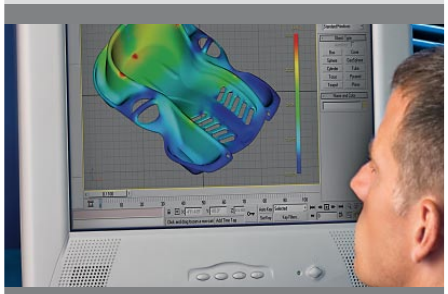
Our team of trained, experienced experts can help you with needs analysis, design, configuration, operation, and all the other services that enable you to focus on your core business.

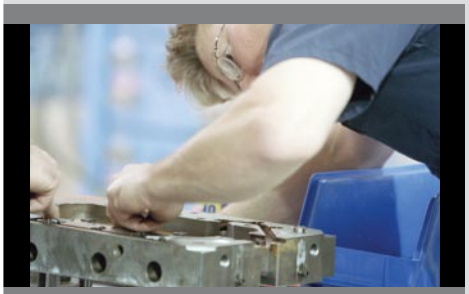
- **Applications engineering**
- **Moldflow analysis**

Service and Support to Keep You Productive

D-M-E provides essential support to keep your hot runner systems in-service. Our dedicated hot runner service center is staffed by trained, experienced technicians who support D-M-E systems, as well as other brands, to provide help when and where you need it, every step of the way.


Meteor Systems are custom configured for quick delivery


Moldflow predictive analysis optimizes part design and lowers costs


D-M-E Hot Runner Service Center provides total support for your hot runner system

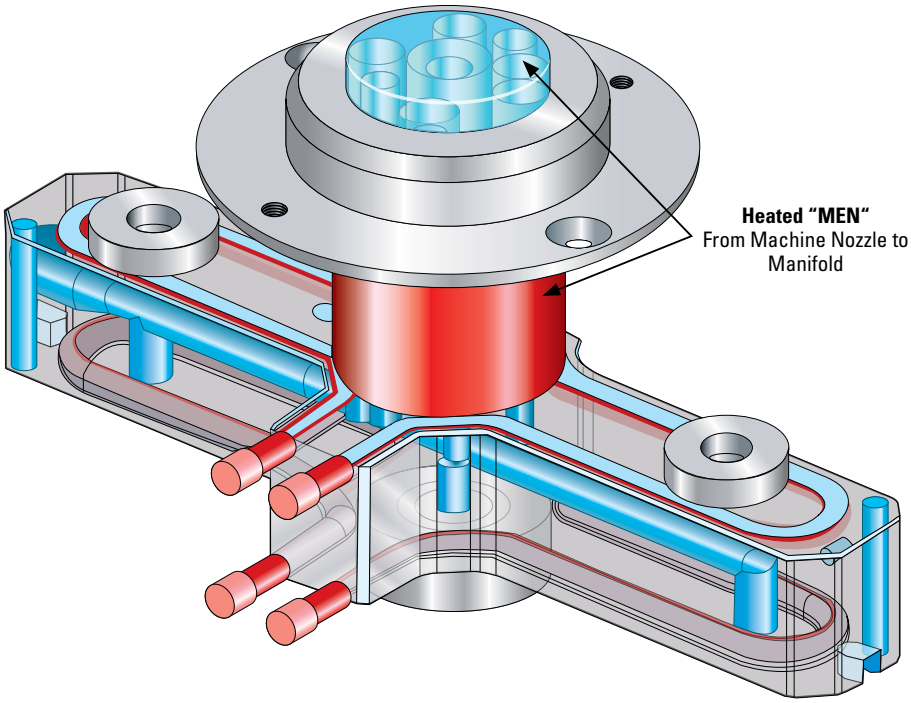
Standard Global Manifold and Components

D-M-E Global Manifolds and Components are standardized worldwide to ensure that even the smallest detail provides operational excellence regardless of where D-M-E hot runner products are used. Whether you're relying on a quick-delivery manifold or an applications-engineered, custom manifold, the D-M-E Global Manifold Standard ensures optimal hot runner performance no matter where in the world it was built.

Key Features of the D-M-E Global Manifold Include:

- Flexible tubular heaters
- Locating rings that fit virtually any injection press platen hole diameters
- Heated Manifold Extension Nozzles that match up to different locating ring diameters and machine nozzle radii
- High-tolerance, press-fit heaters
- Upper and center Manifold supports constructed of high-strength, low-heat conductive titanium that minimizes heat loss and maintains an even heat profile
- J-type thermocouples are black-and-white, coinciding with the IEC 584-3 International Standard
- Flow channel sizes range from 6mm to 16mm

D-M-E customers are assured that D-M-E Manifold Systems are designed and built with a global standard that ensures efficient molding anywhere in the world. And, since replacement parts are identical worldwide, they are readily available wherever your mold is operating, not just where it was built. All D-M-E nozzles, including Galaxy, Stellar, Gate-Mate and the Hot One, perform flawlessly with the D-M-E Global Manifold Standard.



Available in all balanced design layout patterns up to 64 nozzle drops*, including inline, X, Y, H, Double H & Multiple Level Systems.

*Contact D-M-E for Higher Cavitation

MANIFOLD DESIGN, SPECIFICATION & TOLERANCE STANDARDS HARMONIZED FOR GLOBAL PRODUCT OFFERING

AMERICAS – EUROPE – ASIA – AUSTRALIA / NEW ZEALAND

D-M-E Hot Runner Technology Selection Guide

www.dme.net

Every step of the way

Resin Application Key

- Good
- Contact D-M-E Applications Engineering or Technical Service for resin application guidance
- Not recommended for resin application

Gate Diameter Key

- ◆ Remachine Standard Gate Orifice
- ▲ Modify Thru-Hole Orifice
- ■ Modify Thru-Hole Orifice (unfilled)
- ❑ Modify Thru-Hole Orifice (filled and unfilled)

Polymer Viscosity Key

L = Low M = Medium H = High

NOZZLE FLOW CAPACITY RECOMMENDATIONS

NOZZLE	TIP	Recommended Gate Diameter Range Min (mm)	Max (mm)	Min (inch)	Max (inch)	Flow Capacity (Grams) Gate Diameter mm	inch	Viscosity Low MFI >16	Medium MFI 7-16	High MFI .02-7	Color Change Capability	Filled Resin Yes/No
Polivalve 50 Series Low Watt Coil Heater	Topless (Bodiless) Tip	1.5	2.5	0.060	0.100	2.5	0.098	400	200	120	Valve pin requires longer color change time.	Yes
	Standard (Full Body) Tip	1.5	2.0	0.060	0.080	2.0	0.079	800	600	400		
	Extended (Sprue) Tip	1.5	2.0	0.060	0.080	2.0	0.079	800	600	400		
Polivalve 200 Series Low Watt Coil Heater	Topless (Bodiless) Tip	2.0	4.0	0.080	0.160	4.0	0.157	800	400	200		
	Standard (Full Body) Tip	2.0	3.0	0.080	0.120	3.0	0.118	1600	1200	800		
	Extended (Sprue) Tip	2.0	3.0	0.080	0.120	3.0	0.118	1600	1200	800		
Polivalve 500 Series Low Watt Coil Heater	Topless (Bodiless) Tip	2.5	5.0	0.100	0.200	5.0	0.197	2400	1600	1200		
	Standard (Full Body) Tip	2.5	4.0	0.100	0.155	4.0	0.157	3200	2400	1600		
	Extended (Sprue) Tip	2.5	4.0	0.100	0.155	4.0	0.157	3200	2400	1600		
Polivalve 800 Series Low Watt Coil Heater	Topless (Bodiless) Tip	2.5	6.0	0.100	0.235	6.0	0.236	4800	3200	2400		
	Standard (Full Body) Tip	2.5	5.0	0.100	0.200	5.0	0.197	6400	4800	3200		
	Extended (Sprue) Tip	2.5	5.0	0.100	0.200	5.0	0.197	6400	4800	3200		
Polivalve 1000 Series Low Watt Coil Heater	Topless (Bodiless) Tip	3.5	8.0	0.140	0.315	8.0	0.315	7200	4800	3200		
	Standard (Full Body) Tip	3.5	6.5	0.140	0.255	6.5	0.256	8000	6400	4800		
	Extended (Sprue) Tip	3.5	6.5	0.140	0.255	6.5	0.256	8000	6400	4800		
Stellar Sleeved Coil Heater	Sprue Tip	2.0	2.0	0.080	0.080	2.0	0.080	40	30	20	Good color change capability.	Yes
	Wear Resistant Point Tip	0.8	1.5	0.030	0.062	1.0 1.6	0.040 0.062	10 10	10 10	5 10		
	Thru-Hole Wear Resistant Tip	0.8	1.5	0.030	0.062	0.7 1.1	❑ 0.028 ■ 0.041	10 10	10 10	7 10		
Galaxy Sleeved Coil Heater	Wear Resistant Point Tip	1.0	2.0	0.040	0.080	1.0 1.5 2.0	0.040 0.060 0.080	125 170 225	70 90 125	40 60 95	Good color change capability. Improve color change speed with gate shell insulators.	Yes
	Thru-Hole Wear Resistant Tip	1.0	2.0	0.040	0.080	0.7 1.3	❑ 0.028 ■ 0.050	100 135	60 80	35 50		
Gate-Mate Lite Coil Heater	Point Tip	1.0	2.2	0.040	0.087	1.0 2.0	0.040 0.080	100 180	55 100	30 75	Good color change capability.	No
	Thru-Hole Tip	1.0	2.2	0.040	0.087	1.0 1.5	0.040 0.060	100 135	60 80	35 50		
Gate-Mate Coil Heater	Gate Mate 4 Wear Resistant Point Tip	1.0	2.0	0.040	0.080	1.0 2.0	0.040 0.080	125 225	70 125	40 95	Good color change capability. Improve color change speed with gate shell insulators.	Yes
	Gate Mate 4 Thru-Hole Wear Resistant	1.0	2.0	0.040	0.080	1.0 1.5	0.040 ▲ 0.060	100 135	60 80	35 50		
	Wear Resistant Mini Point Gate	0.8	2.0	0.030	0.080	0.8	0.030	85	50	30		
	Jumbo Point Gate Wear Resistant	1.8	2.5	0.070	0.100	1.8 2.5	0.070 0.100	340 450	200 270	120 160		
	Jumbo Thru-Hole Wear Resistant	1.8	2.5	0.070	0.100	1.8 2.5	0.070 0.100	270 360	160 215	100 130		

GENERIC POLYMER NAME (TRADE NAME) [A = AMORPHOUS or C = CRYSTALLINE]

NOTE: THE CHART BELOW SHOWS COMMODITY RESINS IN BLUE TYPE; ALL OTHERS ARE ENGINEERING RESINS.

PVC (Flex Vinyl) [A]*	TPE (Elastomer) [A]	PUR (Urethane) [A]	PE (Polyethylene) [C]	PE GF (Polyethylene) [C]	PS (Polystyrene) [C]	PS GF (Polystyrene) [A]	SAN [A]	TPO [C]	PP (Polypropylene) [C]	PP GF (Polypropylene) [C]	PP TF (Polypropylene) [C]	ABS [A]	ABS/PC [A]	PMMA (Acrylic) [A]	POM (Acetal) [C]	PA (Nylon) [C]	PA GF (Nylon) [C]	PA MF GF (Minlon) [C]	PPE [A]	PS/PPE (Noryl) [A]	PS/PPE GF (Noryl) [A]	PBT Polyester [C]	PBT GF Polyester [C]	PET [C]	PC (Polycarbonate) [A]	PC GF (Polycarbonate) [A]	PPS [C]	PSU [A]	PSU GF [A]	LCP [C]	PEI (Ultem) [A]	PEI GF (Ultem) [A]	PEEK [C]
M	L	L	L	H	M	H	M	L	M	H	M	M	H	H	M	L	H	H	H	H	H	H	H	L	H	H	M	H	H	L	H	H	H

*Special nozzles and manifolds.

The values expressed in grams are for reference only and are determined by using a nominal wall thickness of 1.8mm (.070") and unfilled polypropylene.
Part dimension, wall thickness, length of fill within part, mold conditions and molding parameters must also be considered.

NOTE: If flame retardant is present in the desired resin grade, please contact D-M-E for product suitability or application guidance.

Index

D-M-E Hot Runner Technology Selection Guide

www.dme.net

Every step of the way

Resin Application Key

- Good
- Contact D-M-E Applications Engineering or Technical Service for resin application guidance
- Not recommended for resin application

Gate Diameter Key

- ◆ Remachine Standard Gate Orifice
- ▲ Modify Thru-Hole Orifice
- ■ Modify Thru-Hole Orifice (unfilled)
- ❑ Modify Thru-Hole Orifice (filled and unfilled)

Polymer Viscosity Key

L = Low M = Medium H = High

NOZZLE FLOW CAPACITY RECOMMENDATIONS

GENERIC POLYMER NAME (TRADE NAME) [A = AMORPHOUS or C = CRYSTALLINE]

NOTE: THE CHART BELOW SHOWS COMMODITY RESINS IN BLUE TYPE; ALL OTHERS ARE ENGINEERING RESINS.

NOZZLE	TIP	Recommended Gate Diameter Range Min (mm)	Max (mm)	Min (inch)	Max (inch)	Flow Capacity (Grams) Gate Diameter mm	inch	Viscosity Low MFI >16	Medium MFI 7-16	High MFI .02-7	Color Change Capability	Filled Resin Yes/No
Hot One 250 Series Coil Heater	Sprue Tip	2.0	3.2	0.080	0.125	2.0 3.2	0.080 ◆ 0.125	500 625	375 475	250 315	Good color change capability.	Yes
	Wear Resistant Point Tip	0.7	2.0	0.028	0.080	1.0 2.0	0.040 0.080	100 200	70 150	35 100		
	Ring w/Wear Resistant Point (special tip)	1.5	2.0	0.060	0.080	1.5 2.0	0.060 0.080	150 200	100 150	50 100		
Hot One 250 Series Cast-In Heater	Sprue Tip	2.0	3.2	0.080	0.125	2.0 3.2	0.080 ◆ 0.125	500 625	375 475	250 315		Yes
	Wear Resistant Point Tip	0.7	2.0	0.028	0.080	1.0 2.0	0.040 0.080	100 200	70 150	35 100		
	Ring w/Wear Resistant Point (special tip)	1.5	2.0	0.060	0.080	1.5 2.0	0.060 0.080	150 200	100 150	50 100		
Hot One 375 Series Coil Heater	Sprue Tip	3.2	6.4	0.125	0.250	3.2 4.7	0.125 ◆ 0.187	1000 1250	750 1000	500 750		Yes
	Wear Resistant Point Tip	0.7	2.5	0.028	0.100	1.5 2.5	0.060 0.100	190 310	100 200	75 130		
	Ring w/Wear Resistant Point (special tip)	2.0	2.5	0.080	0.100	2.0 2.5	0.080 0.100	250 310	150 200	100 130		
Hot One 375 Series Cast-In Heater	Sprue Tip	3.2	6.4	0.125	0.250	3.2 4.7	0.125 ◆ 0.187	1000 1250	750 1000	500 750		Yes
	Wear Resistant Point Tip	0.7	2.5	0.028	0.100	1.5 2.5	0.060 0.100	190 310	100 200	75 130		
	Ring w/Wear Resistant Point (special tip)	2.0	2.5	0.080	0.100	2.0 2.5	0.080 0.100	250 310	150 200	100 130		
Hot One 625 Series Coil Heater	Sprue Tip	4.7	7.9	0.187	0.312	4.7 7.9	0.187 ◆ 0.312	1250 1900	1000 1500	750 1000		Yes
	Wear Resistant Point Tip	3.2	4.0	0.125	0.160	3.2 4.0	0.125 0.160	600 800	400 550	300 400		
	Ring w/Wear Resistant Point (special tip)	3.2	4.0	0.125	0.160	3.2 4.0	0.125 ◆ 0.160	600 800	400 550	300 400		
Hot Sprue	S-Series & T-Series	4.1	4.1	0.160	0.160	4.0	0.160	700	500	300	Good color change capability.	Yes
	E-Series	1.5	1.5	0.060	0.060	1.5	0.060	300	150	50		
	ER-Series & TR-Series	3.2	3.2	0.125	0.125	3.2	0.125	500	300	200		
	High Performance Series	1.6	3.2	0.062	0.125	1.5 3.2	0.060 0.125	300 500	150 300	50 200		
Cool-One	AFIP3 Tip	0.8	2.5	0.030	0.100	2.5	0.100	20	15	N/A	Color change not recommended.	Yes
	AFIP4 Tip	1.0	2.5	0.040	0.100	2.5	0.100	40	20	N/A		
	AFIP5 Tip	1.0	2.5	0.040	0.100	2.5	0.100	150	60	N/A		
	AFP/AFPN	1.0	2.5	0.040	0.100	2.5	0.100	300	160	80		
	AFPN-Large	1.0	2.5	0.040	0.100	2.5	0.100	400	250	125		

PVC (Flex Vinyl) [A]*	TPE (Elastomer) [A]	PUR (Urethane) [A]	PE (Polyethylene) [A]	PE GF (Polyethylene) [C]	PS (Polystyrene) [C]	PS GF (Polystyrene) [A]	SAN [A]	TPO [C]	PP (Polypropylene) [C]	PP GF (Polypropylene) [C]	PP TF (Polypropylene) [C]	ABS [A]	ABS/PC [A]	PMMA (Acrylic) [A]	POM (Acetal) [C]	PA (Nylon) [C]	PA GF (Nylon) [C]	PA MF GF (Minlon) [C]	PPE [A]	PS/PPE (Noryl) [A]	PS/PPE GF (Noryl) [A]	PBT Polyester [C]	PBT GF Polyester [C]	PET [C]	PC (Polycarbonate) [A]	PC GF (Polycarbonate) [A]	PPS [C]	PSU [A]	PSU GF [A]	LCP [C]	PEI (Ultem) [A]	PEI GF (Ultem) [A]	PEEK [C]
M	L	L	L	H	M	H	M	L	M	H	M	M	H	H	M	L	H	H	H	H	H	H	H	L	H	H	M	H	H	L	H	H	H

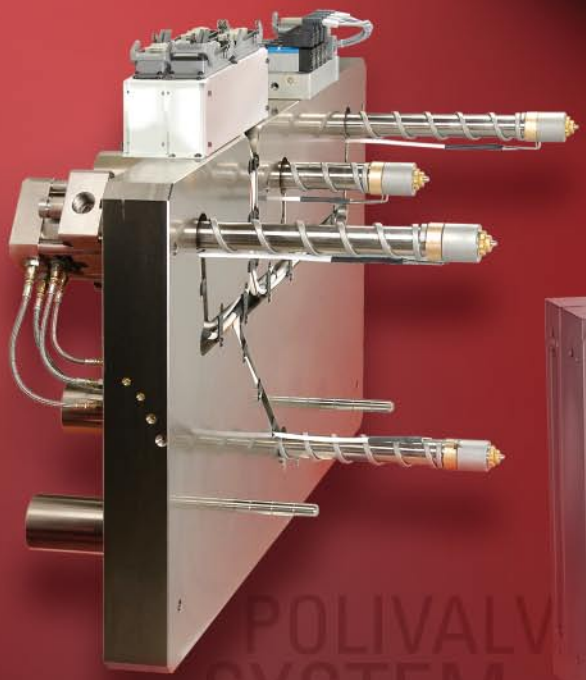
The values expressed in grams are for reference only and are determined by using a nominal wall thickness of 1.8mm (.070") and unfilled polypropylene.
Part dimension, wall thickness, length of fill within part, mold conditions and molding parameters must also be considered.

NOTE: If flame retardant is present in the desired resin grade, please contact D-M-E for product suitability or application guidance.

*Special nozzles and manifolds.

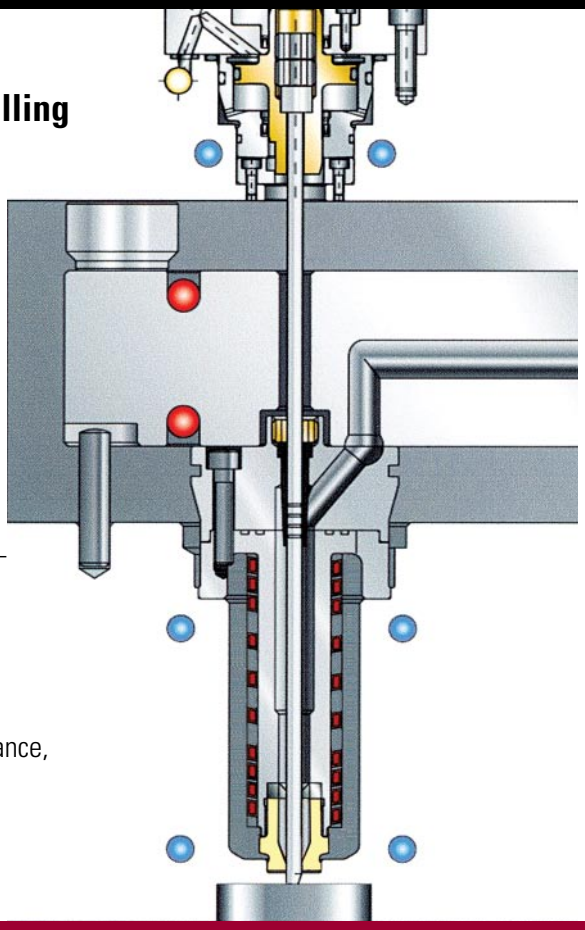
D-M-E Valve Gate Hot Runner Systems

Fully integrated valve gate systems for superior gate cosmetics and sequential part filling



D-M-E
Every step of the way

Multi-use Valve Gate Systems



For superior gate cosmetics and sequential part filling

When surface quality is important for both small and large part applications, the D-M-E Polivalve series is an ideal choice. Available in two versions, Hot Half and *Simplicity* Drop-In Systems, Polivalve provides a fully integrated multi-use valve gate system featuring a wide variety of nozzles.

Available in hydraulic and pneumatic actuation, the Polivalve series offers many benefits:

- **Excellent for sequential filling and family mold applications** – improves part quality, reduces costs, increases part design options, opens process windows, and eliminates knit lines
- **Zero gate vestige on molded parts** – improves cosmetics and eliminates secondary trimming operations
- **Side-entry nozzle flow channel** – ensures minimum flow disturbance, improves system reliability, and results in less pressure loss
- **Front- and rear-loaded nozzle heater options**
- **"A" dimension range from 52 to 500mm**

Polivalve provides excellent surface finish for small- and large-part molding …

A wide range of nozzles can be used in the Polivalve system.

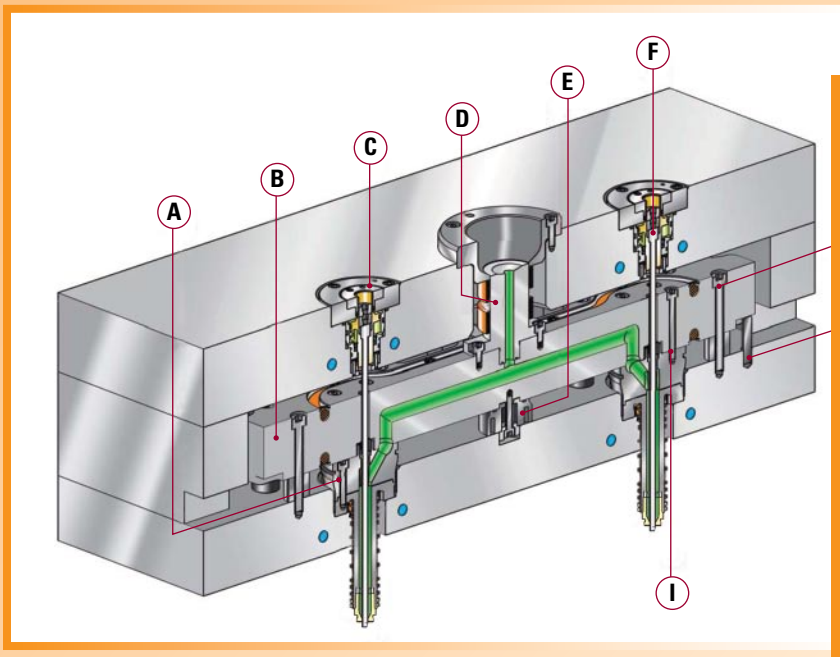
Multi-use Valve Gate Systems

Polivalve Hot Half Systems

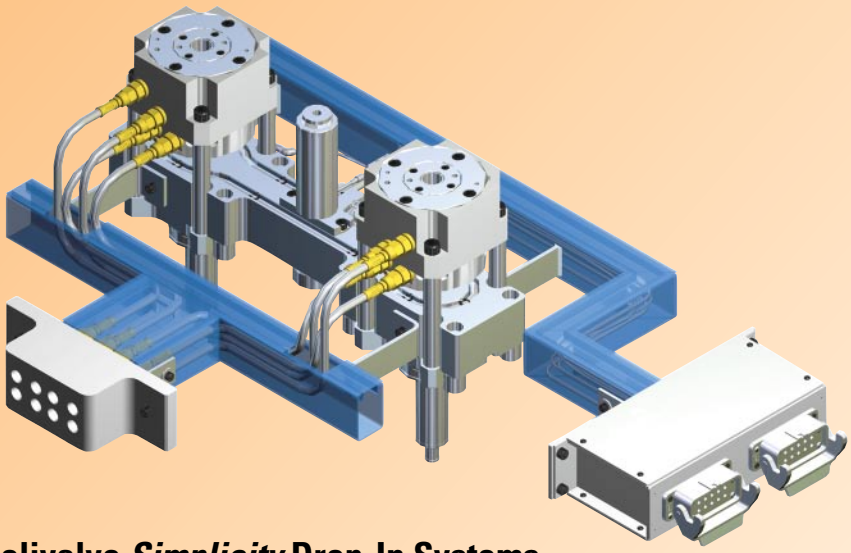
Available in V50, V200, V500, V800 and V1000 Series

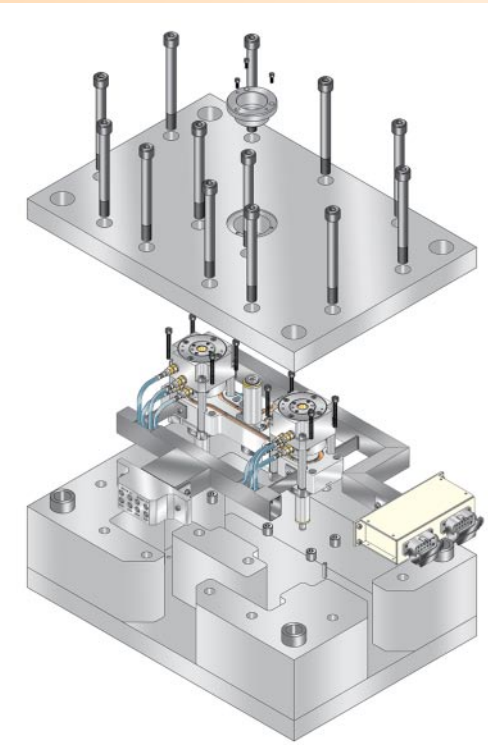
- Hydraulic or pneumatic actuation
- Ideal for small to large part applications
- Zero gate vestige
- Fill sequencing to eliminate weld lines
- Improved product finish and quality due to reduced shear rates

SYSTEM COMPONENTS	
A	NOZZLE ASSEMBLY
B	MANIFOLD
C	HYDRAULIC CYLINDER
D	NOZZLE SEAT
E	CENTRAL SUPPORT
F	VALVE PIN
G	MANIFOLD ASSEMBLY SCREW
H	DOWEL PIN
I	NOZZLE ASSEMBLY SCREW



… and is ideal for products that require different production volumes.





Polivalve *Simplicity* Drop-In Systems

Available in V500, V800 and V1000 Series

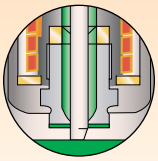
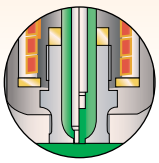
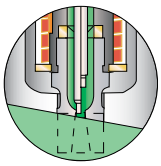
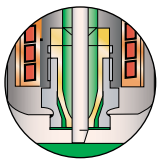
- Well-suited for larger part applications
- Easy access
- Ready for installation
- Quick assembly of the cooling/actuation/heating/control circuits

Material Compatibility and Flow Capacity

Polivalve nozzles are offered in 4 tip styles.

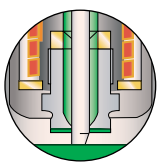
The following are guidelines for selecting tip style.

Nozzle tip and plastic material compatibility

NOZZLE TIP	THERMOPLASTIC RESIN TYPE																								
	AMORPHOUS								SEMI-CRYSTALLINE																
	SB	PUR	PEI	PVC – FLEX	SAN	PS	PC	PPO	PE	PP	PEEK	PPS	PET	PBT	PA	TPE	POM	PMMA	ABS	TPO	ABS/PC	PPE/PS	PSU	LCP
 Bodiless	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
 Standard Full Body	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
 Sprue Gate	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
 High Performance	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● Recommended ● Contact D-M-E for assistance ● Not Recommended

Maximum flow capacity

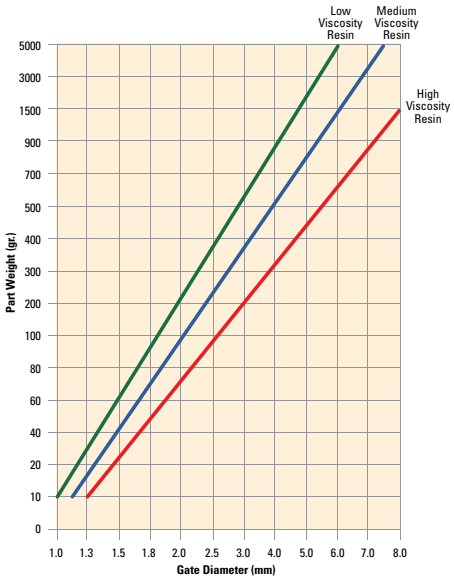
NOZZLE TIP	RESIN VISCOSITY	MAXIMUM SHOT WEIGHT IN GRAMS WITH MAXIMUM GATE DIAMETER				
		V50 SERIES	V200 SERIES	V500 SERIES	V800 SERIES	V1000 SERIES
	LOW	400	800	2400	4800	7200
	MEDIUM	200	400	1600	3200	4800
	HIGH	120	200	1200	2400	3200

Hot Runner Applications

Definition of material input

The optimal gate diameter will vary according to the resin viscosity and part weight. Please refer to the chart for guidelines. Other factors to consider when defining gate requirements for a D-M-E Polivalve System are:

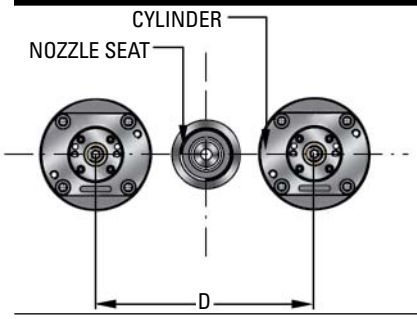
- Product geometry
- Polymer type
- Mold and injection machine conditions



Minimum center-to-center distances

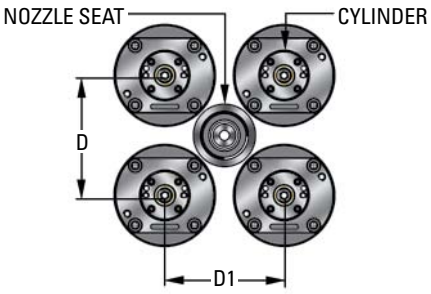
To determine the minimum dimensions between nozzles, consider nozzle series type, support and nozzle seat configuration, and cylinder type and size.

Minimum Center-to-Center Distance (with Center Support & Nozzle Seat)



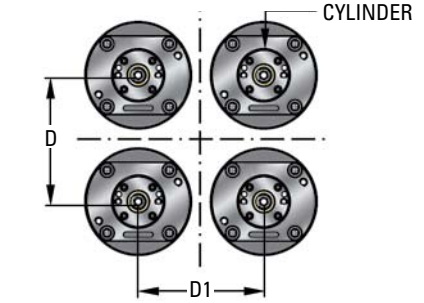
SERIES	HYDRAULIC		PNEUMATIC	
	HOT HALF	SIMPLICITY	HOT HALF	SIMPLICITY
	D	D	D	D
V50	125	—	—	—
V200	133	—	137	—
V500	133	155	137	155
V800	162	170	162	170
V1000	162	170	162	170

Minimum Center-to-Center Distance (with Center Support & Nozzle Seat)



SERIES	HYDRAULIC				PNEUMATIC			
	HOT HALF		SIMPLICITY		HOT HALF		SIMPLICITY	
	D	D1	D	D1	D	D1	D	D1
V50	88	88	—	—	—	—	—	—
V200	100	100	—	—	100	100	—	—
V500	100	100	140	140	100	100	140	140
V800	115	115	160	160	115	115	160	160
V1000	115	115	160	160	115	115	160	160

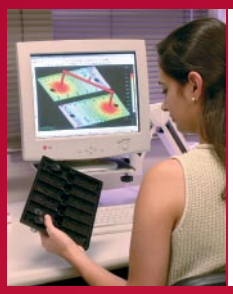
Minimum Center-to-Center Distance per Quadrant (No Center Support)

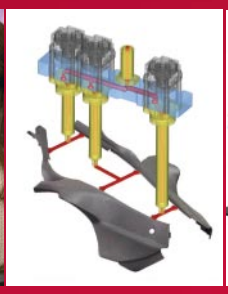


SERIES	HYDRAULIC				PNEUMATIC			
	HOT HALF		SIMPLICITY		HOT HALF		SIMPLICITY	
	D	D1	D	D1	D	D1	D	D1
V50	72	72	—	—	—	—	—	—
V200	80	80	—	—	85	85	—	—
V500	80	80	110	110	85	85	110	110
V800	110	110	120	120	110	110	120	120
V1000	110	110	120	120	110	110	120	120

NOTES: For applications other than those shown here, please contact D-M-E.

Application Versatility





Choose Polivalve for a high-quality surface finish

Polivalve systems provide a superior surface finish with zero gate vestige. This valve gate system is ideal for producing parts ranging in size as well as volume.

D-M-E Valve Gate Controls

ENERGY EFFICIENT, RELIABLE AND COMPACT HYDRAULIC AND PNEUMATIC CONTROLS

4-Zone and 8-Zone Timer-Based Sequencers

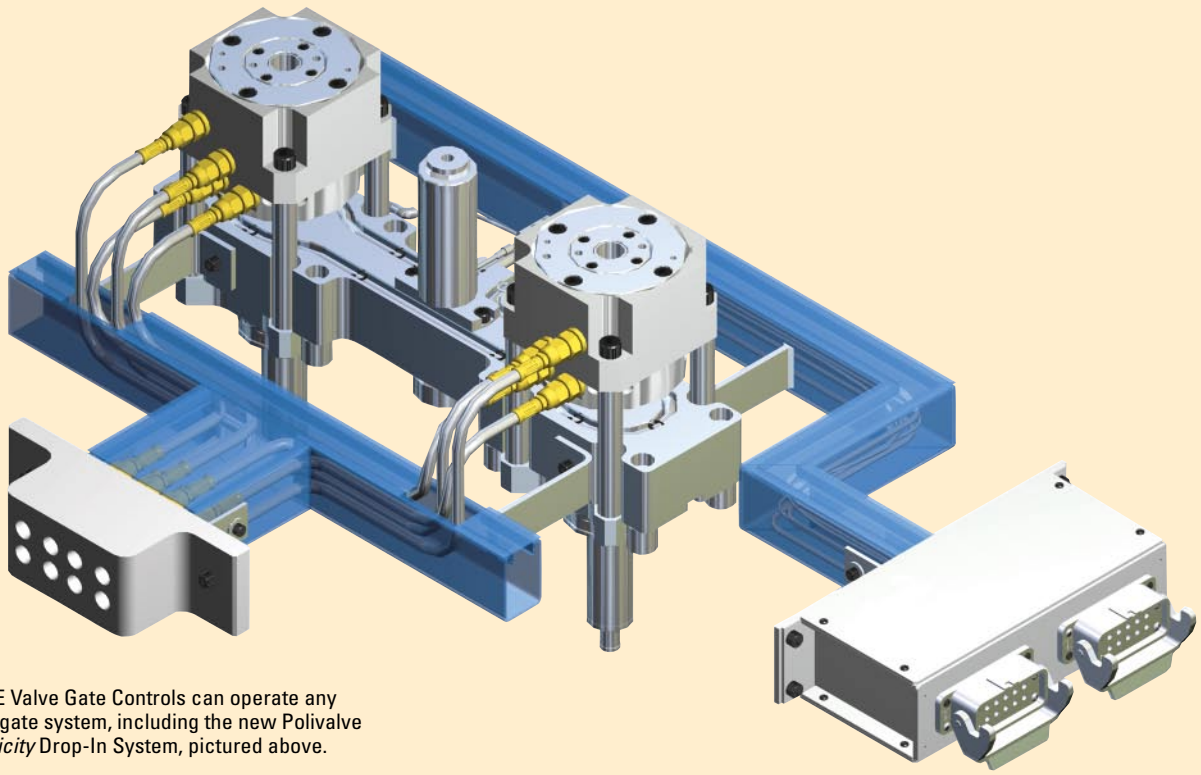
- Solid-state timers and relays have a life rating of 10 million cycles
- Robust power supply
- User-friendly auto-reset function
- Individual test buttons for each zone provide precise time control to .01 second
- Compact design takes up minimal space
- Air-powered operation runs on 120 VAC and an air line
- Accumulator stores precharged oil, allowing for instantaneous operation

Hydraulic and pneumatic valve gate controls provide reliable, accurate and efficient control

Valve gate sequencers from D-M-E are available in pneumatic or hydraulic control for timer-based actuation of up to eight valve gates. Offering faster response than typical valve gate controllers and greatly reduced electrical use over the life of the unit, D-M-E Valve Gate Controls provide reliable, accurate, highly efficient time control for years of use.

Controllers feature highly accurate (resolution to 1/100 of a second) DIN-style solid state timers, individually fused against faults, to provide long life and high reliability. Each timer is capable of dual time functions, allowing each zone to be programmed with a delay-time and an on-time. Test functions for each zone assist in determining the correct hookup of each valve.

The controllers operate from a wide supply of operating voltages (88 to 264 volts AC), making them easy to relocate between different plants or even different countries. The standard product is offered with a 125 volt AC plug (North American Standard). This plug can be removed and replaced with any number of 240 VAC plugs.



D-M-E Valve Gate Controls can operate any valve gate system, including the new Polivalve *Simplicity* Drop-In System, pictured above.

4-Zone and 8-Zone Timer-Based Sequencers

VCTH4000 and VCTH8000: 4-zone and 8-zone hydraulic control

The VCTH4000 provides four zones of hydraulic actuation and the VCTH8000 provides eight zones of actuation.

Hydraulic connections on the back of each controller allow for quick connect and disconnect of the hydraulic lines from the controller. This air-powered unit runs on 88 to 264 volts with a single air line. Because the VCTH pumps only when pressure build-up is required, operation is energy efficient, providing a low-cost energy solution. This style of pump also prevents degradation of hydraulic oil.

A hydraulic accumulator stores precharged oil, which provides on-demand flow for fast actuation of hydraulic cylinders. This powerful hydraulic system can provide up to 10 times the incoming air pressure.

ITEM NUMBER	DESCRIPTION
VCTH4000	4-ZONE HYDRAULIC CONTROLLER
VCTH8000	8-ZONE HYDRAULIC CONTROLLER
VCAH1500	15-FT. LONG HYDRAULIC HOSE ASSEMBLY

Note: Hydraulic hose assemblies and trigger signal cable included with each controller.

D-M-E Valve Gate controllers provide an extended life cycle, energy savings and more accurate time settings.

Compact 4-zone pneumatic or hydraulic control unit

The VCTB4000 Valve Gate Controller is designed to provide timer-based control of up to four 24 volt DC valves used to actuate pneumatic valve gate cylinders as well as some hydraulic valves, and features a user-friendly auto-reset feature. Its compact size makes it extremely portable and requires minimal space. A single DB-025 cable connects the controller to up to four remotely located valves, minimizing wiring and air connections.

ITEM NUMBER	DESCRIPTION
VCTB4000	4-ZONE PNEUMATIC HYDRAULIC CONTROLLER
VCPT0100	100-FT. LENGTH OF PNEUMATIC TUBING

Note: Trigger signal cable included with controller.

Highly accurate D-M-E solid state timers feature resolution to 1/100 of a second, far exceeding the industry standard of 1/10 of a second.

VCAP Air Valve Assemblies

VCAP multi-station air valve assemblies

The VCAP series offers 4-station (0400), 6-station (0600), 8-station (0800), 10-station (1000), and 12-station (1200) valve assemblies. The single-solenoid valves are spring returned and designed to run from 24 VDC +/- 10%. The air supply (maximum rated pressure 145 PSI) can be lubricated or non-lubricated — dry air is preferred but the valve is designed to tolerate some moisture.

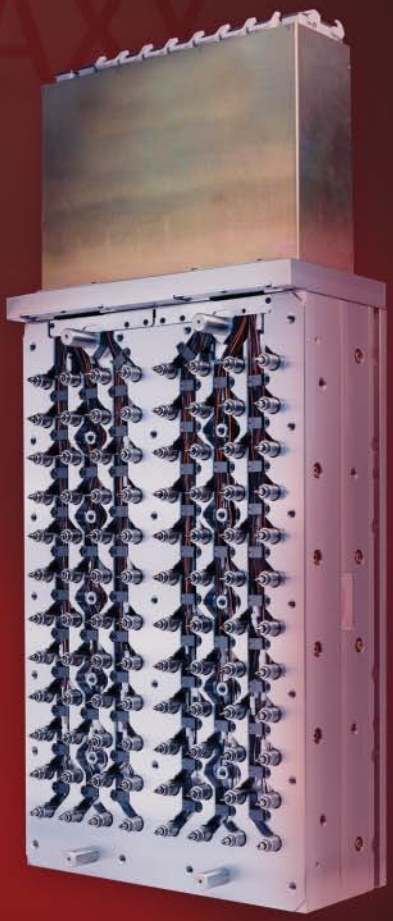
Quick connects are provided on all air outputs to accept standard 1/4" tubing. The de-energized outputs, used for closing valve gates, feature check valves to ensure that unused valves do not leak air.

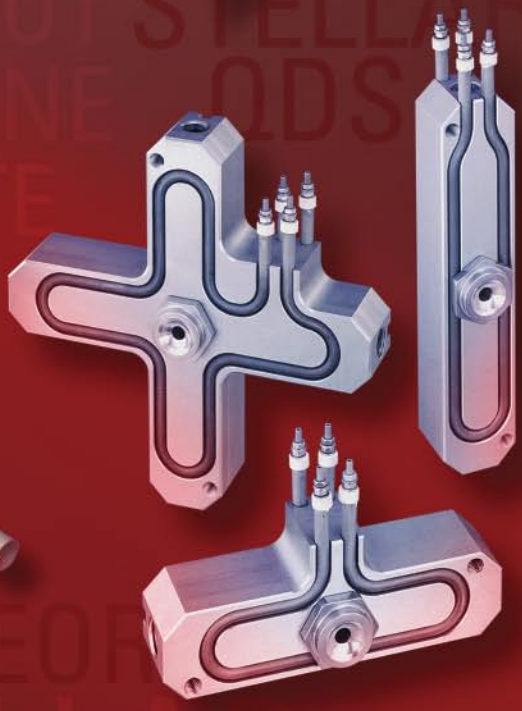
ITEM NUMBER	DESCRIPTION
VCAP0400	4-STATION AIR VALVE ASSEMBLY
VCAP0600	6-STATION AIR VALVE ASSEMBLY
VCAP0800	8-STATION AIR VALVE ASSEMBLY
VCAP1000	10-STATION AIR VALVE ASSEMBLY
VCAP1200	12-STATION AIR VALVE ASSEMBLY

Note: Each valve assembly includes a valve cable.

D-M-E Thermal Gate Hot Runner Systems

Proven externally heated systems that achieve outstanding processing results





D-M-E

Every step of the way

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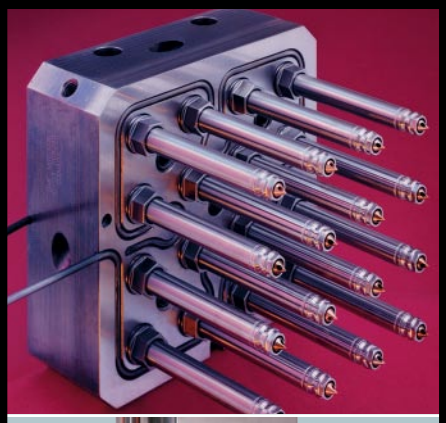
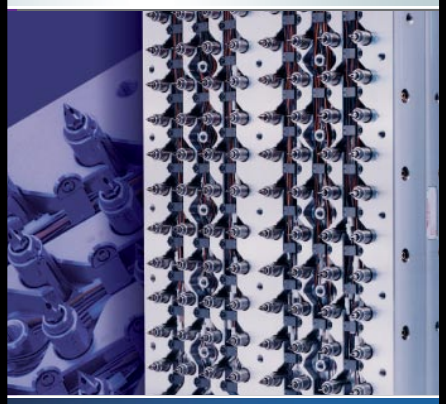


Stellar Micromolding Hot Runner Systems...25 to 28

The best solution for precision thermoplastic micromolding

Stellar Quick Delivery Systems.....29 to 36

A wide variety of configurations with rapid delivery



Galaxy High Cavitation Systems .....37 to 40

Powerful and proven performance for multi-cavity applications

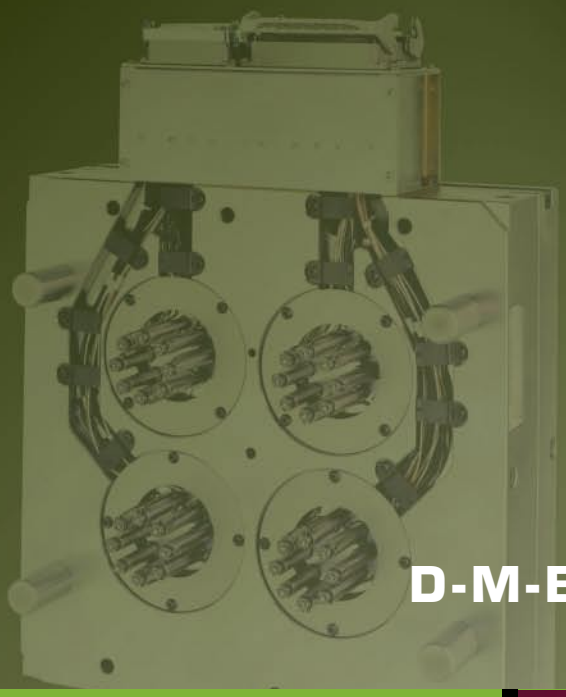
D-M-E Hot One Hot Runner Technology.....41 to 43

A long-standing industry standard in user-friendliness and affordability

Hot Runner Quote Request Form..... 44

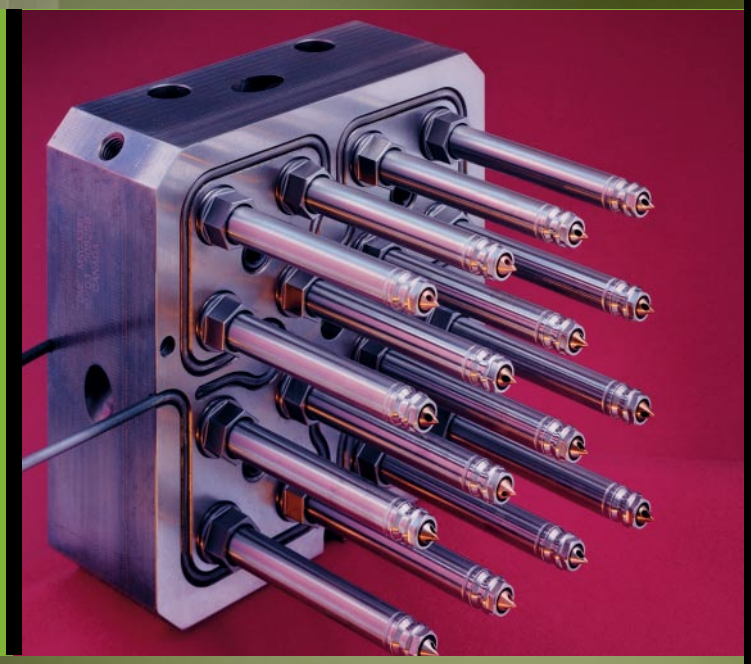
Online Price Guide

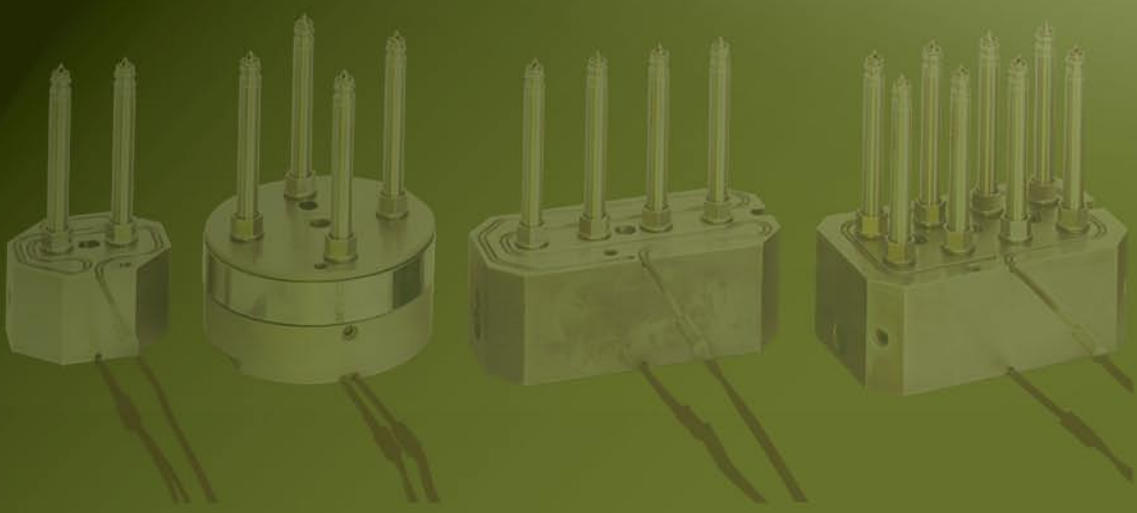
Go to www.dme.net/prices for the latest pricing guide.



D-M-E Stellar Micromolding Hot Runner Systems

PROVEN SOLUTIONS FOR PRECISION THERMOPLASTIC MICROMOLDING





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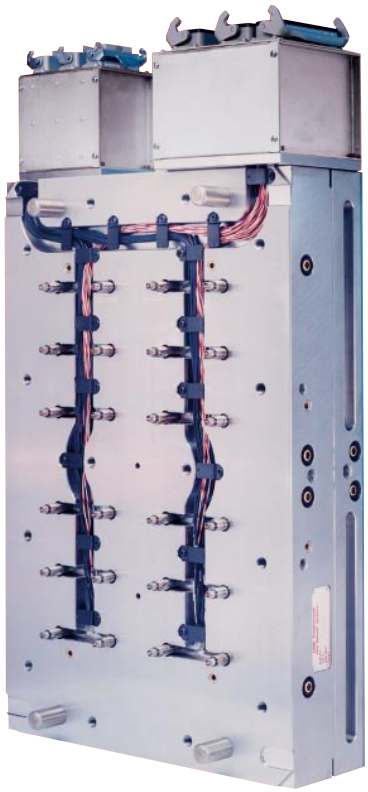
Stellar Hot Runner Systems – Benefits



Engineered for the Challenges of Tight Pitch Molding

The D-M-E Stellar™ Hot Runner System brings high performance, exacting precision and flexible, cost-effective modular construction to very small part molding. With as little as 17mm between centers, Stellar is also ideal for high-cavitation molding.

Demand the Best – Demand D-M-E

D-M-E has been a leader in mold technologies for seven decades. Nobody beats D-M-E for quality products, quality service and quick delivery. Like all D-M-E products, Stellar Hot Runner Systems come with your satisfaction 100% guaranteed.

Get the Modular Advantage

Stellar is based on new D-M-E hot runner system architecture to deliver tremendous flexibility. Seven different "A" dimensions, two interchangeable tip options, and a choice of manifold styles enable D-M-E to easily configure a Stellar solution that matches your application. Quickly, cost-effectively and with optimal results.

For a Wide Range of Applications

Stellar is perfect for today's rapidly expanding array of micromolding projects. Stellar was designed to perform in a broad spectrum of applications – including electrical, electronic, medical, and cosmetic packaging. And, Stellar was designed to process demanding engineering resins without property degradation.

Stellar Hot Runner Systems – Benefits

CUSTOMER DESIGN CRITERIA FORMS

CDC

To provide your Stellar™ application specifications, visit www.dme.net/cdc

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 Runner System. Highly conductive tip designs and precise heat profiling in all nozzle lengths ensure consistent processing temperatures.

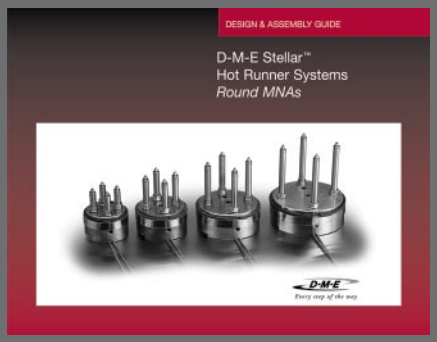
Modularity Increases Application Flexibility

The Stellar Hot Runner System from D-M-E is built on a standardized architecture of modular components. Key features include:

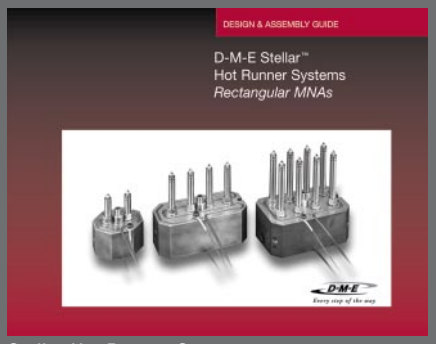
- Choice of balanced multi-nozzle assemblies (MNAs) for stand-alone use or under a manifold for higher cavitation molds
- Threaded nozzle connection for standard manifolds and compression nozzle connection for custom manifolds
- Seven different "A" dimensions from 45-105mm are available
- Two interchangeable tip styles – point gate and sprue gate

Stellar Hot Runner Systems – Technical Guides

Stellar Hot Runner Systems
Round & Rectangular MNAs – Quick Reference Guide



Stellar Hot Runner Systems
Round MNAs – Design and Assembly Guide



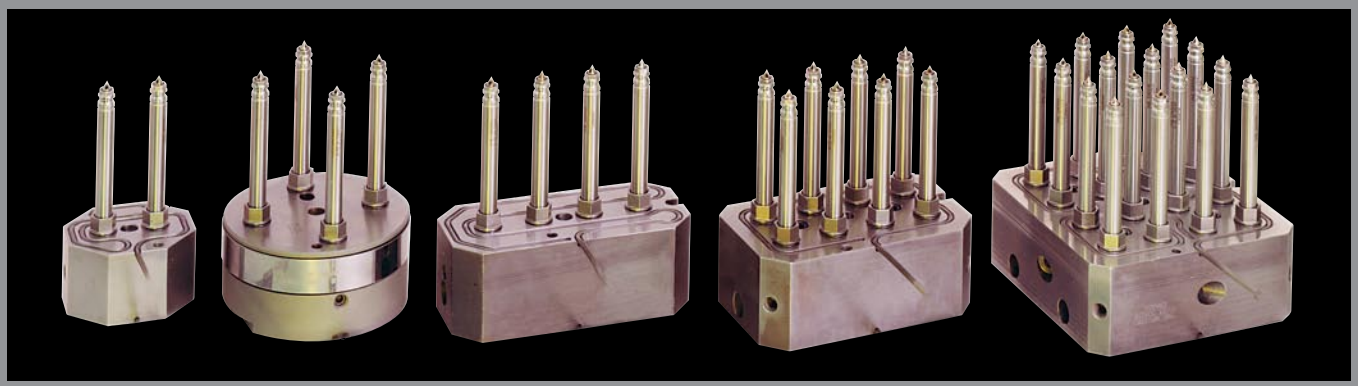
Stellar Hot Runner Systems
Rectangular MNAs – Design and Assembly Guide

Detailed Design and Assembly Guides

Stellar Hot Runner Systems are supported by detailed application guides that assist users in applying proven D-M-E micromolding technology to a variety of applications. The Stellar Quick Reference Guide is intended to provide options for gating, nozzle selection and layout. The Stellar Round MNA Design and Assembly Guide and the Stellar Rectangular MNA Design and Assembly Guide provide more precise information, including item numbers and machining specifications.

The Stellar Quick Reference Guide overviews the gate details for D-M-E Point Gate and Sprue Gate Tips. In addition to assisting with nozzle selection, the document provides manifold options for both Stellar Round and Rectangular MNAs, as well as general assembly information for the systems.

The Stellar Round MNA Design and Assembly Guide offers detailed pre-assembly and machining guidelines, and provides both inch and metric dimensional information. The Stellar Rectangular MNA Design and Assembly information offers similarly detailed pre-assembly and machining guidelines for both inch and metric. The document provides these guidelines for 2-drop, 4-drop, 6-drop, 8-drop, 12-drop and 16-drop multi-nozzle assemblies.



D-M-E Stellar Quick Delivery Systems

THE INDUSTRY'S BROADEST
RANGE OF STANDARD MANIFOLDS
WITH RAPID DELIVERY

Index

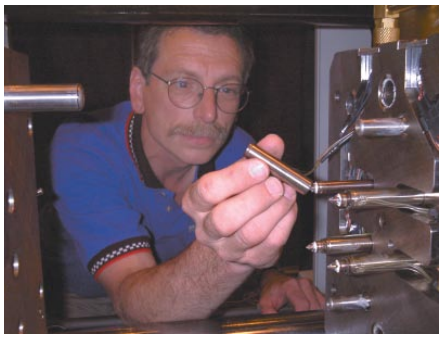
Stellar Hot Runner Systems Benefits

High Process Temperature Capability with Precision Heat Profiling

Today's engineered materials challenge hot runner systems with high processing temperatures – often with very narrow operating windows. Stellar hot runner nozzles utilize reliable profiled mini-tubular heaters to ensure optimal heat distribution. In addition, Stellar nozzles are engineered with low conductivity heads and high conductivity tips for consistent thermal performance.

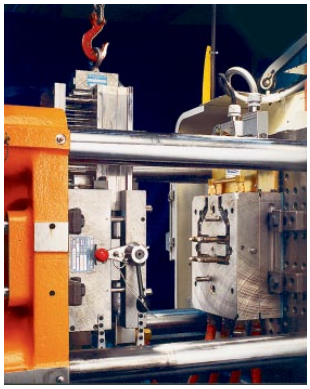
Easy Serviceability – Right in the Machine

Productivity is especially critical when micromolding thousands of parts per hour. Every Stellar Hot Runner System can be rapidly serviced for maximum uptime. Nozzle tips, retainers, mini-tubular heaters and thermocouples are all front-loaded and easily replaced with the mold in the press.



A Winning Combination – Stellar Hot Runners and Master Unit Die Quick-Change™ Systems

If you need maximum molding productivity with frequent tooling changes, Stellar standard MNAs fit MUD quick-change systems for plastics tooling, enabling mold insert changes in less than five minutes.



Tested – for the Real World

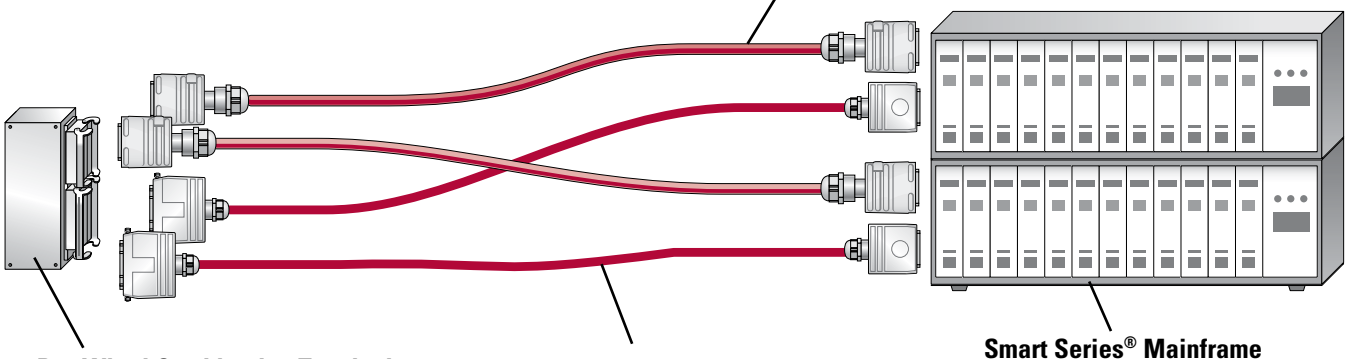
D-M-E operates a fully equipped testing laboratory to ensure every Stellar hot runner system performs at its peak. The D-M-E hot runner laboratory thoroughly verifies system design and tests applications with a wide range of thermoplastics.

Multi-Nozzle Assemblies

Stellar offers the industry's broadest line of standard manifolds. A wide variety of Multiple Nozzle Assemblies (MNAs) is available in standardized configurations of 2, 3, 4, 6, 8, 12 and 16 drops. MNAs are flow balanced and can be used either as stand-alone systems or underneath custom manifolds.

Smart Series® and Integrity™ — 16-Drop Configurations

Standard Smart Series® Cables and Connectors



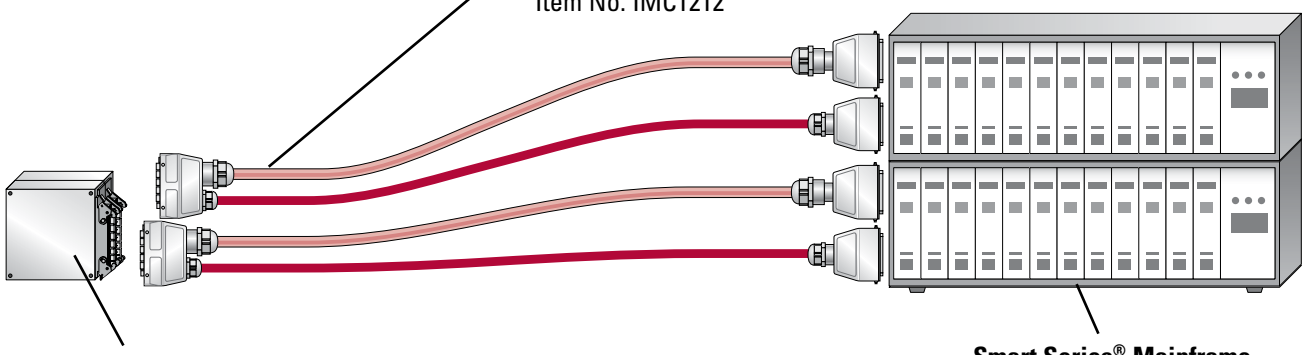
Mold Power Cable
Quantity: 2 required
Item No. MPC12C10G

Pre-Wired Combination Terminal Mounting Box
Quantity: 1 required
Item No. PTC24TBGTS

Thermocouple Cable
Quantity: 2 required
Item No. TC12C10G

Smart Series® Mainframe

Integrity™ Cables and Connectors

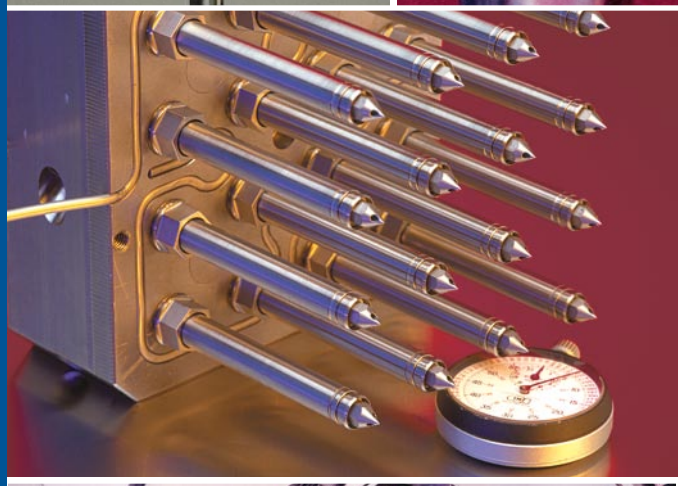


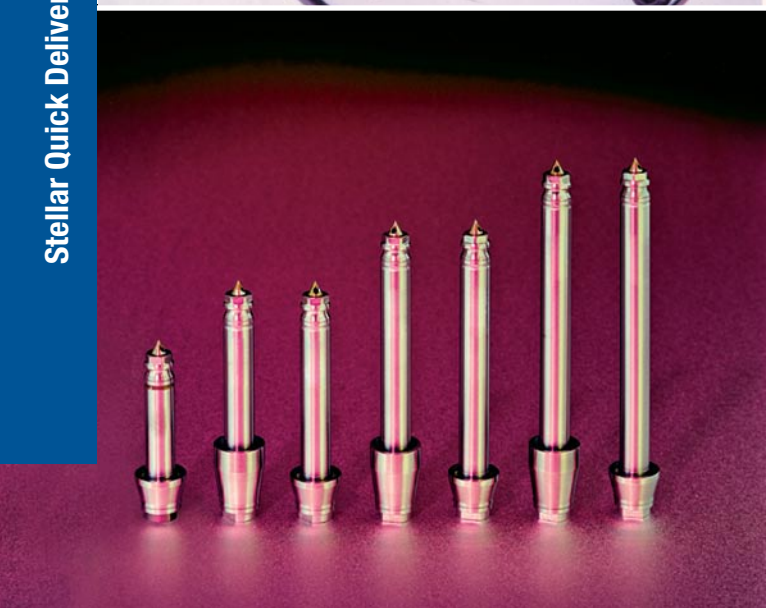
"Y" Cable
12 zone, Type J, 15ft
Quantity: 2 required
Item No. IMC1212

Integrity™ Mounting Box
Quantity: 2 required
Item No. IMB1200

Smart Series® Mainframe

Stellar Quick Delivery Systems Advantages





Get the Stellar Edge – Now Even Faster

D-M-E introduces a new quick-delivery program for Stellar Hot Runner Systems. Three configurations are available to meet your needs.

Stellar 1: 4-, 8- and 16-drop multi-nozzle assemblies (MNAs) shipped in only 3-5 days

Stellar 2: 4-, 8- and 16-drop MNA package systems with standard nozzle plate thickness shipped in 5 days

Stellar 3: 4-, 8- and 16-drop MNA package systems with custom nozzle plate thickness shipped in 10 days

Key Advantages of Stellar Hot Runner Systems

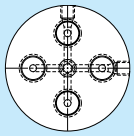
- Outstanding performance with challenging engineered materials – amorphous material like PET or crystalline resins like PBT and PA are no problem with Stellar's high conductivity tip material and precise heat profiling
- Ideal for high-cavitation – well-suited for medical, electrical/electronic and cosmetic packaging applications
- A choice of four tip styles – Point gate and sprue gate tips enable customization to meet your needs
- A choice of three nozzle A dimensions – 65, 85, and 105mm
- Industry-leading choice of MNAs – Stellar features the industry's broadest line of standard manifolds
- Easy serviceability – front-loaded nozzle tips, mini-tubular heaters and thermocouples are easily replaced with the mold in the machine
- Extended warranty – D-M-E now offers a 3-year, leak-proof warranty on all Stellar package systems

Program Overview

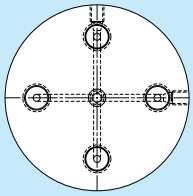
Stellar 1 Round MNAs – Manifold Options

Quick Delivery Lead Time 3-5 Days

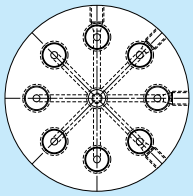
Gate Circle Diameter



4-Drop / 40mm



4-Drop / 70mm

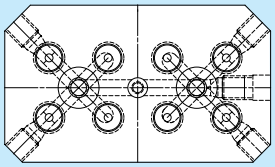


8-Drop / 70mm

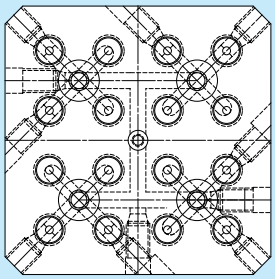
Stellar 1 Rectangular MNAs – Manifold Options

Quick Delivery Lead Time 3-5 Days

Pitch



8-Drop / 30mm



16-Drop / 30mm

Stellar 2 Hot Half

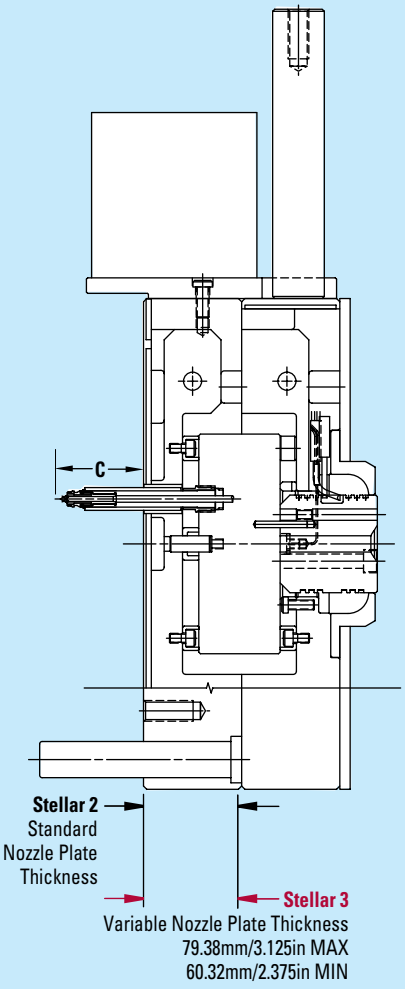
STANDARD NOZZLE PLATE THICKNESS

Quick Delivery Lead Time 5 Days

Stellar 3 Hot Half

VARIABLE NOZZLE PLATE THICKNESS

Quick Delivery Lead Time 10 Days



Stellar Quick Delivery Systems

DESCRIPTION	STELLAR 1 MNA QUICK DELIVERY LEAD TIME 3-5 DAYS	STELLAR 2 HOT HALF QUICK DELIVERY LEAD TIME 3-5 DAYS	STELLAR 3 HOT HALF QUICK DELIVERY LEAD TIME 10 DAYS
ROUND	ITEM NO.	ITEM NO.	ITEM NO.
4-DROP 40mm	SRD4004	SRD4004-2-0808	SRD4004-3-0808
4-DROP 70mm	SRD7004	SRD7004-2-1012	SRD7004-3-1012
8-DROP 70mm	SRD7008	SRD7008-2-1012	SRD7008-3-1012
RECTANGULAR	ITEM NO.	ITEM NO.	ITEM NO.
8-DROP 30mm	SRC3308	SRC3308-2-1012	SRC3308-3-1012
16-DROP 30mm	SRC3316	SRC3316-2-1012	SRC3316-3-1012

Recommended Nozzle Flow Capacities

DESCRIPTION		FLOW CAPACITY IN GRAMS			
ITEM NO.	GATING STYLE	GATE DIAMETER	LOW VISCOSITY MFI > 16	MEDIUM VISCOSITY MFI 7-16	HIGH VISCOSITY MFI .02-7
SXT4010	STELLAR POINT GATE TIP	1.0mm/0.040in 1.5mm/0.060in	12 16	12 16	5 12
SXT1040	STELLAR SPRUE GATE TIP	2.0mm/0.080in	40	30	20

*Minimum gate diameter Ø1.27mm/.050in for filled resins; Ø0.71mm/.028in for unfilled resins

Nozzle Cold Tip Length "C"

NOZZLE SUB-ASSEMBLY	STELLAR 2	STELLAR 3
ITEM NO.	FIXED LENGTH	VARIABLE LENGTH
SXY8065	31.12mm/1.225in	13.00mm/0.512in MIN 31.12mm/1.225in MAX
SXY8085	51.12mm/2.013in	32.07mm/1.263in MIN 51.12mm/2.013in MAX
SXY8105	71.12mm/2.800in	52.07mm/2.050in MIN 71.12mm/2.800in MAX

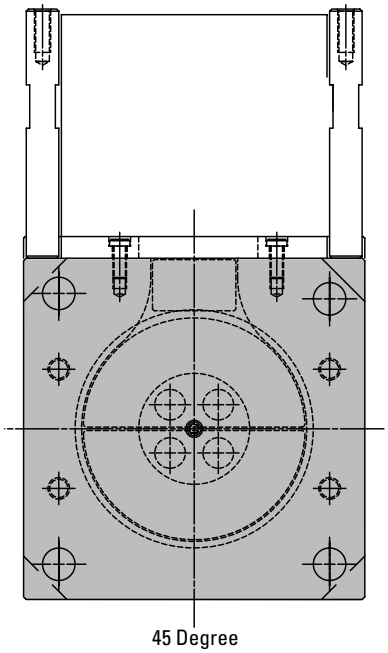
APPLICATION NOTES

1. Stellar systems are recommended for filled or unfilled resins; material process temperatures below 400°C/750°F
2. For Stellar MNA Application Guides, visit www.dme.net
3. To request CAD files, please contact appl_eng@dme.net

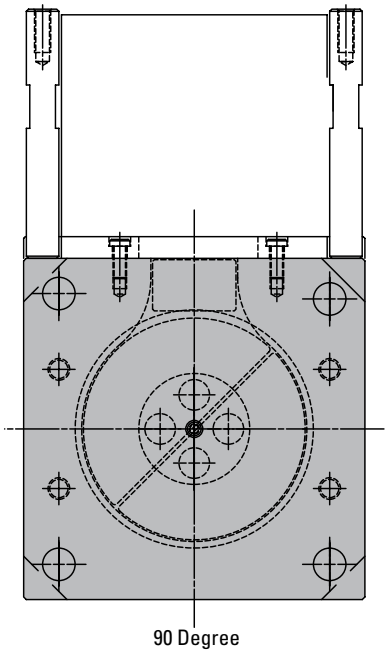
Stellar 2 and 3 — Round MNA Configurations

4-Drop Ø40mm

Mold Base Size 7 7/8" x 7 7/8"



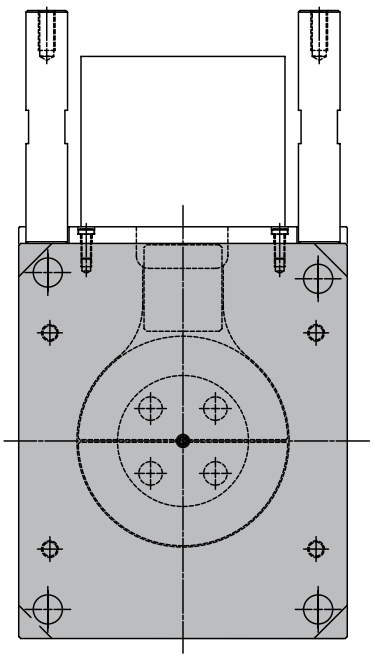
45 Degree



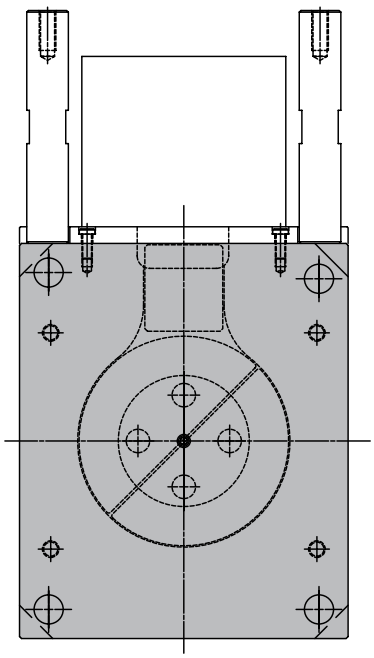
90 Degree

4-Drop Ø70mm

Mold Base Size 9 7/8" x 11 7/8"



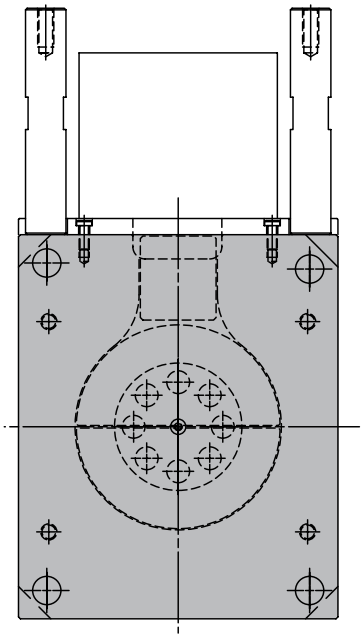
45 Degree



90 Degree

8-Drop Ø70mm

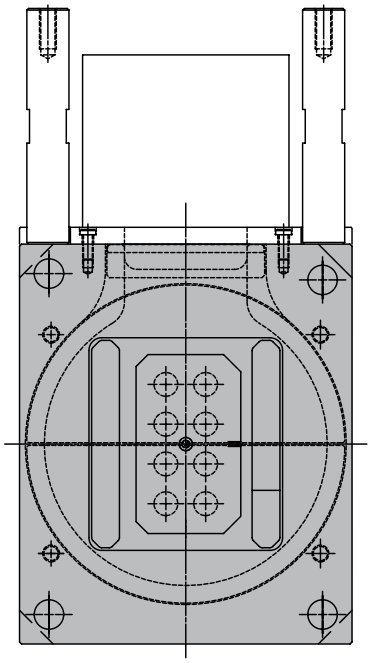
Mold Base Size 9 7/8" x 11 7/8"



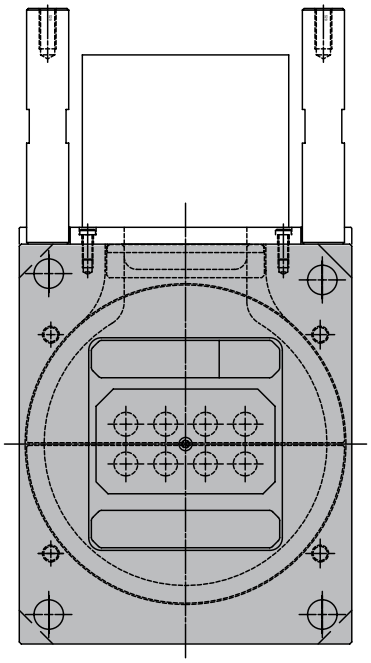
Stellar 2 and 3 — Rectangle MNA Configurations

8-Drop 30mm Pitch

Mold Base Size 9⅞" x 11⅞"



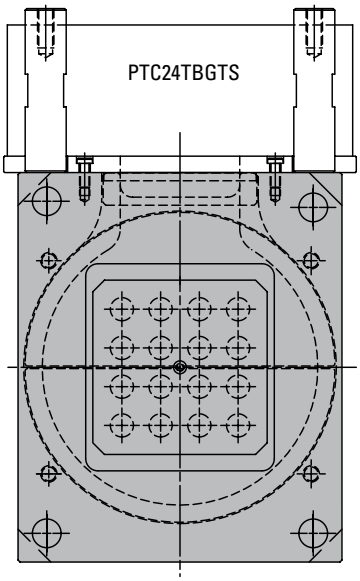
Vertical



Horizontal

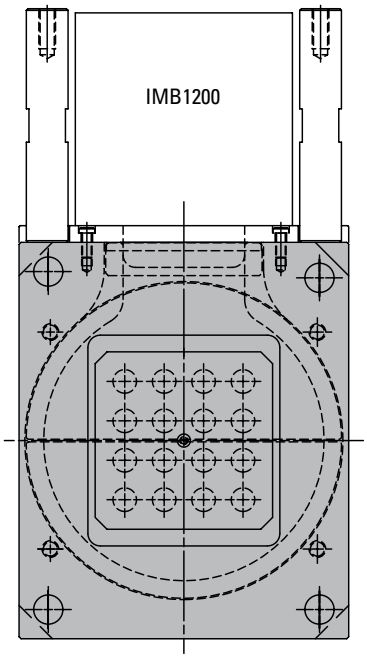
16-Drop 30mm Pitch

Mold Base Size 9⅞" x 11⅞"



Version 1

Smart Series® Cables and Connectors
Separate power and
thermocouple connectors



Version 2

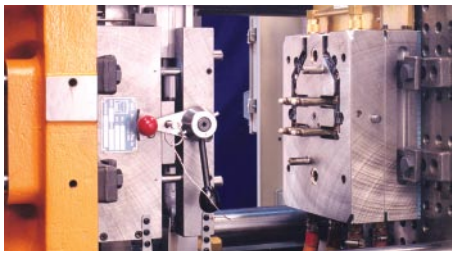
Integrity™ Cables and Connectors
Combination power and
thermocouple connectors

Hot Runner-Infused Quick-Change™ Systems

Increase Productivity and Reduce Molding Costs With Hot Runner-Infused Quick-Change Systems

Now the production efficiencies of hot runner molding can be further enhanced when combined with a Master Unit Die (MUD) Quick-Change Frame. An unlimited number of different parts can be produced with this industry-leading combination of hot runners within a quick-change system because only the MUD Companion Insert Mold is swapped out. The MUD Frame/Hot Runner System remains in the mold.

Combining D-M-E Hot Runners with MUD Quick-Change Systems provides many advantages to virtually any injection molding operation, including:

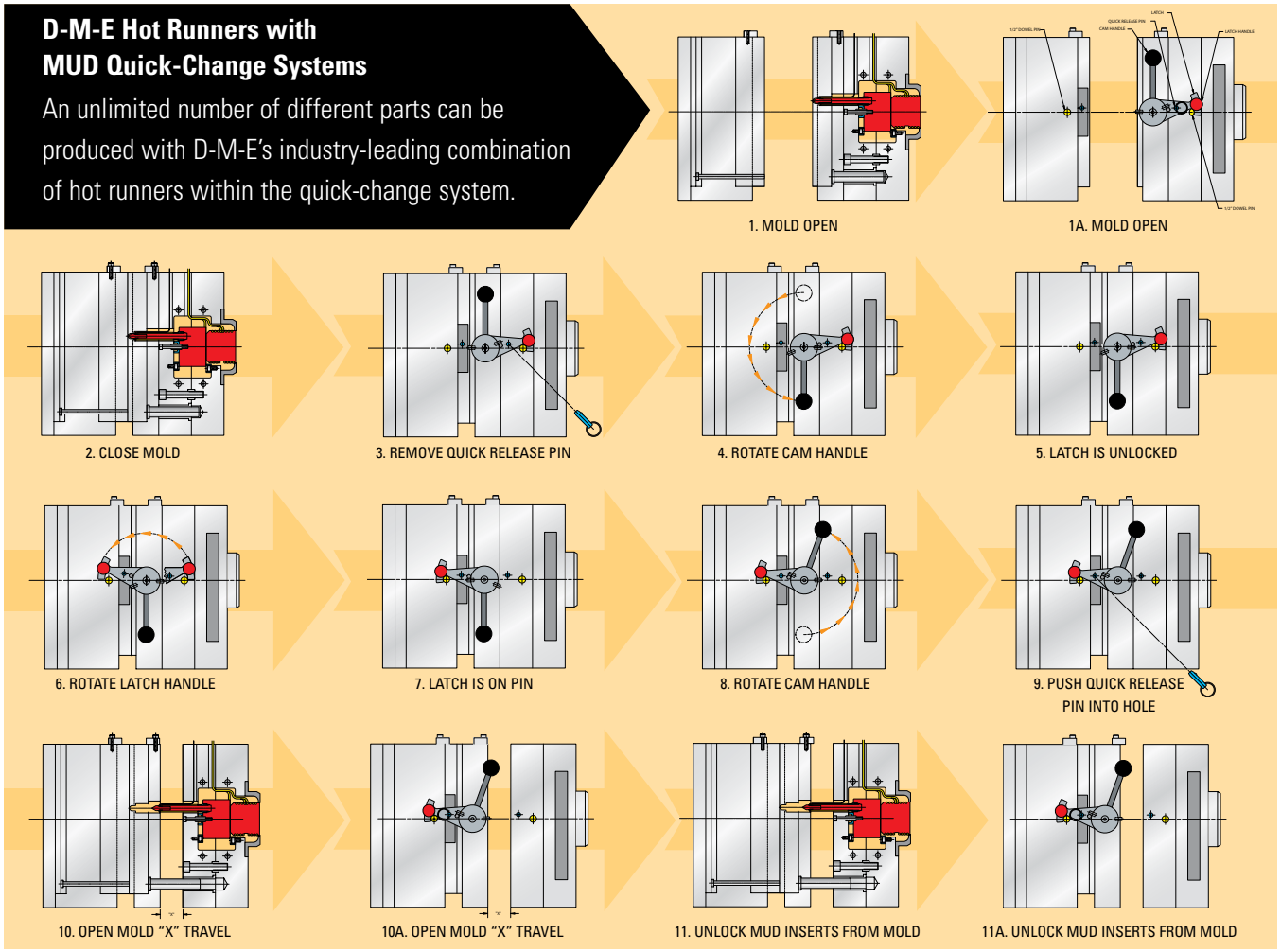


- Enables molders to use the same D-M-E Hot Runner System with many different cavity and core configurations with MUD Companion Insert Molds
- Quickens production changeovers, often in as little as five minutes
- Provides cost justification for the Hot Runner System and/or the MUD Quick-Change System for multiple tooling projects
- Simplifies design with the use of the MUD Quick-Change Latch Handle

Contact your D-M-E representative or call us today to find out more about how the combination of a D-M-E Hot Runner System and the MUD Quick-Change System will not only substantially increase your production efficiency but significantly reduce your molding costs. Many companies incorporate the D-M-E hot runner/quick-change combo into their Lean initiatives.

D-M-E Hot Runners with MUD Quick-Change Systems

An unlimited number of different parts can be produced with D-M-E's industry-leading combination of hot runners within the quick-change system.



Galaxy

Hot Runner Systems

COST-EFFECTIVE SOLUTIONS

FOR HIGH CAVITATION

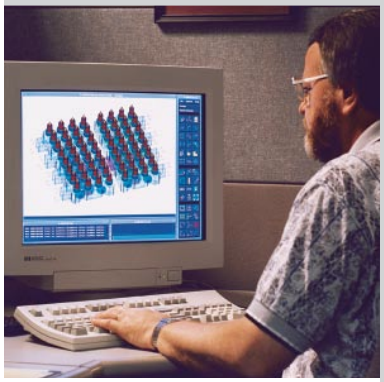
Galaxy Hot Runner Systems

Index

Features and Benefits

Galaxy Hot Runner Systems are backed by:

- The best service in the industry
- Global technical support
- Rapid manufacturing capabilities
- Value-added applications engineering
- Your satisfaction guaranteed



Each Galaxy Hot Half System is fully assembled and tested prior to shipment to optimize performance.

Performance and reliability for high cavitation molding

D-M-E, the leader in mold technologies, introduces a hot runner solution tailor-made for high cavitation molding — the Galaxy™ Hot Runner System.

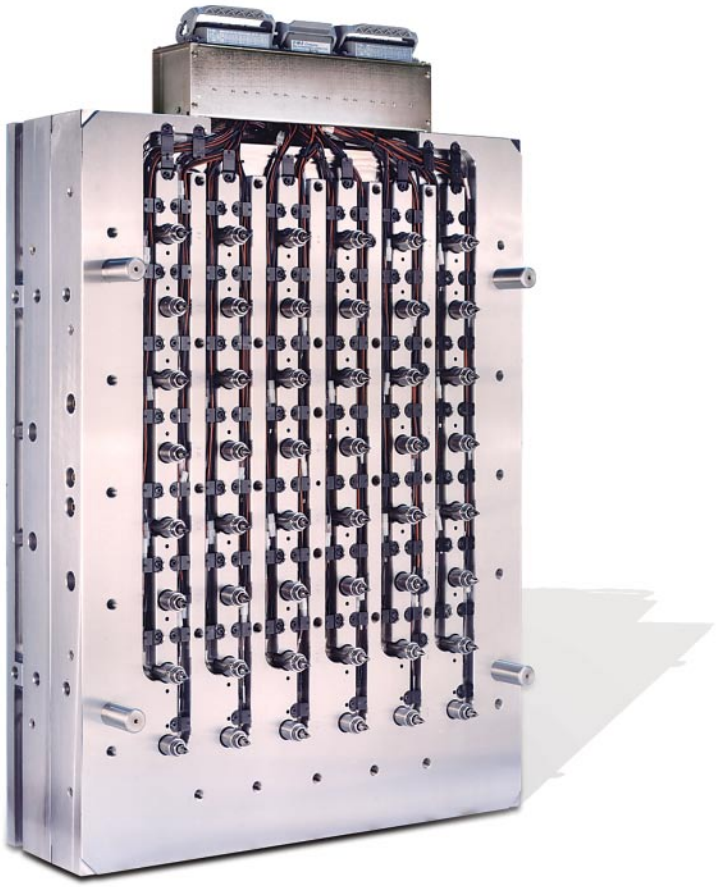
By applying over 30 years of D-M-E hot runner system expertise, Galaxy systems address the performance, reliability and serviceability demands of today's molder. Perfect for a wide range of applications — including caps and closures, cosmetic packaging, cutlery and small medical, electronic and automotive parts.

Engineered for your application

Our Applications Engineering Team carefully reviews the requirements of each project and then designs a Galaxy Hot Runner System — using the most advanced engineering tools available — to optimize molding performance.

All from a partner you can count on — D-M-E

For seven decades, D-M-E has been giving injection molders a competitive edge. Nobody beats D-M-E for quality products, quality service and quick delivery.



Features and Benefits

Tested for optimum reliability

D-M-E utilizes its fully equipped testing laboratory to ensure maximum reliability for your application. Each Galaxy Hot Half System is fully assembled and tested prior to shipment to optimize performance in multi-cavity applications.

High quality

D-M-E uses only the highest quality materials to ensure the best performance and long-lasting durability.

Fast, easy serviceability

When you're running thousands of parts per hour, uptime is a critical part of the productivity equation. Galaxy systems are designed to maximize production and shorten set-up and service time.

All nozzle tips, heaters and thermocouples are front loaded and easily replaced right in the machine. Heater and thermocouple leads are routed to a connector adjacent to the nozzle body to simplify access.

Modular nozzles deliver flexibility

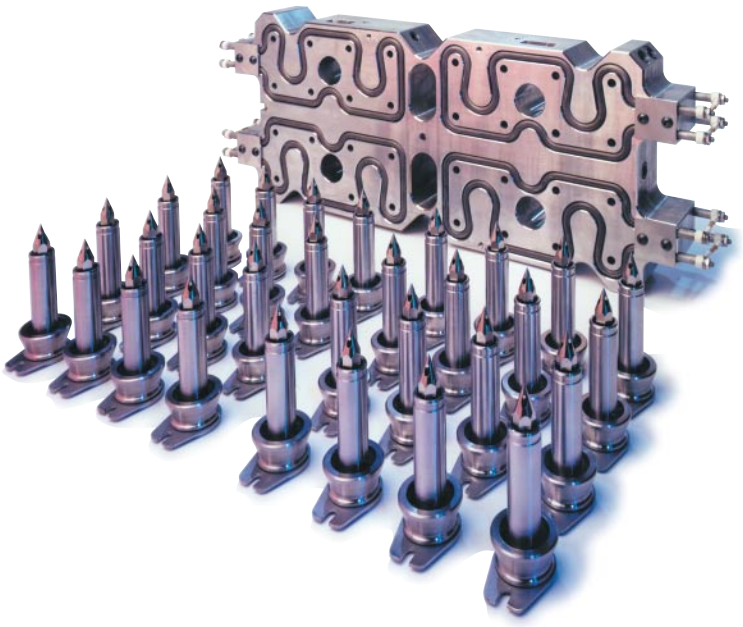
Galaxy nozzles offer a choice of tips including standard, wear-resistant and thru-hole styles. All tips are easily replaceable, using a standard wrench, right in the machine.

Minimal gate vestige

Galaxy nozzles feature a refined tip design that is manufactured from highly conductive material which transfers precise heat to the gate area — for minimal gate vestige and excellent gate cosmetics.

High performance

Galaxy is designed for high cavity applications, without performance compromises. Close center-to-center dimensions deliver more parts per cycle. Short end plugs reduce system mass for predictable thermal performance. And, our mini-tubular nozzle heaters enable uniform, controlled heating for optimum melt temperature in a compact form factor.



All tips are easily replaceable, using a standard wrench, right in the machine.

Features and Benefits

CUSTOMER DESIGN CRITERIA FORMS

CDC

To provide your Galaxy™ application specifications, visit www.dme.net/cdc

Galaxy Hot Runner Systems: performance, reliability, service

Whether you're a moldmaker, a molder, an OEM, or a mold designer, D-M-E Galaxy Hot Runner Systems deliver performance, reliability and serviceability to improve your productivity.

Custom manifolds are engineered for evenly distributed heat and balanced flow — optimizing pressure drop, shear rate and residence time.

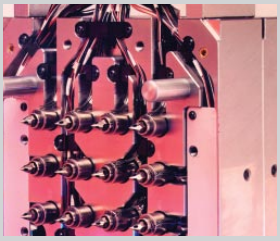
Modular nozzles enable a wide range of nozzle lengths to suit a variety of mold stack heights.

Nozzle tips are designed for fast cycle times, quick color changes and low gate vestiges.



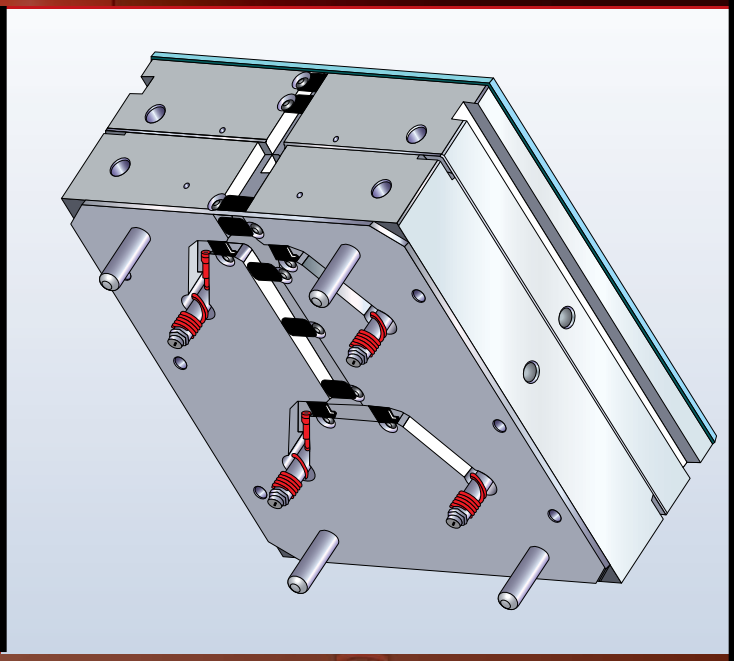


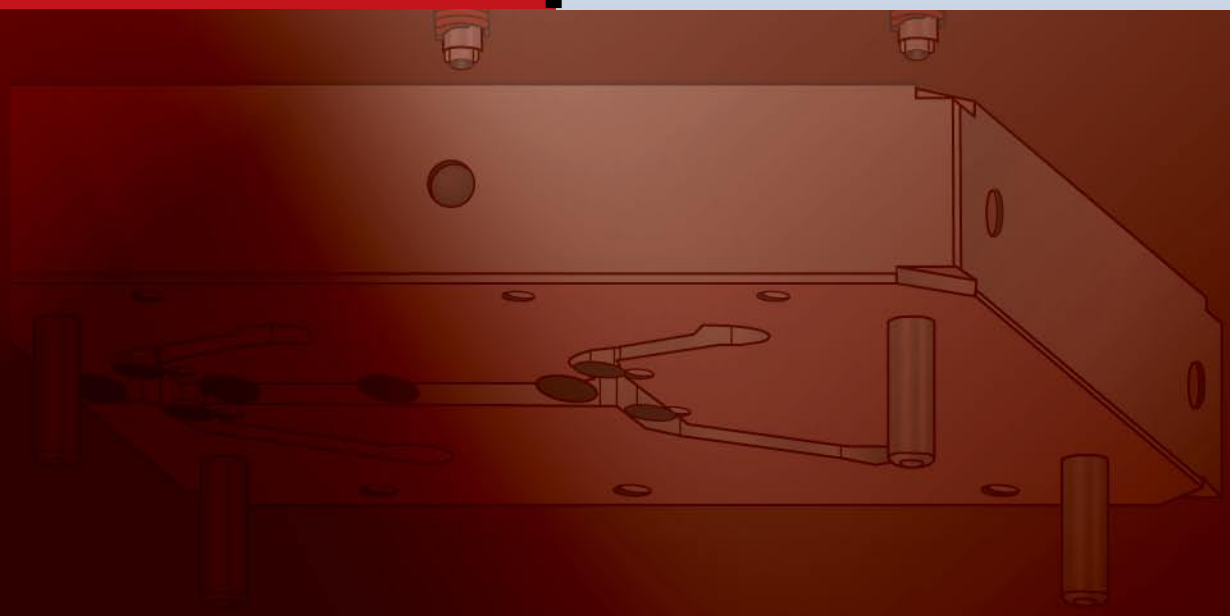




D-M-E Hot One Hot Runner Technology

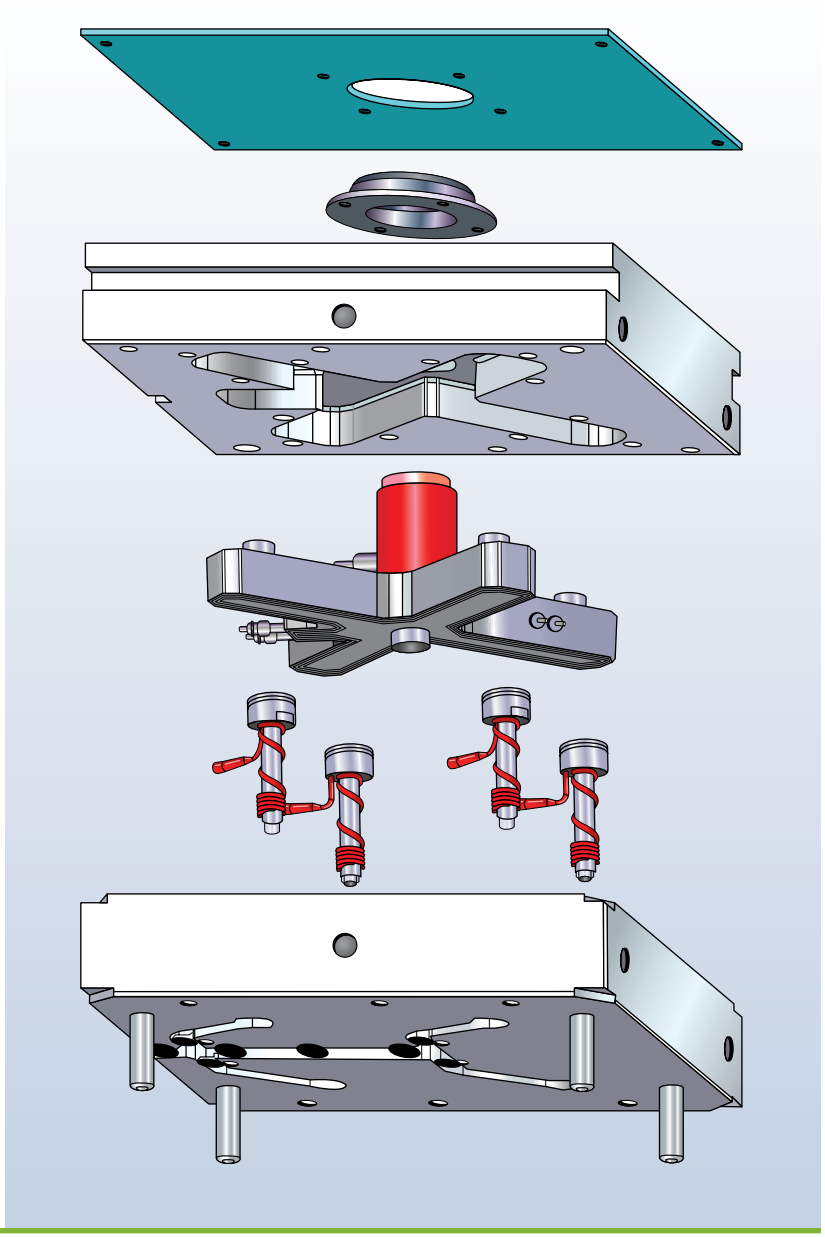
A LONG-STANDING
INDUSTRY STANDARD
IN USER-FRIENDLINESS
AND AFFORDABILITY





Features and Benefits

Our ongoing customer-driven philosophy has fostered many new and innovative systems and components, allowing you to take advantage of more than seven decades of leadership in injection molding technology. The D-M-E Hot One has become an industry standard in technology, user-friendliness, and affordability. Available in two styles — Tubular and Cartridge Heated — The Hot One is also available as a complete Hot Half System.



Tubular Heated Systems

Using exclusive, distributed wattage Tubular Heaters, the D-M-E Hot One System can process many engineering grade resins. Tubular Heaters reduce the number of zones of heat required, providing the added benefit of lowering your temperature control costs.

Cartridge Heated Systems

If the application would be better served using Cartridge Heaters, D-M-E has the resources to accomplish the task. Cartridge Heaters have been used in hot runner systems for years and still offer some clear advantages... they are available off-the-shelf and are supplied in many different lengths, diameters and wattages.

CUSTOMER DESIGN CRITERIA FORMS

CDC

To provide your Hot One® application specifications, visit www.dme.net/cdc

The D-M-E Hot One, a long-standing industry standard in technology, user-friendliness and affordability, is available in two styles — Tubular and Cartridge Heated — and as a complete Hot Half System.

Nozzles and Tips

"EHA"&"CIA" NOZZLES

GATE-MATE NOZZLES

Nozzles

The D-M-E Hot-One is accompanied by a nozzle offering that allows versatility in system selection to best suit the material and molded part configuration. D-M-E offers three different styles of nozzles: The "EHA" series, using square coil heaters; The "CIA" High Performance series, using cast-in heaters; and the Gate-Mate™. Each nozzle series has its own characteristics and advantages.

For example, the "EHA" series of nozzles can be used for many applications using commodity resins with low crystallinity. The "CIA" series, with cast-in heaters developed exclusively for D-M-E, can be used for all applications, especially engineering grade resins with a high degree of crystallinity. The Gate-Mate series is commonly applied to applications using commodity grade resins and close center-to-center dimensions.

Nozzle Tips

As applications in the plastics industry have become increasingly complex and more demanding, D-M-E engineers have risen to the task to provide tip technology to suit a variety of applications. A variety of interchangeable tip styles are available for both the "EHA"/"CIA" series and the Gate-Mate series nozzles.

Gate-Mate Tips, L to R: Standard, Wear Resistant, Super Sharp, Thru Hole, No Hole

Gate-Mate Tips

- *Standard and Wear Resistant* – Used in applications calling for low vestige. Its unique design provides for good gate cosmetics and fast cycle times. The wear resistant version is suited for abrasive or filled materials.
- *Super Sharp* – Used for the same applications as the Standard Tip, it offers better annular flow and optimum gate cosmetics.
- *Thru Hole* – Used in applications with longer flow lengths and more viscous resins.
- *No Hole* – Where the orifice details of other tips is not suitable, this tip allows for machining of a customized orifice to suit your application.

EHA"/"CIA" Tips

- *Sprue Gate/Extended Sprue Gate* – Used primarily in applications where gate vestige is not a concern. Offers minimal flow resistance and handles most resins very effectively. Extended style provides additional stock for machining of runner profiles or part contours.

- *Point Gate* – Used for applications needing optimum gate cosmetics, this tip can run a wide range of resins. It has two interchangeable needles, standard and wear resistant. The wear resistant needle is especially useful for abrasive or filled material applications.

- *Ring Gate* – Used for low vestige, commodity grade resin applications. The Ring Gate features a sealed tip for efficient shut-off at the parting line.

Ordering Options: Use this information and our design and machining guidelines to build your system, or take advantage of D-M-E Applications Engineering services to help you select the system best suited to your requirements. Then, either order the steel and components to construct your system or let D-M-E do all of the machining, assembly and wiring for you.

Hot Runner Quote Request Form

Fax your completed Hot Runner Quote Request Form to 248-544-5707 or call to discuss your application with D-M-E.

Date:	Account #
Bill to:	Ship to:
Contact name (First & Last):	
Phone #	Fax #
Extension	Email

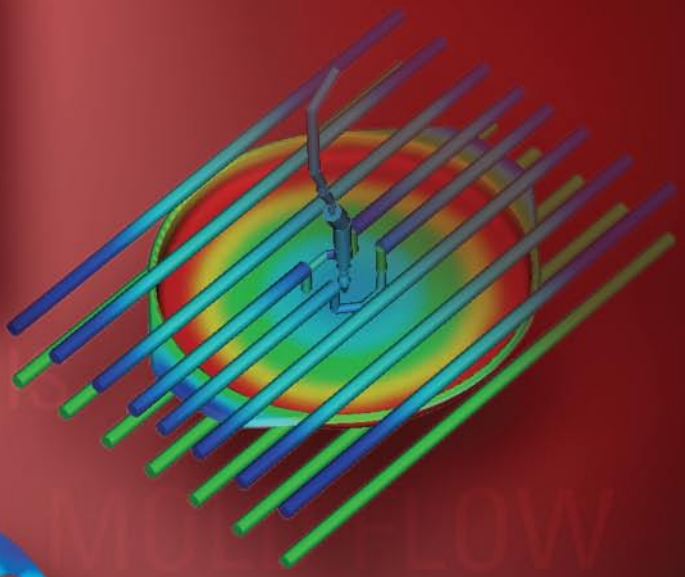
Please provide the following information:

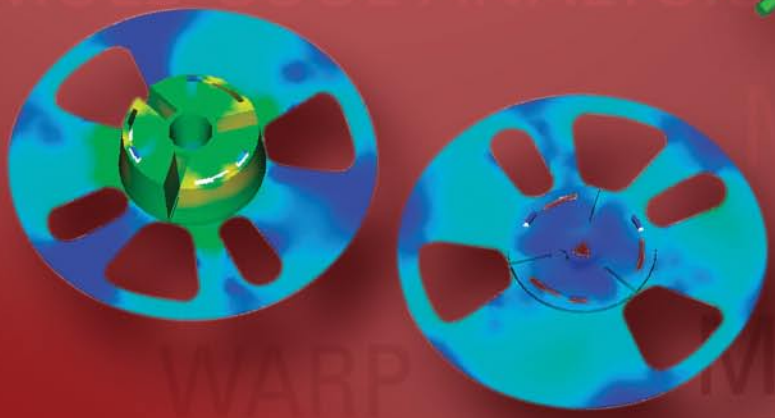
What is the material?	
Are there any fillers?	
Does it require a color change?	
How many cavities/drops?	
What type of gate is needed?	
Is balance needed?	
What is the part weight?	
What is the wall thickness?	
How far does the nozzle extend into the "A" plate?	
What is the mold base size?	
Is there anything special we should be aware of?	

D-M-E Hot Runner Services

HOT RUNNER
SERVICE CENTER

Total support for your hot runner systems





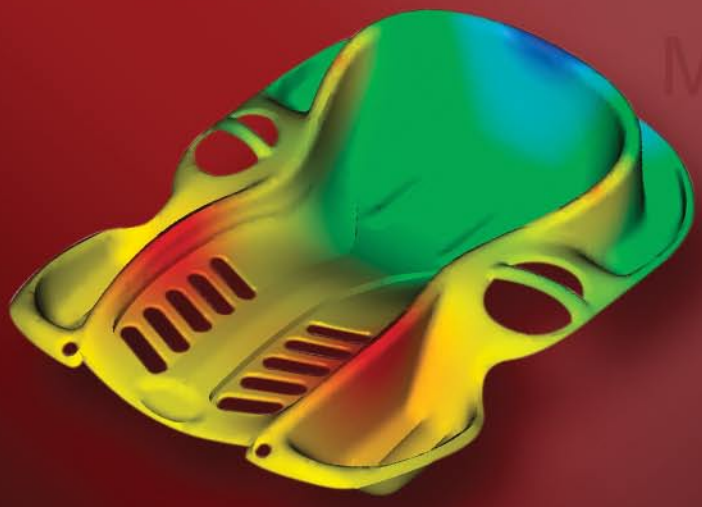
MOLD COOL ANALYSIS

MOLD FLOW
SERVICES

WARP
ANALYSIS

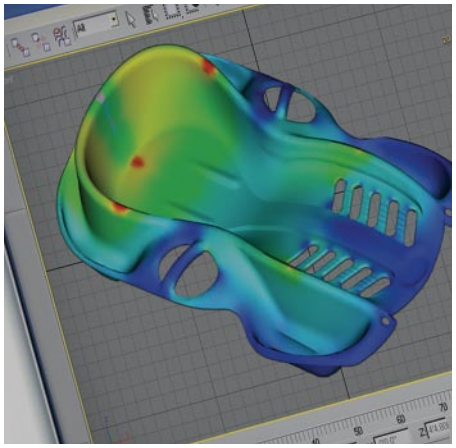
MOLD PACK
ANALYSIS

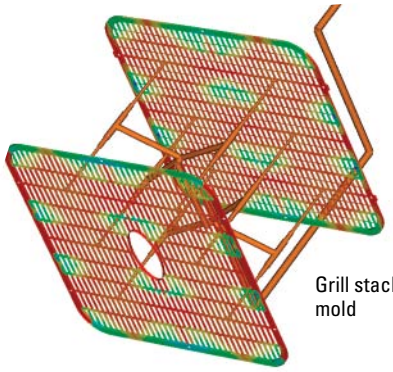
MOLD FILL
ANALYSIS



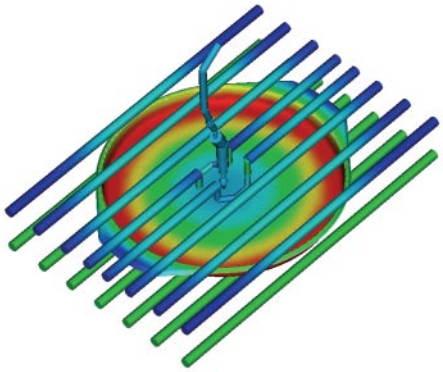
D-M-E
Every step of the way

Moldflow™ Services — Optimize Part and Mold Design





Grill stack mold



Comprehensive Analysis and Modeling

With today's shrinking time-to-market window, development speed is essential. As part of its commitment to the molding industry, D-M-E is now offering Moldflow™ analysis to help optimize part and mold design – especially for hot runner molds. D-M-E is the first mold technologies supplier to earn Moldflow's silver certification in this advanced technology.

A Competitive Advantage

Predictive analysis, utilizing Moldflow software, yields tremendous benefits, including:

- Optimize part design
- Reduce time-to-market
- Save cost and time on mold tryouts
- Lower development and production costs
- Provide a framework to establish reputable processes
- Improve product quality
- Decrease cycle times

What is Moldflow?

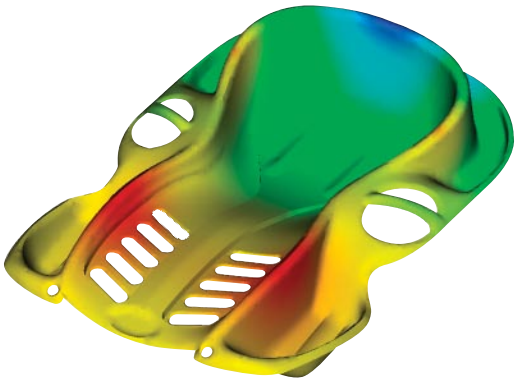
D-M-E uses Moldflow Plastics Insight™ (MPI) software which is an integrated suite of analysis tools that utilize CAD files and apply advanced Finite Element Analysis (FEA) techniques to quickly and easily enable a virtual "what if" design environment before initiating mold construction. MPI provides in-depth part/mold design and process parameter optimization. This is in contrast to Moldflow Plastics Advisor™ (MPA) which is primarily useful for parts with low to medium complexity, conceptual designs, and quick part design validation. D-M-E is a certified, licensed provider of Moldflow analysis services.

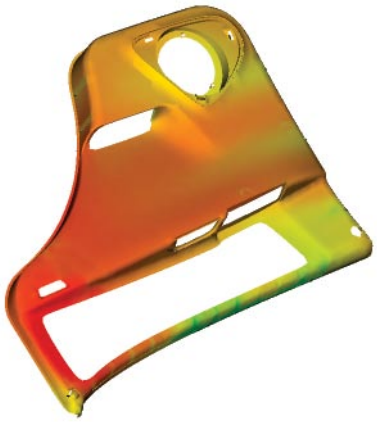
Mold Fill Analysis

The Mold Fill module uses predictive technology to simulate the filling process. Key analyses include:

- Optimize the number, size, and location of gates
- Balance the runner system design
- Reduce material stress levels

Moldflow™ Services — Optimize Part and Mold Design





- Predict weld line locations
- Validate pressure and temperature distribution within the mold
- Optimize processing conditions – including melt temperature, injection rate, and cavity pressure

Mold Pack Analysis

Building on the results of a Mold Fill analysis, the Mold Pack module optimizes the packing phase to ensure a uniform packing condition. As an indication of part warpage, volumetric shrinkage is evaluated and the pack pressure profile is optimized. The result is minimized warpage with an improved surface appearance.

Mold Cool Analysis

The Cool Analysis module assesses an existing cooling layout to determine potential molding problems. Steel types, cooling channel sizes, bubblers, baffles, coolant temperatures, and flow rates are all evaluated. Using this analysis, the Mold Cool module recommends practical tooling design changes to ensure uniform cooling. Mold Cool takes into account:

- Number, location, depth, and pitch of cooling channels
- Steel types
- Cooling circuit layouts
- Coolant temperatures and flow rates
- Cycle times

Warp Analysis

Using the results from the Fill and Cool analyses, the Warp Analysis module enables prediction of plastic part shrinkage and warpage. Warp Analysis diagnoses the cause(s) of warping and recommends the appropriate solution, such as gate location changes, design parameter changes, and reduction of wall thickness variations.

MPI 3D

MPI 3D addresses a class of problems previously unsolvable using traditional finite element analysis techniques. In thick-walled parts, molten plastic can flow in all directions. Using a proven methodology based on a solid tetrahedral, finite element volume mesh, MPI 3D enables true, three-dimensional simulations on thick-walled parts.

Where Do I Start?

Contact your D-M-E representative for more information regarding MoldFlow Services. The D-M-E Applications Engineering Department is available to provide a customized MoldFlow analysis and assist you in maximizing the results of your next application.

D-M-E Hot Runner Service Center – Ensuring the Productivity of every Hot Runner System

Full-Service Hot Runner Support

Mold technology leader D-M-E – known for our innovative family of hot runner systems including Galaxy, Meteor, and Stellar – now also provides total support for your hot runner systems. Whether it's a D-M-E system or not, we can repair, reconfigure – even totally rebuild it to help ensure maximum uptime and performance of your system.

A Dedicated Center for Hot Runner Systems

Our new Hot Runner Service Center, located in Madison Heights, Michigan, is exclusively dedicated to supporting your hot runner systems. Staffed by a team whose sole focus is hot runner systems, we're quickly able to get your system operating at maximum efficiency. This group has over three decades of experience installing, assembling, and repairing hot runner systems. And, because we're centrally located, we can get your system back in your shop quickly and cost-effectively. If appropriate, we can also perform many basic operations in one of our D-M-E regional centers – further speeding turnaround.

A Wide Range of Services

D-M-E recognizes the value of your time – that's why we've developed a comprehensive suite of hot runner services to provide a single source for maintenance and optimization of your system. Key services include:

- Repairs – including expedited service
- System cleaning – including complete bake-out
- Total system rebuild
- Re-configuration
- Operator training
- Mold tryouts

Repairs Get You Back Up Quickly

Time is money. When a critical tool is out of commission, productivity is lost and production schedules can be threatened. We understand this at D-M-E. That's why our team of hot runner repair specialists are always available to get you back in service.

Whether you're experiencing leaks, heating issues, flow problems, or would simply like a system bake-out, we'll repair your system quickly and cost-effectively.

Standard turnaround for repairs on systems from 1-12 drops (depending on parts availability for non-D-M-E systems) is 5 working days or less. If your system has over 12 drops, contact us for an estimated turnaround time. And, we offer emergency 24-hour turnaround service.

D-M-E Hot Runner Service Center – Ensuring the Productivity of every Hot Runner System

Rebuilds Ensure Performance

After tens of thousands of cycles you may have noticed your system just doesn't perform the way it used to. Or maybe you've run high-temperature engineered materials and the tolerances just aren't as tight. Key benefits of system rebuilds include:

- Cost savings of at least 40% as compared to new systems
- Extended life for your tool
- Maximizing system uptime and performance
- Improved finished part quality

Whether you need a total system rebuild, or a simple cleaning and inspection D-M-E can help. System rebuilds can be performed on any brand of hot runner system and typically include:

- Complete bake-out cleaning
- Check and replace heaters and thermocouples
- Inspect and correct wiring
- Replace seals and bushings
- Clean or replace nozzle components
- Check all dimensions and re-assemble system

Cost-Effective Reconfiguration

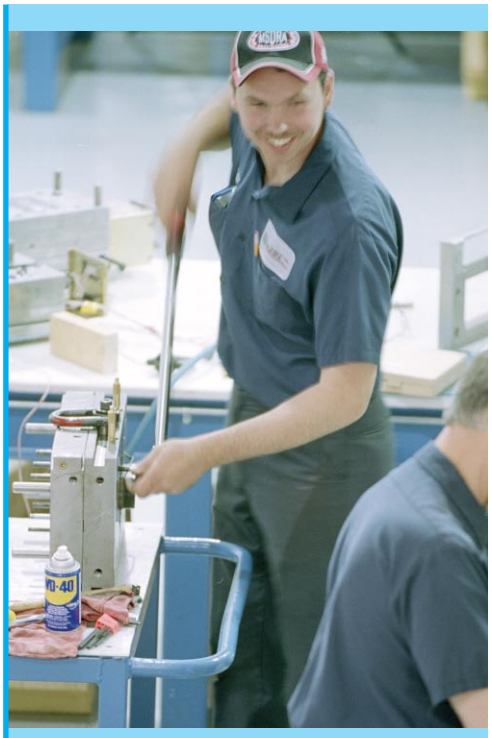
When your process needs change, without a significant tooling change, we can adapt your hot runner to the new process. Whether it's a material switch, or a part design change, D-M-E can help reconfigure your existing system.

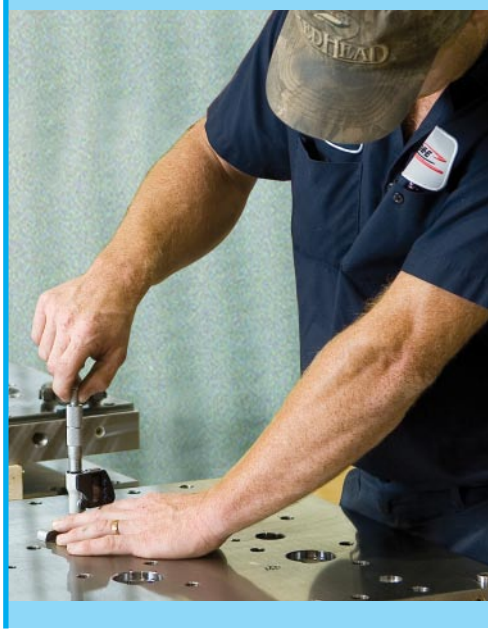
Training Maximizes Productivity, Speeds Set-Up

The D-M-E Hot Runner Service Center can provide comprehensive operator training in start-up or prototyping. Our hands-on programs help your operators get up-to-speed, or stay current on hot runner technology.

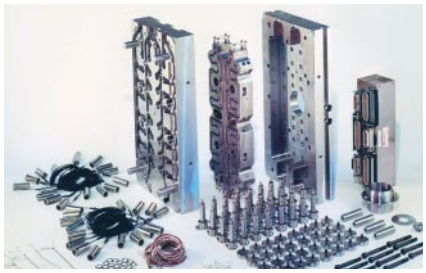
Mold Tryouts

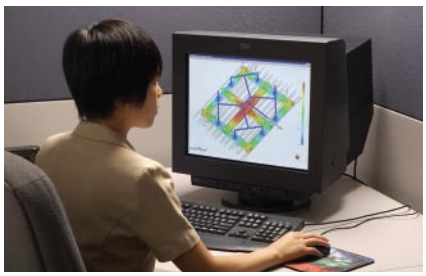
We also offer mold tryouts at the Hot Runner Service Center. Injection molding machines from 110 to 1,000 tons are available to run your mold and ensure proper performance.





Hot Runner Services Overview





Unrivaled Support When and Where You Need It

Since the 1970s, D-M-E has developed and marketed a full spectrum of hot runner systems and components. From Moldflow analysis to turnkey hot half systems and everything in between, the D-M-E family of hot runner products and services offers a comprehensive array of solutions for a wide range of applications. Whether your need is for standard, off-the-shelf components, customer engineered manifolds, or fully assembled systems ready for bolt-on installation, D-M-E has a proven solution to match your application.

Moldflow Services

As the first mold technologies supplier to earn Moldflow's silver certification, D-M-E is highly adept at applying Finite Element Analysis (FEA) techniques to help optimize part and mold design. Whether you need Mold Fill, Mold Pack, Mold Cool or Warp analyses, D-M-E can assist you in maximizing the results of your next application.

Applications Engineering and Technical Service

Our dedicated and experienced team of mold designers and applications engineers assists D-M-E customers with product selection, system design, performance analysis and technical advice. D-M-E technical service representatives are globally located for complete coverage and quick availability no matter where your hot runner production takes place. Technical experts employed worldwide are available for start-ups, personnel training or system service.

Research and Development Expertise

The D-M-E Technology Center features a development lab that tests hot runner systems, manifolds and modular components within a real-world environment to validate that your D-M-E hot runner system performs efficiently at peak performance levels.

Comprehensive Hot Runner Service

Staffed by a team whose sole focus is hot runner systems, the D-M-E Hot Runner Service Center offers a single source for hot runner system optimization and maintenance. Our services include expedited repairs, system cleaning, system rebuilds, re-configuration and mold tryouts for virtually any type of hot runner system.

D-M-E Standard Hot Runner Systems

Solutions for a wide range of applications

D-M-E

Every step of the way

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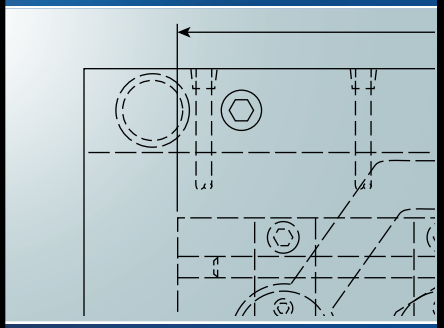
Enabling versatility in systems selection



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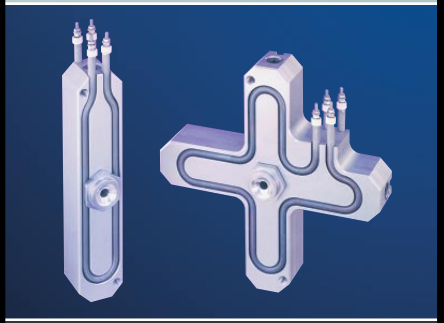

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Custom-configured manifolds, manifold and component systems, and complete hot half assemblies for quick delivery

Online Price Guide
Go to www.dme.net/prices for the latest pricing guide.

D-M-E Stellar MNA Systems

QUICK REFERENCE GUIDE
FOR MULTI-NOZZLE ASSEMBLY
DESIGN OPTIONS

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Gating Style Selection and Nozzle Selection

The D-M-E Stellar Multi-Nozzle-Assembly Quick Reference Guide is intended to provide options for gating, nozzle selection, and layout. For detailed information, including item numbers, please refer to the Stellar Round or Rectangular MNA Assembly Guides.

Table 1 Gating Style Item Numbers

	ITEM NO.	DESCRIPTION
SUB-ASSEMBLY CONSISTS OF THESE ITEMS	SXG4010	POINT GATE TIP SUB-ASSEMBLY
	SXT4010	POINT GATE TIP
	SXF4000	POINT GATE RETAINER
	SXT1040	SPRUE GATE TIP

Fig. 1 Point Gate Tip Sub-assembly

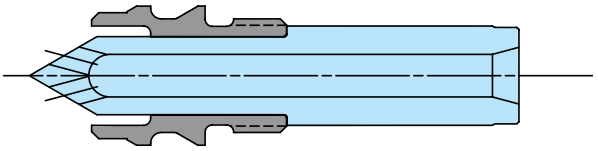


Fig. 2 Retainer

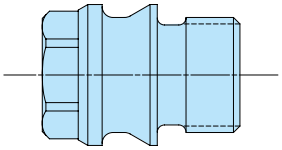
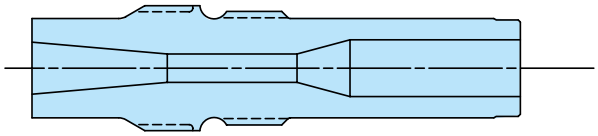


Fig. 3 Sprue Gate Tip



Nozzle Selection

Fig. 4

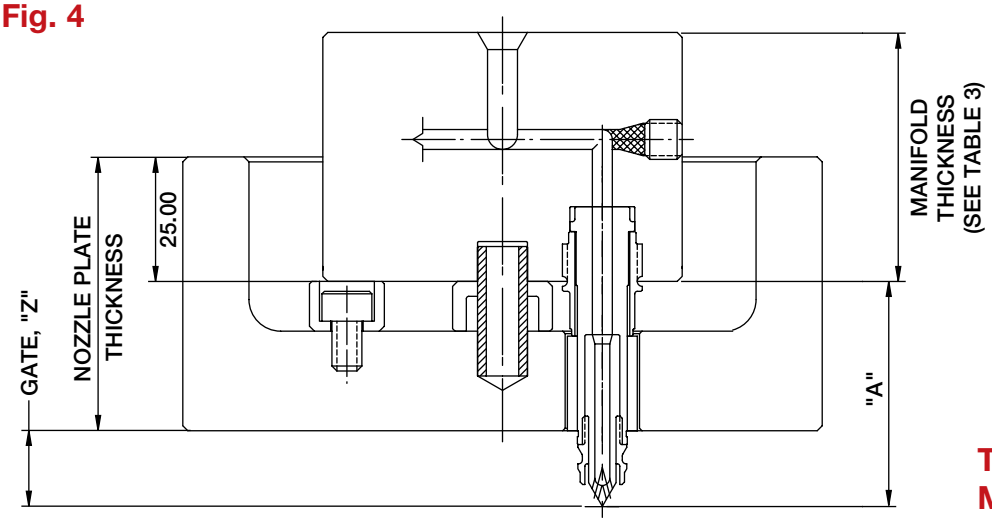


Table 2 "A" Dimensions for Gating Styles

POINT GATE "A"	SPRUE GATE "A"
65.10	65.10
85.10	85.10
105.10	105.10

Table 3 Manifold Thickness

CONFIGURATION	MANIFOLD THICKNESS
ALL 2 DROPS, 4 (17x21) AND 4 (30)	40.00
6 DROP	45.00
4(30) INLINE, 8, 12 AND 16 DROP	50.00
ALL ROUND MNAs	50.00

NOTES:

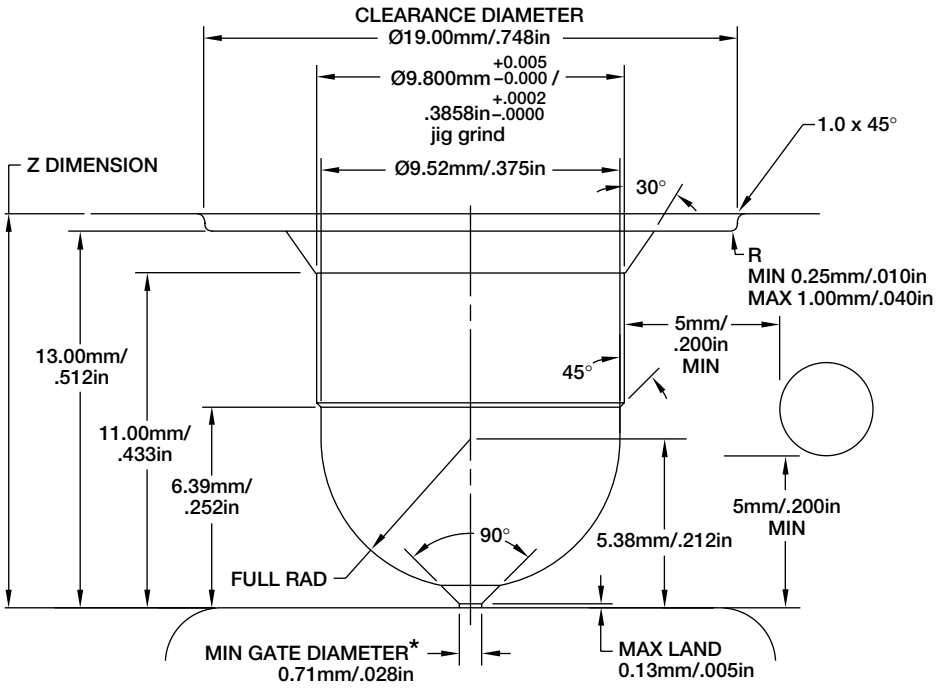
1. All units are in mm.
2. The minimum "Z" dimension is 13.00 for the point gate and sprue gate. The maximum "Z" dimension is 75.00 for the point gate and sprue gate.

Gate Details for use with Hardened Steel (50HRC min.)

NOTE: Position gate detail within ±0.013mm/.0005in from nominal.

Fig. 5 Point Gate Tips Standard Gate Detail

If standard gate detail does not properly fit the application, contact D-M-E for assistance about gate detail options.

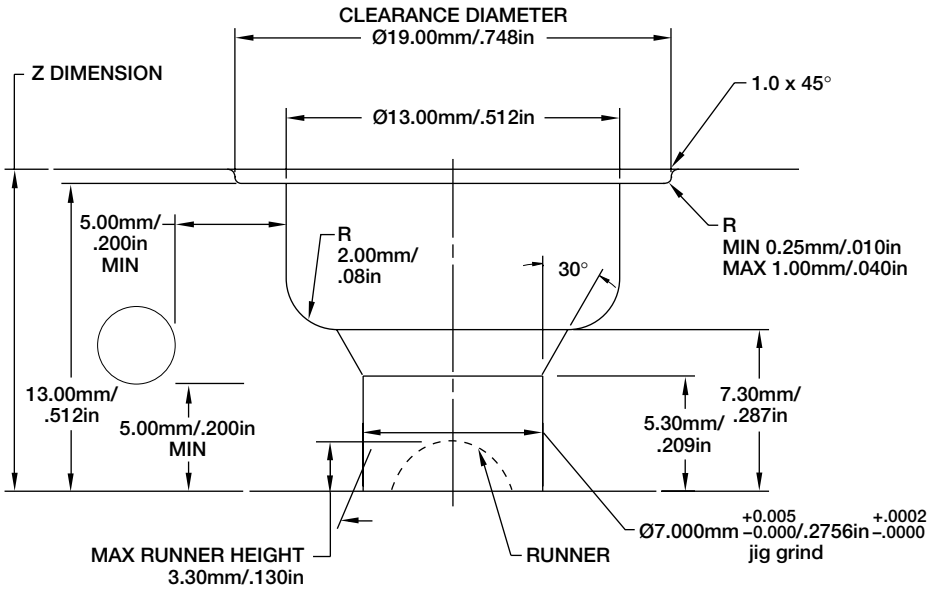


Please note that the gate diameter can be opened by the customer to suit the application. Also, the land must be re-machined to the maximum dimension after increasing the gate diameter.

NOTES:

1. Water lines are required in “A” plate for proper gate cooling.
2. Position water lines as close as possible and maintain minimum distance shown to provide a safe steel condition.

Fig. 6 Sprue Gate Tips Gate Detail



Manifold Options – Round MNAs

NOTE: Position gate detail within ±0.013mm/.0005in from nominal.

Fig. 7

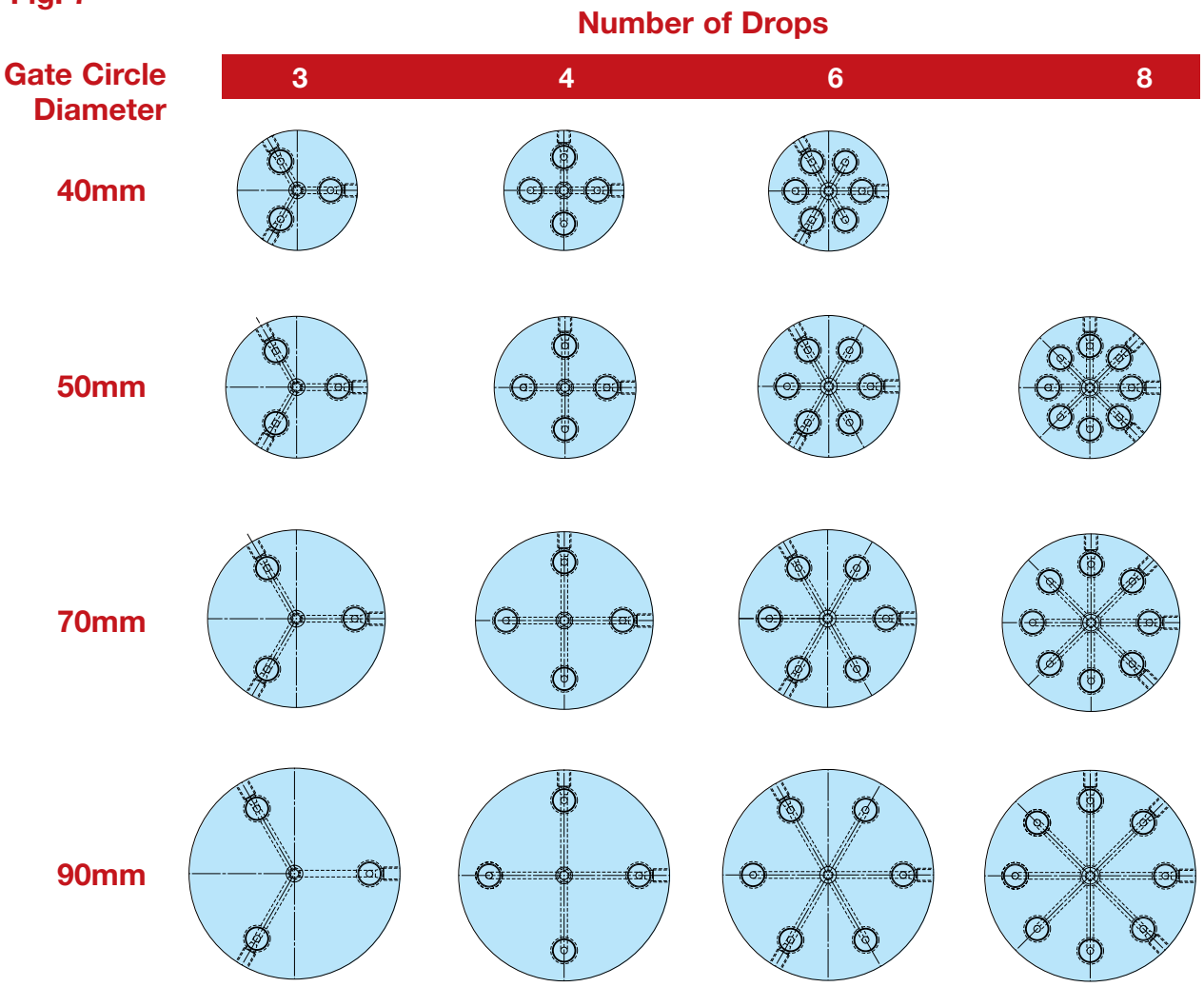


Table 4
Number of Drops for Each Gate Circle Diameter

	Number of Drops			
Gate Circle Diameter (mm)	3	4	6	8
40	✓	✓	✓	—
50	✓	✓	✓	✓
70	✓	✓	✓	✓
90	✓	✓	✓	✓

Table 5
Round MNA Outside Diameters

Description	O.D.
Ø40 3-Drop	Ø72.00 [2.835]
Ø40 4-Drop	
Ø40 6-Drop	
Ø50 3-Drop	Ø85.00 [3.346]
Ø50 4-Drop	
Ø50 6-Drop	
Ø50 8-Drop	

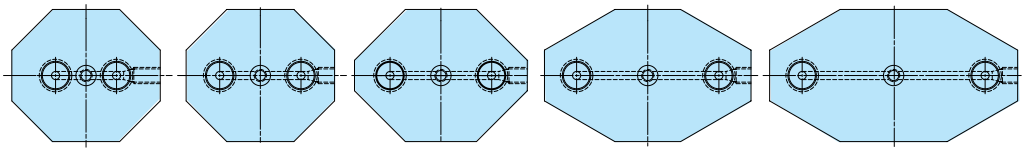
Description	O.D.
Ø70 3-Drop	Ø106.50 [4.193]
Ø70 4-Drop	
Ø70 6-Drop	
Ø70 8-Drop	
Ø90 3-Drop	Ø126.50 [4.980]
Ø90 4-Drop	
Ø90 6-Drop	
Ø90 8-Drop	

Manifold Options – Rectangular MNAs

NOTE: Position gate detail within ±0.013mm/.0005in from nominal.

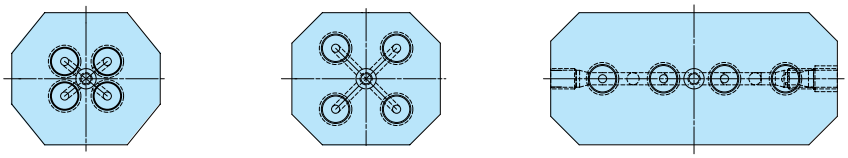
Fig. 8

2 Drop



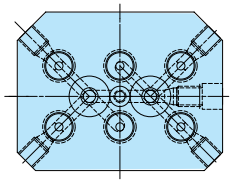
30mm pitch | 40mm pitch | 50mm pitch | 70mm pitch | 90mm pitch

4 Drop



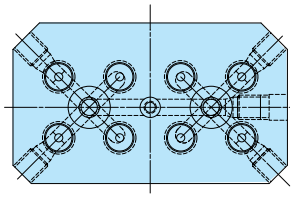
17x21mm pitch | 30x30mm pitch | 30mm pitch

6 Drop



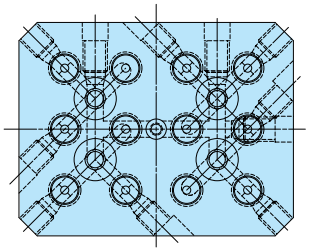
30mm pitch

8 Drop



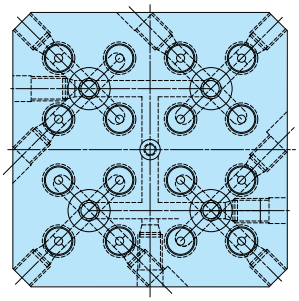
30mm pitch

12 Drop



30mm pitch

16 Drop



30mm pitch

Table 6: Rectangular MNA Dimensions

Description	Dimensions (Length x Width)	
	Millimeters	Inches
2-Drop 30	73.02 x 65.00	2.875 x 2.559
2-Drop 40	83.00 x 65.00	3.268 x 2.559
2-Drop 50	92.00 x 65.00	3.622 x 2.559
2-Drop 70	101.60 x 65.00	4.000 x 2.559
2-Drop 90	122.00 x 65.00	4.803 x 2.559
4-Drop 17x21	79.02 x 65.00	3.111 x 2.559
4-Drop 30x30	73.02 x 65.00	2.875 x 2.559
4-Drop Inline	141.00 x 65.00	5.551 x 2.559
6-Drop 30	101.00 x 78.00	3.976 x 3.071
8-Drop 30	135.00 x 79.00	5.315 x 3.110
12-Drop 30	135.00 x 105.00	5.315 x 4.134
16-Drop 30	135.00 x 135.00	5.315 x 5.315

General Assembly – MNAs
Heated and Unheated MEN Options

Fig. 9
Round Section View

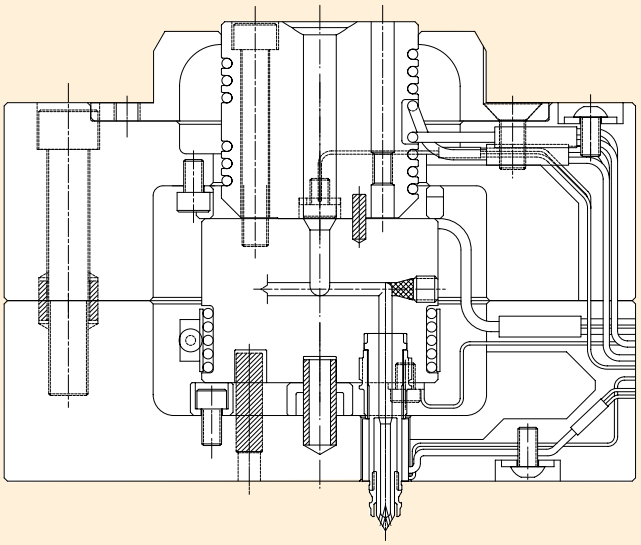


Fig. 10
Rectangular Section View

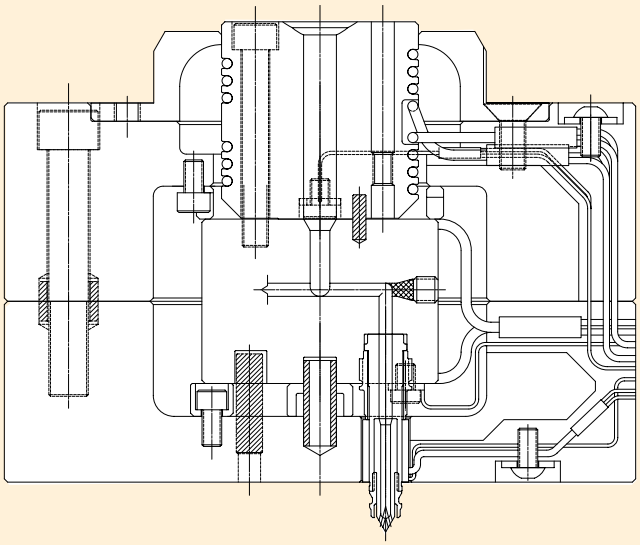


Fig. 11
Heated MEN Design

Preferred for most applications.

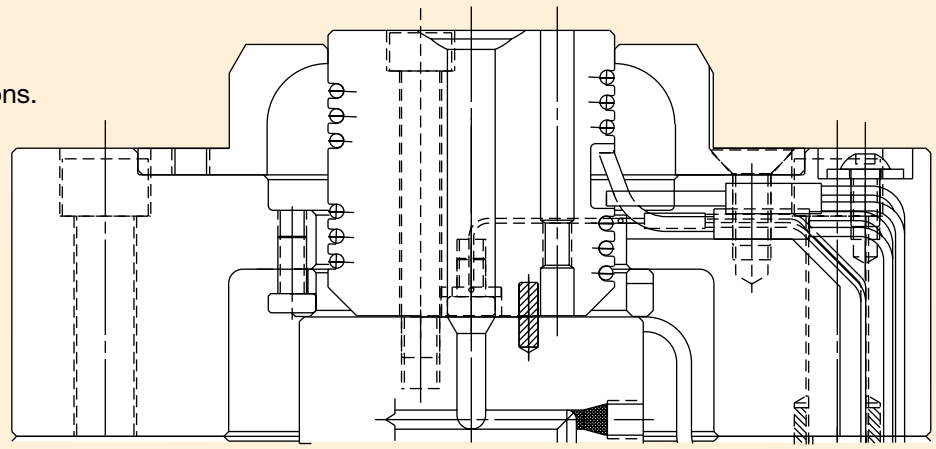
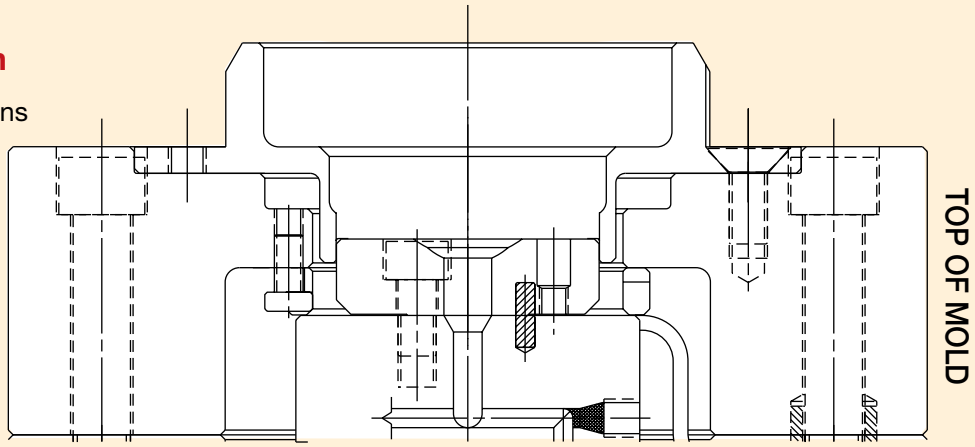


Fig. 12
Unheated MEN Design

For use with commodity resins only, i.e., PE, PP, PS.



Gate-Mate™ Nozzles

COST-EFFECTIVE SOLUTIONS
FOR DIRECT-GATED,
THIN-WALLED PARTS

Table of Contents

Mini Gate-Mate 60
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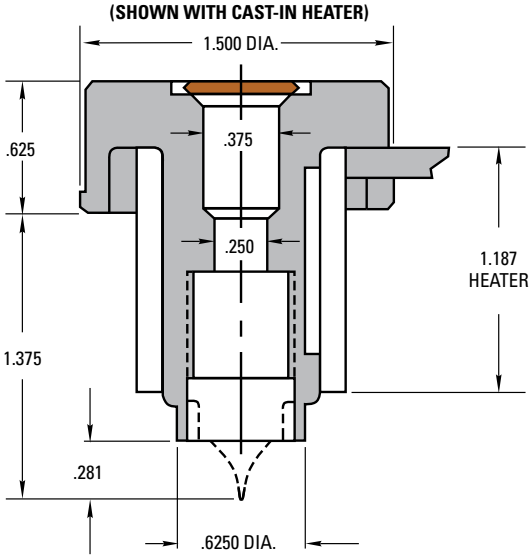
Jumbo Gate-Mate 65
Gate Shell Insulator 66

Mini Gate-Mate™ Nozzles

The Mini Gate-Mate Nozzles are ideal for fast cycling multi-cavity molds. The compact design permits shorter overall stack-up of the "A" side mold plates. The Mini Gate-Mate Nozzles are provided with either a square coil heater or a cast-in heater. Thermocouple placement provides better heater control, and the overall body design improves thermal insulation. Square coil heater, thermocouple and tip are all replaceable.

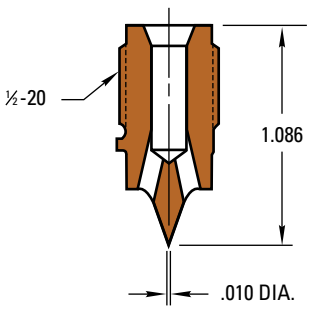
NOZZLE SUB-ASSEMBLIES (SHOWN WITH CAST-IN HEATER)



NOTES:
1. Heaters are 240 VAC, 36" Leads, 34" fiberglass lead protection
2. Cast-in integral thermocouple and TCG style thermocouple are type J
3. TCG style thermocouple has 36" leads, 34" fiberglass lead protection
4. Seal ring (for replacement) is sold in packs of 4 only

NOZZLE SUB-ASSEMBLY (ORDER TIP SEPARATELY)		INCLUDES				
		1	2		3	4
ITEM NUMBER	HEATER TYPE	NOZZLE BODY	HEATER	WATTS	THERMO-COUPLE	SEAL RING
GMB0110	CAST-IN	GMB0105	CIH0100	250	N/A (INTEGRAL)	EHR7155
GMB0118	SQUARE COIL	GMB0105	SCH0004	250	TCG0100	

Mini Gate-Mate™ Tips

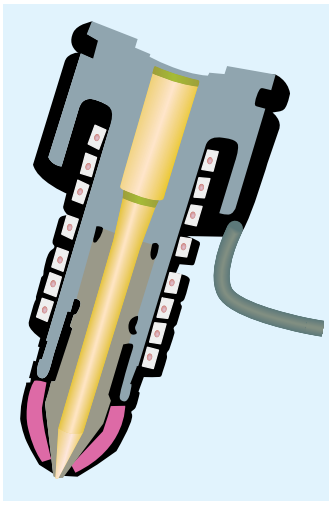


ITEM NUMBER	TIP STYLE
GMT0100	STANDARD
GMT4101	WEAR RESISTANT

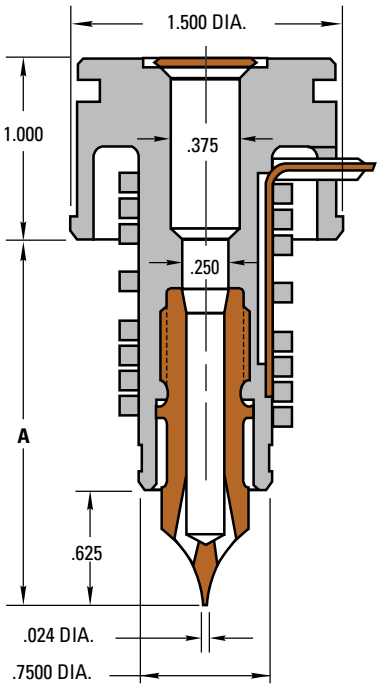
Contact D-M-E for tip recommendations and assistance with your application.

Gate-Mate™ 4 Nozzles

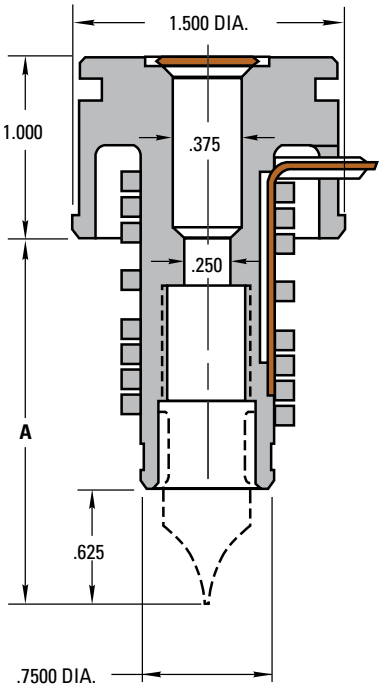
The Gate-Mate 4 Nozzle is ideal for fast-cycling multi-cavity molds and thin-walled parts. Its compact design permits closer centerline distances for use in smaller molds, or increased cavitation in larger molds. Thermocouple placement provides better heater control, and the overall nozzle design gives improved thermal insulation. Heater, thermocouple and tips are all replaceable. The nozzles are available in three versions: A complete assembly with standard tip, a sub-assembly with tip ordered separately and a sub-assembly with front load heater which allows heater replacement to be performed without having to remove the mold from the machine. Front load heaters include integral thermocouples.



NOZZLE ASSEMBLY (INCLUDES GMT-2 TIP)



NOZZLE SUB-ASSEMBLY (TIP ORDERED SEPARATELY)



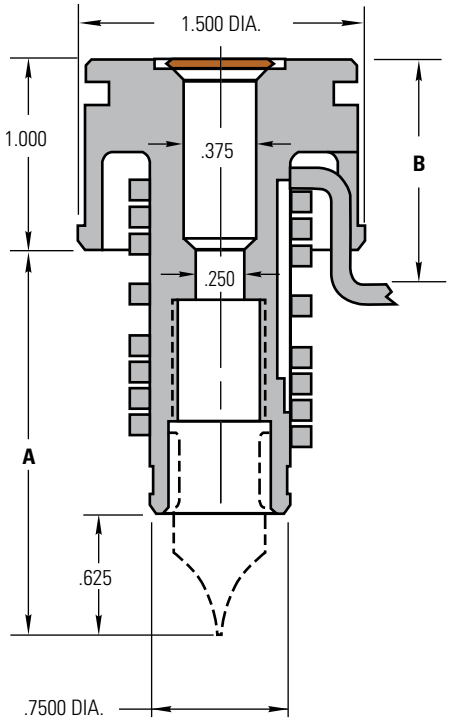
Improved tip insulation, elimination of material degradation in threaded area of tip, and faster color changes can be achieved through use of a Gate Shell Insulator.

A	NOZZLE ASSEMBLY (INCLUDES GMT-2 TIP)	NOZZLE SUB ASSEMBLY (TIP ORDERED SEPARATELY)	INCLUDES				
			1	2		3	4
			NOZZLE BODY	SQUARE COIL HEATER	WATTS	THERMO-COUPLE	SEAL RING
2.000	GMB0050	GMB0150	GMB0060	SCH0060	250	TCG0060	EHR7155
2.500	GMB0051	GMB0151	GMB0061	SCH0061	300	TCG0061	
3.000	GMB0052	GMB0152	GMB0062	SCH0062	350	TCG0062	
3.500	GMB0053	GMB0153	GMB0063	SCH0063	400	TCG0063	
4.000	GMB0054	GMB0154	GMB0064	SCH0064	425	TCG0064	
5.000	GMB0055	GMB0155	GMB0065	SCH0065	500	TCG0065	
6.000	GMB0056	GMB0156	GMB0066	SCH0066	500	TCG0066	

NOTES:
1. Items 1 thru 4 are available separately for replacement purposes
2. Items 2 is 240 VAC, 36" leads, 34" fiberglass lead protection
3. Item 3 is type J, with 36" leads, 34" fiberglass lead protection
4. Item 4 (for replacement) is sold in packs of 4 only

Gate-Mate™ 4 Nozzles and Tips

NOZZLE SUB-ASSEMBLY WITH FRONT LOAD HEATER (TIP ORDERED SEPARATELY)



Gate-Mate™ 4 Nozzles

A	B	NOZZLE SUB ASSEMBLY (TIP ORDERED SEPARATELY)	INCLUDES 1 NOZZLE BODY	INCLUDES 2 FRONT LOAD HEATER	INCLUDES 2 WATTS	INCLUDES 3 SEAL RING
2.000	1.250	GMB1050	GMB0060	SCH1060	250	EHR0155
2.500	1.250	GMB1051	GMB0061	SCH1061	300	
	1.750	GMB2051		SCH2061		
3.000	1.250	GMB1052	GMB0062	SCH1062	350	
	1.750	GMB2052		SCH2062		
3.500	1.250	GMB1053	GMB0063	SCH1063	400	
	1.750	GMB2053		SCH2063		
4.000	1.250	GMB1054	GMB0064	SCH1064	425	
	1.750	GMB2054		SCH2064		
5.000	1.250	GMB1055	GMB0065	SCH1065	500	
	1.750	GMB2055		SCH2065		
6.000	1.250	GMB1056	GMB0066	SCH1066	500	
	1.750	GMB2056		SCH2066		

NOTES:
1. Items 1, 2 and 3 are available separately for replacement purposes
2. Item 2 is 240 VAC, type J thermocouple, 36" leads, 34" Teflon lead protection
3. Item 3 (for replacement) is sold in packs of 4 only

Gate-Mate 4™ Tips

TIP STYLE	TIP ITEM NUMBER	O DIA.	TIP LENGTH	TIP DIA.	HOLE DIA.
STANDARD	GMT-2	.044 MIN.	1.730	.024	N/A
WEAR RESISTANT	GMT0400	.055 MIN.			
SUPER SHARP	GMT0301	.030 MIN.		.010	
SUPER SHARP WEAR RESISTANT	GMT0401	.055 MIN.			
THRU HOLE	GMT0302*	.030 MIN. .050 MAX	1.690	.090	.050
THRU HOLE WEAR RESISTANT	GMT0402*	.055 MIN.			
NO HOLE	GMT0303	.044 MIN.	1.730	.024	N/A

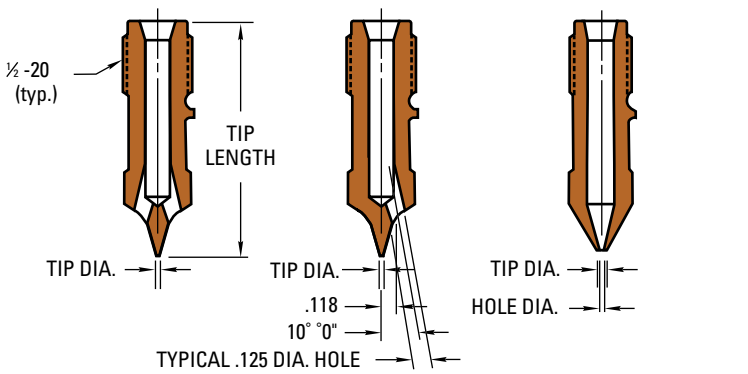
NOTES:
1. Thru hole tip is designed .040 shorter in length to be a direct replacement for the standard tip; use a .030 to .060 diameter gate
2. A .030 minimum diameter gate is recommended when using the super sharp tip
3. Contact D-M-E for tip recommendations and assistance with your application

*Contact D-M-E for details to modify thru hole tips for larger "O" diameters

STANDARD
WEAR RESISTANT
SUPER SHARP
SUPER SHARP WEAR RESISTANT

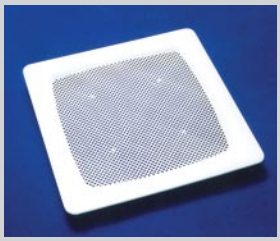
NO HOLE

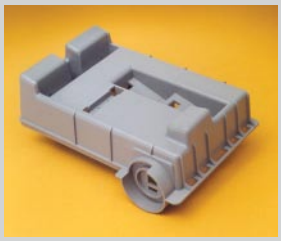
THRU HOLD AND THRU HOLD WEAR RESISTANT



MOLDMAKER TO MACHINE

Gate-Mate™ Lite Features and Benefits





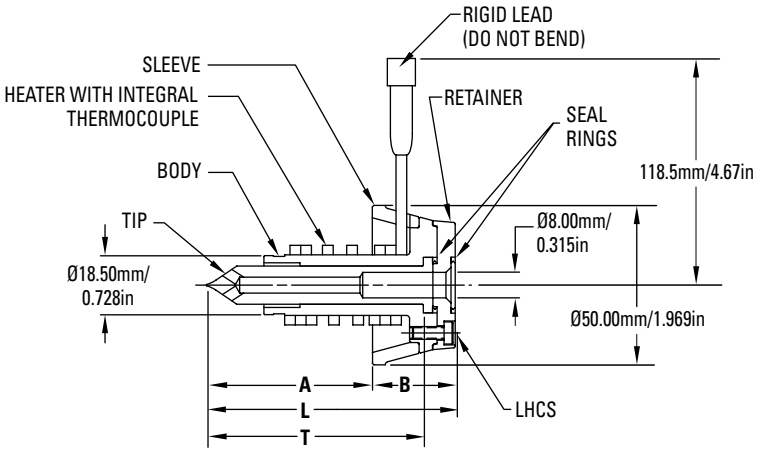
Delivers consistent performance — economically

Gate-Mate Lite is a very cost-effective solution for thin-walled parts, direct-gating, and high-cavitation molding.

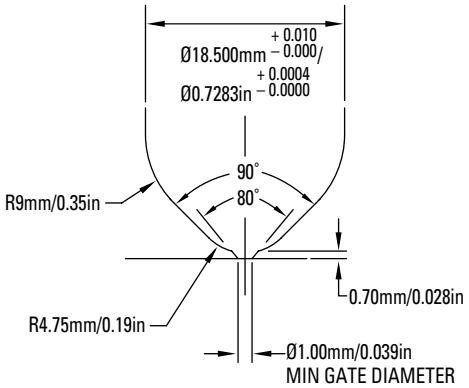
Key features include:

- **Available in 10 nozzle lengths (42-130mm)** — flexibility to suit your application requirements
- **Bodiless designs** — leaves no witness lines on the finished molded part
- **Precise temperature control** — advanced design, square-coil heater and integrated thermocouple ensure accurate temperature control
- **Excellent gate control** — highly conductive, full-length, beryllium copper tip delivers heat to ensure proper gate control, minimum vestige, and better part appearance
- **Easy installation and operation** — set-up and production are streamlined and simple
- **Suitable for multi-cavity molds** — provides optimum gate cosmetics in parts up to 225 grams.
  For part weights greater than 225 grams, contact D-M-E for review of the application. For maximum throughput to the hot runner system and cavities, the machine nozzle tip orifice must be equal to the nozzle seat orifice on the manifold extension nozzle.
- **Compatible with a wide range of unfilled materials** — easily processes POM, TPE, TPO, PE, PP, PS, SAN, ABS, PA, PPO, PMMA, and PC

Point Gate Nozzle Assembly

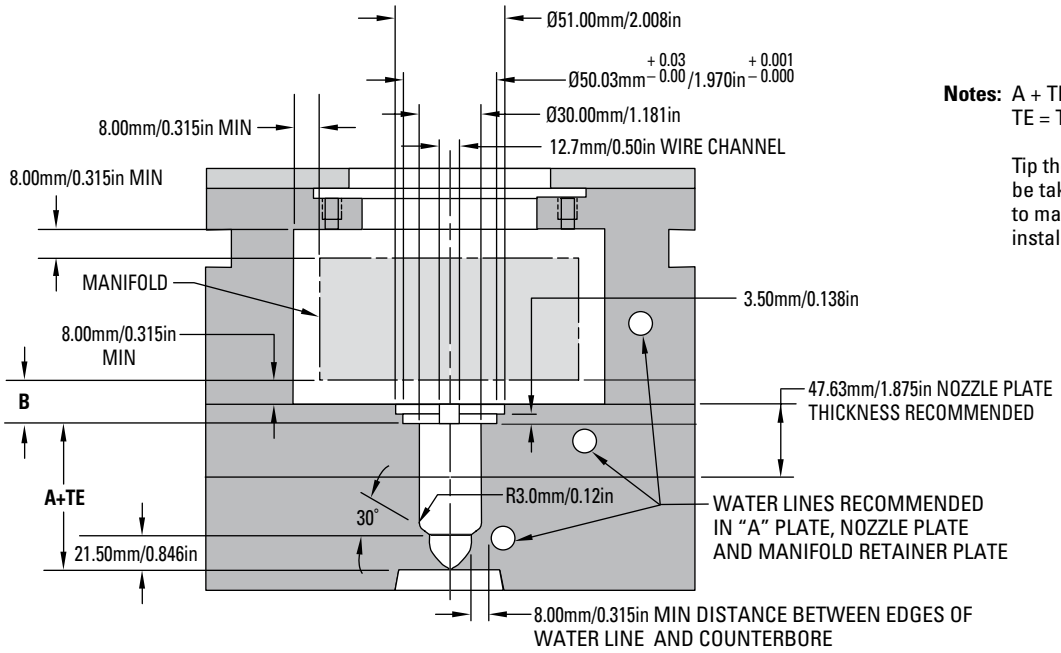


Gate Detail



Gate-Mate™ Lite Hot Runner Nozzles

Nozzle Plate and "A" Plate Machining Dimensions



Notes: A + TE = Tip position, hot where TE = Tip thermal expansion

Tip thermal expansion must be taken into account prior to machining plates and installing nozzle into the mold.

The formula for determining thermal expansion is: TE (mm) = "T" dimension (mm) x .0000175mm x [Nozzle Setpoint Temperature (°C) - 20] or TE (in) = "T" dimension (in) x .0000097in x [Nozzle Setpoint Temperature (°F) - 68]

EXAMPLE: For GML1070: "A" = 70.00mm, "T" = 86.00mm, Setpoint = 260°C
"TE" = 86.00 x .0000175 x (260-20) = .36 ... thus "A" + "TE" = 70.00 + .36 = 70.36

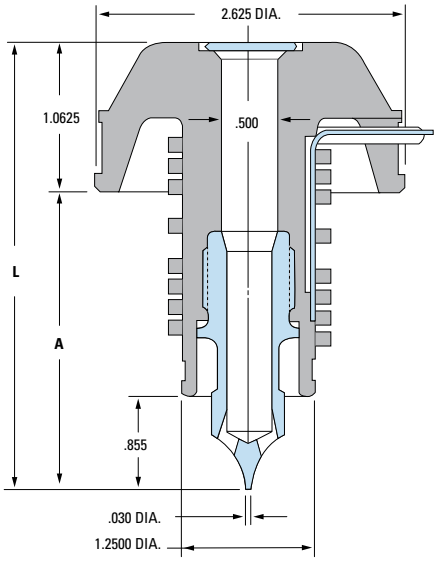
NOZZLE ASSEMBLY	A DIM		T DIM		L DIM		B DIM		BODY ITEM NO	TIP ITEM NO	HEATER ITEM NO	SLEEVE ITEM NO	RETAINER ITEM NO	SEAL RING ITEM NO	LHCS ITEM NO
	MM	INCH	MM	INCH	MM	INCH	MM	INCH							
GML1042	42.00	1.654	68.00	2.677	78.00	3.071	36.00	1.417	GMC0162	GMT0015	GMH1940	GMS0163	GMR0052	EHR7155 (2 REQUIRED)	M410LH (3 REQUIRED)
GML1052	52.00	2.047	68.00	2.677	78.00	3.071	26.00	1.024	GMC0162	GMT0015	GMH1940	GMS0162			
GML1060	60.00	2.362	86.00	3.386	96.00	3.780	36.00	1.417	GMC0163	GMT0017	GMH1950	GMS0163			
GML1070	70.00	2.756	86.00	3.386	96.00	3.780	26.00	1.024	GMC0163	GMT0017	GMH1950	GMS0162			
GML1080	80.00	3.150	106.00	4.173	116.00	4.567	36.00	1.417	GMC0164	GMT0019	GMH1960	GMS0163			
GML1090	90.00	3.543	106.00	4.173	116.00	4.567	26.00	1.024	GMC0164	GMT0019	GMH1960	GMS0162			
GML1100	100.00	3.937	126.00	4.961	136.00	5.354	36.00	1.417	GMC0165	GMT0021	GMH1970	GMS0163			
GML1110	110.00	4.331	126.00	4.961	136.00	5.354	26.00	1.024	GMC0165	GMT0021	GMH1970	GMS0162			
GML1120	120.00	4.724	146.00	5.748	156.00	6.142	36.00	1.417	GMC0166	GMT0023	GMH1980	GMS0163			
GML1130	130.00	5.118	146.00	5.748	156.00	6.142	26.00	1.024	GMC0166	GMT0023	GMH1980	GMS0162			

For ancillary hot runner components and temperature controls, contact D-M-E.

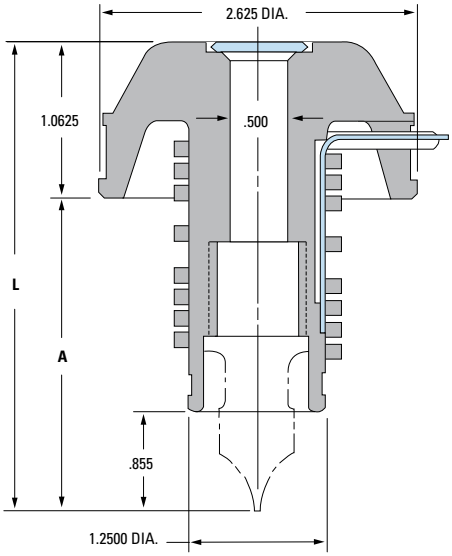
Jumbo Gate-Mate™ Nozzles

As an alternative to the Hot One Nozzles, the Jumbo Gate-Mate Nozzles provide the advantage of replaceable coil heaters and thermocouples. In addition, the thermocouple placement provides for better heater control. The coil heaters have a square cross section for improved heat transfer.

Nozzle Assembly
(include GMT0004 TIP)



Nozzle Sub-Assembly
(TIP ordered separately)



A	L	NOZZLE ASSEMBLY (INCLUDES GMT0004 TIP)	NOZZLE SUB ASSEMBLY (TIP ORDERED SEPARATELY)	INCLUDES*				
				1	2		3	4
				NOZZLE BODY	SQUARE COIL HEATER	WATTS	THERMO-COUPLE	SEAL RING
2.500	3.562	GMB0018	GMB0119	GMC0016	SCH0002	600	TC0002	EHR7001
3.500	4.562	GMB0019	GMB0120	GMC0017	SCH0001	800	TC0001	

***NOTES:**
1. Items 1 thru 4 are available separately for replacement purposes
2. Item 2 is 240 VAC, 42" leads
3. Item 3 is type J
4. Item 4 (for replacement) is sold in packs of 4 only

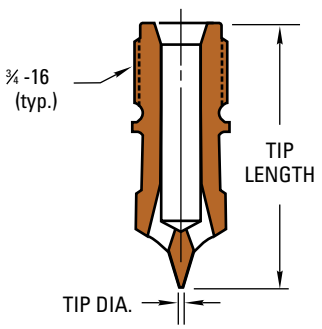
Jumbo Gate-Mate™ Tips

TIP STYLE	ITEM NUMBER	TIP LENGTH	TIP DIA.	HOLE DIA.
STANDARD	GMT0004	1.855	.030	N/A
WEAR RESISTANT	GMT0406			
THRU HOLE	GMT0007	1.815	.140	.100
THRU HOLE WEAR RESISTANT	GMT0407			

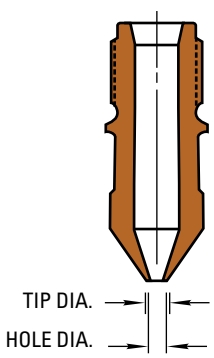
1. Thru hole tip designed .040 shorter in length to be a direct replacement for the standard tip; use a .080 to .125 diameter gate
2. Contact D-M-E for tip recommendations and assistance with your application

Improved tip insulation, elimination of material degradation in threaded area of tip, and faster color changes can be achieved through use of a Gate Shell Insulator.

STANDARD
WEAR RESISTANT



THRU HOLE
THRU HOLE WEAR RESISTANT

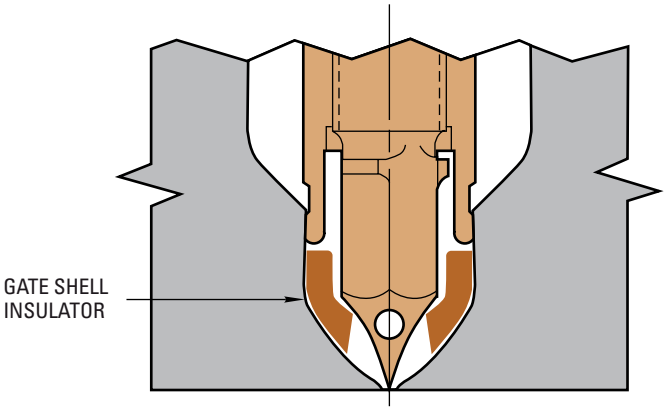


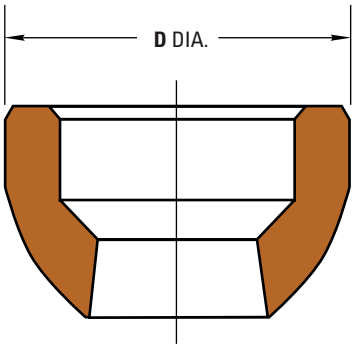
Gate Shell Insulators

Gate Shell Insulators

- Improves insulation in the tip area
- Provides seal-off to eliminate material degradation in threaded area of tip
- Minimizes material in gate area to allow for faster color changes
- Withstands temperatures up to 550° F

Typical Application





FOR BUSHING OR NOZZLE STYLE	FOR TIP STYLE	ITEM NUMBER
Gate-Mate 4 Nozzle	Standard, Super Sharp, No Hole	GSI0001
	Thru Hole	GSI0002
Jumbo Gate-Mate Bushing or Nozzle	Standard	GSI0003
	Thru Hole	GSI0004
Medium Gate-Mate Bushing	Standard, Super Sharp, No Hole	GSI0005
	Thru Hole	GSI0006

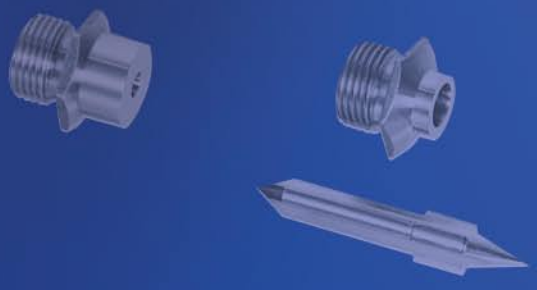
D DIA.	ITEM NUMBER
.748	GSI0001
	GSI0002
1.248	GSI0003
	GSI0004
.748	GSI0005
	GSI0006

APPLICATION NOTES:

1. Use only with bushings, nozzles and tip styles shown in the reference chart above
2. Gate machining must be done according to D-M-E specifications
3. Nozzle tip cannot be altered in any way for the Gate Shell Insulator to perform properly
4. If dissimilar resins are to be processed in the same mold, it is recommended that their processing temperatures be within a similar range
5. For best results, the outer surface of the tip should be free from all resin before the Gate Shell Insulator is installed or used

D-M-E Hot One Nozzles

ENABLING VERSATILITY
IN SYSTEM SELECTION



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Manifold Heaters & Thermocouples *73*
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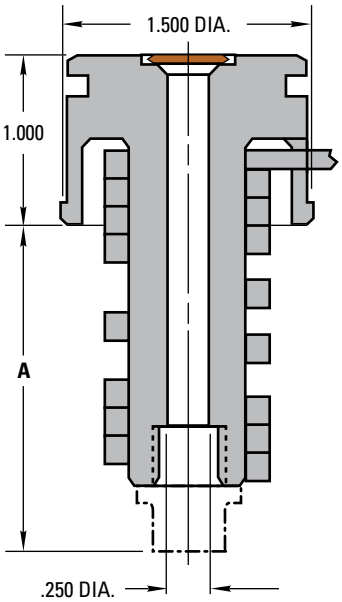
Hot One Recommendations, Design and Machining Guidelines *79-92*

250 Series Nozzles (.250 Diameter Flow Channel)

Nozzle Sub-Assemblies

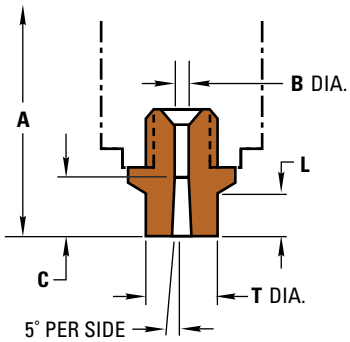


NOZZLE SUB-ASSEMBLY		INCLUDES			
		1	2		3
A	ITEM NUMBER	NOZZLE BODY	SQ. COIL HEATER	WATTS	SEAL RING
2.000	EHA0001	CIB1359	SCH0081	300	EHR7154
2.500	EHA0002	CIB1360	SCH0082	350	
3.000	EHA0003	CIB1361	SCH0083	400	
3.500	EHA0004	CIB1362	SCH0084	425	
4.000	EHA0005	CIB1363	SCH0085	500	
5.000	EHA0006	CIB1364	SCH0086	500	
6.000	EHA0007	CIB1365	SCH0087	550	

(Add .750 to A dimension for extended sprue gate tips.)

NOTES:
1. Nozzle body, square coil heater and seal rings are available separately for replacement purposes
2. Square coil heater is 240 VAC T/C type J, 36" leads, 34" fiberglass lead protection
3. Seal rings are sold in packs of 4 only

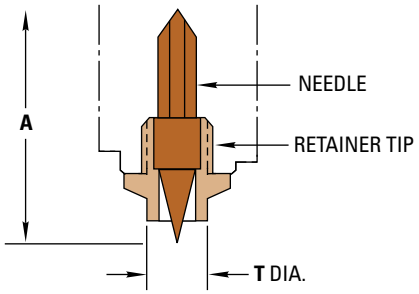
Tip Sub-Assemblies



Sprue Gate/Extended Sprue Gate

TIP	ITEM NUMBER	B DIA.	T DIA.	L	C
SPRUE GATE	EHT0010	.080	.500	.250	.375
	EHT0011		.750		
	EHT0012		1.000	.100	
EXTENDED SPRUE GATE	EHT0013		.500	1.000	1.125
	EHT0014		.750		
	EHT0015		1.000	.850	

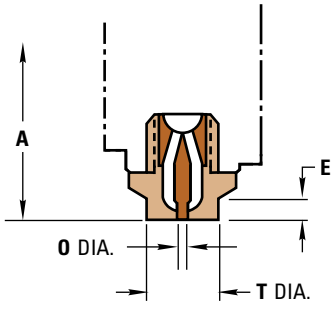
(Add .750 to A dimension for extended sprue gate tips.)



Point Gate

TYPE	ITEM NUMBER	INCLUDES		T DIA.
		NEEDLE	RETAINER TIP	
STANDARD	EHT0005	EHN0015	EHT0024	.375
	EHT1314		EHT0324	
WEAR RESISTANT	EHT1308	EHN0401	EHT0324	
	EHT1313		EHT1324	

Contact D-M-E for tip recommendations, and assistance with your application.



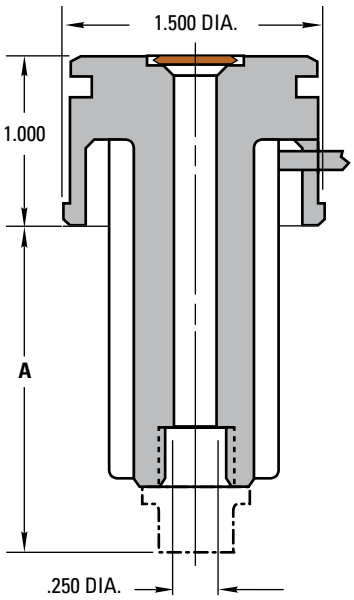
Ring Gate

ITEM NUMBER	T DIA.	O DIA.	E	INCLUDES	
				NEEDLE	RETAINER TIP
EHT0001	.375	.060	.187	EHN0007	EHT0026
EHT0002		.080			EHT0027
EHT0003	.500	.060			EHT0028
EHT0004		.080			EHT0029

For installation and mold machining data, see the Hot One Design and Machining Guidelines at the end of this Hot One Nozzles section.

250 Series High Performance Nozzles (.250 Diameter Flow Channel)

Nozzle Sub-Assemblies

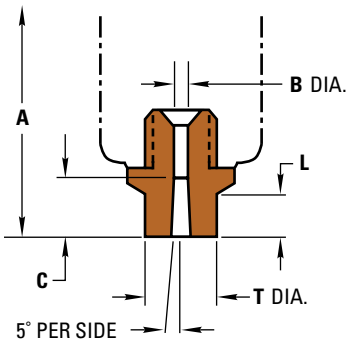


NOZZLE SUB-ASSEMBLY		INCLUDES			
		1	2		3
A	ITEM NUMBER	NOZZLE BODY	CAST-IN HEATER	WATTS	SEAL RING
2.000	CIA0001	CIB1359	CIH0081	440	EHR7154
2.500	CIA0002	CIB1360	CIH0082	350	
3.000	CIA0003	CIB1361	CIH0083	400	
3.500	CIA0004	CIB1362	CIH0084	565	
4.000	CIA0005	CIB1363	CIH0085	500	
5.000	CIA0006	CIB1364	CIH0086	500	
6.000	CIA0007	CIB1365	CIH0087	550	

(Add .750 to A dimension for extended sprue gate tips.)

NOTES: 1. Cast-in heater is 240 VAC T/C type J, 36" leads, 34" fiberglass lead protection
2. Seal rings are sold in packs of 4 only

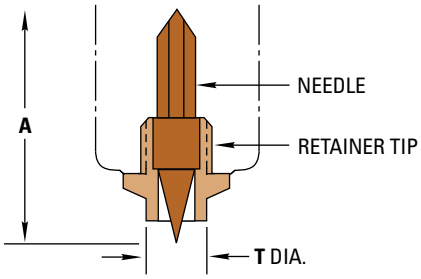
Tip Sub-Assemblies



Sprue Gate/Extended Sprue Gate

TIP	ITEM NUMBER	B DIA.	T DIA.	L	C
SPRUE GATE	EHT0010	.080	.500	.250	.375
	EHT0011		.750		
	EHT0012		1.000	.100	
EXTENDED SPRUE GATE	EHT0013		.500	1.000	1.125
	EHT0014		.750		
	EHT0015		1.000	.850	

(Add .750 to A dimension for extended sprue gate tips.)



Point Gate

TYPE	ITEM NUMBER	INCLUDES		T DIA.
		NEEDLE	RETAINER TIP	
STANDARD	EHT0005	EHN0015	EHT0024	.375
	EHT1314		EHT0324	
WEAR RESISTANT	EHT1308	EHN0401	EHT0324	
	EHT1313		EHT1324	

Contact D-M-E for tip recommendations, and assistance with your application.

For installation and mold machining data, see the Hot One Design and Machining Guidelines at the end of this Hot One Nozzles section.

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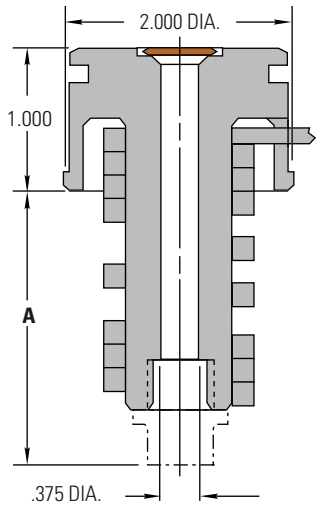
375 Series Nozzles (.375 Diameter Flow Channel)

Nozzle Sub-Assemblies

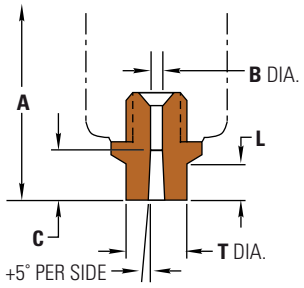


NOZZLE SUB-ASSEMBLY		INCLUDES			
A	ITEM NUMBER	1	2		3
		NOZZLE BODY	SQ. COIL HEATER	WATTS	SEAL RING
2.000	EHA0008	CIB1366	SCH0088	400	EHR7155
2.500	EHA0009	CIB1367	SCH0089	450	
3.000	EHA0010	CIB1368	SCH0090	550	
3.500	EHA0011	CIB1369	SCH0091	700	
4.000	EHA0012	CIB1370	SCH0092	800	
5.000	EHA0013	CIB1371	SCH0093	900	
6.000	EHA0014	CIB1372	SCH0094	1000	
7.000	EHA0015	CIB1373	SCH0095	1100	

(Add .750 to A dimension for extended sprue gate tips.)

NOTES: 1. Nozzle body, square coil heater and seal rings are available separately for replacement purposes.
2. Square coil heater is 240 VAC T/C type J, 36" leads, 34" fiberglass lead protection.
3. Seal rings are sold in packs of 4 only.

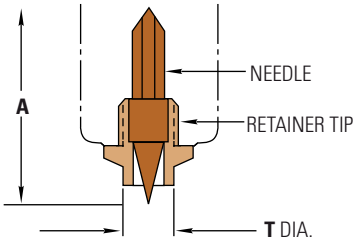
Tip Sub-Assemblies



Sprue Gate/Extended Sprue Gate

TIP	ITEM NUMBER	B DIA.	T DIA.	L	C
SPRUE GATE	EHT0016	.125	.500	.250	.375
	EHT0017		.750		
	EHT0018		1.000		
EXTENDED SPRUE GATE	EHT0019		.500	1.000	1.125
	EHT0020		.750		
	EHT0021		1.000		

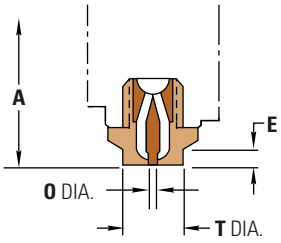
(Add .750 to A dimension for extended sprue gate tips.)



Point Gate

TYPE	ITEM NUMBER	INCLUDES		T DIA.
		NEEDLE	RETAINER TIP	
STANDARD	EHT0039	EHN0016	EHT0025	.500
	EHT1312		EHT0325	
WEAR RESISTANT	EHT1303	EHN0400	EHT1325	
	EHT1309		EHT0325	

Contact D-M-E for tip recommendations, and assistance with your application.



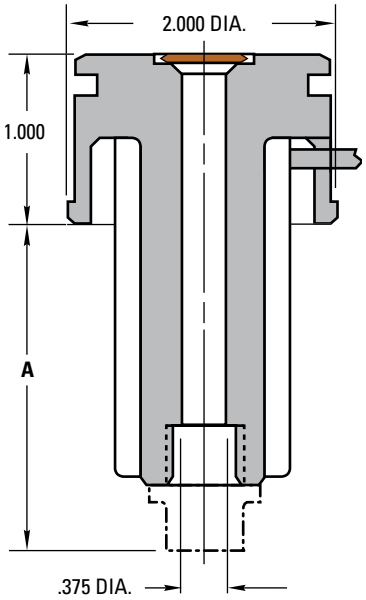
Ring Gate

ITEM NUMBER	T DIA.	O DIA.	E	INCLUDES	
				NEEDLE	RETAINER TIP
EHT0006	.500	.080	.230	EHN0008	EHT0030
EHT0007		.100			EHT0031
EHT0008	.750	.080			EHT0032
EHT0009		.100			EHT0033
EHT0037	1.000	.080			EHT0034
EHT0038		.100			EHT0035

For installation and mold machining data, see the Hot One Design and Machining Guidelines at the end of this Hot One Nozzles section.

375 Series High Performance Nozzles (.375 Diameter Flow Channel)

Nozzle Sub-Assemblies

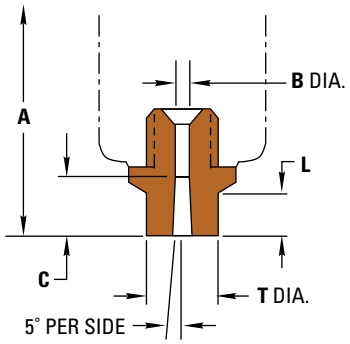


NOZZLE SUB ASSEMBLY		INCLUDES			
		1	2		3
A	ITEM NUMBER	NOZZLE BODY	CAST-IN HEATER	WATTS	SEAL RING
2.000	CIA0008	CIB1366	CIH0088	400	EHR7155
2.500	CIA0009	CIB1367	CIH0089	450	
3.000	CIA0010	CIB1368	CIH0090	550	
3.500	CIA0011	CIB1369	CIH0091	700	
4.000	CIA0012	CIB1370	CIH0092	800	
5.000	CIA0013	CIB1371	CIH0093	900	
6.000	CIA0014	CIB1372	CIH0094	1000	
7.000	CIA0015	CIB1373	CIH0095	1100	

(Add .750 to A dimension for extended sprue gate tips.)

NOTES: 1. Cast-in heater is 240 VAC T/C type, 36" leads, 34" fiberglass lead protection
2. Seal rings are sold in packs of 4 only

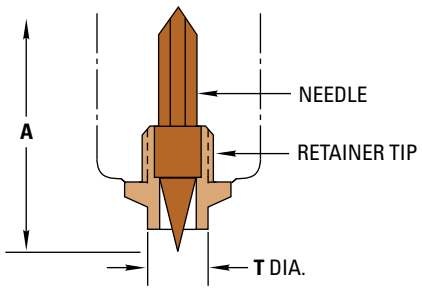
Tip Sub-Assemblies



Sprue Gate/Extended Sprue Gate

TIP	ITEM NUMBER	B DIA.	T DIA.	L	C
SPRUE GATE	EHT0016	.125	.500	.250	.375
	EHT0017		.750		
	EHT0018		1.000		
EXTENDED SPRUE GATE	EHT0019		.500	1.000	1.125
	EHT0020		.750		
	EHT0021		1.000		

(Add .750 to A dimension for extended sprue gate tips.)



Point Gate

TYPE	ITEM NUMBER	INCLUDES		T DIA.
		NEEDLE	RETAINER TIP	
STANDARD	EHT0039	EHN0016	EHT0025	.500
	EHT1312		EHT0325	
WEAR RESISTANT	EHT1303	EHN0400	EHT1325	
	EHT1309		EHT0325	

Contact D-M-E for tip recommendations and assistance with your application.

For installation and mold machining data, see the Hot One Design and Machining Guidelines at the end of this Hot One Nozzles section.

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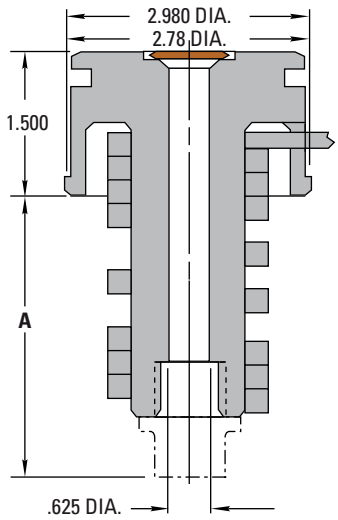
625 Series Nozzles (.625 Diameter Flow Channel)

Nozzle Sub-Assemblies

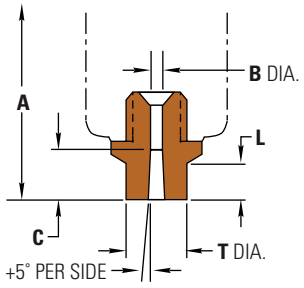


NOZZLE SUB-ASSEMBLY		INCLUDES			
		1	2		3
A	ITEM NUMBER	NOZZLE BODY	SQ. COIL HEATER	WATTS	SEAL RING
4.000	EHA0016	EHB0074	SCH0096	1000	EHR7156
5.000	EHA0017	EHB0075	SCH0097	1030	
6.000	EHA0018	EHB0076	SCH0098	1100	
7.500	EHA0019	EHB0077	SCH0099	1000	
8.000	EHA0020	EHB0078	SCH0100	1200	
9.000	EHA0021	EHB0079	SCH0101	1200	
10.000	EHA0022	EHB0080	SCH0102	1200	

(Add .750 to A dimension for extended sprue gate tips.)

NOTES: 1. Nozzle body, square coil heater and seal rings are available separately for replacement purposes.
2. Square coil heater is 240 VAC T/C type J, 36" leads, 34" fiberglass lead protection.
3. Seal rings are sold in packs of 4 only.

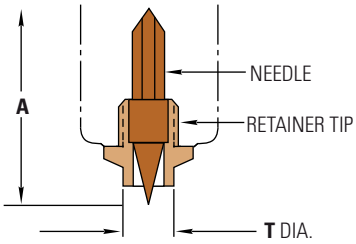
Tip Sub-Assemblies



Sprue Gate/Extended Sprue Gate

TIP	ITEM NUMBER	B DIA.	T DIA.	L	C
SPRUE GATE	EHT0022	.187	1.000	.250	.500
EXTENDED SPRUE GATE	EHT0023			1.000	1.250

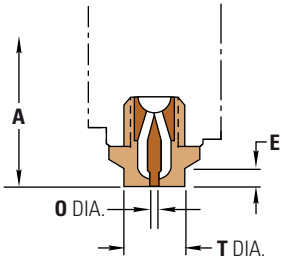
(Add .750 to A dimension for extended sprue gate tips.)



Point Gate

TYPE	ITEM NUMBER	INCLUDES		T DIA.
		NEEDLE	RETAINER TIP	
STANDARD	EHT1306	EHN0019	EHT1354	.6245
	EHT1311		EHT0326	
WEAR RESISTANT	EHT1307	EHN0402	EHT0326	
	EHT1310		EHT1354	

Contact D-M-E for tip recommendations and assistance with your application.



Ring Gate

ITEM NUMBER	T DIA.	O DIA.	E	INCLUDES	
				NEEDLE	RETAINER TIP
EHT0040	1.000	.125	.250	EHN0009	EHT0036

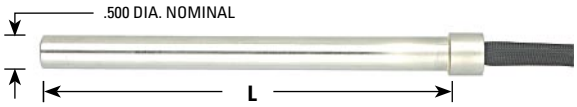
For installation and mold machining data, see the Hot One Design and Machining Guidelines at the end of this Hot One Nozzles section.

Manifold Heaters & Thermocouples

240 VAC, 36" Leads with 6" of Lead Protection

Cartridge Heater

Shoulder Style Cartridge Heater



Although these heaters do not employ integral thermocouples, they're designed and constructed to run at higher molding temperatures and provide longer life than conventional heaters.

Cartridge Heaters

Can be installed in through hole or installed using retainer plate construction.

Shoulder Style Cartridge Heaters

These heaters are used in conjunction with heater pullers Insures easy removal of blind or through hole installations.

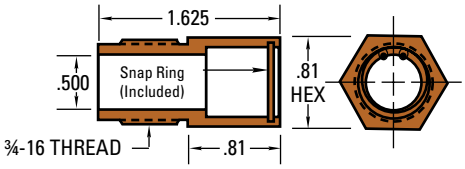
Shoulder Style Cartridge Heaters

ITEM NUMBER	L IN INCHES	WATTS	WATTS PER LIN. IN.
CHS0119	4.0	500	125
CHS0120	4.5	575	128
CHS0121	5.0	650	130
CHS0122	5.5	725	132
CHS0123	6.0	800	133
CHS0124	6.5	875	135
CHS0125	7.0	950	136
CHS0126	7.5	1025	137
CHS0127	8.0	1100	138
CHS0128	8.5	1175	138
CHS0129	9.0	1200	133
CHS0130	10.0	1350	135
CHS0131	11.0	1500	136
CHS0132	12.0	1650	137
CHS0133	15.0	2050	137
CHS0134	18.0	2500	139

Heater puller to be ordered separately.

Heater Puller (with Snap Ring)

Provides trouble-free removal of Shoulder Style Cartridge Heater.



PULLER WITH RING

ITEM NUMBER
EHP0250

REPLACEMENT SNAP RINGS

ITEM NUMBER*
EHP0001

*Pkg. of 25

Manifold Thermocouples

Installed in manifold to maintain precise temperature control.

Flat Washer Type

Utilized in limited space applications.

ITEM NUMBER
ETC0168

Threaded Type

Installed between heat source and flow channel for more precise control.

ITEM NUMBER
ETC0251

Cartridge Heaters

	.500 DIAMETER NOMINAL			
	ITEM NUMBER	LENGTH L	WATTS	WATTS PER LIN. IN.
	ECH0103	4.0	500	125
	ECH0119	4.0	750	188
	ECH0104	4.5	575	128
*	ECH0138	5.0	500	100
	ECH0105	5.0	650	130
*	ECH0139	5.0	750	150
	ECH0120	5.0	1000	200
*	ECH0148	5.5	500	91
	ECH0106	5.5	725	132
*	ECH0140	6.0	750	125
	ECH0107	6.0	800	133
	ECH0121	6.0	1000	167
	ECH0108	6.5	875	135
*	ECH0141	7.0	600	86
	ECH0109	7.0	950	136
	ECH0122	7.0	1000	143
*	ECH0149	7.5	1000	133
	ECH0110	7.5	1025	137
*	ECH0142	8.0	1000	125
	ECH0111	8.0	1100	138
	ECH0123	8.0	1500	188
	ECH0124	8.0	2000	250
	ECH0112	8.5	1175	138
	ECH0113	9.0	1200	133
	ECH0114	10.0	1350	135
	ECH0125	10.0	1500	150
	ECH0126	11.0	1000	91
	ECH0115	11.0	1500	136
	ECH0128	12.0	1000	83
	ECH0127	12.0	1500	125
	ECH0116	12.0	1650	137
*	ECH0144	12.0	2000	167
*	ECH0146	14.0	1000	71
*	ECH0145	14.0	2300	164
	ECH0129	15.0	1500	100
	ECH0117	15.0	2050	137
*	ECH0147	18.0	1500	83
	ECH0130	18.0	1700	94
	ECH0118	18.0	2500	139

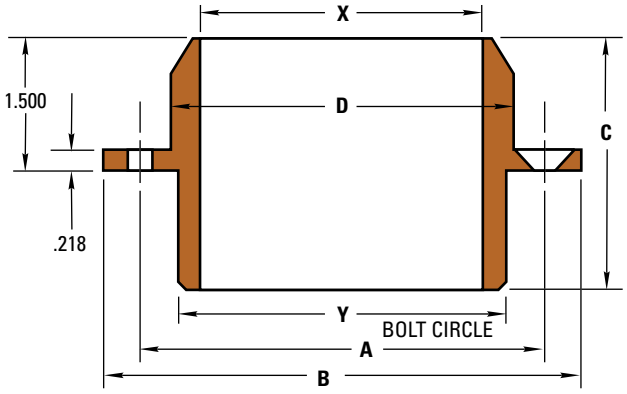
NOTE: Sizes preceded by a * are the newest additions

See the Hot One Design and Machining Guidelines at the end of this Hot One Nozzles section for manifold size recommendation and installation drawings.

Components for Externally Heated Manifold Systems

To expedite the design and construction of the Hot One System, D-M-E has standardized the following components used in most hot manifold designs.

Locating Rings



ITEM NUMBER	D DIA.	X DIA.	Y DIA.	A	B DIA.	C
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

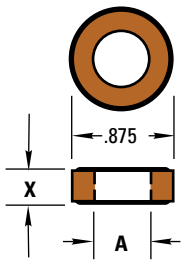
*Includes (2) ½ inch long, 5⁄16 Flat Head Cap Screws.

Nozzle Seats

Provides a replaceable and interchangeable interface between manifold and machine nozzle. New style accommodates both cartridge heated and tubular manifolds. Interchangeable with previous styles in existing molds.

Spacer Rings

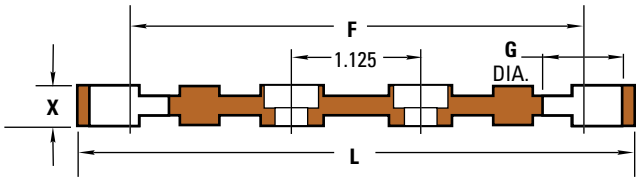
Maintains spacing between manifold and support plate.



ITEM NUMBER	X DIM. +.010 −.000	A DIM.	USED WITH S.H.C.S.
ESR0157	.250	.406	3/8-16
ESR0158	.750		
ESR0159	.250	.531	1/2-13
ESR0160	.750		

Riser Pads

Supports manifold opposite nozzles and prevents heat loss.

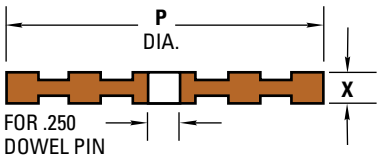


ITEM NUMBER*	X DIM. +.010 −.000	L DIM.	F DIM.	G DIM.	USED WITH
ERP0163	.250	4.000	3.250	.625	GATE MATE 4 250 SERIES AND 375 SERIES
ERP0167	.375				
ERP0164	.750				
ERP0165	.250	5.000	4.000	.781	625 SERIES
ERP0168	.375				
ERP0166	.750				

*Includes (2) No. 10-24 Low Head Cap Screws.

Center Support Pads

Supports manifold center spacing, while minimizing heat transfer from manifold.



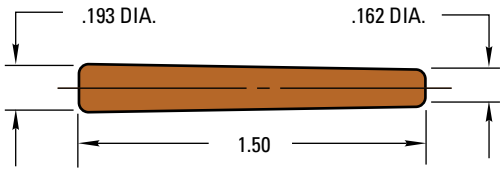
ITEM NUMBER	P	X	ITEM NUMBER	P	X
ECB0161	2.500	.250	ECB0162	2.500	.750
ECB0163	1.500		ECB0164	1.500	

Components for Externally Heated Manifold Systems

Tapered Dowel Pin

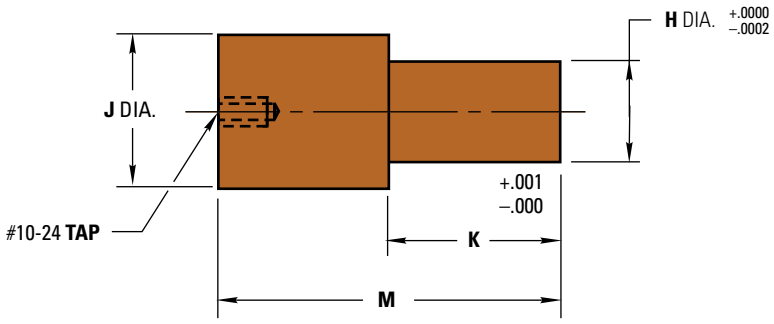
This tapered dowel pin is used to align the end plug and prevent it from rotating. If constructed by the moldmaker from raw stock, it must conform to ANSI B18.8.2-1978 standard.

ITEM NUMBER
EDP0001



End Plugs

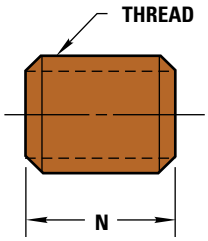
Used to plug and minimize leakage in horizontal flow channels.



SERIES	ITEM NUMBER	H DIA.	J DIA.	K	M
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 Screws

Used to secure end plugs into manifold. Each end plug should be secured with two set screws. If purchased from another source, set screws must conform to the following standards: ANSI B1.1, ANSI B18.3 and ASTM F912.



SERIES	ITEM NUMBER	THREAD	N
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

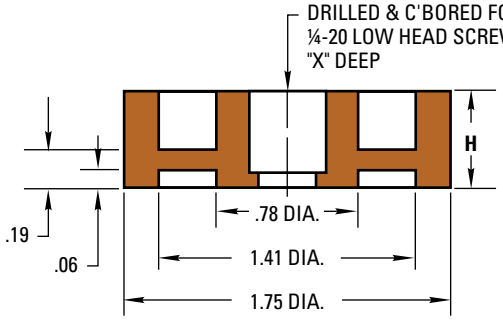
For design and machining guidelines, see end of this Hot One Nozzles section.

Components for Externally Heated Manifold Systems

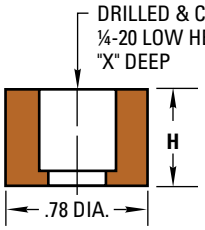
Used primarily with tubular heated manifolds, these components are made from a non-magnetic material with low thermal conductivity. They provide the higher efficiency and performance required for tubular manifold applications.

Riser Pads

Supports manifold opposite nozzles and prevents heat loss.



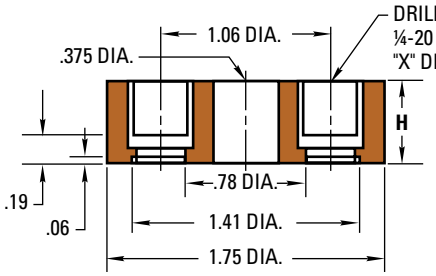
ITEM NUMBER	H	X
ERP1001	.500	.405
ERP1002	.750	.655



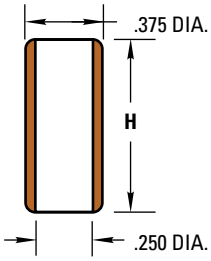
ITEM NUMBER	H	X
ERP1011	.500	.405
ERP1012	.750	.655

Center Support Pads and Tubular Dowels

Supports manifold center spacing, while minimizing heat transfer from manifold.



ITEM NUMBER	H	X
ECB1001	.500	.405
ECB1002	.750	.655



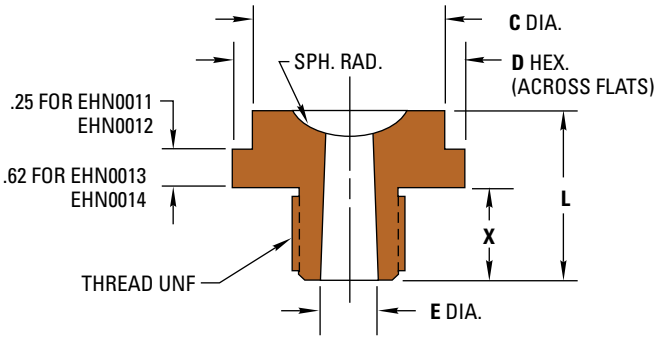
ITEM NUMBER	L LENGTH
3834TD	.750
38114TD	1.250

Components for Externally Heated Manifold Systems

These components are used with both cartridge heated and tubular heated manifolds. The nozzle seats shown are interchangeable with previously available nozzle seats.

Nozzle Seats

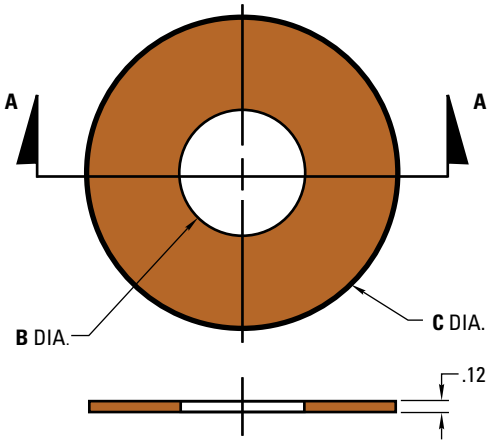
Provides a replaceable and interchangeable interface between manifold and machine nozzle.



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

Drool Rings

Used in conjunction with nozzle seat and locating ring to prevent nozzle purging and drooling from entering manifold area.



ITEM NUMBER	B DIA.	C DIA.
EHL1001	1.38	2.19
EHL1002	1.62	
EHL1003	1.38	3.44
EHL1004	1.62	

See application information at the end of this Hot One Nozzles section for appropriate use of nozzle seats, drool rings and locating rings.

Application Information

Use of Locating Ring and Nozzle Seat

The design shown in Figure 1 is used with cartridge heated manifolds only. The manifold is counterbored for the locating ring as shown.

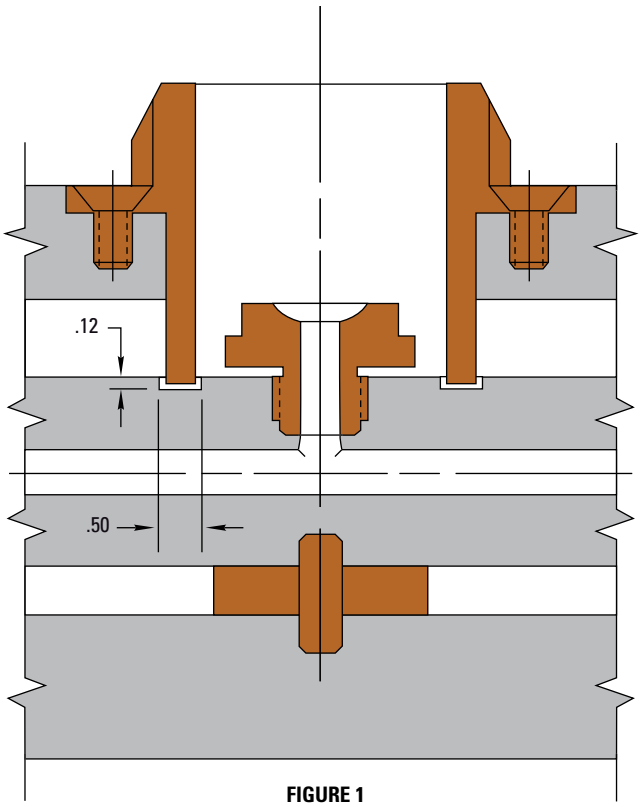


FIGURE 1

Use of Locating Ring, Drool Ring and Nozzle Seat

The design shown in Figure 2 can be used with cartridge heated manifolds if desired to eliminate the need to counterbore the manifold.

For tubular heated manifolds, the design shown in Figure 2 must be used. Counterbore the locating ring as shown for the drool ring.

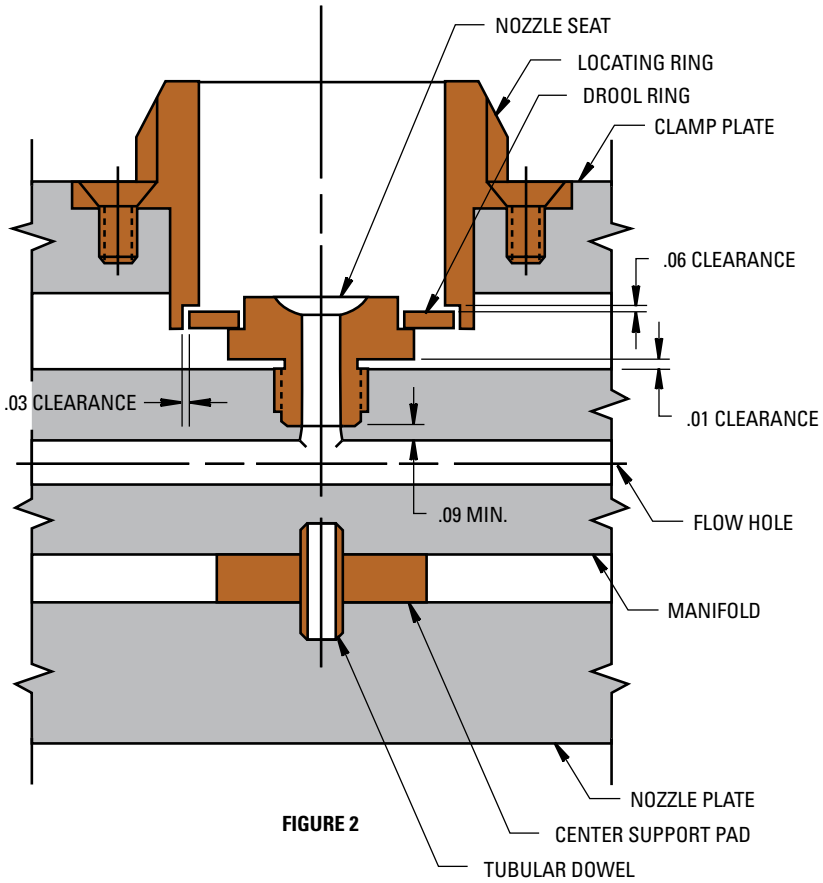


FIGURE 2

The Hot One® Manifold System Recommendations and Guidelines

NOZZLES

1. See details #2 thru 6 for help in nozzle selection
2. Nozzle choice is based on many factors including resin viscosity, shot size and fill time
3. Gate-Mate 4 nozzles are offered as sub-assemblies because there is a choice of tips. Please note that the tips must be ordered separately
4. All nozzles in the 250, 375 and 625 series plus the High Performance 250 and 375 series must be ordered as sub-assemblies. Tips must be ordered separately
5. High Performance 250 and 375 series nozzles are suitable for both filled and unfilled resins

TIPS

1. Contact D-M-E for recommended tip when application involves molding abrasive resins
2. The sprue gate tip has the lowest pressure drop due to the open flow channel design. A short sprue is left on the molded part
3. The ring gate tip is recommended to be used with unfilled commodity materials only
4. The standard point gate tip is also recommended to be used with unfilled materials only
5. Wear resistant point gate tips are recommended to be used with most filled materials

INSULATOR SHEET AND MANIFOLD HOUSING PLATE

1. Specify D-M-E 1/4" or 1/2" insulator sheet for manifold housing plate when designing hot manifold molds
2. Provide clearance holes for the manifold housing hold-down cap screws in the insulator sheet for ease of mold disassembly
3. Select D-M-E locating ring for use with insulator sheet, see detail #31
4. Alter locating ring flange length to mate with manifold
5. Manifold housing rails must equal the stackup dimensions of the riser pads, manifold and spacer rings with center support pad to within ±.0002

NOZZLE PLATE

1. A 1-7/8" nozzle plate is recommended (1-3/8" minimum). Water must circulate in the plate to control thermal expansion
2. Carefully follow the machining dimensions as illustrated in details #7 thru 12
3. Insure that all counterbores are in true position, perpendicular and concentric with the gate axis
4. Provide wire slots in nozzle plate, route leads away from manifold and nozzles

"A" PLATE AND GATE DIMENSIONS

1. Gate and nozzle must be concentric and machining details followed exactly
2. Gate-Mate 4 and point gate can be installed in the solid to avoid showing witness lines
3. Water must circulate in both cavity and "A" plate to remove heat radiated by nozzle heater

MANIFOLD

1. Select the appropriate height and width manifold for the nozzle series, see chart in details #13 thru 19
2. Calculate manifold volume in cubic inches (width × height × length) to determine watt density based on melt temperature, see chart in details #13 thru 19. Multiply watt density times cubic inches of manifold to determine the heater wattage for the manifold. Select heaters (see detail #32) to match the wattage calculated. Wattages have been calculated at 240 volts. If voltage supplied to the heaters is lower, then the wattages will be lower
3. Calculate thermal expansion factor for length between centerline of manifold to each vertical flow channel
4. Gun drill all horizontal flow channels
5. Insure that the minimum distance between last vertical flow channel and end of manifold is maintained
6. Machine end plug hole(s) and tap for set screws. See detail #24 for dimensions and tolerances
7. Install end plug(s) and hardened set screws, torque per chart. (see page 87)
8. Machine tapered dowel pin hole and install pin
9. Using a ball nose cutter, machine full radius on end plug(s) through the vertical flow channel hole(s)
10. Make sure there are no dead spots, tool marks, gaps or other areas where material can hang up in flow channels
11. Manifold thermocouple placement is critical, typically the thermocouple should be installed between centerline and first vertical flow channel or the hottest spot on the manifold
12. Manifold, assembled with spacers, center support pad and riser pads must be parallel within .0002 to properly fit in the manifold housing. For best results zero preload at room temperature is recommended

Designing and Machining Guidelines

THE HOT ONE® MANIFOLD SYSTEM DESIGNING AND MACHINING GUIDELINES FOR EXTERNALLY HEATED SYSTEMS

NOZZLE AND GATE SELECTION GUIDELINE

For selection of nozzle and gate diameter it is important to take into consideration the material's flow characteristics, shear rate of resin, molding conditions, fill time requirements, gate vestige, wall thickness and configuration of the part to be molded. Situations requiring high injection velocities must be considered when selecting small gate diameters. High injection rates may require larger gates due to shear heat build up (e.g. high weight or thin wall applications). See material manufacturer's literature for further information regarding material to be molded.

GATE-MATE™ 4 NOZZLE

Used where a small circular gate mark is permissible. Point Gate Tip controls plastics flow, provides uniform heat transfer and improves gate cosmetics.

MAXIMUM SHOT WEIGHT IN GRAMS		
ORIFICE SIZE DIA. / RESIN VISCOSITY	GATE-MATE 4	
	.060	.080
LOW VISCOSITY	170	225
MEDIUM VISCOSITY	90	125
HIGH VISCOSITY	60	95

SPRUE GATE NOZZLE

Used where a small sprue on the part or runner is not objectional. Its unrestricted channel is recommended for molding filled materials, or larger parts requiring maximum flow. Provides extra stock on front face for matching runner profiles and part contours.

MAXIMUM SHOT WEIGHT IN GRAMS						
ORIFICE SIZE DIA. / RESIN VISCOSITY	SERIES 250		SERIES 375		SERIES 625	
	.080	* .125	.125	* .187	.187	* .312
LOW VISCOSITY	500	625	1000	1250	1250	1900
MEDIUM VISCOSITY	375	475	750	1000	1000	1500
HIGH VISCOSITY	250	315	500	750	750	1000

***NOTE:** Standard tips of these diameters can be special ordered.

RING GATE NOZZLE

Used where a small circular gate mark is permissible. Tip controls plastics flow, provides uniform heat transfer and improves gate cosmetics.

MAXIMUM SHOT WEIGHT IN GRAMS						
ORIFICE SIZE DIA. / RESIN VISCOSITY	SERIES 250		SERIES 375		SERIES 625	
	.060	.080	.080	.100	.125	* .156
LOW VISCOSITY	150	200	250	310	600	800
MEDIUM VISCOSITY	100	150	150	200	400	550
HIGH VISCOSITY	50	100	100	150	300	400

***NOTE:** Standard tips of these diameters can be special ordered.

POINT GATE NOZZLE

Eliminates circular gate marks and provides optimum gate cosmetics.

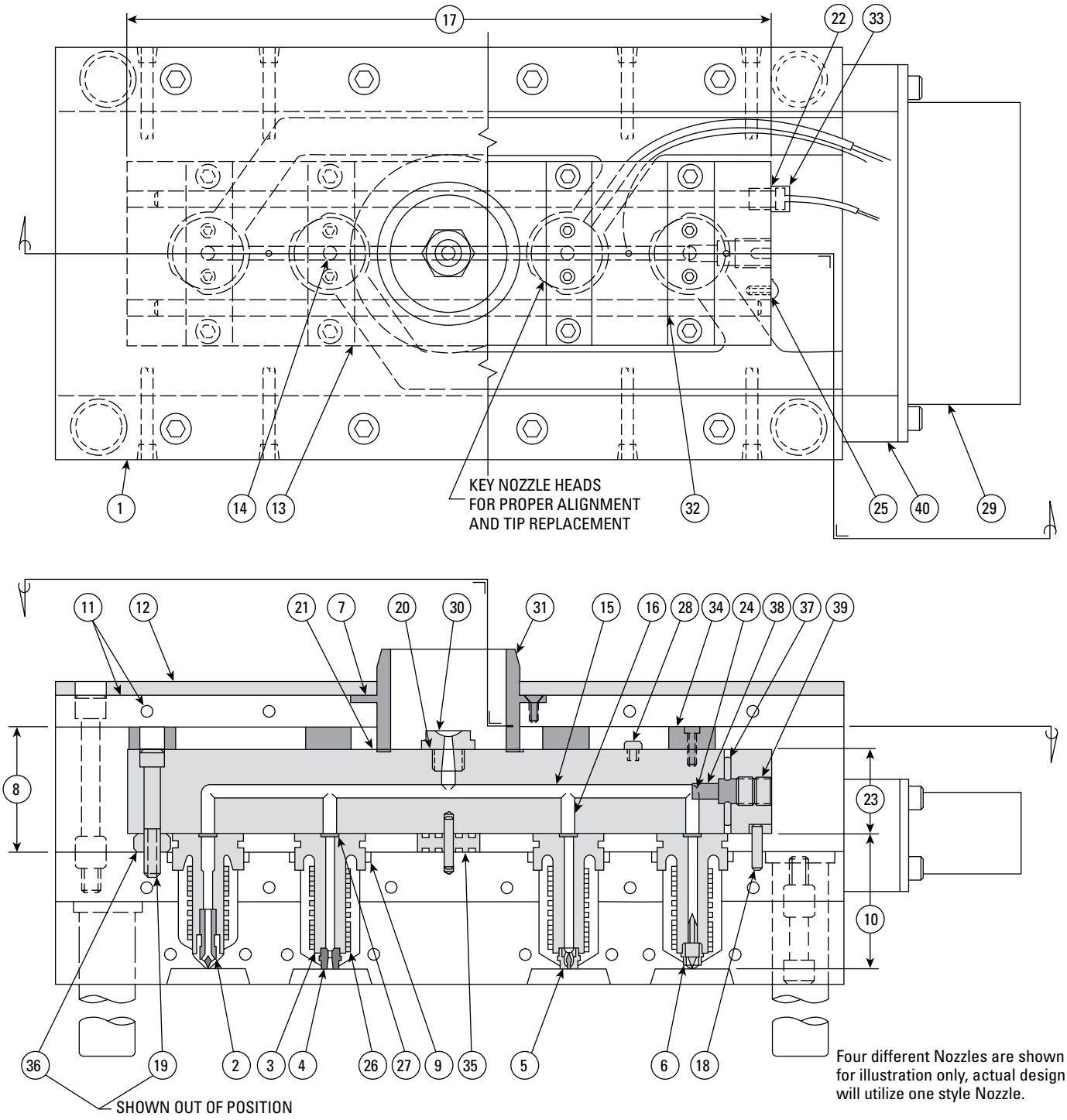
MAXIMUM SHOT WEIGHT IN GRAMS		
ORIFICE SIZE DIA. / RESIN VISCOSITY	SERIES 250	SERIES 375
	.060	.080
LOW VISCOSITY	150	250
MEDIUM VISCOSITY	100	150
HIGH VISCOSITY	50	100

DESIGNING AND MACHINING STEPS

(Numbers relate to details on next page)

1. MOLD LAYOUT
2. GATE-MATE 4™ NOZZLE
3. NOZZLE SUB-ASSEMBLIES
4. SPRUE GATE TIP
5. RING GATE TIP
6. POINT GATE TIP
7. LOCATING RING MACHINING IN MANIFOLD HOUSING
8. MANIFOLD HOUSING HEIGHT
9. NOZZLE MACHINING
10. NOZZLE LENGTH PLUS EXPANSION
11. MANIFOLD HOUSING REQUIREMENTS
12. INSULATOR SHEET REQUIREMENTS
13. MANIFOLD SIZE AND TYPE
14. NOZZLE LAYOUT
15. HORIZONTAL FLOW CHANNEL
16. VERTICAL FLOW CHANNEL
17. THERMAL EXPANSION OF MANIFOLD
18. DOWEL PIN FOR MANIFOLD ALIGNMENT
19. MANIFOLD HOLD DOWN CAP SCREW LOCATION
20. NOZZLE SEAT MACHINING
21. LOCATING RING MACHINING IN MANIFOLD
22. HEATER PULLER MACHINING
23. MANIFOLD HEIGHT
24. END PLUG, TAPERED DOWEL PIN AND SET SCREW MACHINING
25. HEATER STOP MACHINING
26. REPLACEMENT NOZZLE HEATERS
27. REPLACEMENT NOZZLE SEALS
28. MANIFOLD THERMOCOUPLES
29. TERMINAL MOUTING BOX
30. NOZZLE SEAT
31. LOCATING RING
32. MANIFOLD HEATER
33. HEATER PULLER
34. RISER PAD
35. CENTER SUPPORT PAD
36. SPACER RING
37. TAPERED DOWEL PIN
38. END PLUG
39. 2 END PLUG SET SCREWS PER END PLUG
40. TERMINAL MOUNTING BOX SPACER - MOLDMAKER TO SUIT

Designing and Machining Guidelines



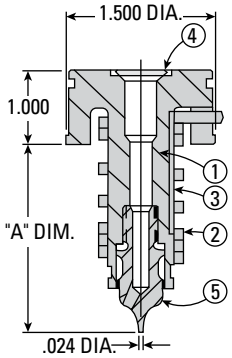
Four different Nozzles are shown for illustration only, actual design will utilize one style Nozzle.

The design guidelines in this document are based upon results obtained using D-M-E's production equipment and are provided as a design aid for use with D-M-E Hot Runner Systems. They are ONLY applicable to the current line of D-M-E components detailed in this document. Due to the wide variety of plastics materials and possible molding applications available, and since D-M-E has no control over the circumstances of any molding operation, D-M-E assumes no liability for any results obtained with this information.

D-M-E Hot Runner System Components are manufactured and sold under one or more of the following U.S. patents: 3,767,340; 3,010,155; 3,023,458; 3,231,938 AND 3,758,248; 4,787,836. FOREIGN PATENTS ISSUED AND PENDING.

Nozzle Assembly/Sub-Assembly Details

GATE-MATE™ 4 NOZZLE ASSEMBLY DETAIL #2



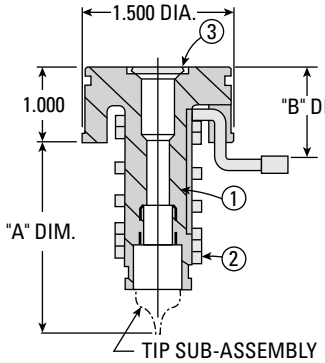
ASSEMBLY INCLUDE:

1-Nozzle Body, 1-sq. Coil Heater, 1-Thermocouple, 1-O-Ring and 1-Tip.

"A" DIM.	NOZZLE ASSEMBLY NUMBER	1 NOZZLE BODY	2 SQ. COIL HEATER	3 T/C	4 O-RING	5 TIP
2.000	GMB0050	GMB0060	SCH0060	TCG0060	EHR7155	GMT-2*
2.500	GMB0051	GMB0061	SCH0061	TCG0061		
3.000	GMB0052	GMB0062	SCH0062	TCG0062		
3.500	GMB0053	GMB0063	SCH0063	TCG0063		
4.000	GMB0054	GMB0064	SCH0064	TCG0064		
5.000	GMB0055	GMB0065	SCH0065	TCG0065		
6.000	GMB0056	GMB0066	SCH0066	TCG0066		

*GMT-2 not recommended for abrasive materials. See the Gate-Mate Nozzles section for other component options.

GATE-MATE™ 4 NOZZLE SUB-ASSEMBLY WITH FRONT LOAD HEATER DETAIL #2



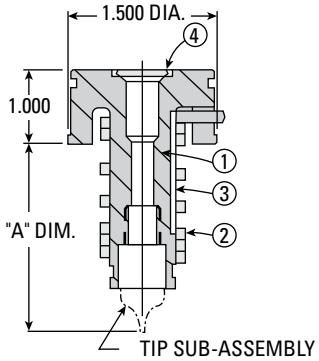
SEE THE GATE-MATE NOZZLES SECTION FOR OTHER COMPONENT OPTIONS.

SUB-ASSEMBLY INCLUDE:

1-Nozzle Body, 1-Front Load sq. Coil Heater with Thermocouple and 1-O-Ring.

"A" DIM.	"B" DIM.	NOZZLE SUB-ASSEMBLY NUMBER	1 NOZZLE BODY	2 SQ. COIL HEATER	3 O-RING
2.000	1.250	GMB1050	GMB0060	SCH1060	EHR7155
2.500	1.250	GMB1051	GMB0061	SCH1061	
	1.750	GMB2051		SCH2061	
3.000	1.250	GMB1052	GMB0062	SCH1062	
	1.750	GMB2052		SCH2062	
3.500	1.250	GMB1053	GMB0063	SCH1063	
	1.750	GMB2053		SCH2063	
4.000	1.250	GMB1054	GMB0064	SCH1064	
	1.750	GMB2054		SCH2064	
5.000	1.250	GMB1055	GMB0065	SCH1065	
	1.750	GMB2055		SCH2065	
6.000	1.250	GMB1056	GMB0066	SCH1066	
	1.750	GMB2056		SCH2066	

GATE-MATE™ 4 NOZZLE SUB-ASSEMBLY DETAIL #2



SEE THE GATE-MATE NOZZLES SECTION FOR OTHER COMPONENT OPTIONS.

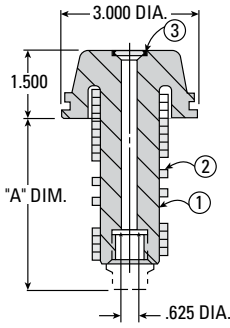
SUB-ASSEMBLY INCLUDE:

1-Nozzle Body, 1-sq. Coil Heater, 1-Thermocouple and 1-O-Ring.

"A" DIM.	NOZZLE SUB-ASSEMBLY NUMBER	1 NOZZLE BODY	2 SQ. COIL HEATER	3 T/C	4 O-RING
2.000	GMB0150	GMB0060	SCH0060	TCG0060	EHR7155
2.500	GMB0151	GMB0061	SCH0061	TCG0061	
3.000	GMB0152	GMB0062	SCH0062	TCG0062	
3.500	GMB0153	GMB0063	SCH0063	TCG0063	
4.000	GMB0154	GMB0064	SCH0064	TCG0064	
5.000	GMB0155	GMB0065	SCH0065	TCG0065	
6.000	GMB0156	GMB0066	SCH0066	TCG0066	

625 SERIES NOZZLE SUB-ASSEMBLY DETAIL #3

(ADD .750 TO "A" DIM. FOR EXTENDED SPRUE GATE TIPS.)



SUB-ASSEMBLY INCLUDE:

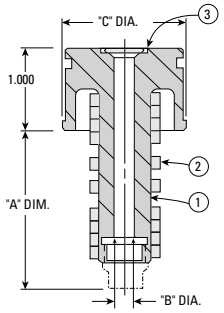
1-Nozzle Body, 1-sq. Coil Heater with Thermocouple and 1-O-Ring.

"A" DIM.	SUB-ASSEMBLY NUMBER	1 NOZZLE BODY	2 SQ. COIL HEATER	3 O-RING
4.000	EHA0016	EHB0074	SCH0096	EHR7156
5.000	EHA0017	EHB0075	SCH0097	
6.000	EHA0018	EHB0076	SCH0098	
7.000	EHA0019	EHB0077	SCH0099	
8.000	EHA0020	EHB0078	SCH0100	
9.000	EHA0021	EHB0079	SCH0101	
10.000	EHA0022	EHB0080	SCH0102	

Nozzles and Gate Tip Detail

250 AND 375 SERIES NOZZLES DETAIL #3

(ADD .750 TO "A" DIM. FOR EXTENDED SPRUE GATE TIPS.)



	250 SERIES	375 SERIES
"B" DIA.	.250	.375
"C" DIA.	1.500	2.000

SUB-ASSEMBLY INCLUDES:

1-Nozzle Body, 1-sq. Coil Heater with Thermocouple and 1-O-Ring.

250 SERIES EXTERNALLY HEATED NOZZLES

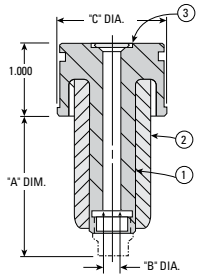
"A" DIM.	SUB-ASSEMBLY NUMBER	1 NOZZLE BODY	2 SQ. COIL HEATER	3 O-RING
2.000	EHA0001	CIB0059	SCH0081	EHR7154
2.500	EHA0002	CIB0060	SCH0082	
3.000	EHA0003	CIB0061	SCH0083	
3.500	EHA0004	CIB0062	SCH0084	
4.000	EHA0005	CIB0063	SCH0085	
5.000	EHA0006	CIB0064	SCH0086	
6.000	EHA0007	CIB0065	SCH0087	

375 SERIES EXTERNALLY HEATED NOZZLES

"A" DIM.	SUB-ASSEMBLY NUMBER	1 NOZZLE BODY	2 SQ. COIL HEATER	3 O-RING
2.000	EHA0008	CIB0066	SCH0088	EHR7155
2.500	EHA0009	CIB0067	SCH0089	
3.000	EHA0010	CIB0068	SCH0090	
3.500	EHA0011	CIB0069	SCH0091	
4.000	EHA0012	CIB0070	SCH0092	
5.000	EHA0013	CIB0071	SCH0093	
6.000	EHA0014	CIB0072	SCH0094	
7.000	EHA0015	CIB0073	SCH0095	

HIGH PERFORMANCE 250 AND 375 SERIES NOZZLES DETAIL #3

(ADD .750 TO "A" DIM. FOR EXTENDED SPRUE GATE TIPS.)



	250 SERIES	375 SERIES
"B" DIA.	.250	.375
"C" DIA.	1.500	2.000

SUB-ASSEMBLY INCLUDES:

1-Nozzle Body, 1-Cast-in Heater with Thermocouple and 1-O-Ring.

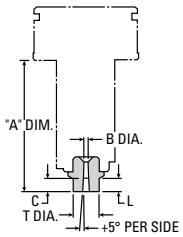
250 SERIES HIGH PERFORMANCE NOZZLES

"A" DIM.	SUB-ASSEMBLY NUMBER	1 NOZZLE BODY	2 CAST-IN HEATER	3 O-RING
2.000	CIA0001	CIB0059	CIH0081	EHR7154
2.500	CIA0002	CIB0060	CIH0082	
3.000	CIA0003	CIB0061	CIH0083	
3.500	CIA0004	CIB0062	CIH0084	
4.000	CIA0005	CIB0063	CIH0085	
5.000	CIA0006	CIB0064	CIH0086	
6.000	CIA0007	CIB0065	CIH0087	

375 SERIES HIGH PERFORMANCE NOZZLES

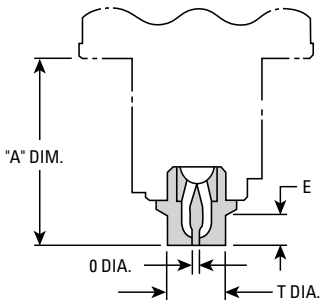
"A" DIM.	SUB-ASSEMBLY NUMBER	1 NOZZLE BODY	2 CAST-IN HEATER	3 O-RING
2.000	CIA0008	CIB0066	CIH0088	EHR7155
2.500	CIA0009	CIB0067	CIH0089	
3.000	CIA0010	CIB0068	CIH0090	
3.500	CIA0011	CIB0069	CIH0091	
4.000	CIA0012	CIB0070	CIH0092	
5.000	CIA0013	CIB0071	CIH0093	
6.000	CIA0014	CIB0072	CIH0094	
7.000	CIA0015	CIB0073	CIH0095	

SPRUE GATE TIP DETAIL #4



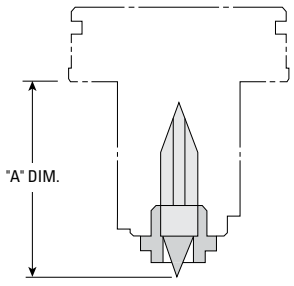
SERIES	GATE TIP	ITEM NO.	B DIA.	T DIA.	L DIM.	C DIM.
250	SPRUE	EHT0010	.080	.500	.250	.375
		EHT0011		.750		
		EHT0012		1.000	.100	
	EXTENDED SPRUE	EHT0013		.500	1.000	1.125
		EHT0014		.750		
		EHT0015		1.000	.850	
375	SPRUE	EHT0016	.125	.500	.250	.375
		EHT0017		.750		
		EHT0018		1.000		
	EXTENDED SPRUE	EHT0019		.500	1.000	1.125
		EHT0020		.750		
		EHT0021		1.000		
625	SPRUE	EHT0022	.187	1.000	.250	.500
	EXTENDED SPRUE	EHT0023			1.000	1.250

RING GATE TIP DETAIL #5



SERIES	ITEM NUMBER	T DIA.	O DIA.	E DIM.
250	EHT0001	.375	.060	.187
	EHT0002		.080	
	EHT0003	.500	.060	
	EHT0004		.080	
375	EHT0006	.500	.080	.230
	EHT0007		.100	
	EHT0008	.750	.080	
	EHT0009		.100	
	EHT0037	1.000	.080	
	EHT0038		.100	
625	EHT0040	1.000	.125	.250

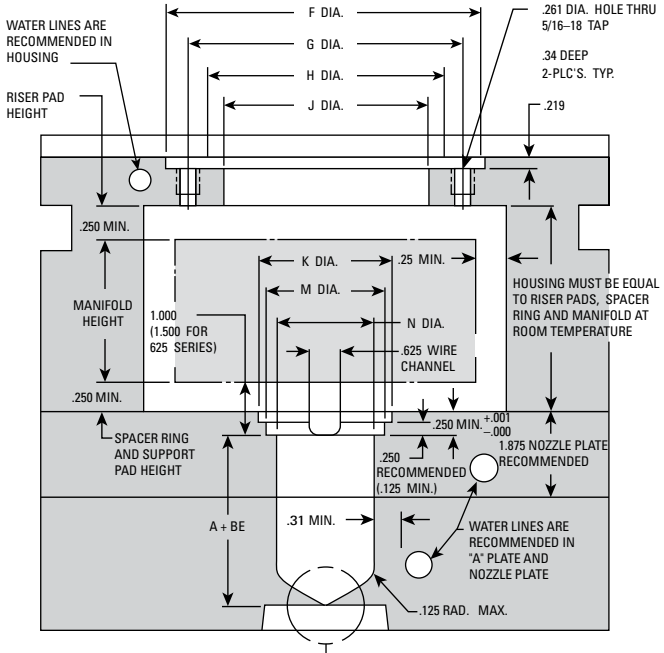
POINT GATE TIP DETAIL #6



SERIES	TYPE	ITEM NUMBER
250	STANDARD	EHT0005
		EHT1314
	WEAR RESISTANT	EHT1308
		EHT1313
375	STANDARD	EHT0039
		EHT1312
	WEAR RESISTANT	EHT1303
		EHT1309
625	STANDARD	EHT1306
		EHT1311
	WEAR RESISTANT	EHT1307
		EHT1310

Housing, Nozzle Plate and Gate Machining Dimensions Detail

MANIFOLD HOUSING, NOZZLE PLATE, "A" PLATE AND GATE MACHINING DIMENSIONS DETAIL #7 THRU #12



LOCATING RING

ITEM NUMBER	F DIA.	G DIA.	H DIA.	J DIA.
EHL0252	4.000	3.312	3.000	2.500
EHL0253	5.500	4.625	4.000	3.750
EHL0254	4.000	3.312	3.000	2.500
EHL0255	5.500	4.625	4.000	3.750

Manifold housing and insulator sheet are to be same width and length as mold base. Height of manifold housing to vary with stackup of manifold, riser pads and spacer rings.

NOZZLES

SERIES	K DIA.	+.001 –.000 M DIA.	N DIA. (MAX.) SQ. COIL OR CAST-IN	N DIA. (MIN.) SQ. COIL OR CAST-IN
GATE-MATE 4	1.56	1.501	1.250	1.125
250	1.56	1.501	1.250	1.187
375	2.06	2.001	1.625	1.437
625	3.06	3.001	2.125	1.875

The Cast-in heater is not available for the Gate-Mate 4 and 625 series nozzles. See the Gate-Mate Nozzles section for Gate-Mate 4 nozzles with front load heaters.

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

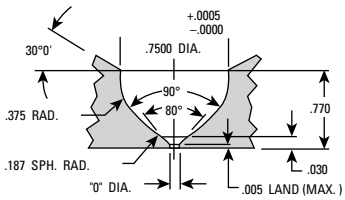
Formula for determining this expansion factor is as follows:

BE = "A" dimension x .0000063 x (nozzle setpoint temp –68°).

EXAMPLE: Given a 3 inch "A" dimension, with a Nozzle setpoint temp. of 500°.
BE = 3 x .0000063 x (500-68) = .008… thus A + BE = 3.008.

The above information is only 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.

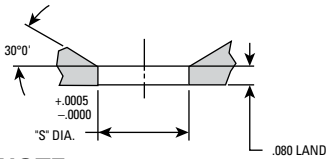
GATE-MATE 4 MACHINING DIMENSIONS



TIP STYLE	TIP ITEM NUMBER	"O" DIA.
STANDARD	GMT-2	.044 MIN.
WEAR RESISTANT	GMT0400	.055 MIN.
SUPER SHARP	GMT0301	.030 MIN.
SUPER SHARP WEAR RESISTANT	GMT0401	.055 MIN.
THRU HOLE	GMT0302*	.030 MIN.– .050 MAX.
THRU HOLE WEAR RESISTANT	GMT0402*	.055 MIN.
NO HOLE	GMT0303	.044 MIN.

Please note that the "O" diameter can be opened by the customer to suit the application. Also the land must be remachined to .055 max. after increasing the gate diameter.
*Contact D-M-E for details to modify thru hole tips for larger "O" diameters.

SPRUE AND RING GATE MACHINING DIMENSIONS

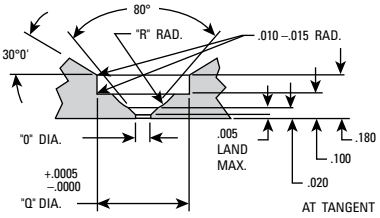


NOTE: Extended sprue length will add .750 to land.

SERIES	"T" DIA.	"S" DIA.
250 AND 375	*.375	*.3755
	.500	.5005
	.750	.7505
	1.000	1.0005
625	1.000	1.0005

*250 Ring gate only.

POINT GATE MACHINING DIMENSIONS



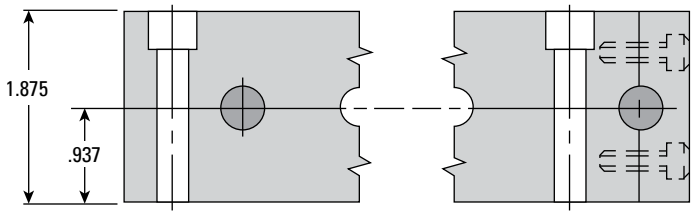
SERIES NOZZLE	"O" DIA. UNFILLED RESIN	"O" DIA. FILLED RESIN	"Q" DIA.	"R" DIA.
250	.028 MIN.	.060 MIN.	.3750	.125
375	.028 MIN.	.060 MIN.	.5000	.187

Please note that the "O" diameter, can be opened by the customer to suit the application. Also the land must be remachined to .005 max. after increasing the gate diameter. Contact D-M-E for 625 Series Point Gate machining dimensions.

Manifold Height Recommendations Detail

MANIFOLD HEIGHT RECOMMENDATIONS DETAIL #23

GATE-MATE 4, 250 SERIES AND 375 SERIES

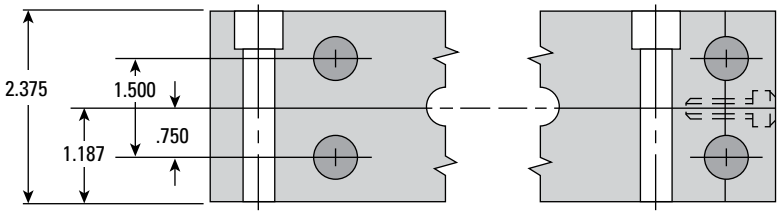


SOLID MANIFOLD WITH SINGLE LEVEL HEATER

MANIFOLD WITH HEATER RETAINER PLATES AND SINGLE LEVEL HEATER

GATE-MATE 4, 250 SERIES, 375 SERIES AND 625 SERIES

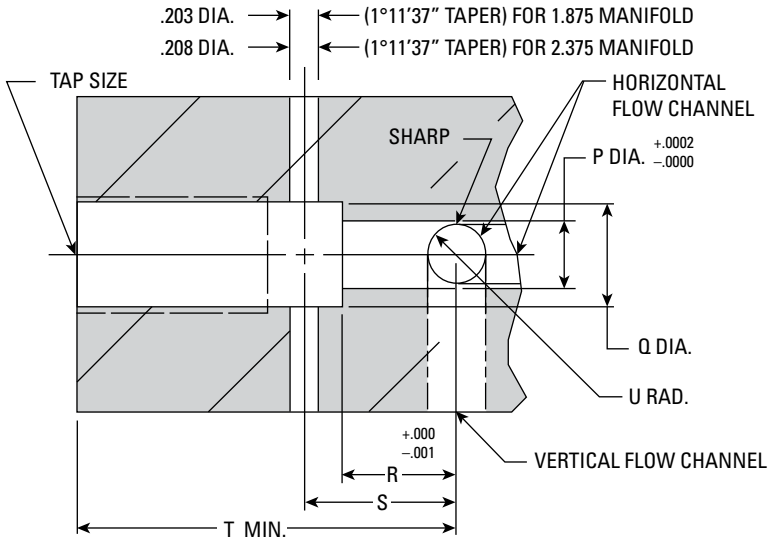
When more watt density is required



SOLID MANIFOLD WITH DUAL LEVEL HEATERS

MANIFOLD WITH HEATER RETAINER PLATES AND DUAL LEVEL HEATERS

END PLUG MACHINING DETAILS #24

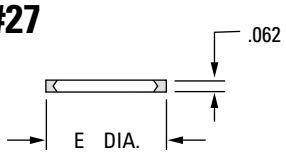


DIMENSION	GATE-MATE 4	250 SERIES	375 SERIES	625 SERIES
P DIA.	.5615	.4365	.5615	.6875
Q DIA.	.812	.687	.812	.922
R	.750	.750	.750	1.125
S	1.000	1.000	1.000	1.375
T	3.250	3.000	3.250	3.875
U RAD.	.250	.187	.250	.312
TAP SIZE	7/8-14 UNF-3B	3/4-16 UNF-3B	7/8-14 UNF-3B	1-12 UNF-3B
TAP DEPTH	1.875	1.625	1.875	2.125

Replacement Parts Detail

REPLACEMENT SEAL RING DETAIL #27

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



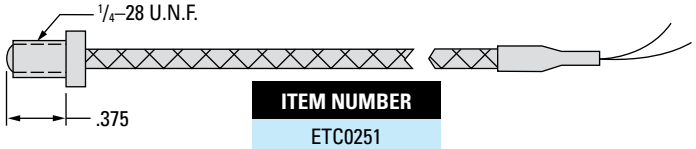
SERIES	ITEM NUMBER	E DIA.
GATE-MATE 4	EHR0155	.686
250	EHR0154	.561
375	EHR0155	.686
625	EHR0156	1.063

MANIFOLD THERMOCOUPLE DETAIL #28

TYPE "J", 36" LEADS

THREAD TYPE

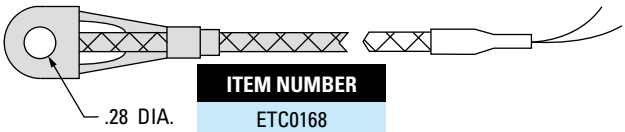
Installed between heat source and flow channel for precise control.



ITEM NUMBER
ETC0251

FLAT WASHER TYPE

Utilized in limited space applications.



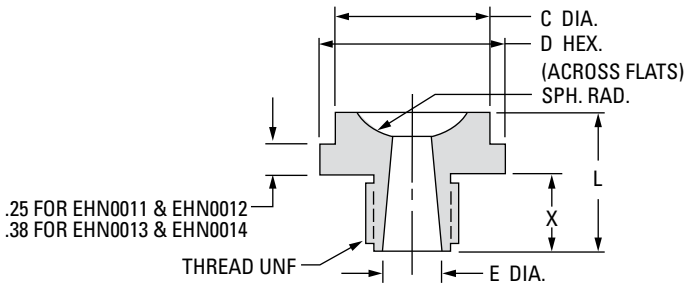
ITEM NUMBER
ETC0168

TERMINAL MOUNTING BOX DETAIL #29

For information on terminal mounting boxes, mold power and thermocouple connectors, see the D-M-E Control Systems Catalog.

NOZZLE SEAT DETAIL #30

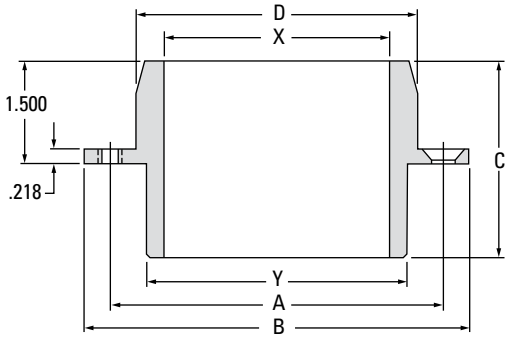
Replaceable interface between manifold and machine nozzle.



ITEM NUMBER	SPH. RAD.	X	L	C DIM.	D HEX.	E DIA.	THREAD
EHN0011	.500	.62	1.250	1.250	1.50	.363	¾–16
EHN0012	.750						
EHN0013	.500	.75	1.750	1.500	1.88	.457	1–12
EHN0014	.750						

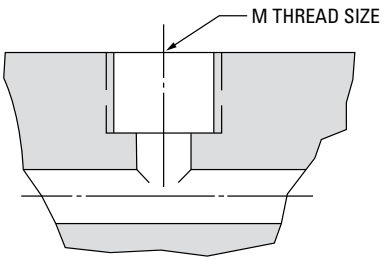
LOCATING RING DETAIL #31

INCLUDES (2) 5/16 – 18 × ½" LG. FLAT HEAD CAP SCREW



ITEM 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

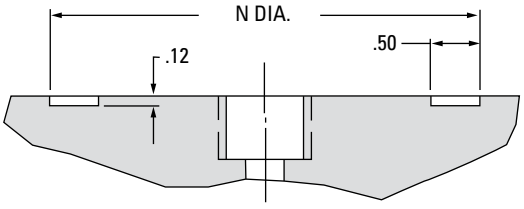
NOZZLE SEAT MACHINING DETAIL #20



ITEM NUMBER	M THREAD SIZE
EHN0011	.687 DIA. HOLE × .56 DEEP
EHN0012	¾–16 UNF TAP × .50 DEEP
EHN0013	.922 DIA. HOLE × .69 DEEP
EHN0014	1–12 UNF TAP × .62 DEEP

LOCATING RING MACHINING DETAIL #21

Relief in top of manifold for locating ring.



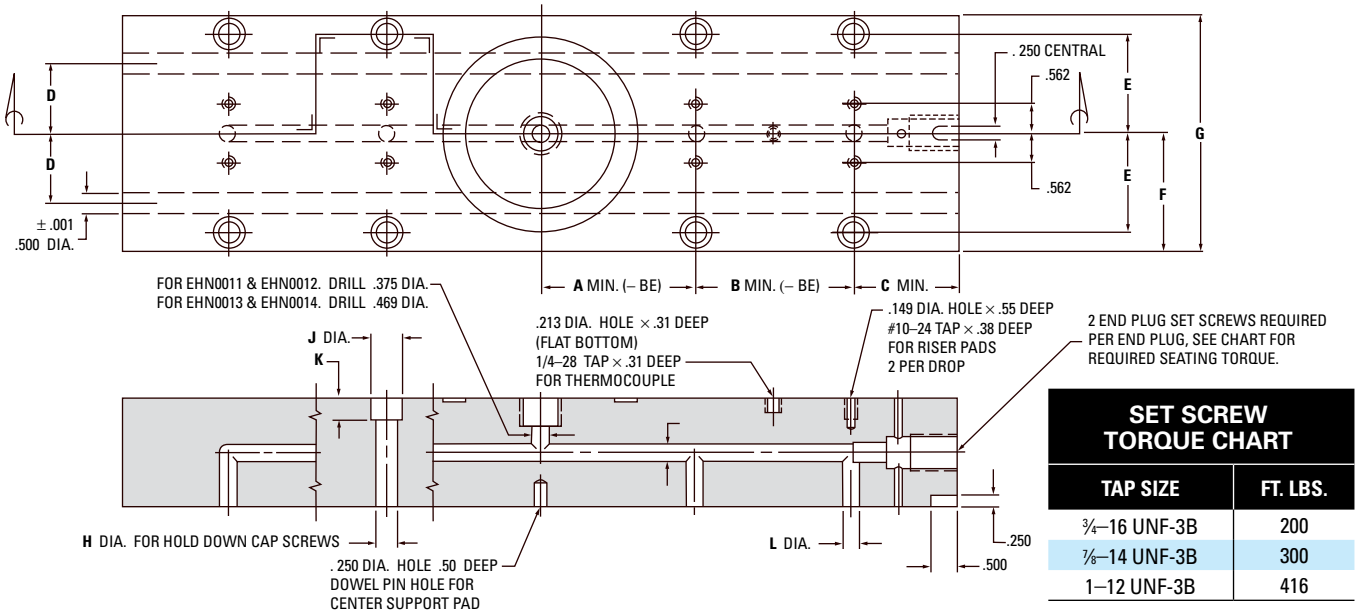
ITEM NUMBER	N DIA. +.005 –.000
EHL0252	2.505
EHL0253	3.755
EHL0254	2.505
EHL0255	3.755

Manifold Design and Machining Dimensions Details

MANIFOLD DESIGN AND MACHINING DIMENSIONS DETAILS #13 THRU #19

MATERIAL: D-M-E #3 STEEL

IN LINE PATTERN

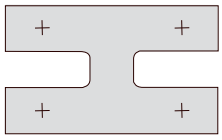


SET SCREW TORQUE CHART	
TAP SIZE	**FT. LBS.**
¾–16 UNF-3B	200
⅞–14 UNF-3B	300
1–12 UNF-3B	416

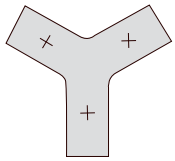
MANIFOLD CONFIGURATION IS DETERMINED BY PLACEMENT OF NOZZLES IN MOLD

IN LINE PATTERN

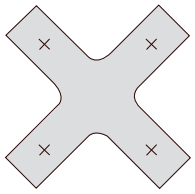
H PATTERN



Y PATTERN



X PATTERN



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 .15, modify to suit.

MANIFOLD WATT DENSITY	
APPROXIMATE MELT TEMPERATURE OF MATERIAL TO BE MOLDED	**WATT DENSITY PER CUBIC INCH OF MANIFOLD**
350° – 400° F	32
400° – 450° F	34
450° – 500° F	36
500° – 550° F	38
550° – 600° F	40
600° – 650° F	42
650° – 700° F	44
700° – 750° F	46

NOTE: The expansion factor must be taken into consideration prior to machining for, and installing manifold. This expansion factor (BE) must then be subtracted from the nominal "A" and "B" dimension, if "B" is required.

Formula for determining this expansion factor is as follows:
BE = "A" or "B" dimension × .0000063 × (manifold setpoint temp. – 68°F).

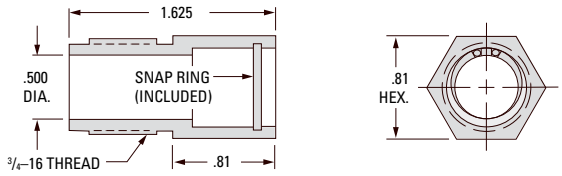
EXAMPLE: Given a 4 inch "A" dimension, with a manifold setpoint temp. of 500°F.
BE = [4 × .0000063 × (500–68)] = .011 thus A – BE = 3.989

The above information is only 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.

Parts Detail

HEATER PULLER DETAIL #33

Assists in the removal of shoulder style cartridge heater.



PULLER WITH RING

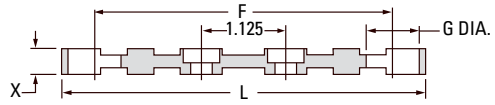
ITEM NUMBER
EHP0250

REPLACEMENT SNAP RING

ITEM NUMBER
EHP0001

RISER PAD DETAIL #34

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

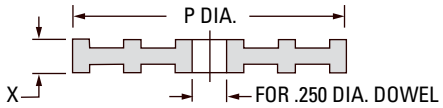


INCLUDES (2) #10–24 LOW HEAD CAP SCREWS

ITEM NUMBER	X DIM. +.010 ⊠.000	L DIM.	F DIM.	G DIA.	USED WITH
ERP0163	.250	4.000	3.250	.625	GATE–MATE 4, 250 SERIES AND 375 SERIES
ERP0167	.375				
ERP0164	.750				
ERP0165	.250	5.000	4.000	.781	625 SERIES
ERP0168	.375				
ERP0166	.750				

CENTER SUPPORT PAD DETAIL #35

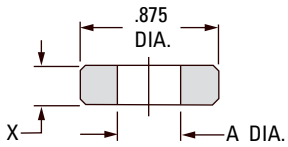
Aligns and supports manifold center while minimizing heat transfer from manifold.



ITEM NUMBER	X DIM. +.010 ⊠.000	P DIA.
ECB0161	.250	2.500
ECB0162	.750	2.500
ECB0163	.250	1.500
ECB0164	.750	1.500

SPACER RING DETAIL #36

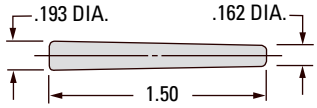
Maintains spacing between manifold and nozzle plate.



ITEM NUMBER	X DIM. +.010 ⊠.000	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

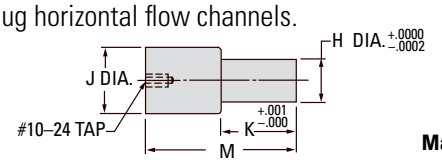
Aligns and prevents end plug from rotating.
Tapered dowel pin must conform to ANSI B18.8.2-1978 standard.



ITEM NUMBER
EDP0001

END PLUG DETAIL #38

Used to plug horizontal flow channels.

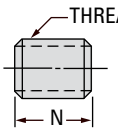


Material : P–20

SERIES	ITEM 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

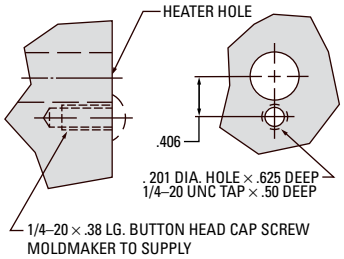
Used to secure end plug into manifold (2 required).
End plug set screw must conform to the following standards.
ANSI B1.1. ANSI B18.3 and ASTM F912.



SERIES	ITEM 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

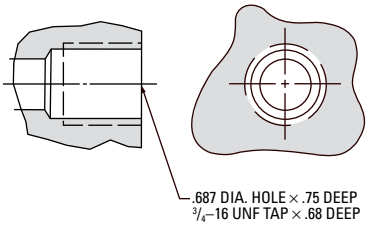
HEATER STOP MACHINING DETAIL #25

Used for ECH-Series cartridge heaters.



HEATER PULLER MACHINING DETAIL #22

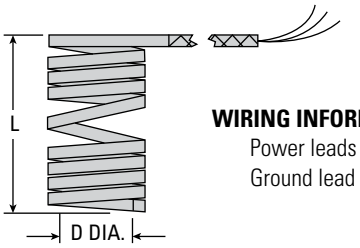
Used for CHS-Series cartridge heaters recommended for heaters installed in blind holes.



Replacement Square Coil Nozzle Heater Detail

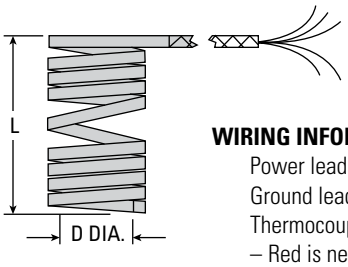
REPLACEMENT SQUARE COIL NOZZLE HEATER DETAIL #26

GATE-MATE 4™ NOZZLE HEATER
240 VAC, 36" LEADS



WIRING INFORMATION:
Power leads are black
Ground lead is green

250, 375 AND 625 NOZZLE HEATER
240 VAC, T/C TYPE "J", 36" LONG



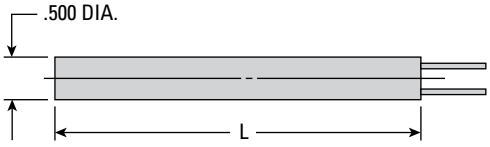
WIRING INFORMATION:
Power leads are black
Ground lead is green
Thermocouple leads are red and white
– Red is negative (–) and constantan (non-magnetic)
– White is positive (+) and iron (magnetic)

SERIES	ITEM NUMBER	D DIA. NOMINAL NOZZLE	L DIM.	WATTS	USED WITH NOZZLE SUB-ASSEMBLY
GATE-MATE 4	SCH0060	.750	1.437	250	GMB0050
					GMB0150
	SCH0061		1.937	300	GMB0051
					GMB0151
	SCH0062		2.437	350	GMB0052
					GMB0152
	SCH0063		2.937	400	GMB0053
					GMB0153
	SCH0064		3.437	425	GMB0054
					GMB0154
	SCH0065		4.437	500	GMB0055
					GMB0155
	SCH0066		5.437	500	GMB0056
					GMB0156
250	SCH0081	.625	2.000	300	EHA0001
	SCH0082		2.500	350	EHA0002
	SCH0083		3.000	400	EHA0003
	SCH0084		3.500	425	EHA0004
	SCH0085		4.000	500	EHA0005
	SCH0086		5.000	500	EHA0006
	SCH0087		6.000	550	EHA0007
375	SCH0088	.875	2.125	400	EHA0008
	SCH0089		2.625	450	EHA0009
	SCH0090		3.125	550	EHA0010
	SCH0091		3.625	700	EHA0011
	SCH0092		4.125	800	EHA0012
	SCH0093		5.125	900	EHA0013
	SCH0094		6.125	1000	EHA0014
	SCH0095		7.125	1100	EHA0015
625	SCH0096	1.500	4.000	1000	EHA0016
	SCH0097		5.000	1030	EHA0017
	SCH0098		6.000	1100	EHA0018
	SCH0099		7.000	1000	EHA0019
	SCH0100		8.000	1200	EHA0020
	SCH0101		9.000	1200	EHA0021
	SCH0102		10.000	1200	EHA0022

MANIFOLD HEATER DETAIL #32

240 VAC, 36" LEADS

CARTRIDGE HEATER



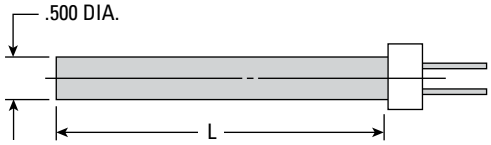
Used in through hole or retainer plate construction.

WIRING INFORMATION:
Power leads are multicolored

ITEM 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

ITEM 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

SHOULDER STYLE CARTRIDGE HEATER



These heaters are used in conjunction with heater pullers for ease of removal in blind or through hole installations.

ITEM 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

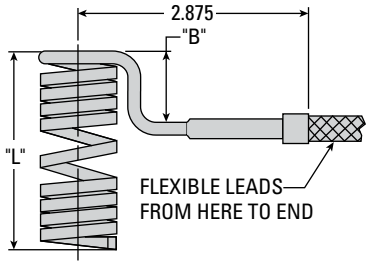
Gate-Mate™ 4 Options Detail

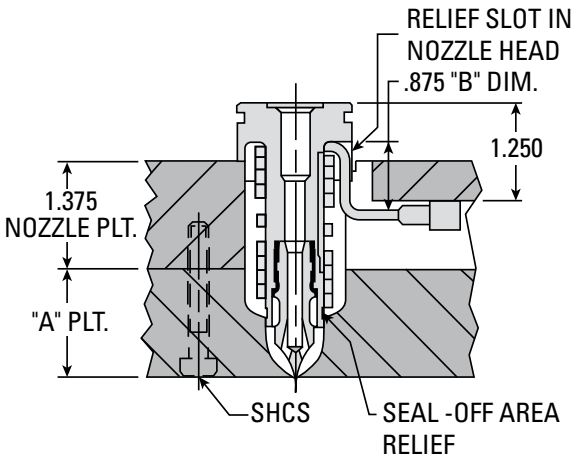
GATE-MATE™ 4 OPTIONS DETAIL #2

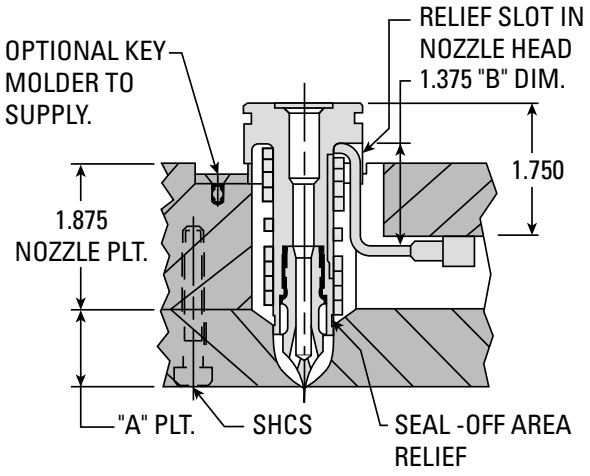
FRONT LOAD SQUARE COIL HEATER 240 VAC, T/C TYPE "J", 36" LONG

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)







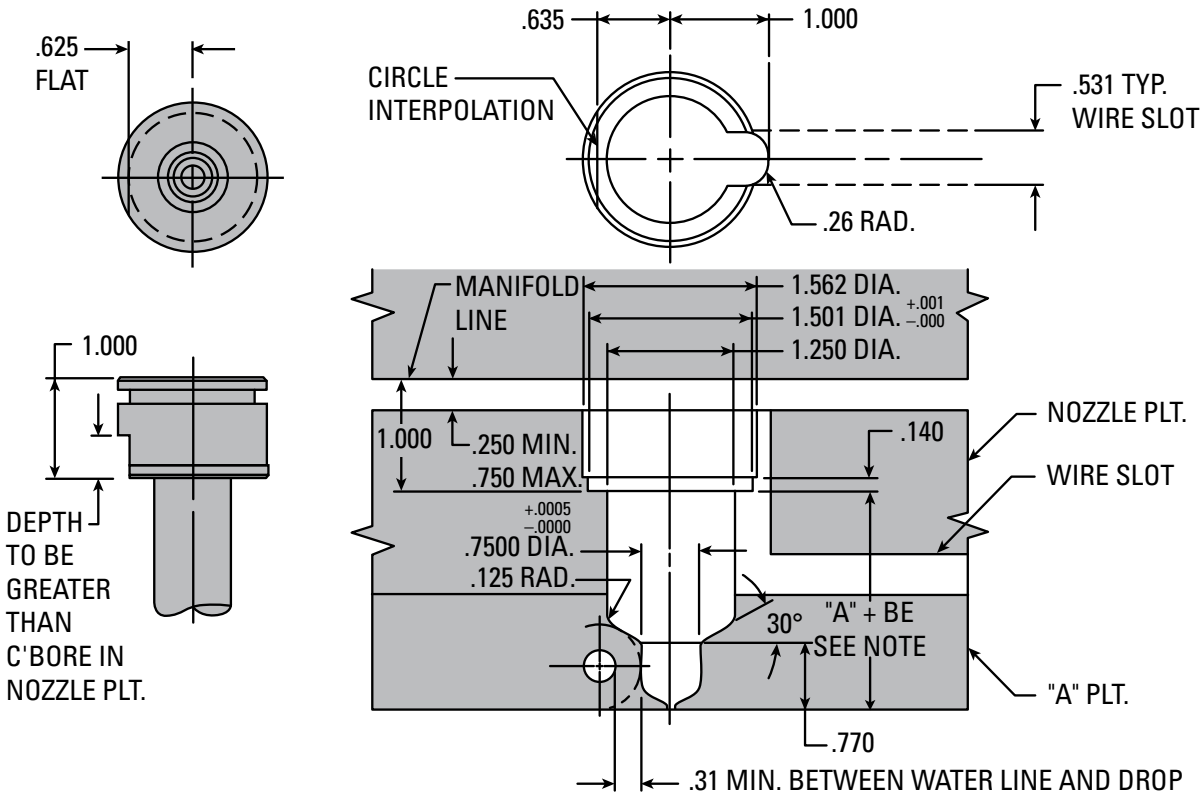
ITEM NUMBER	USED WITH NOZZLE SUB-ASSY.	'B' DIM.	'L' DIM.	WATTS
SCH1060	GMB1050	.875	1.594	250
SCH1061	GMB1051	.875	2.094	300
SCH2061	GMB2051	1.375		
SCH1062	GMB1052	.875	2.594	350
SCH2062	GMB2052	1.375		
SCH1063	GMB1053	.875	3.094	400
SCH2063	GMB2053	1.375		
SCH1064	GMB1054	.875	3.594	425
SCH2064	GMB2054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

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 × .00000633 × (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.

Gate-Mate™ 4 Options Detail

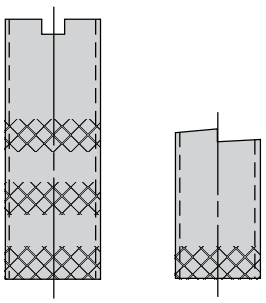


RECOMMENDATIONS AND GUIDELINES

1. Front Load Square Coil Heaters are designed to be used with Gate-Mate 4 Nozzles only
2. 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
3. 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
4. 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:
   a. Place heater within Tube 'A' so that the bending exit lead lies within the slot of the tube
   b. Insert Tube 'B' with angle out within Tube 'A' so that the angle of the tube mates with the last coil of the heater
   c. 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
   d. Slide the heater onto the nozzle body shaft aligning the heater exit lead within the relief slot in the nozzle's head
   e. Position heater so that the end of the last coil is above the relief of the seal-off area (see figure above)
5. Place wire straps over wire channel to secure heater and thermocouple wires before assembling 'A' plate to the nozzle plate

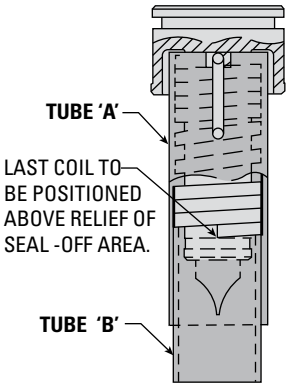
Coil Heater Wrench Detail | Gate Shell Insulator Detail | Gate-Mate Tips Detail

FRONT LOAD SQUARE COIL HEATER WRENCH DETAIL #2



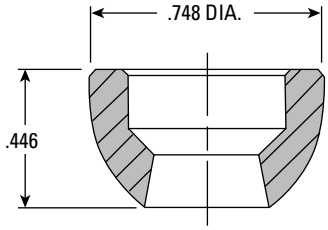
FRONT LOAD SQUARE COIL HEATER WRENCH ASSEMBLY	
ITEM NO.	WRE0007

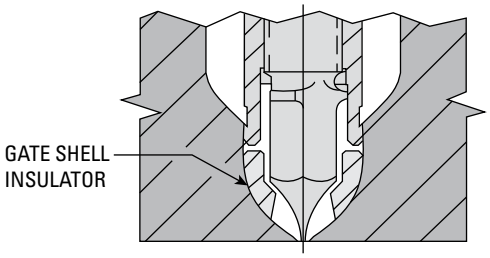
Front Load Square Coil Heater Wrench assembly must be ordered separately from heater.



GATE SHELL INSULATOR DETAIL #2

For use with Gate-Mate 4 Nozzles only

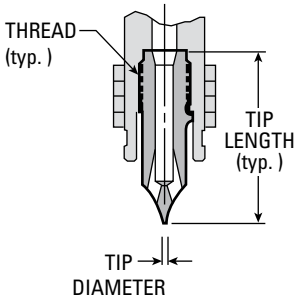




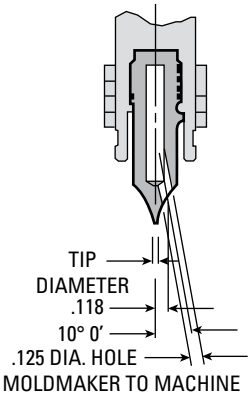
GATE SHELL INSULATOR	
ITEM NO.	GSI0001

GATE-MATE TIPS DETAIL #2

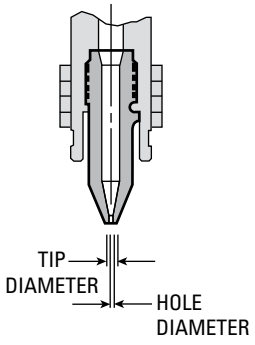
STANDARD WEAR RESISTANT SUPER SHARP



NO HOLE



THRU HOLE

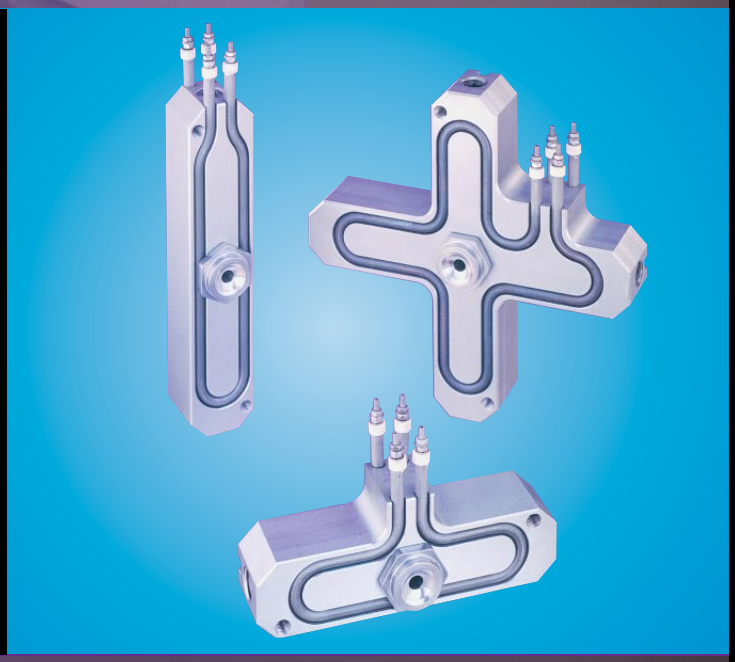


TIP STYLE	ITEM NUMBER	"O" DIAMETER	TIP LENGTH	TIP DIAMETER	HOLE DIAMETER	THREAD	BODY STYLE
STANDARD	GMT-2	.044 MIN.	1.730	.024	N/A	1/2–20	MEDIUM GATE-MATE & GATE-MATE 4
WEAR RESISTANT	GMT0400	.055 MIN.					
SUPER SHARP	GMT0301	.030 MIN.		.010			
SUPER SHARP WEAR RESISTANT	GMT0401	.055 MIN.					
THRU HOLE	GMT0302*	.030 MIN. – .050 MAX.	1.690	.090	.050		
THRU HOLE WEAR RESISTANT	GMT0402*	.055 MIN.					
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.

D-M-E Meteor™ Hot Runner Systems

CUSTOM-CONFIGURED,
ECONOMICAL SOLUTIONS
FOR QUICK DELIVERY



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Meteor 3 In-Line Center Exit 101
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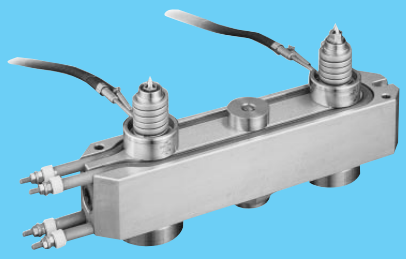
More Solutions. More Choices. Always Quick Delivery.

Meteor™
Hot Runner Systems

Meteor 1 hot runner systems available for same-day shipment.



Meteor 2 manifold and components systems ship in one week or less.

Meteor 3 complete hot half assemblies ship in only three weeks. D-M-E mold base and temperature controller are optional.

The Meteor™ Manifold System provides a versatile yet economical solution for many hot runner mold designs. Two-drop (in-line) and four-drop (X-style) manifolds are available in sizes to suit a variety of applications. Pre-engineered with accurately machined flow channels, nozzle ports can be freely located anywhere within each manifold's flow channel limits. Stocked for quick delivery, Meteor manifolds are supplied with replaceable, press-fit tubular heaters. A full complement of ancillary components are also available to complete the system design and construction. Nozzle selection can be made from a broad array of D-M-E nozzles, including the 250 and 375 Series, the popular Mini Gate-Mate™ and the Gate-Mate 4™ Series.

Advantages

- Three levels of quick-delivery hot runner systems
- In-line and X-style manifolds for 2- and 4-drop applications
- Suitable for engineered and commodity resins
- Cost-effective
- Satisfaction 100% guaranteed

Choose the Meteor™ System that's right for you

D-M-E offers three quick-delivery hot runner systems with varying levels of customization – you pick the one that fits your needs.

Meteor 1

- Standard, off-the-shelf manifolds with machined horizontal flow channel
- Customer machines vertical flow channel locations and end plugs for maximum configuration flexibility
- Customer can easily order a Meteor 1 manifold kit and select nozzles, supports, nozzle seat, locating ring, thermocouples and other necessary items – for same-day shipment

Meteor 2

- Manifold and components system, integrated with a Meteor 1 manifold kit
- Customer specifies nozzles, supports, nozzle seat, locating ring, thermocouples, etc.
- D-M-E performs vertical flow channel and end plug machining
- Shipment in just one week (or less)

Meteor 3

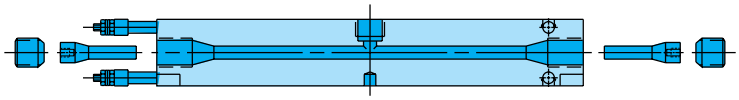
- Complete hot-half assembly, ready to bolt onto the mold
- Turnkey solution with optional D-M-E mold base and 5-zone or 8-zone temperature controller
- Hot half fully assembled, wired and tested
- Industry-leading three-week delivery time

More Solutions. More Choices. Always Quick Delivery.

The Meteor Package

Each Meteor manifold kit includes the following standard items:

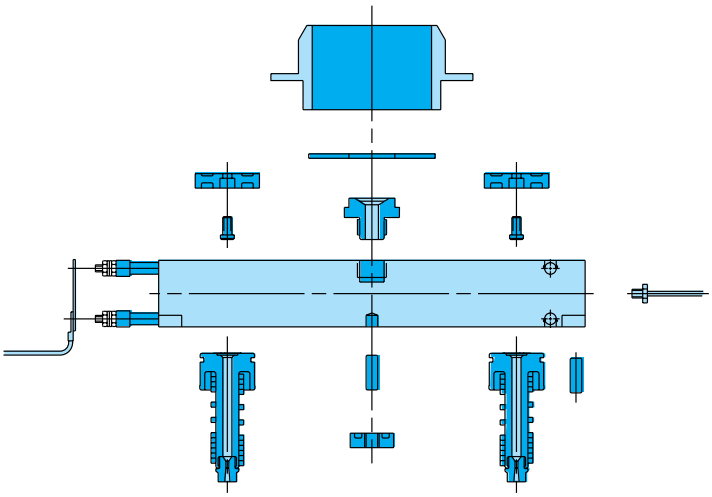
- Manifold with pre-machined horizontal flow channel
- Pre-installed, replaceable tubular heaters
- End plugs
- End plug set screws



Ancillary Components

A variety of ancillary components available include:

- Locating rings
- Drool rings
- Nozzle seats
- Riser pads and cap screws
- Center support pads and dowel pins
- Thermocouples



Nozzle Options

All nozzles have a selection of tip styles to suit material flow and gate cosmetic requirements.

METEOR SYSTEM	EHA AND CIA		MINI GATE-MATE	GATE-MATE 4 SERIES
	250 SERIES	375 SERIES		
METEOR 1	✓	✓	✓	✓
METEOR 2	✓	✓	✓	✓
METEOR 3	✓	✓	—	✓

Application Notes

- Mini Gate-Mate, Gate-Mate 4 and 250 Series nozzles to be used with manifold kits MEM0100K thru MEM0200K, MCM0100K thru MCM0200K and MXM0100K thru MXM0200K. Gate-Mate 4 and 375 Series nozzles to be used with all other manifold kits.
- All manifolds with suffix of 100K, 150K and 200K have a 9mm diameter flow channel; all other manifolds have a 12mm diameter flow channel.
- CIA High Performance nozzles are recommended for materials that process above 260°C/500°F.
- For filled or abrasive materials, wear-resistant tips are recommended.
- Meteor manifolds are not recommended for use with PVC material.

Contact D-M-E for assistance.

CUSTOMER DESIGN CRITERIA FORMS

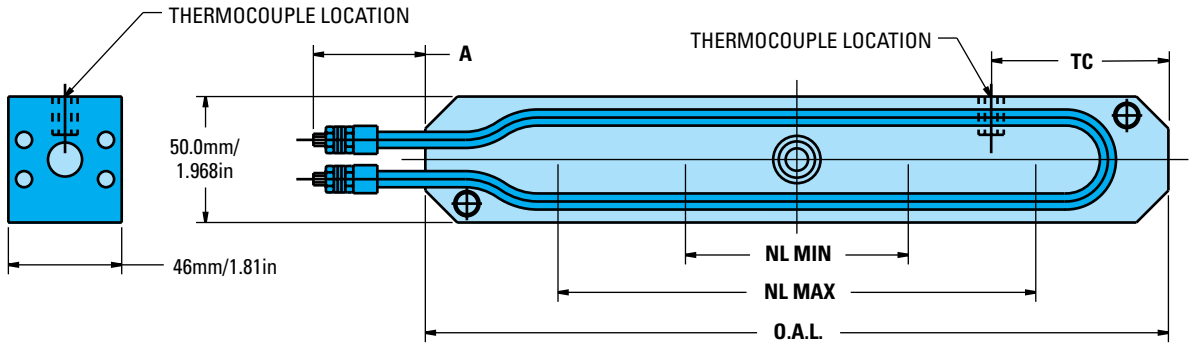
CDC

To provide your Meteor™ application specifications, visit www.dme.net/cdc

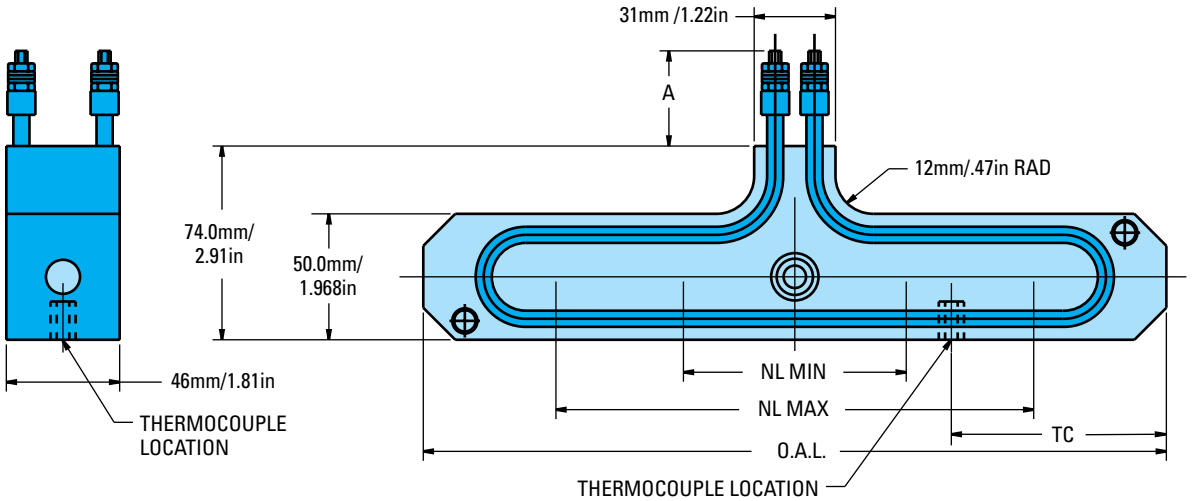
Meteor 1
In-Line and X-Style Manifolds

Meteor 1: Same-day shipment!

Meteor 1 In-Line End Exit



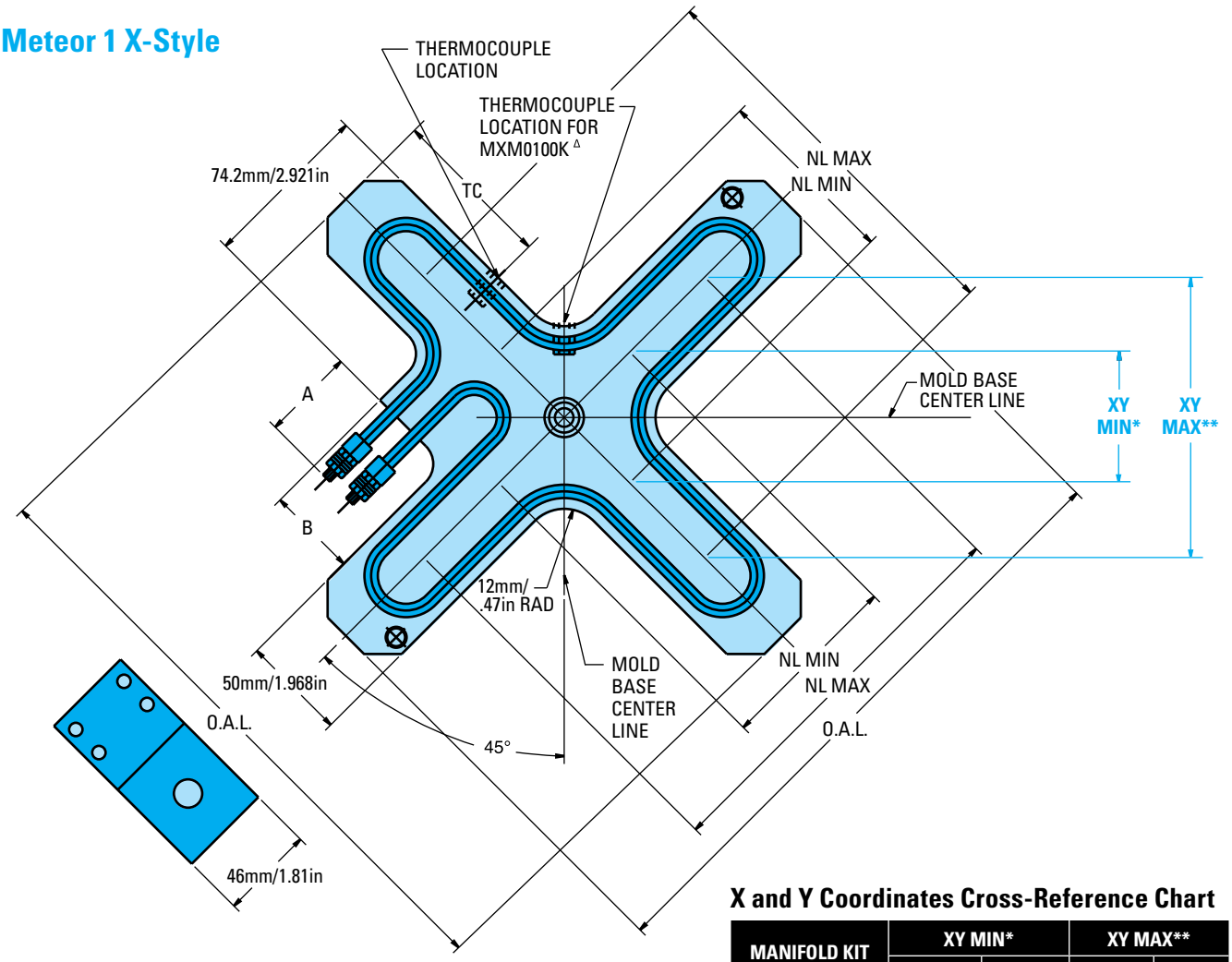
Meteor 1 In-Line Center Exit



MANIFOLD TYPE	MANIFOLD KIT ITEM NO.	NL MIN.		NL MAX.		O.A.L.		A		B		TC	
		MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH
IN-LINE END EXIT	MEM0100K	55	2.165	100	3.937	195	7.677	44.5	1.75	—	—	60	2.362
	MEM0150K	100	3.937	150	5.906	245	9.646	44.5	1.75	—	—		
	MEM0200K	150	5.906	200	7.874	295	11.614	44.5	1.75	—	—		
	MEM0300K	200	7.874	300	11.811	395	15.551	44.5	1.75	—	—	72.5	2.362
	MEM0400K	300	11.811	400	15.748	495	19.488	50.8	2.00	—	—		
	MEM0500K	400	15.748	500	19.685	595	23.425	50.8	2.00	—	—		
IN-LINE CENTER EXIT	MCM0100K	55	2.165	100	3.937	195	7.677	44.5	1.75	—	—	60	2.362
	MCM0150K	100	3.937	150	5.906	245	9.646	44.5	1.75	—	—		
	MCM0200K	150	5.906	200	7.874	295	11.614	44.5	1.75	—	—		
	MCM0300K	200	7.874	300	11.811	395	15.551	44.5	1.75	—	—	72.5	2.854
	MCM0400K	300	11.811	400	15.748	495	19.488	50.8	2.00	—	—		
	MCM0500K	400	15.748	500	19.685	595	23.425	50.8	2.00	—	—		
X-STYLE	MXM0100K	55	2.165	100	3.937	195	7.677	44.5	1.75	56.8	2.236	SEE X-STYLE[Δ]	
	MXM0150K	100	3.937	150	5.906	245	9.646	44.5	1.75	51.3	2.020	60	2.362
	MXM0200K	150	5.906	200	7.874	295	11.614	50.8	2.00	51.3	2.020		
	MXCM0300K	200	7.874	300	11.811	395	15.551	50.8	2.00	51.3	2.020	72.5	2.854

Meteor 1
In-Line and X-Style Manifolds

Meteor 1 X-Style



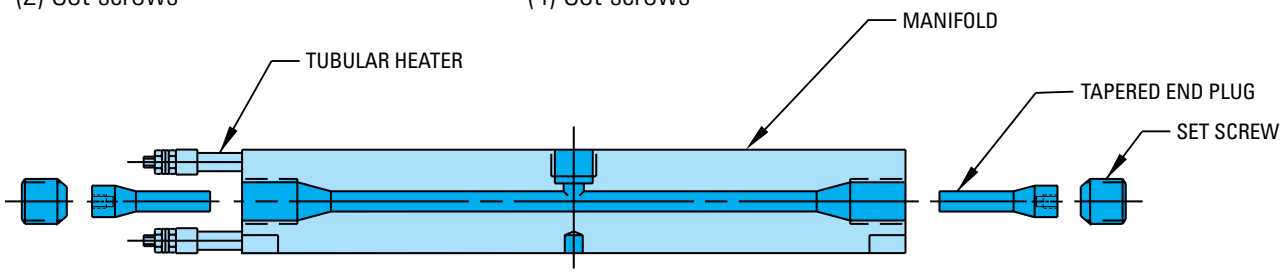
X and Y Coordinates Cross-Reference Chart

MANIFOLD KIT ITEM NO.	XY MIN*		XY MAX**	
	MM	INCH	MM	INCH
MXM0100K	38.90	1.531	70.71	2.783
MXM0150K	70.71	2.783	106.07	4.176
MXM0200K	106.07	4.176	141.42	5.568
MXM0300K	141.42	5.568	212.13	8.352

Meteor 1 Manifold Kit Includes:

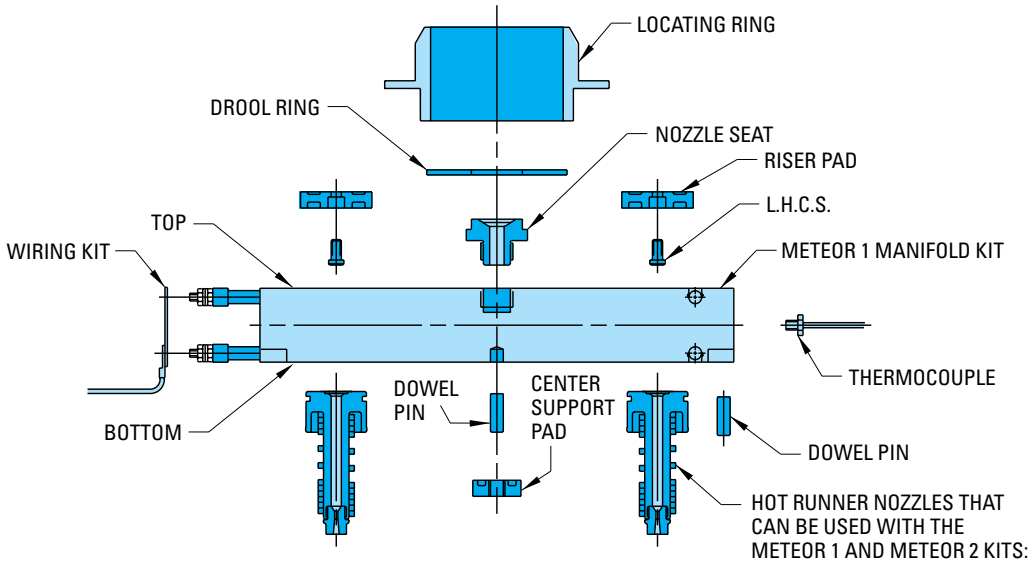
In-Line System:
- (1) Manifold (center or end heater exit)
- (2) Tubular heaters (installed)
- (2) Tapered end plugs
- (2) Set screws

X-Style System:
- (1) Manifold
- (2) Tubular heaters (installed)
- (4) Tapered end plugs
- (4) Set screws



Meteor 1 & 2 Ancillary Component Options

Meteor 2: One-week delivery!



MANIFOLD TYPE	METEOR 1 MANIFOLD KIT ITEM NO.	METEOR 2 MANIFOLD KIT PLUS ITEM NO.	DESIGN CRITERIA		
			NOZZLE OPTIONS	V VERTICAL FLOW CHANNEL DIA. MM	INCH
IN-LINE END EXIT	MEM0100K	MEM0100KP	250 SERIES EHA & CIA MINI GATE-MATE GATE-MATE 4 SERIES	9	.354
	MEM0150K	MEM0150KP			
	MEM0200K	MEM0200KP			
	MEM0300K	MEM0300KP	375 SERIES EHA & CIA GATE-MATE 4 SERIES	12	.472
	MEM0400K	MEM0400KP			
	MEM0500K	MEM0500KP			
IN-LINE CENTER EXIT	MCM0100K	MCM0100KP	250 SERIES EHA & CIA MINI GATE-MATE GATE-MATE 4 SERIES	9	.354
	MCM0150K	MCM0150KP			
	MCM0200K	MCM0200KP			
	MCM0300K	MCM0300KP	375 SERIES EHA & CIA GATE-MATE 4 SERIES	12	.472
	MCM0400K	MCM0400KP			
	MCM0500K	MCM0500KP			
X-STYLE	MXM0100K	MXM0100KP	250 SERIES EHA & CIA MINI GATE-MATE GATE-MATE 4 SERIES	9	.354
	MXM0150K	MXM0150KP			
	MXM0200K	MXM0200KP			
	MXM0300K	MXM0300KP	375 SERIES EHA & CIA GATE-MATE 4 SERIES	12	.472

Meteor 1 Manifold Kit includes manifold, tubular heaters installed, two end plugs, and two set screws. The customer machines the vertical flow channel locations and end plugs for maximum configuration flexibility.

Meteor 2 Manifold Kit Plus includes the machining of the vertical flow channels and the installation of the end plugs and set screws by D-M-E. The customer provides D-M-E with the gate locations on a Meteor 2 Criteria Form.

CUSTOMER DESIGN CRITERIA FORMS

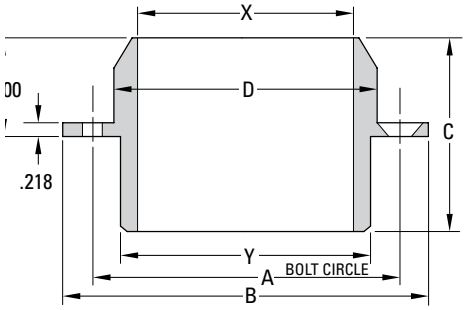
CDC

To provide your Meteor™ application specifications, visit www.dme.net/cdc

MANIFOLD TYPE	METEOR 1 MANIFOLD KIT ITEM NO.	METEOR 2 MANIFOLD KIT PLUS ITEM NO.	ANCILLARY COMPONENT OPTIONS								
			THERMO-COUPLE ITEM NO.	LOCATING RING ITEM NO.	DROOL RING ITEM NO.	NOZZLE SEAT ITEM NO.	RISER PADS ITEM NO.	CTR. SUPPORT PADS ITEM NO.	DOWEL PINS ITEM NO.	1/4-20 X .50 LG. L.H.C.S. ITEM NO.	WIRING KIT ITEM NO.
IN-LINE END EXIT	MEM0100K	MEM0100KP	ETC0252	EHL0253 EHL0255 (1 REQ'D.)	EHL1003	MNS0009	ERP1001 ERP1002 ERP1011 ERP1012 (2 OF SAME REQ'D.)	ECB0468 ECB0469 ECB0503 (1 REQ'D.)	DP820 DP828 DP832 (2 OF SAME REQ'D.)	1412LH (2 REQ'D.)	MWK1001
	MEM0150K	MEM0150KP									
	MEM0200K	MEM0200KP									
	MEM0300K	MEM0300KP				MNS0012					
	MEM0400K	MEM0400KP									
	MEM0500K	MEM0500KP	ETC0252 (2 REQ'D.)								MWK1002
IN-LINE CENTER EXIT	MCM0100K	MCM0100KP	ETC0252	EHL0253 EHL0255 (1 REQ'D.)	EHL1003	MNS0009	ERP1001 ERP1002 ERP1011 ERP1012 (2 OF SAME REQ'D.)	ECB0468 ECB0469 ECB0503 (1 REQ'D.)	DP820 DP828 DP832 (2 OF SAME REQ'D.)	1412LH (2 REQ'D.)	MWK1001
	MCM0150K	MCM0150KP									
	MCM0200K	MCM0200KP									
	MCM0300K	MCM0300KP				MNS0012					
	MCM0400K	MCM0400KP									
	MCM0500K	MCM0500KP	ETC0252 (2 REQ'D.)								MWK1002
X-STYLE	MXM0100K	MXM0100KP	ETC0252	EHL0253 EHL0255 (1 REQ'D.)	EHL1003	MNS0009	ERP1001 ERP1002 ERP1011 ERP1012 (4 OF SAME REQ'D.)	ECB0468 ECB0469 ECB0503 (1 REQ'D.)	DP820 DP828 DP832 (2 OF SAME REQ'D.)	1412LH (2 REQ'D.)	MWK1001
	MXM0150K	MXM0150KP									
	MXM0200K	MXM0200KP	ETC0252 (2 REQ'D.)			MNS0012					MWK1002
	MXM0300K	MXM0300KP									

Meteor 1 & 2
Ancillary Component Options

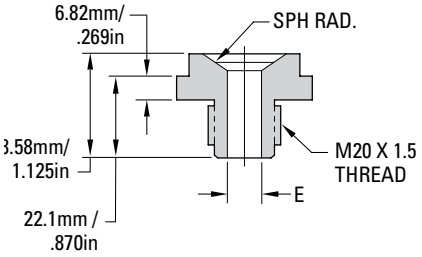
Locating Rings



ITEM NO.	Ø D	Ø X	Ø Y	A	Ø B	C
EHL0253	101 MM 3.990 IN	82.5 MM 3.250 IN	95 MM 3.750 IN	117 MM 4.625 IN	139.5 MM 5.495 IN	73 MM 2.875 IN
EHL0255	101 MM 3.990 IN	82.5 MM 3.250 IN	95 MM 3.750 IN	117 MM 4.625 IN	139.5 MM 5.495 IN	114 MM 24.500 IN

Includes (2) 1/2 inch long, 5/16 Flat Head Cap Screws.

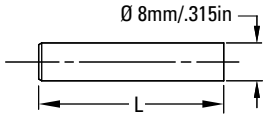
Machine Nozzle Seats



ITEM NO.	E FLOW CHANNEL MM	E FLOW CHANNEL IN	SPHERICAL RADIUS
MNS0009	9 MM	.354 IN	1/2 + 3/4 IN
MNS1009	9 MM	.354 IN	15.5 MM
MNS0012	12 MM	.472 IN	1/2 + 3/4 IN
MNS1012	12 MM	.472 IN	15.5 MM

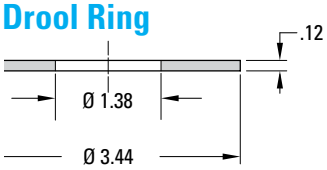
NOTE: Machine nozzle tip orifice to be matched properly with nozzle seat flow channel.

Dowel Pins



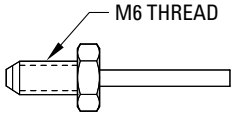
ITEM NO.	L MM	L IN
DP8-20	20	.787
DP8-28	28	1.102
DP8-32	32	1.260

Drool Ring



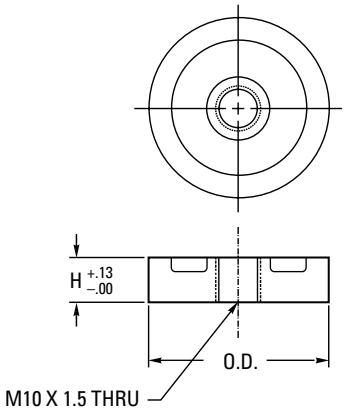
ITEM NO.
EHL1003

Manifold Thermocouple



ITEM NO.
ETC0252

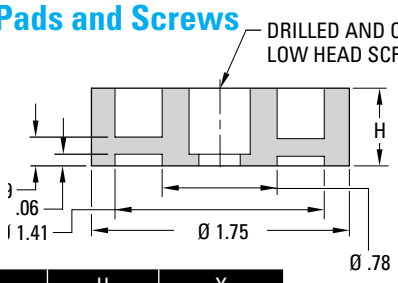
Center Support Pads



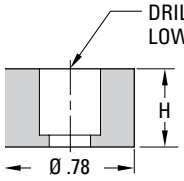
ITEM NO.	O.D. MM	O.D. IN	H MM	H IN
ECB0468	30	1.181	20	.787
ECB0469	30	1.181	10	.394
ECB0503	40	1.575	10	.394

NOTES:
1. The M10 X 1.5 tapped hole is used to screw the center support pad to a plate for machining the pad to the correct height.
2. An 8mm dia. dowel pin is required for assembly.

Riser Pads and Screws



ITEM NO.	H MM	H IN	X MM	X IN
ERP1001	12.7	.500	10	.405
ERP1002	19	.750	16.6	.655



ITEM NO.	H MM	H IN	X MM	X IN
ERP1011	12.7	.500	10	.405
ERP1012	19	.750	16.6	.655

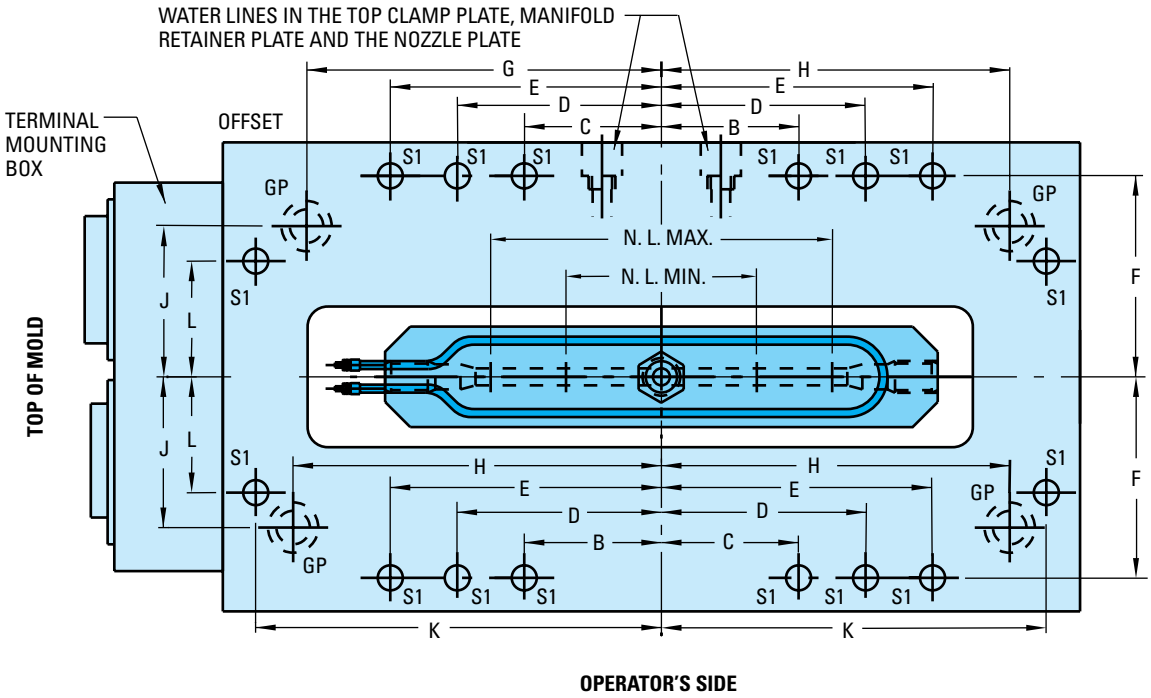
ITEM NO.
1412LH

1/4-20 x 1/2 lg. LOW HEAD CAP SCREW (L.H.C.S.)

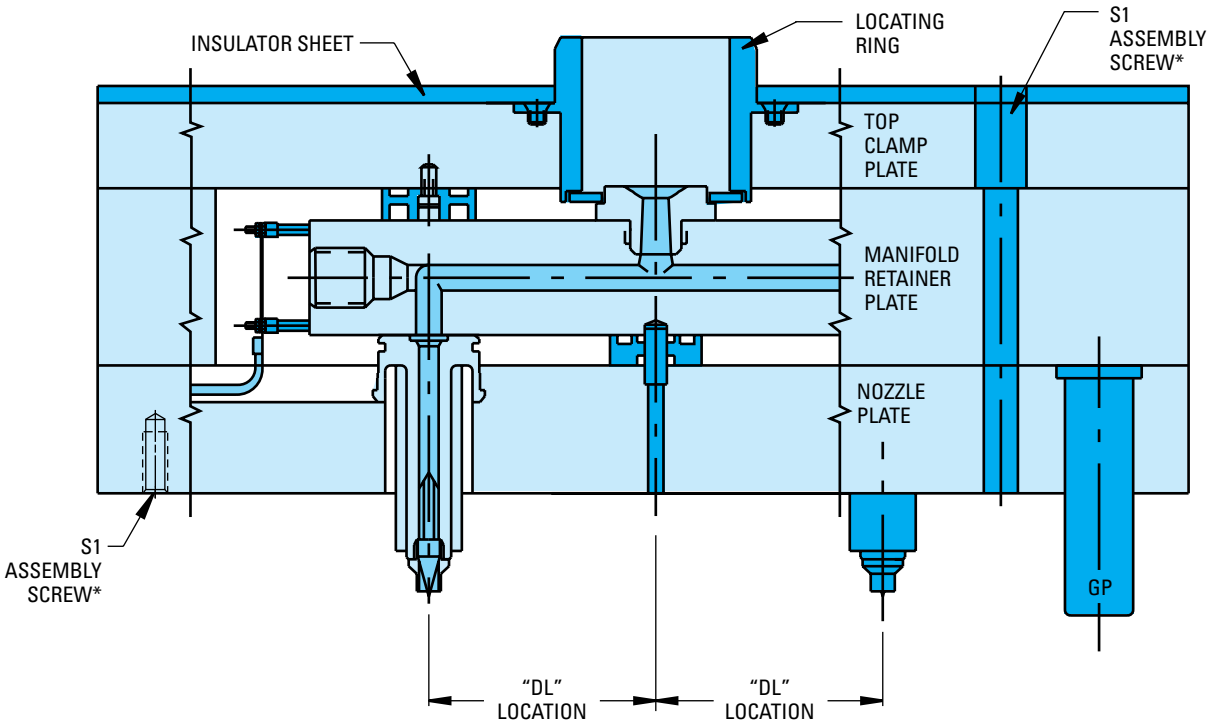
NOTE: For maximum support, use riser pads ERP1001 or ERP1002 whenever possible. Only use riser pads ERP1011 or ERP1012 when there are space constraints.

Meteor 3
In-Line End Exit

Meteor 3: Three-week delivery!



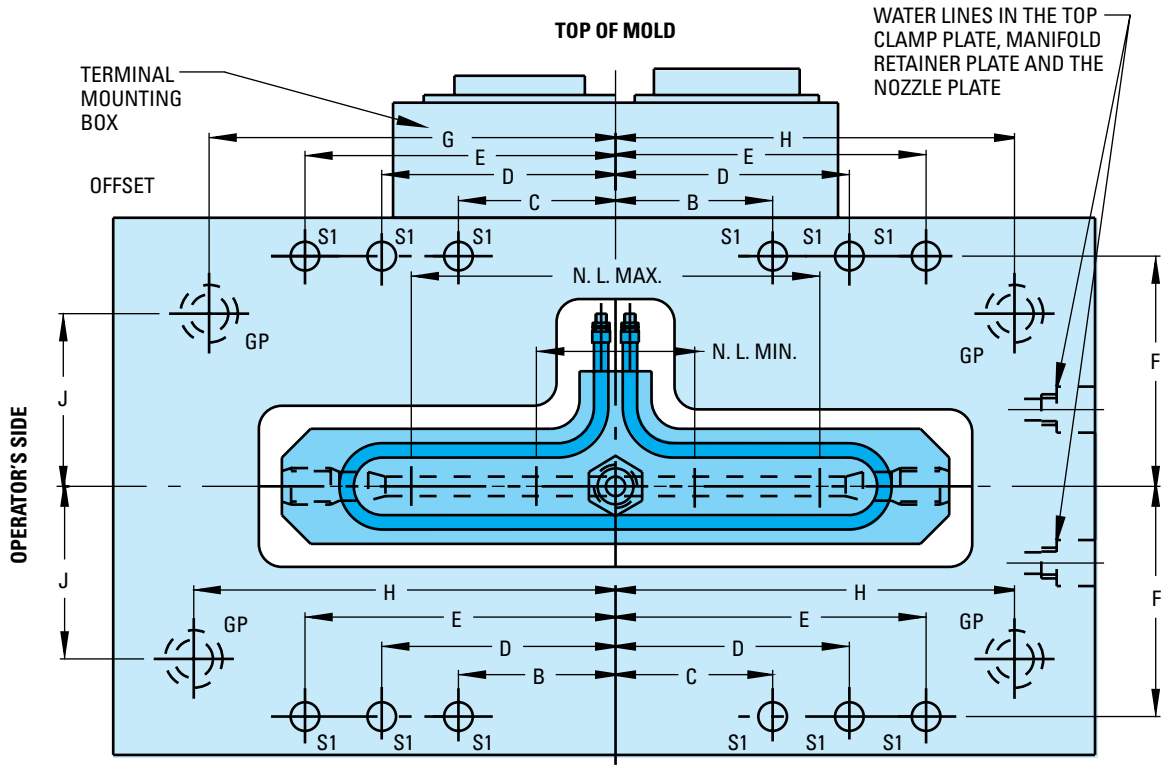
NOTE: The plan view is from mold locating ring/machine nozzle.



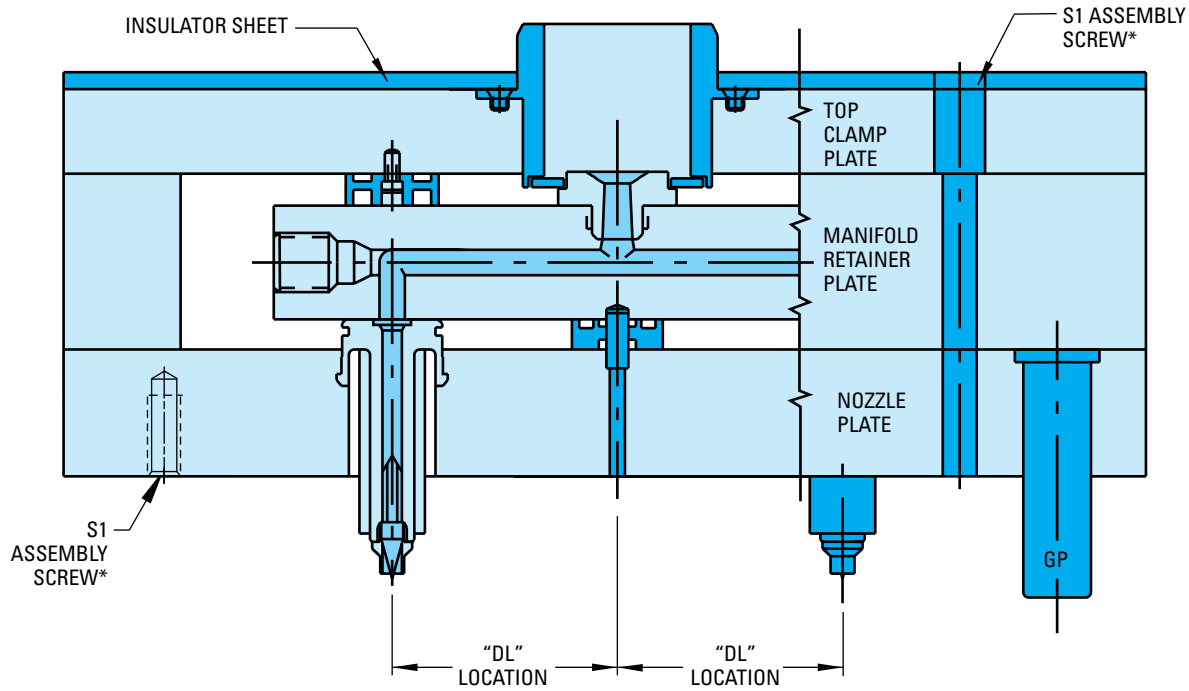
*S1 screws can be mounted either from the parting line or from the top clamp plate. Specify preference on criteria form when placing order.

Meteor 3
In-Line Center Exit

Meteor 3: Three-week delivery!



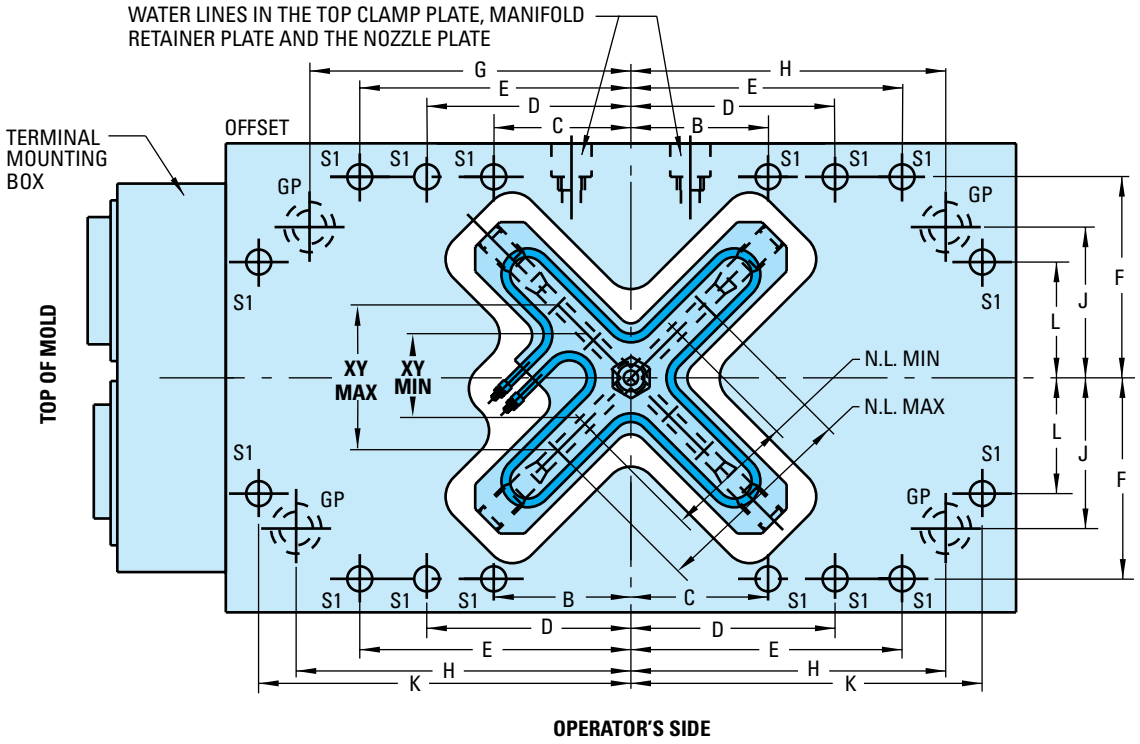
NOTE: The plan view is from mold locating ring/machine nozzle.



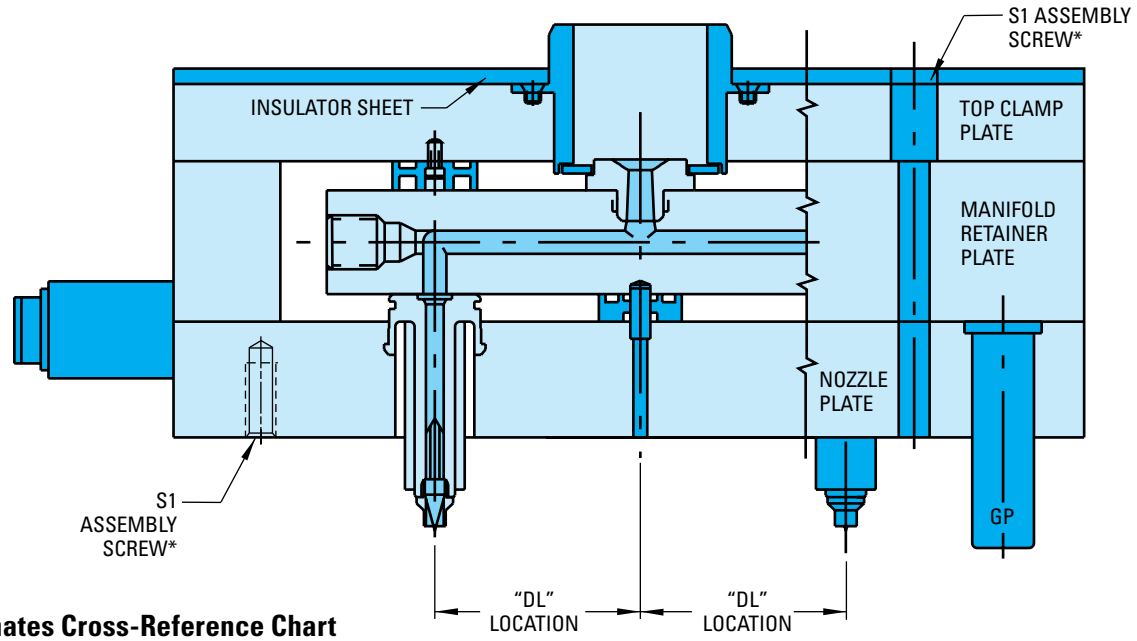
*S1 screws can be mounted either from the parting line or from the top clamp plate. Specify preference on criteria form when placing order.

Meteor 3 X-Style

Meteor 3: Three-week delivery!



NOTE: The plan view is from mold locating ring/machine nozzle.



X and Y Coordinates Cross-Reference Chart

MANIFOLD KIT ITEM NO.	XY MIN*		XY MAX**	
	MM	INCH	MM	INCH
MXM0100K	38.90	1.531	70.71	2.783
MXM0150K	70.71	2.783	106.07	4.176
MXM0200K	106.07	4.176	141.42	5.568
MXM0300K	141.42	5.568	212.13	8.352

NOTE: See In-Line and X-Style Manifolds for NL MIN and NL MAX.

*S1 screws can be mounted either from the parting line or from the top clamp plate. Specify preference on criteria form when placing order.

Meteor 3 Dimensional Information
In-Line End Exit and In-Line Center Exit

HOT HALF ASSEMBLY ITEM NUMBER		MOLD BASE SIZE	B	C	D	E	F	G	H	J	K	L
IN-LINE END EXIT	IN-LINE CENTER EXIT											
MEM0100KPH	MCM0100KPH	1215	—	1.000	—	5.375	4.969	5.4375	5.6250	3.8125	—	—
		1220	—	1.000	—	7.500	4.969	7.5625	7.7500	3.8125	—	—
		1315	—	1.000	—	5.375	5.719	5.4375	5.6250	4.5000	—	—
		1321	—	1.000	—	7.625	5.719	7.9375	8.1250	4.1875	—	—
		1620	—	1.000	—	7.125	6.969	7.5625	7.7500	5.0000	—	—
MEM0150KPH	MCM0150KPH	1220	—	1.000	—	7.500	4.969	7.5625	7.7500	3.8125	—	—
		1321	—	1.000	—	7.625	5.719	7.9375	8.1250	4.1875	—	—
		1620	—	1.000	—	7.125	6.969	7.5625	7.7500	5.0000	—	—
MEM0200KPH	MCM0200KPH	1321	—	1.000	—	7.6225	5.719	7.9375	8.1250	4.1875	—	—
		1524	3.625	3.625	—	8.625	6.469	8.4375	8.6250	5.0000	—	—
		1924	3.625	3.625	—	8.625	8.781	8.6875	8.8750	7.2500	—	—
MEM0300KPH	MCM0300KPH	1524	3.625	3.625	—	8.625	6.469	8.4375	8.6250	5.0000	—	—
		1924	3.625	3.625	—	8.625	8.781	8.6875	8.8750	7.2500	—	—
		1929	4.562	4.562	—	12.000	8.781	12.1875	12.3750	6.5000	—	—
MEM0400KPH	MCM0400KPH	1826	4.000	4.000	—	10.250	7.969	10.4375	10.6250	6.0000	—	—
		1929	4.562	4.562	—	12.000	8.781	12.1875	12.3750	6.5000	—	—
		2429	4.812	4.812	—	11.750	10.844	11.5625	11.7500	8.5000	13.750	6.750
MEM0500KPH	MCM0500KPH	2429	4.812	4.812	—	11.750	10.844	11.5625	11.7500	8.5000	13.750	6.750
		2435	3.875	3.875	9.625	14.750	10.844	14.6875	14.8750	8.5000	16.750	6.750

NOTE: "S1" screws for 24" wide mold bases are to be 5/8-11 S.H.C.S. All other mold bases require 1/2-13 S.H.C.S.

QDS Mold Bases Available for Meteor 3 – End Exit and Center Exit

HOT HALF ASSEMBLY (PREFIX)		SUITABLE D-M-E QDS MOLD BASES (SUFFIX)															
IN-LINE END EXIT	IN-LINE CENTER EXIT	1215	1220	1315	1321	1518	1524	1616	1620	1818	1820	1826	1924	1929	2424	2429	2435
MEM0100KPH	MCM0100KPH	✓	✓	✓	✓				✓								
MEM0150KPH	MCM0150KPH	N/A	✓	N/A	✓				✓								
MEM0200KPH	MCM0200KPH	N/A	N/A	N/A	✓	N/A	✓						✓				
MEM0300KPH	MCM0300KPH	N/A	N/A	N/A	N/A	N/A	✓						✓	✓			
MEM0400KPH	MCM0400KPH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓	N/A	✓		✓	
MEM0500KPH	MCM0500KPH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓	✓

NOTE: Program expansion ongoing. Contact D-M-E for delivery timeframes regarding availability of other mold base sizes.

Nozzle Options

D-M-E nozzles for use with Meteor 3 systems include:

- 250 Series EHA and CIA
- 375 Series EHA and CIA
- Gate-Mate 4 Series

All nozzles have a selection of tip styles to suit material flow and gate cosmetic requirements.

Meteor 3 Dimensional Information
X-Style

MANIFOLD KIT PLUS ITEM NUMBER	MOLD BASE SIZE	B	C	D	E	F	G	H	J	K	L
MEM0150KPH	1220	—	1.000	—	7.500	4.969	7.5625	7.7500	3.8125	—	—
	1321	—	1.000	—	7.625	5.719	7.9375	8.1250	4.1875	—	—
	1620	—	1.000	—	7.125	6.969	7.5625	7.7500	5.0000	—	—
MEM0200KPH	1321	—	1.000	—	7.6225	5.719	7.9375	8.1250	4.1875	—	—
	1524	3.625	3.625	—	8.625	6.469	8.4375	8.6250	5.0000	—	—
	1924	3.625	3.625	—	8.625	8.781	8.6875	8.8750	7.2500	—	—
MEM0300KPH	1524	3.625	3.625	—	8.625	6.469	8.4375	8.6250	5.0000	—	—
	1924	3.625	3.625	—	8.625	8.781	8.6875	8.8750	7.2500	—	—
	1929	4.562	4.562	—	12.000	8.781	12.1875	12.3750	6.5000	—	—
MEM0400KPH	1826	4.000	4.000	—	10.250	7.969	10.4375	10.6250	6.0000	—	—
	1929	4.562	4.562	—	12.000	8.781	12.1875	12.3750	6.5000	—	—
	2429	4.812	4.812	—	11.750	10.844	11.5625	11.7500	8.5000	13.750	6.750

NOTE: "S1" screws for 24" wide mold bases are to be 5/8-11 S.H.C.S. All other mold bases require 1/2-13 S.H.C.S.

QDS Mold Bases Available for Meteor 3 – X-Style

HOT HALF ASSEMBLY (PREFIX)	SUITABLE D-M-E QDS MOLD BASES (SUFFIX)											
X-STYLE	1518	1524	1616	1620	1818	1820	1826	1924	1929	2424	2429	2435
MEM0100KPH	✓	N/A	✓	✓								
MEM0150KPH	✓	N/A	✓	✓								
MEM0200KPH	N/A	N/A	N/A	N/A	✓	✓		✓				
MEM0300KPH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	✓	✓	✓

NOTE: Program expansion ongoing. Contact D-M-E for delivery timeframes regarding availability of other mold base sizes.

Nozzle Options

D-M-E nozzles for use with Meteor 3 systems include:

- 250 Series EHA and CIA
- 375 Series EHA and CIA
- Gate-Mate 4 Series

All nozzles have a selection of tip styles to suit material flow and gate cosmetic requirements.

Meteor 3 Reference Information and Item Numbers

Minimum Mold Plate Sizes

MANIFOLD TYPE	MANIFOLD KIT ITEM NO.	MINIMUM WIDTH		MINIMUM LENGTH	
		MM	INCH	MM	INCH
IN-LINE END EXIT	MEM0100K	302	11 7/8	381	15
	MEM0150K	302	11 7/8	508	20
	MEM0200K	302	11 7/8	527	20 3/4
	MEM0300K	302	11 7/8	610	24
	MEM0400K	302	11 7/8	660	26
	MEM0500K	302	11 7/8	737	29
IN-LINE CENTER EXIT	MCM0100K	302	11 7/8	381	15
	MCM0150K	302	11 7/8	508	20
	MCM0200K	302	11 7/8	527	20 3/4
	MCM0300K	302	11 7/8	660	24
	MCM0400K	302	11 7/8	749	26
	MCM0500K	302	11 7/8	902	29
X-STYLE	MXM0100K	378	14 7/8	406	16
	MXM0150K	378	14 7/8	406	16
	MXM0200K	454	17 7/8	457	18
	MXM0300K	603	23 3/4	603	23 3/4

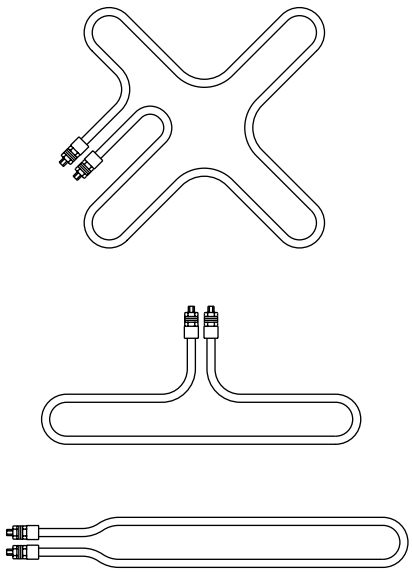
Meteor Wiring Information

MANIFOLD TYPE	MANIFOLD KIT ITEM NO.	D-M-E CONTROLLER	WIRING LOCATION FOR NOZZLES AND MANIFOLD					
			ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
IN-LINE END EXIT	MEM0100K	5 ZONE	NOZ. 1	NOZ. 2	MAN.	—	—	—
	MEM0150K		NOZ. 1	NOZ. 2	MAN.	—	—	—
	MEM0200K		NOZ. 1	NOZ. 2	MAN.	—	—	—
	MEM0300K		NOZ. 1	NOZ. 2	MAN.	—	—	—
	MEM0400K		NOZ. 1	NOZ. 2	MAN.	—	—	—
	MEM0500K		NOZ. 1	NOZ. 2	MAN. TOP	MAN. BTM.	—	—
IN-LINE CENTER EXIT	MCM0100K	5 ZONE	NOZ. 1	NOZ. 2	MAN.	—	—	—
	MCM0150K		NOZ. 1	NOZ. 2	MAN.	—	—	—
	MCM0200K		NOZ. 1	NOZ. 2	MAN.	—	—	—
	MCM0300K		NOZ. 1	NOZ. 2	MAN.	—	—	—
	MCM0400K		NOZ. 1	NOZ. 2	MAN.	—	—	—
	MCM0500K		NOZ. 1	NOZ. 2	MAN. TOP	MAN. BTM.	—	—
X-STYLE	MXM0100K	5 ZONE	NOZ. 1	NOZ. 2	NOZ. 3	NOZ. 4	MAN.	—
	MXM0150K		NOZ. 1	NOZ. 2	NOZ. 3	NOZ. 4	MAN.	—
	MXM0200K	8 ZONE	NOZ. 1	NOZ. 2	NOZ. 3	NOZ. 4	MAN. TOP	MAN. BTM.
	MXM0300K		NOZ. 1	NOZ. 2	NOZ. 3	NOZ. 4	MAN. TOP	MAN BTM.

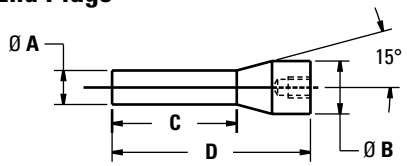
Meteor Spare Parts

MANIFOLD TYPE	MANIFOLD KIT ITEM NO.	TUBULAR HEATER		END PLUG ITEM NO.	SET SCREW ITEM NO.
		ITEM NO.	WATTAGE		
IN-LINE END EXIT	MEM0100K	MEH0100	600	MTP0009	MSS0001
	MEM0150K	MEH0150	750		
	MEM0200K	MEH0200	900		
	MEM0300K	MEH0300	1225	MTP0012	
	MEM0400K	MEH0400	1550		
	MEM0500K	MEH0500	1850		
IN-LINE CENTER EXIT	MCM0100K	MCH0100	600	MTP0009	MSS0001
	MCM0150K	MCH0150	750		
	MCM0200K	MCH0200	900		
	MCM0300K	MCH0300	1225	MTP0012	
	MCM0400K	MCH0400	1550		
	MCM0500K	MCH0500	1850		
X-STYLE	MXM0100K	MXH0100	575	MTP0009	MSS0001
	MXM0150K	MXH0150	1350		
	MXM0200K	MXH0200	1675		
	MXM0300K	MXH0300	2150	MTP0012	

Tubular Heaters



End Plugs



ITEM NO.	A		B		C		D	
	MM	INCH	MM	INCH	MM	INCH	MM	INCH
MTP0009	9	.354	14	.551	33	1.299	52.5	2.067
MTP0012	12	.472	16	.630	60	2.362	77.5	3.051

Set Screw

- Thread: M20 x 2.5
- Thickness: 20mm/.787in
- Hex Flat: 10mm/.394in

Meteor 3 Reference Information and Item Numbers

Meteor 3 Item Numbers

METEOR 3 TYPE	ITEM NUMBERS FOR HOT HALF ASSEMBLY	ITEM NUMBERS FOR HOT HALF ASSEMBLY AND MOLD BASE*	ITEM NUMBERS FOR HOT HALF ASSEMBLY, MOLD BASE AND TEMPERATURE CONTROLLER*
IN-LINE END EXIT	MEM0100KPH1215	MEM0100KPHM1215	MEM0100KPHM1215T
	MEM0100KPH1220	MEM0100KPHM1220	MEM0100KPHM1220T
	MEM0100KPH1315	MEM0100KPHM1315	MEM0100KPHM1315T
	MEM0100KPH1321	MEM0100KPHM1321	MEM0100KPHM1321T
	MEM0100KPH1620	MEM0100KPHM1620	MEM0100KPHM1620T
	MEM0150KPH1220	MEM0150KPHM1220	MEM0150KPHM1220T
	MEM0150KPH1321	MEM0150KPHM1321	MEM0150KPHM1321T
	MEM0150KPH1620	MEM0150KPHM1620	MEM0150KPHM1620T
	MEM0200KPH1321	MEM0200KPHM1321	MEM0200KPHM1321T
	MEM0200KPH1524	MEM0200KPHM1524	MEM0200KPHM1524T
	MEM0200KPH1924	MEM0200KPHM1924	MEM0200KPHM1924T
	MEM0300KPH1524	MEM0300KPHM1524	MEM0300KPHM1524T
	MEM0300KPH1924	MEM0300KPHM1924	MEM0300KPHM1924T
	MEM0300KPH1929	MEM0300KPHM1929	MEM0300KPHM1929T
	MEM0400KPH1826	MEM0400KPHM1826	MEM0400KPHM1826T
	MEM0400KPH1929	MEM0400KPHM1929	MEM0400KPHM1929T
	MEM0400KPH2429	MEM0400KPHM2429	MEM0400KPHM2429T
	MEM0500KPH2435	MEM0500KPHM2435	MEM0500KPHM2435T
IN-LINE CENTER EXIT	MCM0100KPH1215	MCM0100KPHM1215	MCM0100KPHM1215T
	MCM0100KPH1220	MCM0100KPHM1220	MCM0100KPHM1220T
	MCM0100KPH1315	MCM0100KPHM1315	MCM0100KPHM1315T
	MCM0100KPH1321	MCM0100KPHM1321	MCM0100KPHM1321T
	MCM0100KPH1620	MCM0100KPHM1620	MCM0100KPHM1620T
	MCM0150KPH1220	MCM0150KPHM1220	MCM0150KPHM1220T
	MCM0150KPH1321	MCM0150KPHM1321	MCM0150KPHM1321T
	MCM0150KPH1620	MCM0150KPHM1620	MCM0150KPHM1620T
	MCM0200KPH1321	MCM0200KPHM1321	MCM0200KPHM1321T
	MCM0200KPH1524	MCM0200KPHM1524	MCM0200KPHM1524T
	MCM0200KPH1924	MCM0200KPHM1924	MCM0200KPHM1924T
	MCM0300KPH1524	MCM0300KPHM1524	MCM0300KPHM1524T
	MCM0300KPH1924	MCM0300KPHM1924	MCM0300KPHM1924T
	MCM0300KPH1929	MCM0300KPHM1929	MCM0300KPHM1929T
	MCM0400KPH1826	MCM0400KPHM1826	MCM0400KPHM1826T
	MCM0400KPH1929	MCM0400KPHM1929	MCM0400KPHM1929T
	MCM0400KPH2429	MCM0400KPHM2429	MCM0400KPHM2429T
	MCM0500KPH2429	MCM0500KPHM2429	MCM0500KPHM2429T
	MCM0500KPH2435	MCM0500KPHM2435	MCM0500KPHM2435T
X-STYLE	MXM0100KPH1518	MXM0100KPHM1518	MXM0100KPHM1518T
	MXM0100KPH1616	MXM0100KPHM1616	MXM0100KPHM1616T
	MXM0100KPH1620	MXM0100KPHM1620	MXM0100KPHM1620T
	MXM0150KPH1518	MXM0150KPHM1518	MXM0150KPHM1518T
	MXM0150KPH1616	MXM0150KPHM1616	MXM0150KPHM1616T
	MXM0150KPH1620	MXM0150KPHM1620	MXM0150KPHM1620T
	MXM0200KPH1818	MXM0200KPHM1818	MXM0200KPHM1818T
	MXM0200KPH1820	MXM0200KPHM1820	MXM0200KPHM1820T
	MXM0200KPH1924	MXM0200KPHM1924	MXM0200KPHM1924T
	MXM0300KPH2424	MXM0300KPHM2424	MXM0300KPHM2424T
	MXM0300KPH2429	MXM0300KPHM2429	MXM0300KPHM2429T
	MXM0300KPH2435	MXM0300KPHM2435	MXM0300KPHM2435T

*Optional mold base and/or temperature controller are configured by customer.

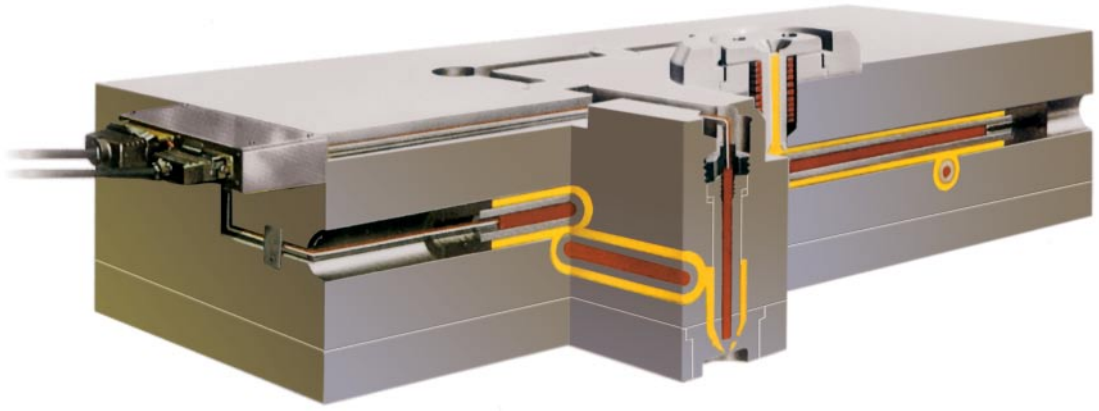
D-M-E Internally Heated Hot Runner Systems

Standardized, pre-engineered components for hot runner molding

D-M-E

Every step of the way

The Cool One – Features and Benefits



Hot runner molds have been in use for decades. Today, energy costs and material availability have become greater processing considerations and new emphasis is being placed on reducing these costs. As a result, a hot runner molding system that can cut energy requirements, shorten cycles, save material and eliminate secondary operations, such as degating parts, spot facing and regrinding runners, is extremely well-suited for the industry.

What is The Cool One?

The Cool One is a group of standardized, pre-engineered components that can be incorporated into a hot runner mold to suit a specific application. The design of the Cool One places particular emphasis on temperature control throughout the system. Standard Cool One components fall into two categories: Distributor System and Probes.

Distributor System

Plastics are injected into the system through the D-M-E Heated Nozzle Locator. The system consists of bores, gun-drilled into the distributor block. A smaller diameter distributor tube is inserted in each bore and centered with end caps.

Material flowing in the bore, around the central tube, is kept molten by a thermocouple-cartridge heater in the tube. Heating the material "from the inside out" is highly efficient, since it allows heater loads to be considerably less than systems which heat from the outside in. In addition, the outer layer of the melt stream solidifies to form an insulating layer of plastics that further reduces energy requirements and permits mold surface temperatures to be maintained at 100° F. In many cases the flow design has a single primary distributor tube with intersecting probes to direct the flow of material to the gates. A primary and secondary distributor tube layout using a common "H" pattern is also a typical method of providing a balanced flow of material to probes intersecting the secondary tubes. (The cutaway view above is an example of the "H" pattern layout.) A wide variety of intersecting layouts are possible to carry molten material to virtually any number or pattern of cavities.

For even smaller molds, or increased cavitation in larger molds, D-M-E has standardized a group of Micro Cool One components applicable for solid block designs. In this design, smaller distributor tubes and cartridge heaters are used in conjunction with smaller "integral heater" gating probes. The Micro Cool One utilizes round distributor channels and a single level of distribution. System designs incorporate the Solid Block concept (as shown in the illustration above).

The Cool One – Features and Benefits

Probes

Molten material flows through the distributor system to intersect with the probes centered in the probe bores. The heated probes keep the material molten and flowing to the gates.

In general, the gate is the most critical point in any hot runner mold. A perfect temperature balance has to be maintained at the gate if the mold is to run effectively. The molder has to find the "compromise" temperature which will fill the cavity, provide good part quality, keep the plastics molten and still shut-off without drooling when the mold opens for part ejection. The gate size and cycle time are also major variables that have to be considered in achieving this proper balance.

With the D-M-E system, cartridge heaters in both the tubes and probes contain integral thermocouples. This allows the heaters to be closely monitored and continuously adjusted by closed-loop temperature controls.

D-M-E Auto-Fixed™ probes are offered in three styles – finless with integral heaters, and finned or finless with replaceable heaters. The "integral heater" probes are smaller in diameter than the others, making them ideal for smaller molds or closer cavity patterns. The finned style employs a precision-engineered tip configuration that automatically "fixes" the relationship between the probe tip and gate (i.e., centers the probe and limits tip protrusion into the gate). The finless style provides a wider selection of probe lengths (up to 10") for larger molds and deeper cavity configurations. An optional register ring is available for these probes to provide added stability at the probe tip if desired. Probes of different lengths can be used in the same mold to suit the gating requirements and contours of the molded part.

To save the moldmaker valuable machining time, standardized gate inserts are also available for all probes. Made from prehardened AISI S-7 steel, these inserts are pre-machined with the appropriate internal configurations for optimum probe performance.

Benefits

For The Processor

Some of the most readily apparent benefits of The Cool One are to the plastics processor. Basically, the system offers more quality parts while reducing labor and material costs.

As proven in actual production, this D-M-E Hot Runner System can:

- **Increase Production …** Faster startups, faster cycles and delay-free automatic operation
- **Conserve Energy …** "The Cool One" uses up to 75% less energy than conventional hot manifold systems and no regrind operations are necessary
- **Conserve Materials …** No sprues or runners and fewer rejects make 50%–80% material savings possible
- **Improve Part Quality …** Improved temperature control provides better gate cosmetics, more homogeneous melt
- **Increase Uptime …** Contamination can be cleared or cartridge heaters replaced quickly with the mold in the press

For The Designer

Standardized components have established themselves as the best, fastest and least expensive way to design tools. This is especially true with D-M-E pre-engineered hot runner molding components.

- **Maximum Design Flexibility …** Improved cosmetics offer wide choice of gate locations; Distributor System configurations are virtually unlimited
- **Production Proven …** Predictable performance based on decades of successful applications.

For The Moldmaker

- **Shorter Lead Times …** Pre-engineered components allow the moldmaker to go from part print to part approval (and final payment) sooner
- **Availability …** Components are available from stock for immediate delivery which means faster mold construction and more uptime

Components for Micro Cool One® Split Plate/Solid Block Designs

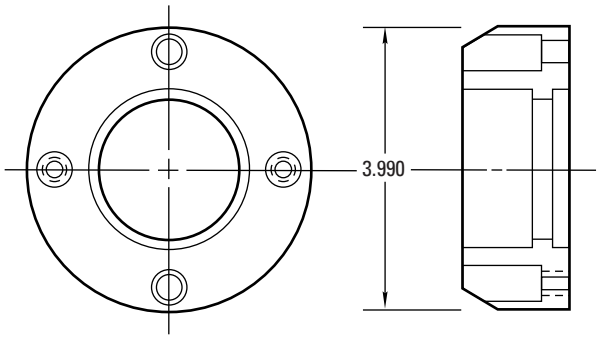
Components for Micro Cool One® Split Plate/Solid Block Designs

- Micro components for smaller molds or increased cavitation in larger molds
- Integral heaters in all probes improve heat transfer throughout system
- Applicable for split plate or solid block designs

Locating Ring (for Heated Nozzle Locator)

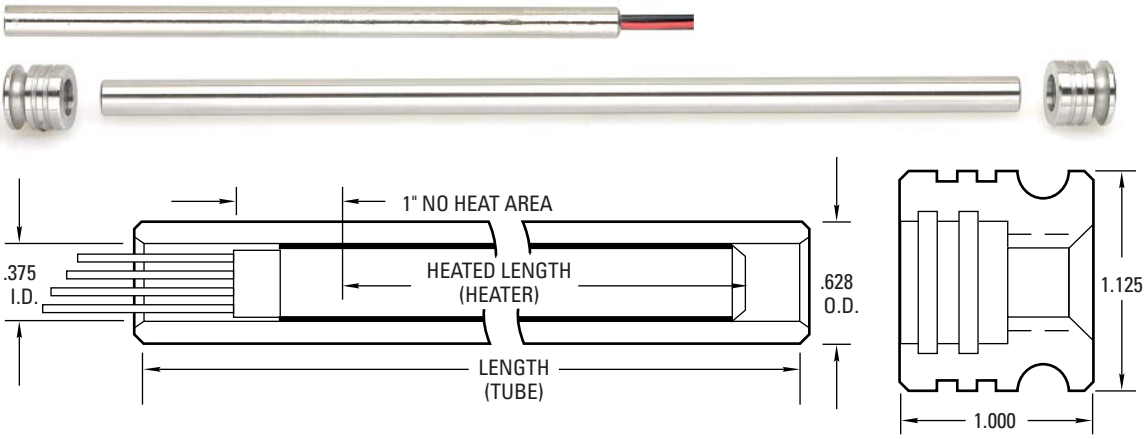
NOTE: In addition to use with Micro Cool One designs, this locating ring can be used with any Cool One system employing the heated nozzle locator in its design.

ITEM NUMBER
HNR0001



See the end of this section for component detail dimensions and design and machining guidelines.

Micro Cool One Distributor Tubes, End Caps, Distributor Tube Heaters



Thermocouple (T/C) Distributor Tube Heaters (240 VAC, T/C Type J, 34" Leads)

Distributed wattage heater design for more uniform temperature control. Sealed, flexible teflon covered leads to prevent lead damage and improve moisture resistance.

DIA (AMPS)*	ITEM NUMBER	OVERALL LENGTH	HEATED LENGTH	WATTS
.375 (10 AMP)	HCTC-03-4	5.000	4.000	320
	HCTC-03-45	5.500	4.500	340
	HCTC-03-5	6.000	5.000	400
	HCTC-03-55	6.500	5.500	430
	HCTC-03-6	7.000	6.000	450
	HCTC-03-65	7.500	6.500	470
	HCTC-03-7	8.000	7.000	480

DIA (AMPS)*	ITEM NUMBER	OVERALL LENGTH	HEATED LENGTH	WATTS
.375 (10 AMP)	HCTC-03-75	8.500	7.500	515
	HCTC-03-8	9.000	8.000	550
	HCTC-03-9	10.000	9.000	650
	HCTC-03 -10	11.000	10.000	710
	HCTC-03-11	12.000	11.000	720
	HCTC-03-12	13.000	12.000	760
	HCTC-03-13	14.000	13.000	810

*(AMPS) = Amperage requirement for temp. control module.

Distributor Tubes

MATERIAL: AISI 4140 STEEL
HARDNESS: 28-35 HRC

ITEM NUMBER	LENGTH
HT-05-03-12	11.82
HT-05-03-16	15.76

End Cap

MATERIAL: AISI 4140 STEEL

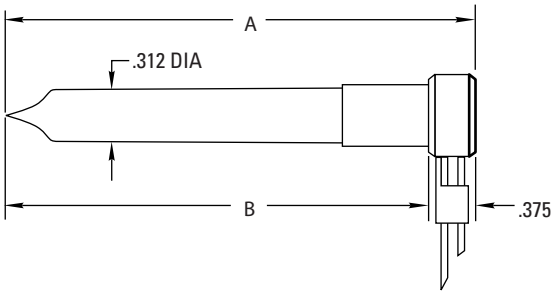
ITEM NUMBER
EC-11-05

Components for Micro Cool One®
Solid Block Designs

Auto-fixed® "Integral Heater" Micro Probes (240 VAC, T/C Type J, 48" Leads)

MATERIAL: AISI D-2 STEEL
HARDNESS: 50-55 HRC

ITEM NUMBER*	A	B	WATTS
AFIP3- 310-90	3.095	2.720	110
AFIP3-360-90	3.595	3.220	130
AFIP3-410-90	4.095	3.720	150
AFIP3-460-90	4.595	4.220	170



Replacement Thermocouple

ITEM NUMBER	LEAD LENGTH
TC-9900	48"

Register Ring

MATERIAL: AISI H-13 STEEL
HARDNESS: 48-52 HRC
I.D. = .313
O.D.= 1.000

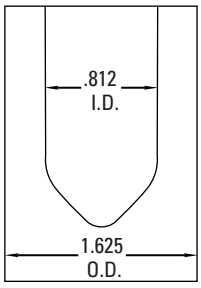
ITEM NUMBER
AFRR-03N

Gate Insert

MATERIAL: AISI S-7 STEEL (pre-hardened)
HARDNESS: 30-34 HRC

Hardness can be increased to a higher value by heat treatment if desired.

ITEM NUMBER
AFGI-03N



Adjustment Ring

(Packaged with all probes)

For simplified counterbore depth adjustment.

I.D. = .456 THICKNESS = .062

ITEM NUMBER*
RAF3-062

*Package of 10.

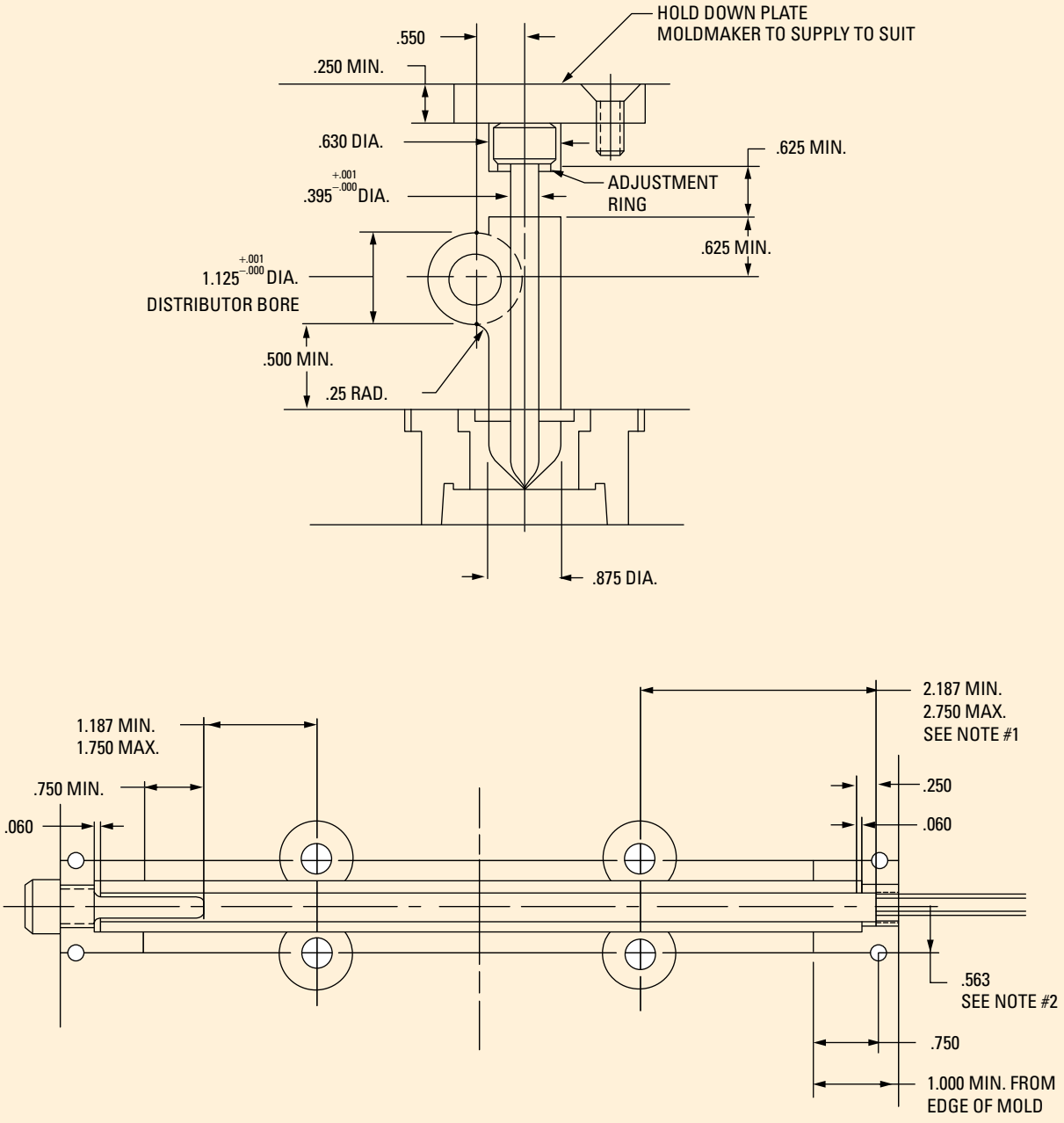
CUSTOMER DESIGN CRITERIA FORMS

CDC

To provide your Cool One® application specifications, visit www.dme.net/cdc

Probe Machining Dimensions for Micro Cool One

PROBE MACHINING DIMENSIONS – SOLID BLOCK DESIGN



NOTES:

1. Due to the longer no-heat section at the lead end, heater will not be centered in distributor tube.
2. The use of (2) .250 dia. dowel pins with .562 distance between dowel pin and end cap centerlines is recommended to secure end cap into mold.

MICRO COOL ONE® SOLID BLOCK DESIGNING AND MACHINING GUIDELINES

Machining for Heated Nozzle Locator and Locating Ring

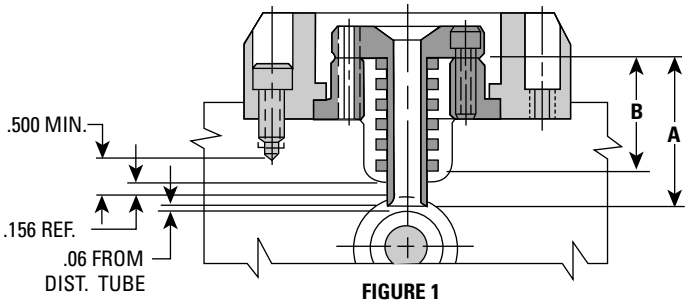
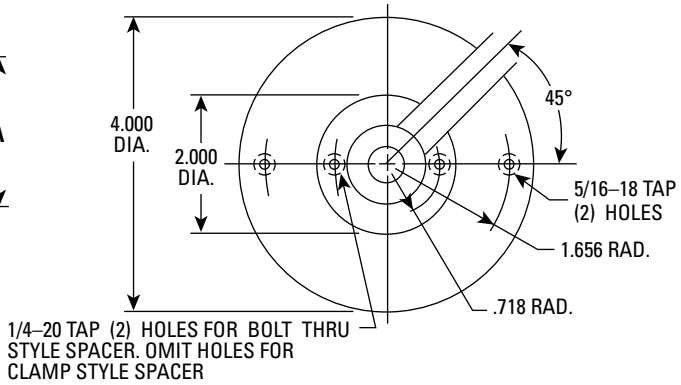


FIGURE 1



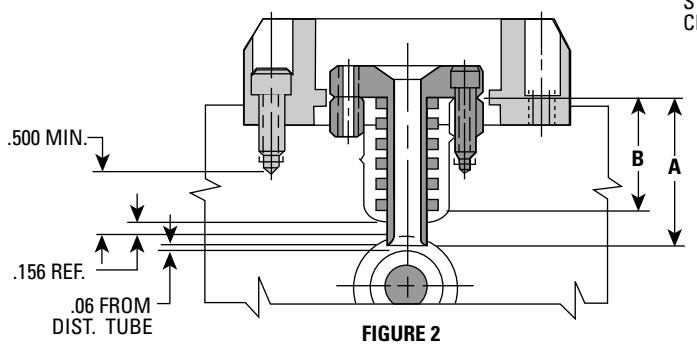


FIGURE 2

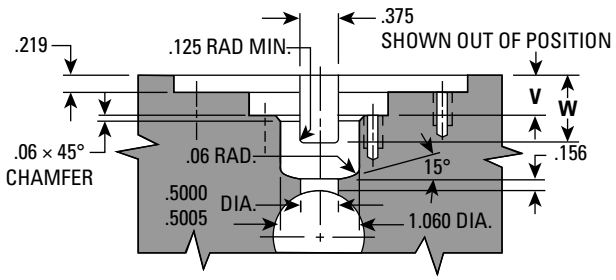


FIGURE 3

ALL APPLICATIONS

The locator's core tip should be positioned .06 from the top of the distributor tube, establishing the 'A' dimension. In most cases, the dimension from the bottom of the core head to the locating ring counterbore will equal the adjusted height of the spacer. (The 'B' dimension, for reference, is the heater length of 1.450 or 1.950, depending on core length being used.)

CLAMP STYLE SPACER APPLICATION (FIGURE 1)

In conjunction with a D-M-E HNR0001 locating ring, the flange on the spacer is utilized as a clamp style heater nozzle locator. The core is secured to the spacer with two 1/4–20 S.H.C.S.

BOLT THRU STYLE SPACER APPLICATION (FIGURE 2)

Another option is to remove the flange and adjust the spacer height to the desired dimension, then secure the heated nozzle locator through the spacer with two 1/4–20 S.H.C.S. into the mold plate. Use caution to insure that the tapped holes are .500 minimum from the distributor channel. Spacer thickness should never be less than .250. However, if a condition results where the spacer would be less than .250, counterbore a 2.000 diameter into the plate to a 'V' depth that will accept the .250 spacer. (See Figure 3)

ALL APPLICATIONS

In order to maintain plate strength, the depth of the lead wire channel, dimension 'W', must be no deeper than required to contain the heater leads. The distance from the bottom of the core head to the bottom of the leads is .800. Channel depth can be determined accordingly, based on the distance between the core head and the top of the mold.

The Cool One – Heated Nozzle Locators, Assemblies and Replacement Parts

Heated Nozzle Locators

A requirement for D-M-E split-plate designs, and recommended for all D-M-E hot runner molds, the new heated nozzle locator improves both the performance and structural integrity of D-M-E hot runner systems. It provides uniform temperature control of resin from the machine nozzle to the distributor channel. The thermocouple equipped coil heater features a square (or flat) cross section to improve heat transfer to the core's .312 diameter feed channel. The heated nozzle locator provides quicker and easier system start-ups, minimizes pressure loss and eliminates cold slugs in the feed channel. Available in two lengths with choice of ½" or ¾" spherical radius, the assemblies can be installed using either a clamp style or bolt thru style method for added design and construction versatility. See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.


CORE


HEATER


SPACER

Heated Nozzle Locator Assemblies

HNL-462 and HNL-662 assemblies include:

- HNC-46 or HNC-66 core, respectively
- SSTC-62-90 heater
- HNS-67 spacer

R	ITEM NUMBER
½	HNL-462
	HNL-472
¾	HNL-662
	HNL-672

HNL-472 and HNL-672 assemblies include:

- HNC-47 or HNC-67 core, respectively
- SSTC-72-90 heater
- HNS-67 spacer

Heated Nozzle Locator Replacement Parts

Cores

R	ITEM NUMBER
½	HNC-46
	HNC-47
¾	HNC-66
	HNC-67

Thermocouple Heaters

(240 VAC, 250 WATTS T/C type J 36" leads)

ITEM NUMBER	USED WITH CORES
SSTC-62-90	HNC-46 & 66
SSTC-72-90	HNC-47 & 67

Spacer

ITEM NUMBER
HNS-67

Nozzle Locators (Replacement Only)

Heated Nozzle Locators (above) are recommended for all systems. Nozzle Locators NL-6702 and 6703 are available for replacement in previous systems.

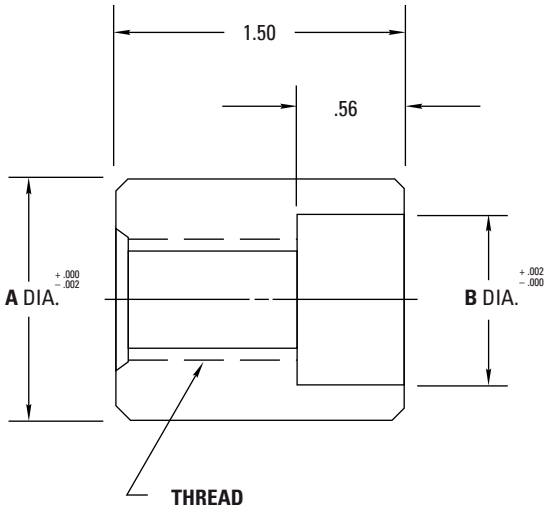
ITEM NUMBER	R
NL-6702	½
NL-6703	¾

The Cool One – End Caps and Distributor Tubes

End Caps (for use with solid distributor block designs)

MATERIAL: AISI 4140 STEEL

End caps provide concentricity between distributor tube and distributor bore. Thread accommodates heater stop or lead wire protector (see design and machining guidelines at the end of this Internally Heated Hot Runner Systems section).

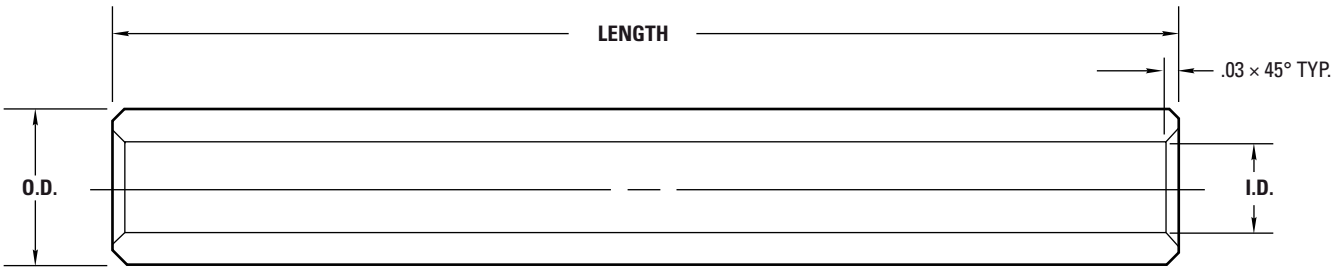


ITEM NUMBER	DIA. A	DIA. B	THREAD	USED WITH DIST. BORE/TUBE
EC-12-07	1.249	0.875	⅝"- 11	1.25 DIA./.87 O.D.
EC-20-15	1.999	1.625	¾"- 10	2.00 DIA./1.62 O.D.

END CAPS FOR SPLIT PLATE DESIGNS: Moldmaker to supply to suit. See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.

Distributor Tubes

MATERIAL: AISI P-20 STEEL
HARDNESS: 28-35 HRC



USED WITH 1.25 DIAMETER DISTRIBUTOR BORE/CHANNEL	
LENGTH	I.D. = .50 O.D. = .87
	ITEM NUMBER
6"	HT-07-04-6
10"	HT-07-04-10
16"	HT-07-04-16
20"	HT-07-04-20
24"	HT-07-04-24
29"	HT-07-04-29
34"	HT-07-04-34

USED WITH 2.00 DIAMETER DISTRIBUTOR BORE/CHANNEL	
LENGTH	I.D. = .62 O.D. = 1.62
	ITEM NUMBER
10"	HT-15-05-10
18"	HT-15-05-18
24"	HT-15-05-24
29"	HT-15-05-29
34"	HT-15-05-34
40"	HT-15-05-40
46"	HT-15-05-46

NOTES:

Stainless Steel Distributor Tubes available on special order for molding highly corrosive plastics materials.

See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.

The Cool One – Thermocouple Distributor Tube Heaters

Thermocouple (T/C) Distributor Tube Heaters

(240 VAC, T/C type J, 34" leads)

DIA. (AMPS)*	ITEM NUMBER	LENGTH	WATTS
.500 (10 AMP)	HCTC-04-4	4"	380
	HCTC-04-5	5"	500
	HCTC-04-6	6"	600
	HCTC-04-7	7"	700
	HCTC-04-8	8"	820
	HCTC-04-9	9"	920
	HCTC-04-10	10"	1030
	HCTC-04-11	11"	1140
	HCTC-04-12	12"	1250
	HCTC-04-13	13"	1350
	HCTC-04-14	14"	1460
	HCTC-04-15	15"	1570
	HCTC-04-16	16"	1680
	HCTC-04-17	17"	1780
	HCTC-04-18	18"	1900
	HCTC-04-19	19"	2010
	HCTC-04-20	20"	2110
	HCTC-04-21	21"	2220
	HCTC-04-22	22"	2330
	HCTC-04-23	23"	2400
	HCTC-04-24	24"	2400
	HCTC-04-25	25"	2400
	HCTC-04-26	26"	2400
	HCTC-04-27	27"	2400
	HCTC-04-28	28"	2400
	HCTC-04-29	29"	2400
	HCTC-04-30	30"	2400
.625 (10 AMP)	HCTC-05-5	5"	620
	HCTC-05-6	6"	750
	HCTC-05-7	7"	880
	HCTC-05-8	8"	1020
	HCTC-05-9	9"	1160
	HCTC-05-10	10"	1300

DIA. (AMPS)*	ITEM NUMBER	LENGTH	WATTS
.625 (10 AMP)	HCTC-05-11	11"	1430
	HCTC-05-12	12"	1570
	HCTC-05-13	13"	1700
	HCTC-05-14	14"	1840
	HCTC-05-15	15"	1980
	HCTC-05-16	16"	2110
	HCTC-05-17	17"	2250
	HCTC-05-18	18"	2390
.625 (15 AMP)	HCTC-05-19	19"	2520
	HCTC-05-20	20"	2660
	HCTC-05-21	21"	2800
	HCTC-05-22	22"	2930
	HCTC-05-23	23"	3070
	HCTC-05-24	24"	3200
	HCTC-05-25	25"	3340
	HCTC-05-26	26"	3480
.625 (30 AMP)	HCTC-05-27	27"	3620
	HCTC-05-28	28"	3750
	HCTC-05-29	29"	3900
	HCTC-05-30	30"	4020
	HCTC-05-31	31"	4160
	HCTC-05-32	32"	4300
	HCTC-05-33	33"	4430
	HCTC-05-34	34"	4570
	HCTC-05-35	35"	4710
	HCTC-05-36	36"	4840
	HCTC-05-37	37"	4980
	HCTC-05-38	38"	5120
	HCTC-05-39	39"	5250
	HCTC-05-40	40"	5390
	HCTC-05-41	41"	5520
	HCTC-05-42	42"	5520
	HCTC-05-43	43"	5520
	HCTC-05-44	44"	5520

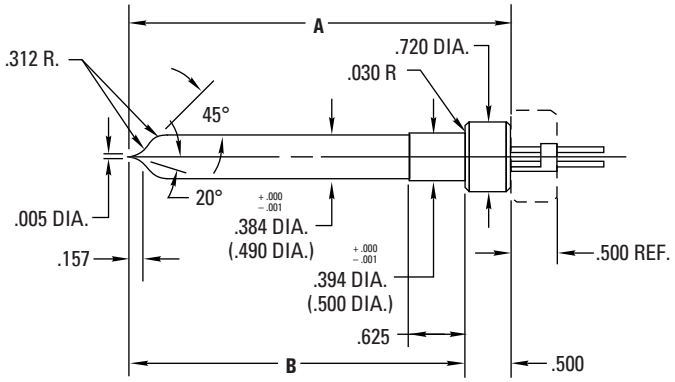
*(AMPS) Amperage requirement for temperature control module.

NOTE: Heaters should be at least 2" shorter than distributor tube length in mold design. See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.

The Cool One – Components

Auto-Fixed™ "Integral Heater" Probes (240 VAC, T/C Type J Grounded, 48" Leads)

MATERIAL: AISI D-2 STEEL **HARDNESS: 50-55 HRC**



Important: Dimensions shown in parentheses apply to larger probes AFIP5-372 thru 622 only. Tolerances shown also apply to dimensions in parentheses.

ITEM NUMBER**		AFIP4 SERIES PROBES .394 (10 mm) DIAMETER		
STRAIGHT EXIT LEADS	90° EXIT LEADS	A DIM.	B DIM.	WATTS
AFIP4-322	AFIP4-322-90	3.220	2.720	135
AFIP4-372	AFIP4-372-90	3.720	3.220	160
AFIP4-422	AFIP4-422-90	4.220	3.720	185
AFIP4-472	AFIP4-472-90	4.720	4.220	210

**Includes probe, integral heater, thermocouple, adjustment ring and hold down nut.

AVAILABLE WITH STRAIGHT OR 90° EXIT HEATER LEADS

See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.

These probes feature a swaged in heating element which is an integral part of the probe. A separate replaceable thermocouple is installed in each probe as supplied. The integral heater design provides highly efficient heat transfer, uniform heat distribution and is guaranteed for one year.

ITEM NUMBER**		AFIP5 SERIES PROBES .500 (12.9 mm) DIAMETER		
STRAIGHT EXIT LEADS	90° EXIT LEADS	A DIM.	B DIM.	WATTS
AFIP5-372	AFIP5-372-90	3.720	3.220	200
AFIP5-422	AFIP5-422-90	4.220	3.720	230
AFIP5-472	AFIP5-472-90	4.720	4.220	265
AFIP5-522	AFIP5-522-90	5.220	4.720	295
AFIP5-572	AFIP5-572-90	5.720	5.220	325
AFIP5-622	AFIP5-622-90	6.220	5.720	360

Replacement Thermocouples

(ALL PROBES)

ITEM NUMBER	LEAD LENGTH
TC-9900	48"

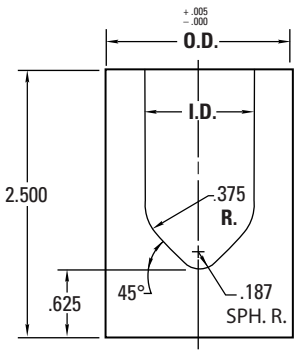
Gate Inserts

MATERIAL: AISI S-7 STEEL (pre-hardened)

HARDNESS: 30-34 HRC

Hardness can be increased to a higher value by heat treatment, if desired.

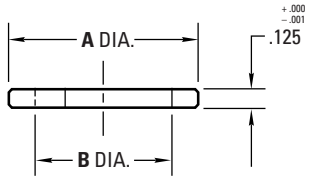
ITEM NUMBER	O.D.	I.D.	USED WITH
AFGI-04N	1.625	.875	AFIP4 SERIES
AFGI-10N	1.750	1.000	AFIP5 SERIES

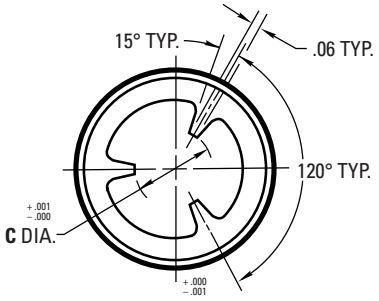


Register Rings

MATERIAL: AISI H-13 STEEL

HARDNESS: 48-52 HRC

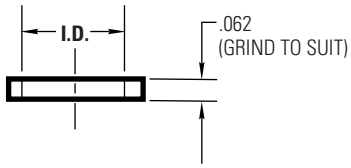




ITEM NUMBER	A DIM.	B DIM.	C DIM.	USED WITH
AFRR-04N	1.062	.865	.387	AFIP4 SERIES
AFRR-05N	1.187	.937	.493	AFIP5 SERIES

Adjustment Rings

(Packaged with all probes)



ITEM NUMBER†	I.D.	USED WITH
RAF4-062	.469	AFIP4 SERIES
RAF5-062	.565	AFIP5 SERIES

†Bag of 5 rings.

Hold-Down Nut

(Packaged with all probes)

THICKNESS = .500
THREAD = 1"- 8
HEX FLAT = 9/16

ITEM NUMBER
AFN-100

Hold-Down Nut Wrench*

ITEM NUMBER
WR-916

*Required for straight exit leads only.

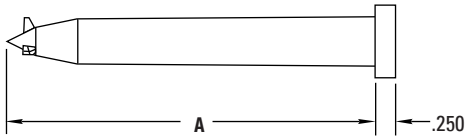
The Cool One – Probes and Probe Heaters

Auto-Fixed™ Probes (3" to 6" long)

MATERIAL: AISI D-2 STEEL
HARDNESS: 50-55 HRC

LENGTH A	ITEM NUMBER **
2.893	AFP-310
3.625	AFP-410
4.625	AFP-510
5.609	AFP-610

*Includes probe, stop sleeve and hold down nut only.



See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.

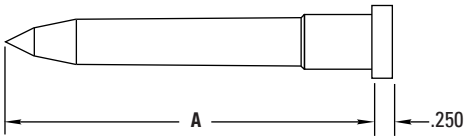
These finned style Auto-Fixed probes employ a precision engineered tip configuration that automatically "fixes" the relationship between probe tip and gate, centering the probe and limiting tip protrusion into the gate. Thermocouple heaters are guaranteed for one year as detailed under the heater chart below. Gate inserts (shown on page 119), pre-machined for use with these probes, can save valuable machining time and help assure optimum probe performance.

Auto-Fixed™ Finless Probes (3" to 6" long)

MATERIAL: AISI D-2 STEEL
HARDNESS: 50-55 HRC

LENGTH A	ITEM NUMBER **
2.893	AFPN-310
3.625	AFPN-410
4.625	AFPN-510
5.609	AFPN-610

*Includes probe, stop sleeve and hold down nut only.



See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.

These finless style Auto-Fixed probes are available in the same sizes as the finned probes above and also in lengths up to 10". An optional register ring is available to provide added stability at the probe tip if desired. As with the finned probes, thermocouple heaters are guaranteed for one year and pre-machined gate inserts are available.

NOTE: Due to minimum distance requirements specified, the AFPO-310 and AFPN-310 probes cannot be used in a Cool One system. They may, however, be used in an insulated runner system.

Thermocouple (T/C) Probe Heaters*

(.250 diameter, 240 VAC, T/C type J grounded, 34" leads)

ITEM NUMBER	FOR PROBE	WATTS	LENGTH
AFTC-213-2	AFP(N)-310	150	3.00
AFTC-214-2	AFP(N)-410	220	3.75
AFTC-215-2	AFP(N)-510	275	4.75
AFTC-216-2	AFP(N)-610	350	5.75

Non-Thermocouple Probe Heaters

(.250 diameter, 240 VAC, 34" leads)

ITEM NUMBER	FOR PROBE	WATTS	LENGTH
AFC-213-2	AFP(N)-310	150	3.00
AFC-214-2	AFP(N)-410	220	3.75
AFC-215-2	AFP(N)-510	275	4.75
AFC-216-2	AFP(N)-610	350	5.75

*Thermocouple (T/C) Probe Heaters are guaranteed for one year from date of shipment.

The Cool One – Accessories and Replacement Parts

Accessories/Replacement Parts for 3" to 6" Long Auto-fixed Probes

See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.

Hold-Down Nut

(Packaged with all probes)

Thickness = .50
Thread = 1"-8
Hex Flat = 9/16

ITEM NUMBER
AFN-100

Stop Sleeve

(Packaged with all probes)

Length = 1.375
Thread = 3/8"-24
Dia. = .375

ITEM NUMBER
AFSS-38

Register Ring

(For Finless Probes Only)

AISI H-13 STEEL
48-52 HRC
I.D. = .562
O.D. = 1.375

ITEM NUMBER
AFRR-10N

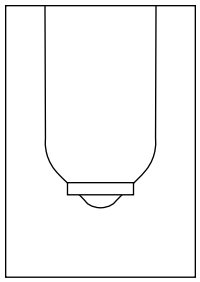
Gate Inserts

MATERIAL: AISI S-7 STEEL (pre-hardened)
HARDNESS: 30-34 HRC

Hardness can be increased to a higher value by heat treatment, if desired.

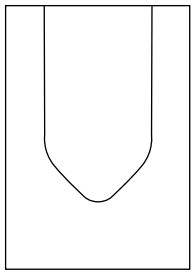
I.D. = 1.000 O.D. = 1.750 Height = 2.500

ITEM NUMBER	FOR PROBE
AFGI-10	AFP-310 thru 610
AFGI-10N	AFPN-310 thru 610



AFGI-10

Gate inserts are supplied premachined. See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.



AFGI-10N

Adjustment Rings

For simplified counterbore depth adjustment (No change from previous rings).

I.D. = .687 O.D. = .868

ITEM NUMBER*	THICKNESS
RAF-002	.002
RAF-003	.003
RAF-005	.005
RAF-007	.007
RAF-032	.032
RAF-062	.062
RAF-125	.125

*Package of 10.

Replacement Thermocouple (T/C) And Non T/C Heaters

FOR DISCONTINUED AUTO-FIXED PROBES AFP-300, 400, 500, 600
(.250 diameter, 240 VAC, T/C type J grounded, 36" leads)

While the original Auto-Fixed probes (AFP-300, 400, 500, 600) have been replaced with the AFP-310 thru 610 series, replacement heaters for these previous probes are still available as detailed here.

T/C HEATERS ITEM NUMBER	NON T/C HEATERS ITEM NUMBER	FOR PROBE	WATTS	LENGTH
AFTC-202-2	AFC-202-2	AFP-300	200	2"
AFTC-203-2	AFC-203-2	AFP-400	300	3"
AFTC-204-2	AFC-204-2	AFP-500	375	4"
AFTC-205-2	AFC-205-2	AFP-600	475	5"

The Cool One – Accessories and Replacement Parts

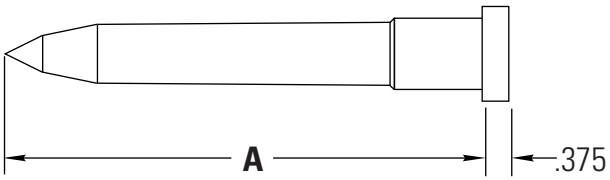
Auto-Fixed™ Finless Probes (7" to 10" long)

MATERIAL: AISI D-2 STEEL
HARDNESS: 50-55 HRC

These longer probes are ideal for larger molds or gating into deeper cavity configurations. The optional register ring shown below may be used to provide added stability at the probe tip if desired. Thermocouple heaters are guaranteed for one year as detailed under the heater chart below.

LENGTH A	ITEM NUMBER**
7.000	AFPN-720
8.000	AFPN-820
9.000	AFPN-920
10.000	AFPN-1020

**Includes probe, stop sleeve and hold down nut only.



Hold-Down Nut

(Packaged with all probes)

Thickness = .50
Thread = 1¼"-12
Hex Flat = 5/8

ITEM NUMBER
AFN-125

Stop Sleeve

(Packaged with all probes)

Length = 1.375
Thread = 1/2"-20
Dia. = .500

ITEM NUMBER
AFSS-12

Register Ring

AISI H-13 STEEL
48-52 HRC
I.D. = .693
O.D. = 1.500

ITEM NUMBER
AFRR-20N

Thermocouple (T/C) Probe Heaters†

(.375 diameter, 240 VAC, T/C type J grounded, 46" leads)

ITEM NUMBER	FOR PROBE	WATTS	LENGTH
AFTC-327-2	AFPN-720	645	7.15
AFTC-328-2	AFPN-820	760	8.15
AFTC-329-2	AFPN-920	870	9.15
AFTC-3210-2	AFPN-1020	980	10.15

†Thermocouple (T/C) Probe Heaters are guaranteed for one year from date of shipment.

Gate Insert

MATERIAL: AISI S-7 STEEL (pre-hardened)
HARDNESS: 30-34 HRC

Hardness can be increased to a higher value by heat treatment, if desired.

I.D. = 1.125 O.D. = 2000 Height = 2.500

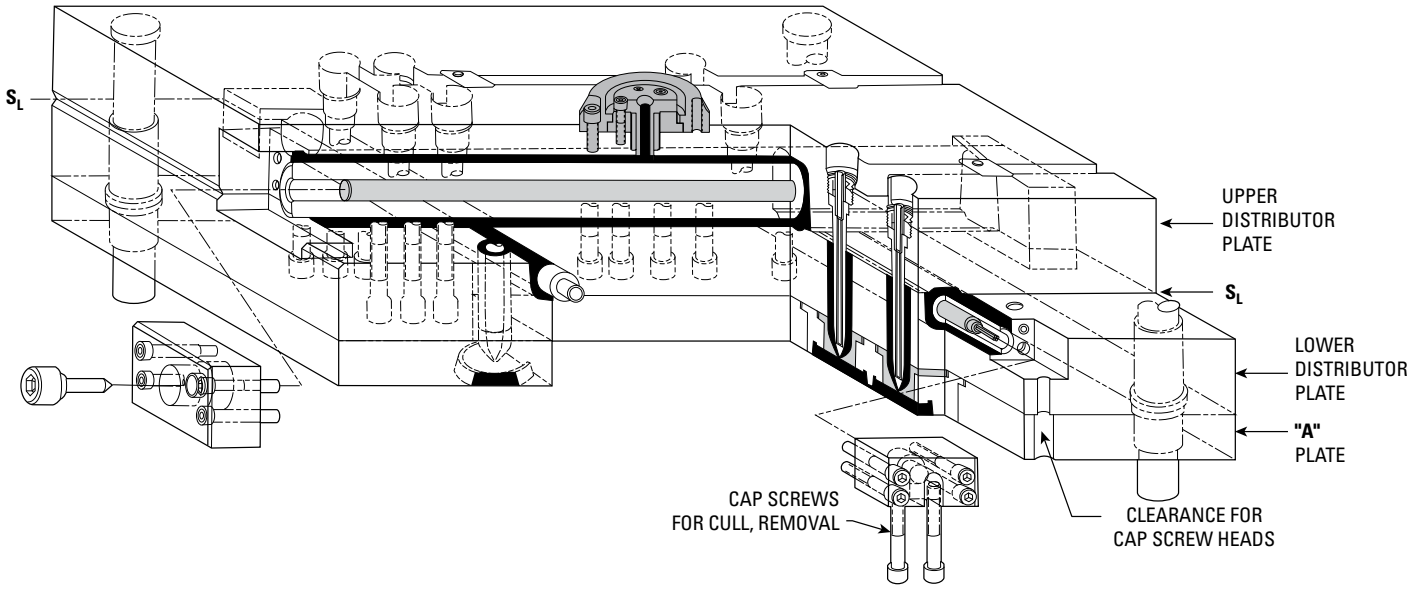
ITEM NUMBER
AFGI-20N

Adjustment Rings

Moldmaker to supply to suit (.990 O.D., .820 I.D.)

See design and machining guidelines at the end of this Internally Heated Hot Runner Systems section.

Split Plate Design



SPLIT PLATE CONCEPT

While D-M-E normally recommends the solid plate approach to hot runner molding, the split plate concept will appeal to the molder who frequently has to change colors or materials in a specific molding application. The split plate concept allows for the distributor plate to be separated and the "cull" (material surrounding the distributor tubes and probes) removed.

To facilitate removal of the cull from the mold while it is in the machine, it is necessary to provide the following: 1) bolt pattern that will allow for the removal of the "A" plate from the parting line when the mold is open; 2) leader pins and bushings that maintain plate alignment when carrying the "A" plate and the "lower" distributor plate to the movable side; 3) a bolt pattern that will allow unfastening of the distributor plates, behind the "A" plate, form the parting line opening; 4) the attachment of mold straps and a bolt arrangement that will enable the operator to move the mold plates in the proper sequences with normal molding machine manual controls; 5) a method of removing the cull from the channel, in most cases from the probe side.

One method of removing the cull from the probe side is to install cap screws into the end caps, as shown above.

Provide for a 1-inch deep counterbored clearance in the lower distributor plate for these cap screw heads. This clearance will create a delay and allow the material to separate from the probe drop area, subsequently pulling the cull from the probes.

Another method of cull removal would be to drill and tap thru holes in the end caps. After the distributor plates have been separated, install threaded shafts and tighten to apply pressure on the cull. If the cull resists removal due to shrinkage around the probes, it may be necessary to apply heat to the probes by reducing the control setpoint temperature and turning the probe heaters on.

If the mold is going to be benched for cull removal, the bolts securing the split plate may be installed from the back of the mold (see optional cap screw placement, Figure #3). The probes should be removed first, then the bolts securing the distributor plates and the bolts in the end caps. After the distributor plates are split, the cull may be removed by any of the following methods: 1) threaded holes in the end caps to allow for threaded shafts to be used as jack screws or 2) pry slots in the end caps to be able to remove with pry bars.

Split Plate Designs and Machining Guidelines – Trapezoids

Two Level Trapezoid

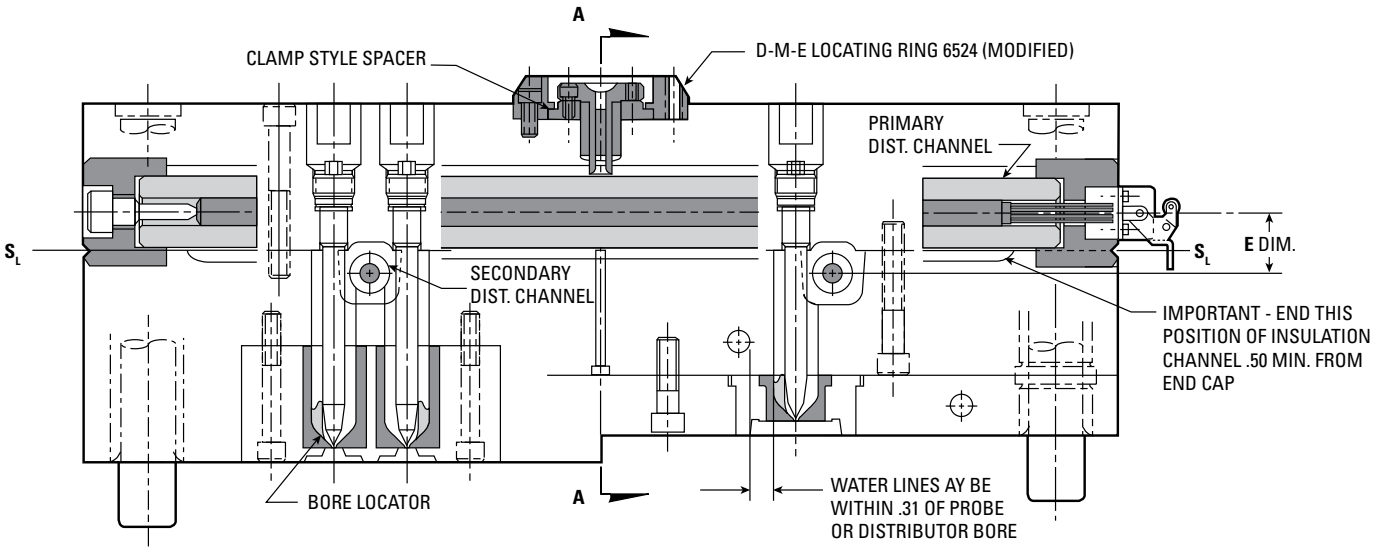


FIGURE 1

NOTE: The S_L symbol indicates the split line for split plate designs.

Single Level Trapezoid

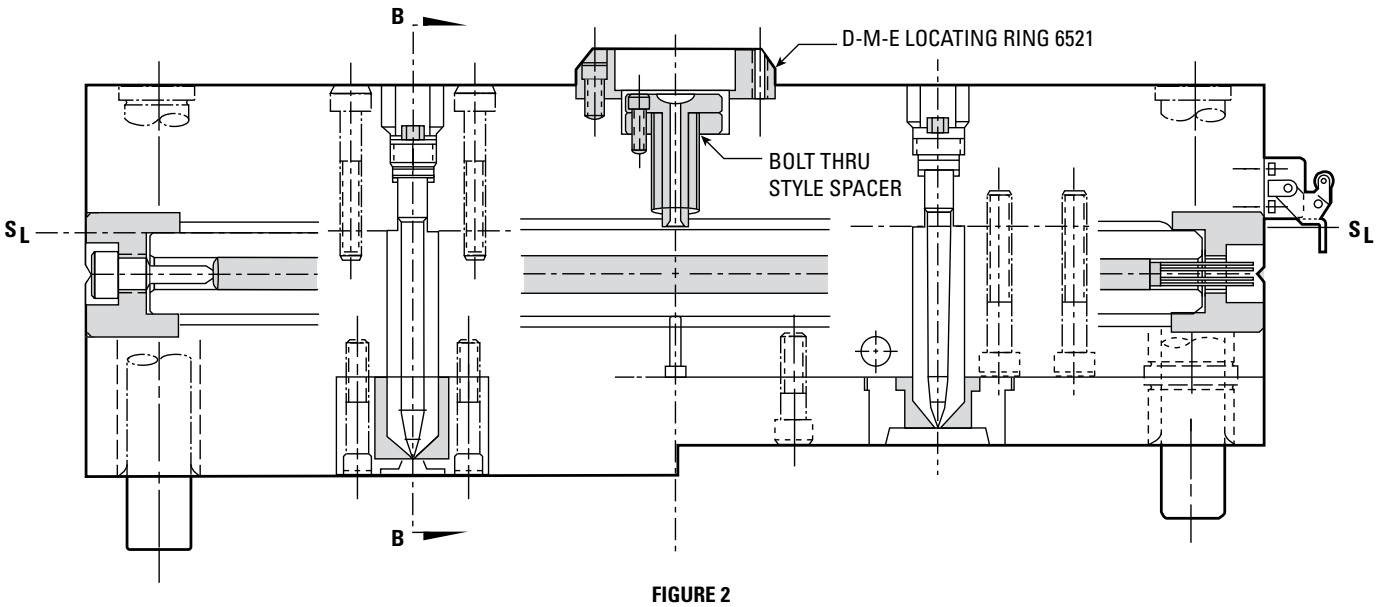


FIGURE 2

Dimensions and callouts on each side view (Figures 1, 2 and 3) can be applied to all three side views.

Split Plate Designs and Machining Guidelines
Single Level Round

Single Level Round

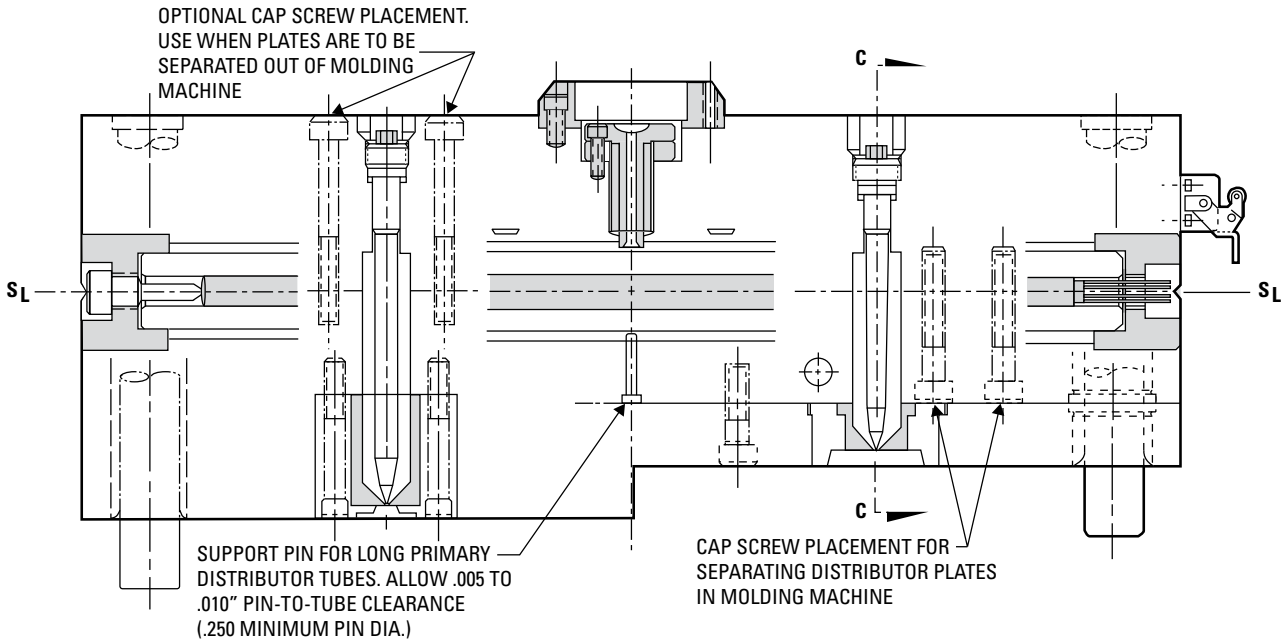
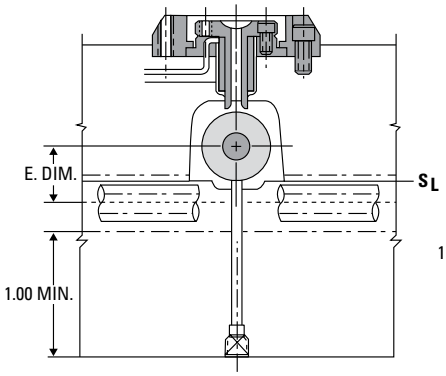
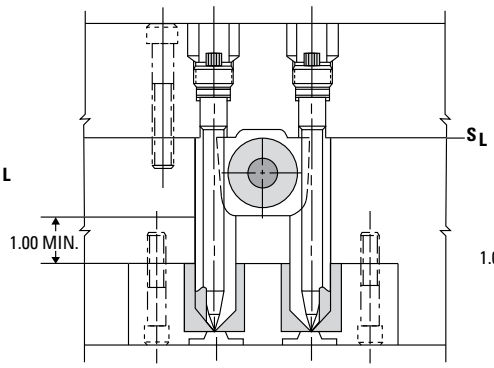


FIGURE 3

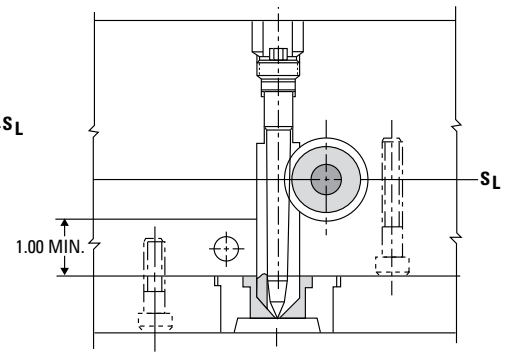
NOTE: The 2.00 dia. channel uses the 1.625 dia. distributor tube.
the 1.250 dia. channel uses the .875 dia. distributor tube.



SECTION A-A



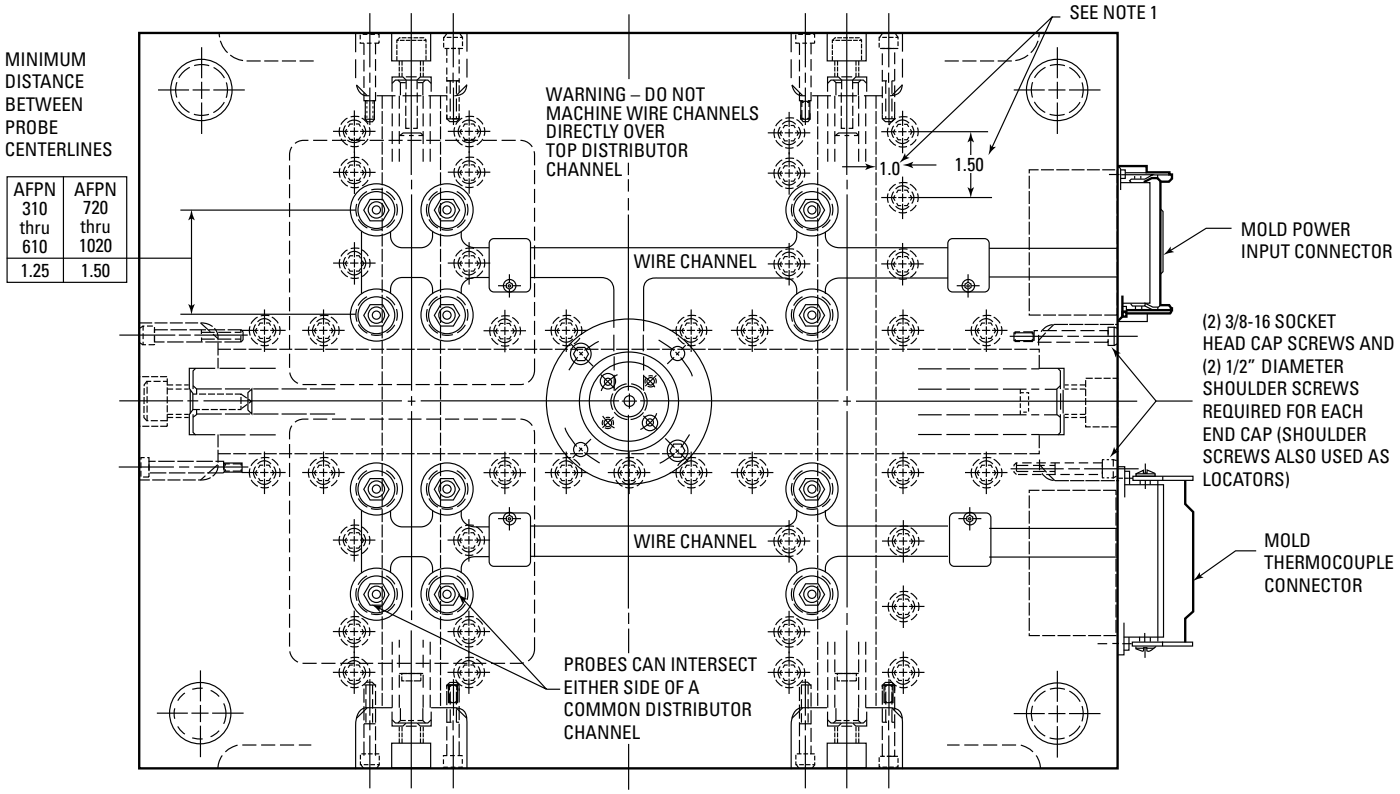
SECTION B-B



SECTION C-C

Split Plate Design and Machining Guidelines

Top of Mold



INTERSECTIONS BETWEEN DISTRIBUTOR CHANNELS

PRIMARY DIST. CHANNEL	SECONDARY DIST. CHANNEL	E DIM. (± .020)
2.00	2.00	1.705
2.00	1.25	1.330
*1.25	1.25	.955

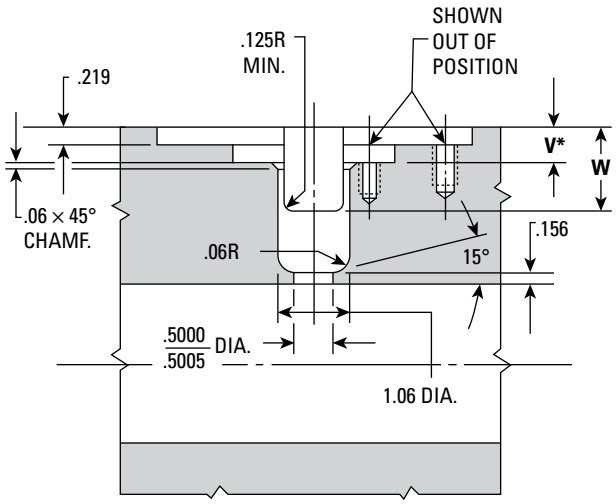
*The 2.00" distributor channel with 1.625 dia. tube is recommended.

NOTES:

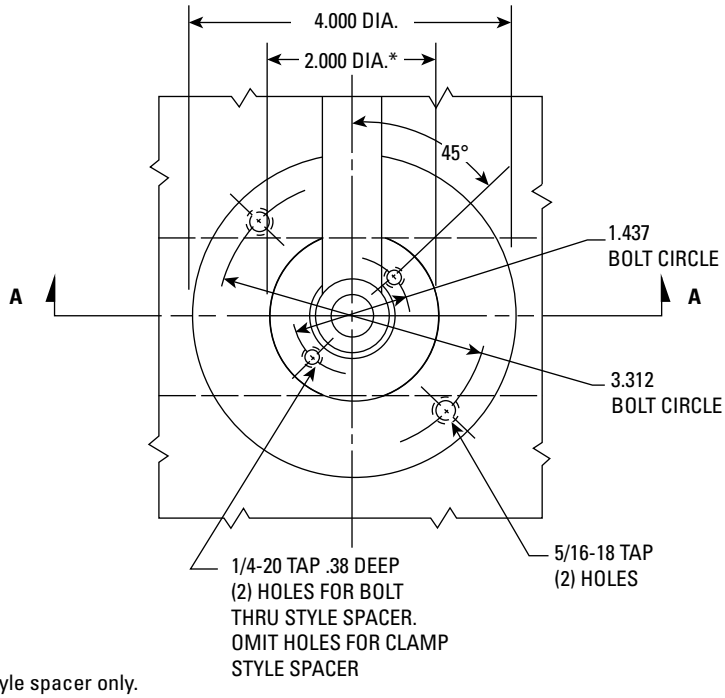
1. To secure distributor plates, the use of 1/2-13 hardened cap screws is recommended. Line both sides of the distributor channel on 1.5" centers, 1" from channel. Torque to manufacturer's recommendations (Approx. 110 foot pounds)
2. Moldmaker to supply guide pins and bushings, molds straps and appropriate holes to allow plates to be split and moved when removing the cull in the molding machine
3. When separating the distributor system, the cull will have the tendency to stay on the probe side. A method of extraction is suggested to facilitate removal

Machining for Heated Nozzle Locator, Locating Ring and Distributor Channel

Machining for Heated Nozzle Locator and D-M-E 6521 or 6524 (Modified) Locating Ring — Adjust Accordingly for Other Locating Rings

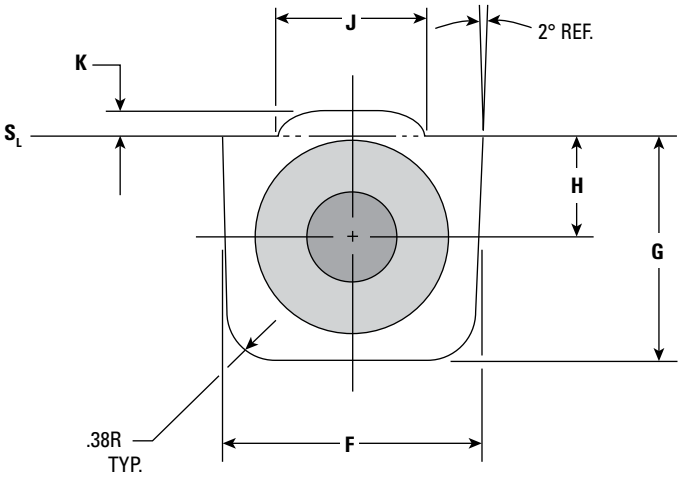


SECTION A-A
V&W = Depths determined by application.



***NOTE:** Counterbore depth (V) and diameter (2.000") apply to bolt thru style spacer only.

Machining for Trapezoidal Distributor Channel



DIM.	PRIMARY CHANNEL WITH 1.625 DIA. DIST. TUBE	SECONDARY CHANNEL WITH .875 DIA. DIST. TUBE
F	2.000	1.250
G	1.850	1.100
H	.850	.475
J	1.000	.750
K	.150	.150

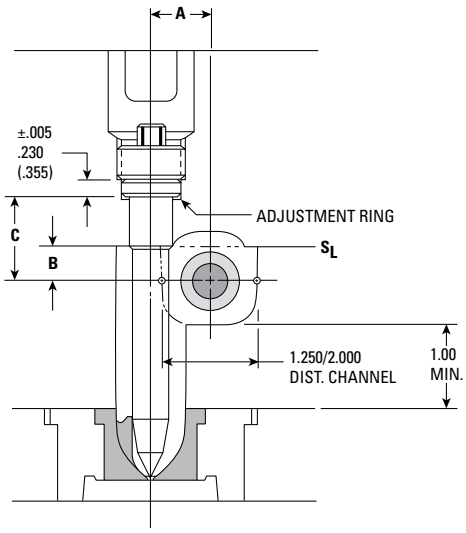
NOTE: For Trapezoidal Designs, select from above to suit mold/part requirements. For single level round, use a 2" dia. bore with 1.625 O.D. distributor tube — or — 1.25 dia. bore with .875 O.D. distributor tube.

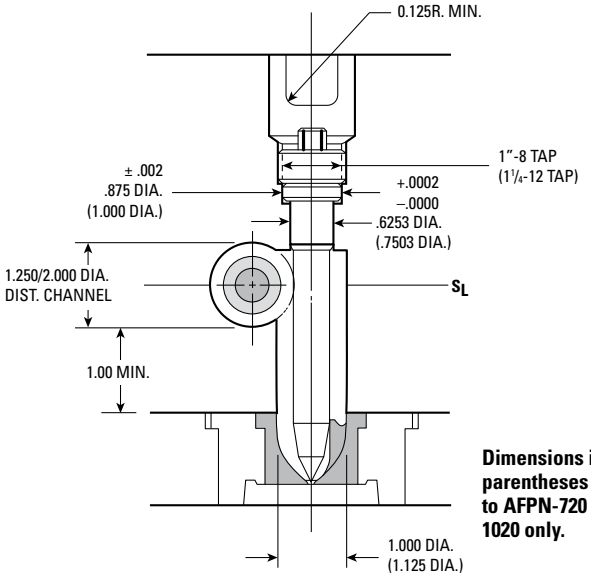
Dimensions for Probe Machining, Probe Set-up and Gate Machining

Probe Machining Dimensions

(NOTE: Dimensions shown are common to either round or trapezoid.)

NOTE: ONLY AFPN Series probes are recommended for the trapezoidal and round split plate concept.





Dimensions in parentheses apply to AFPN-720 thru 1020 only.

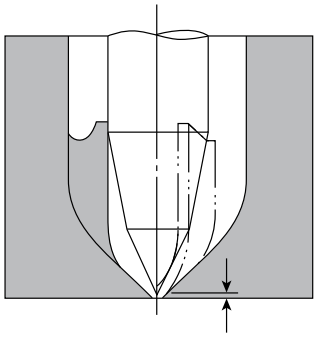
USED WITH .875 DIA. DISTRIBUTOR TUBE (1.25 CHANNEL)

PROBE ITEM NO.	A DIM. ± .020	B DIM. MIN.	C DIM. MIN.
AFPN-410	.796	.500	1.375
AFPN-510	.796	.500	1.375
AFPN-610	.796	.500	1.375
AFPN-720	.861	.750	2.250
AFPN-820	.861	.750	2.250
AFPN-920	.861	.750	2.250
AFPN-1020	.861	.750	2.250

USED WITH 1.625 DIA. DISTRIBUTOR TUBE (2.00 CHANNEL)

PROBE ITEM NO.	A DIM. ± .020	B DIM. MIN.	C DIM. MIN.
AFPN-410	1.171	.500	1.375
AFPN-510	1.171	.500	1.375
AFPN-610	1.171	.500	1.375
AFPN-720	1.236	.750	2.250
AFPN-820	1.236	.750	2.250
AFPN-920	1.236	.750	2.250
AFPN-1020	1.236	.750	2.250

Initial Probe Set-up Dimensions



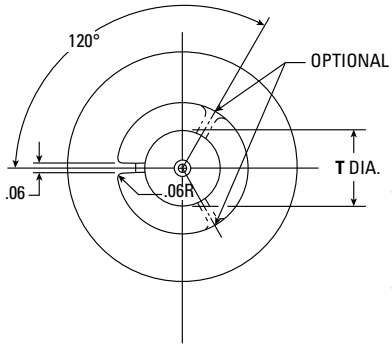
X DIMENSION
(PROBE TIP SETTING
AT ROOM TEMPERATURE)

NOTE: X Dimension is for initial probe set-up and may require further adjustment. Final position of probe tip will be determined by gate cosmetics and flow requirements.

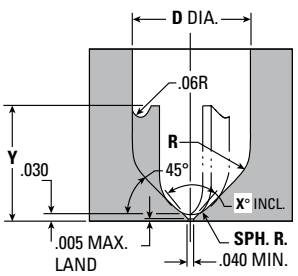
PROBE ITEM NO.	X DIM.
AFPN-410	.000-.004
AFPN-510	.000-.005
AFPN-610	.000-.006

PROBE ITEM NO.	X DIM.
AFPN-720	.000-.007
AFPN-820	.000-.008
AFPN-920	.000-.009
AFPN-1020	.000-.010

Gate Machining Dimensions



IMPORTANT: When using a single locator – the primary locator must be positioned directly opposite to the distributor tube feeding the drop.

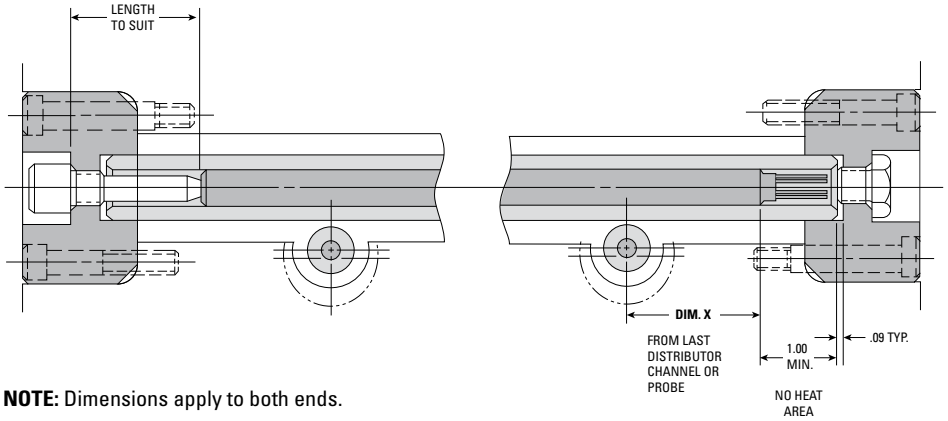


PROBE ITEM NO.	AFPN-410 THRU-610	AFPN-720 THRU-1020
D DIA.	1.000	1.125
T DIA.	.562	.693
Y DIM.	1.000	.850
SPH.R.	.187	.250
R	.375	.500

X° = 80° INCL. MIN.
90° INCL. MAX.

Split Plate Designs and Machining Guidelines

Recommended Relationship Between Thermocouple (T/C) Distributor Tube Heaters, Distributor Tubes and Intersecting Tubes or Probes

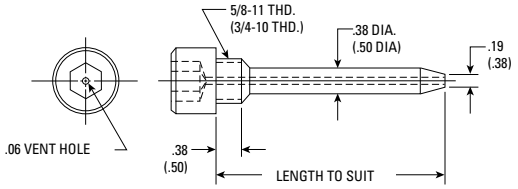


NOTE: Dimensions apply to both ends.

FOR PRIMARY CHANNEL WITH	DIM. X
1.625 DIST. TUBE	2.250 MIN.
.875 DIST. TUBE	1.750 MIN.

Heater Stop

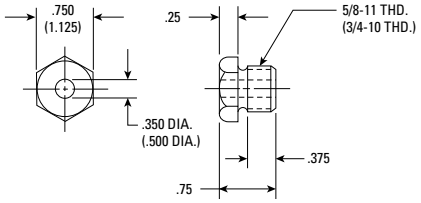
Moldmaker to supply to suit



(**NOTE:** Dimensions in parentheses apply to large distributor tube).

Heater Lead Wire Protector

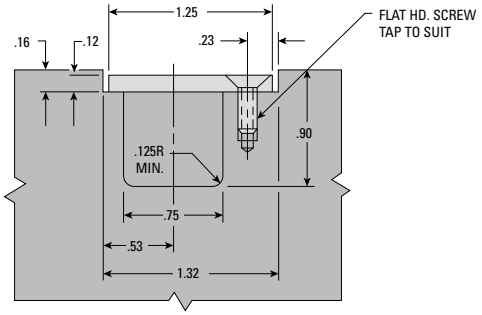
Moldmaker to supply to suit



(**NOTE:** Dimensions in parentheses apply to large distributor tube).

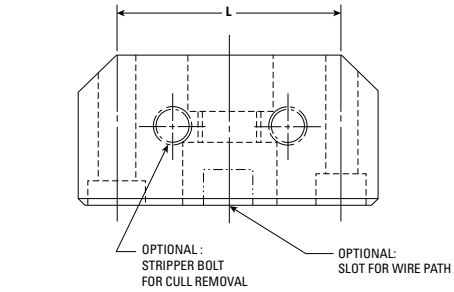
Recommended Wire Channels and Strap

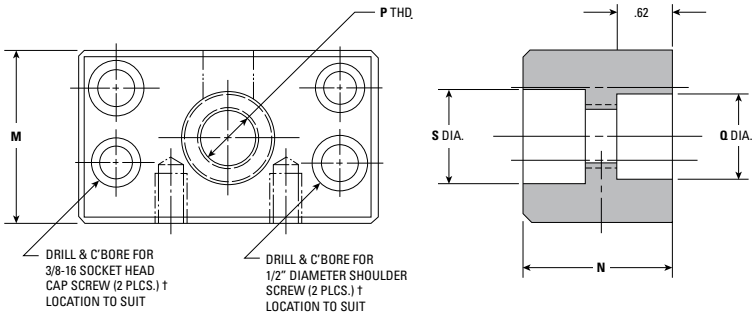
Break all sharp corners to prevent damage to heater lead wires. Moldmaker to supply to suit.



End Cap Dimensions

(Moldmaker to supply to suit)





DIM.	USED WITH .875 DIA. DIST. TUBE (1.25 CHANNEL)	USED WITH 1.625 DIA. DIST. TUBE (2.00 CHANNEL)
*L	2.125 MIN.	2.875 MIN.
*M	1.500 MIN.	2.500 MIN.
N	1.750 MIN.	1.875 MIN.
P	5/8-11	3/4-10
Q	$.875^{+.002}_{-.000}$	$1.625^{+.002}_{-.000}$
S	1.000	1.500

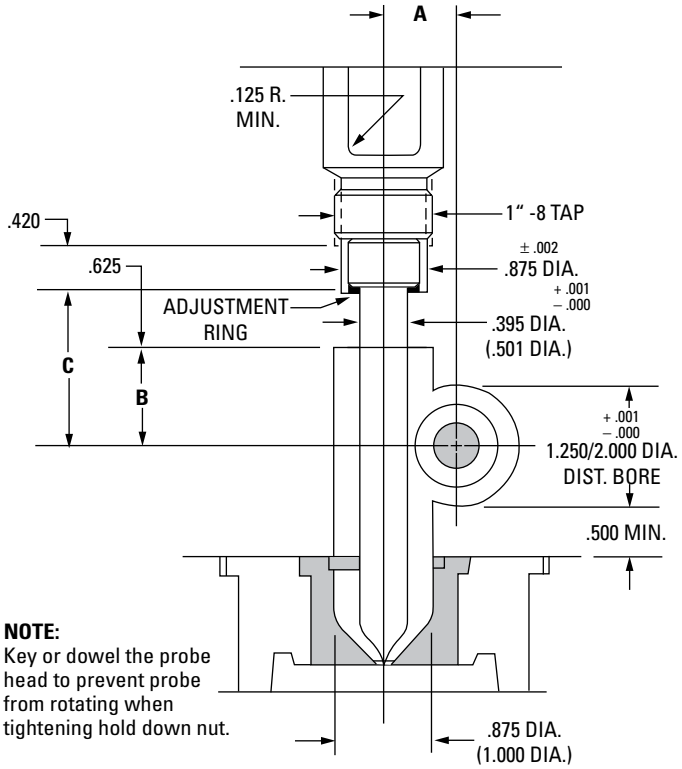
***L** & **M** dimensions must extend .250 past channel.

†**NOTE:** 5/16-18 S.H.C.S. & 3/8 dia. locational shoulder screws may be substituted on the 1.25 distributor channel.

D-M-E #3 STEEL IS RECOMMENDED FOR END CAPS.

Dimensions for Probe Machining and Set-up Solid Block and Split Plate Designs

Probe Machining Dimensions – Solid Block Design



NOTE:
Key or dowel the probe head to prevent probe from rotating when tightening hold down nut.

USED WITH .875 DIA. DISTRIBUTOR TUBE (1.25 DIST. BORE)

PROBE ITEM NUMBER	A DIM. + .000/–.020	B DIM. MIN.	C DIM. MIN.
AFIP4-372-(90)	.709	.788	1.413
AFIP4-422-(90)	.709	.788	1.413
AFIP4-472-(90)	.709	.788	1.413
AFIP5-372-(90)	.762	1.000	1.625
AFIP5-422-(90)	.762	1.000	1.625
AFIP5-472-(90)	.762	1.000	1.625
AFIP5-522-(90)	.762	1.000	1.625
AFIP5-572-(90)	.762	1.000	1.625
AFIP5-622-(90)	.762	1.000	1.625

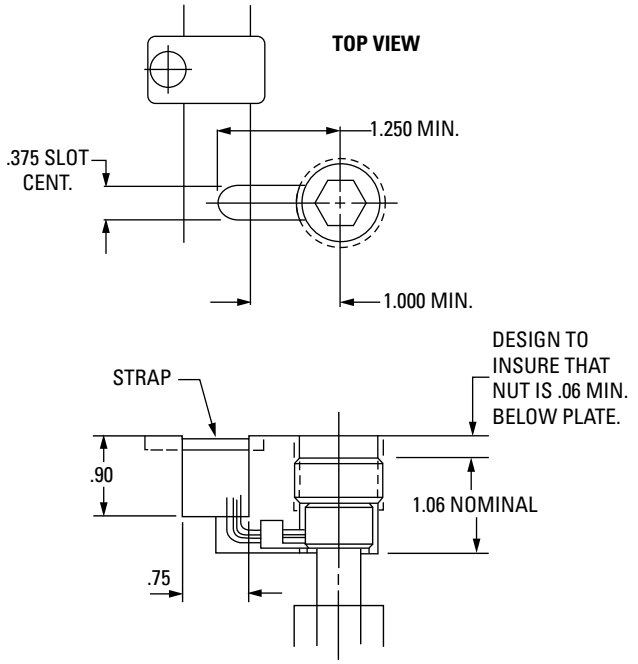
USED WITH 1.625 DIA. DISTRIBUTOR TUBE (2.00 DIST. BORE)

PROBE ITEM NUMBER	A DIM. + .000/–.020	B DIM. MIN.	C DIM. MIN.
AFIP5-372-(90)	1.137	1.000	1.625
AFIP5-422-(90)	1.137	1.000	1.625
AFIP5-472-(90)	1.137	1.000	1.625
AFIP5-522-(90)	1.137	1.000	1.625
AFIP5-572-(90)	1.137	1.000	1.625
AFIP5-622-(90)	1.137	1.000	1.625

IMPORTANT: Dimensions shown in parentheses apply to larger probes AFIP5-372 thru 5-622 only. Tolerances shown also apply to dimensions in parentheses.

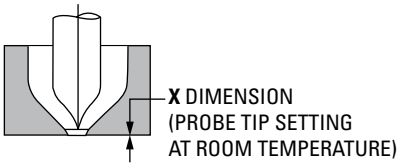
Recommended Wire Channels and Strap (Solid Block or Split Plate Design)

Break all sharp corners to prevent damage to heater lead wires



PARTIAL SIDE VIEW SHOWING INSTALLATION OF PROBE WITH 90° LEADS

Initial Probe Set-up Dimensions (Solid Block or Split Plate Design)



PROBE ITEM NUMBER	X DIM.
AFIP4-372-(90)	.000-.004
AFIP4-422-(90)	.000-.004
AFIP4-472-(90)	.000-.005
AFIP5-372-(90)	.000-.004
AFIP5-422-(90)	.000-.004

PROBE ITEM NUMBER	X DIM.
AFIP5-472-(90)	.000-.005
AFIP5-522-(90)	.000-.005
AFIP5-572-(90)	.000-.006
AFIP5-622-(90)	.000-.006

NOTE: X dimension is for initial probe set-up and may require further adjustment. Final position of probe tip will be determined by gate cosmetics and flow requirements.

Gate Machining Dimensions (Solid Block Design)

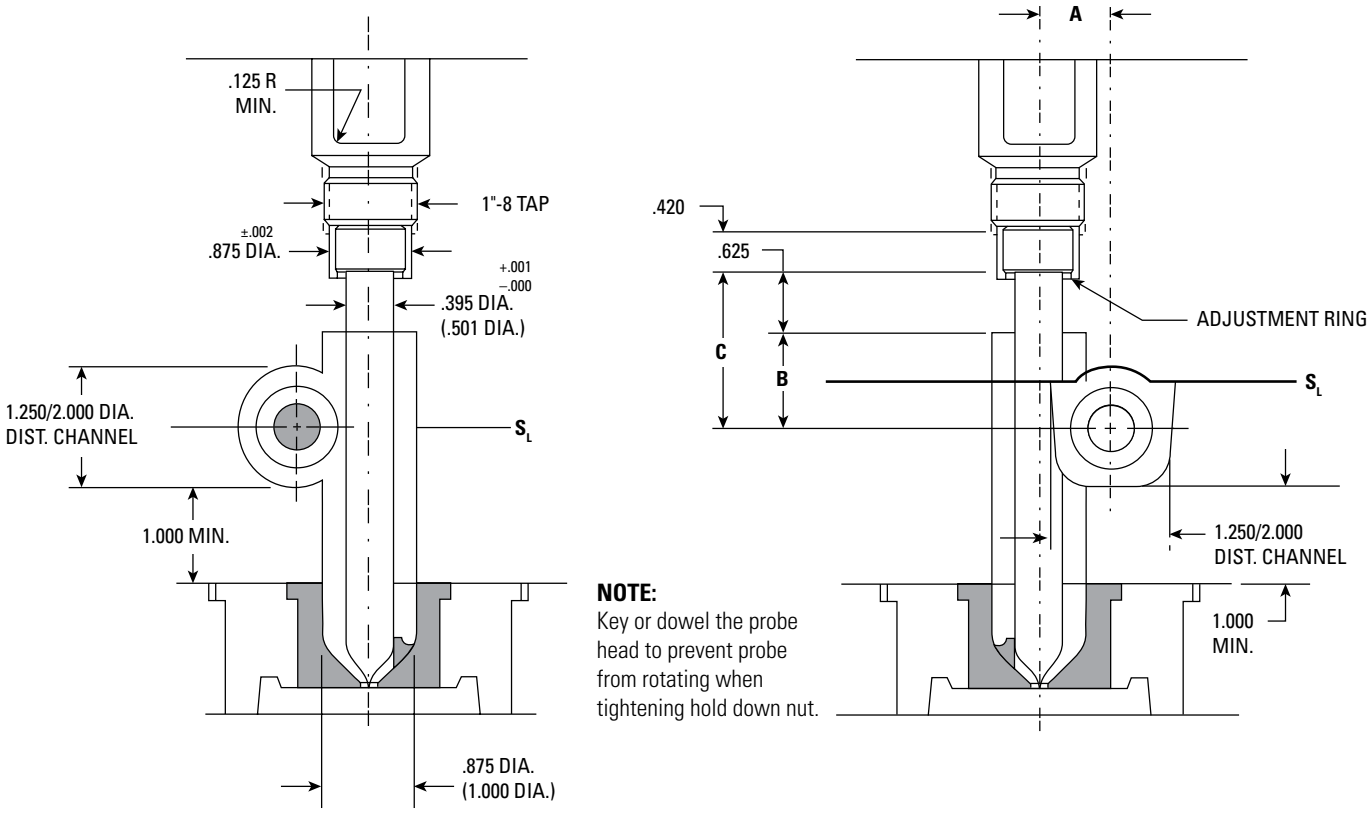
Refer to drawing on next page for Auto-Fixed Finless Probes and apply the following:

PROBE SERIES	D DIA.	SPH. R.	R
AFIP4	.875	.187	.38
AFIP5	1.000		

Probe Machining Dimensions – Split Plate Design

Probe Machining Dimensions – Split Plate Design

(See previous page for initial probe set-up dimensions and wire channels)



NOTE:
Key or dowel the probe head to prevent probe from rotating when tightening hold down nut.

USED WITH .875 DIA. DISTRIBUTOR TUBE (1.25 DIST. BORE)

PROBE ITEM NUMBER	A DIM. + .000/–.020	B DIM. MIN.	C DIM. MIN.
AFIP4-372-(90)	.709	.788	1.413
AFIP4-422-(90)	.709	.788	1.413
AFIP4-472-(90)	.709	.788	1.413
AFIP5-372-(90)	.762	1.000	1.625
AFIP5-422-(90)	.762	1.000	1.625
AFIP5-472-(90)	.762	1.000	1.625
AFIP5-522-(90)	.762	1.000	1.625
AFIP5-572-(90)	.762	1.000	1.625
AFIP5-622-(90)	.762	1.000	1.625

USED WITH 1.625 DIA. DISTRIBUTOR TUBE (2.00 DIST. BORE)

PROBE ITEM NUMBER	A DIM. + .000/–.020	B DIM. MIN.	C DIM. MIN.
AFIP5-372-(90)	1.137	1.000	1.625
AFIP5-422-(90)	1.137	1.000	1.625
AFIP5-472-(90)	1.137	1.000	1.625
AFIP5-522-(90)	1.137	1.000	1.625
AFIP5-572-(90)	1.137	1.000	1.625
AFIP5-622-(90)	1.137	1.000	1.625

IMPORTANT: Dimensions shown in parentheses apply to larger probes AFIP5-372 thru 5-622 only. Tolerances shown also apply to dimensions in parentheses.

NOTE: The symbol "S_L" is used to show the split line. Dimensions shown are common to either round or trapezoid applications.

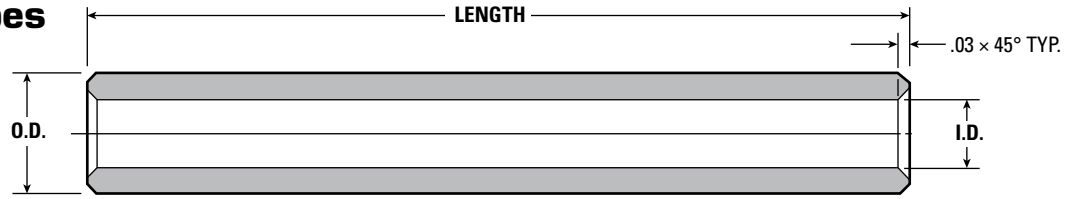
Gate Machining Dimensions (Split Plate Design)

PROBE SERIES	AFIP4	AFIP5
D DIA.	.875	1.000
T DIA.	.390	.496
Y DIM.	.480	.530
SPH.R.	.187	.187
R	.375	.375

Distributor Tubes and Heaters

Distributor Tubes

MATERIAL: AISI P-20 STEEL
HARDNESS: 28-35 HRC



USED WITH 1.250 DIST. BORE

ITEM NO.	O.D.	I.D.	LENGTH
HT-07-04-6	.875	.500	6″
HT-07-04-10			10″
HT-07-04-16			16″
HT-07-04-20			20″
HT-07-04-24			24″
HT-07-04-29			29″
HT-07-04-34			34″

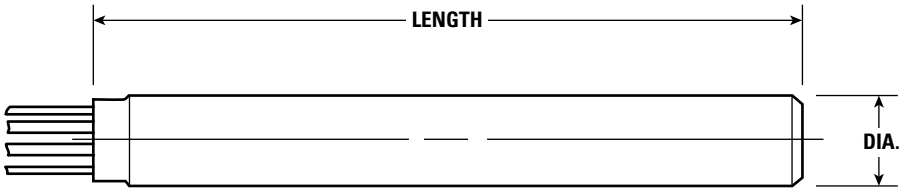
USED WITH 2.000 DIST. BORE

ITEM NO.	O.D.	I.D.	LENGTH
HT-15-05-10	1.625	.625	10″
HT-15-05-18			18″
HT-15-05-24			24″
HT-15-05-29			29″
HT-15-05-34			34″
HT-15-05-40			40″
HT-15-05-46			46″

Thermocouple (T/C) Distributor Tube Heaters

240 VAC, T/C type J grounded, 34″ leads

WIRING INFORMATION
Power leads — BLACK OR MULTI-COLORED
T/C leads — RED & WHITE
RED is negative (–)
WHITE is positive (+)



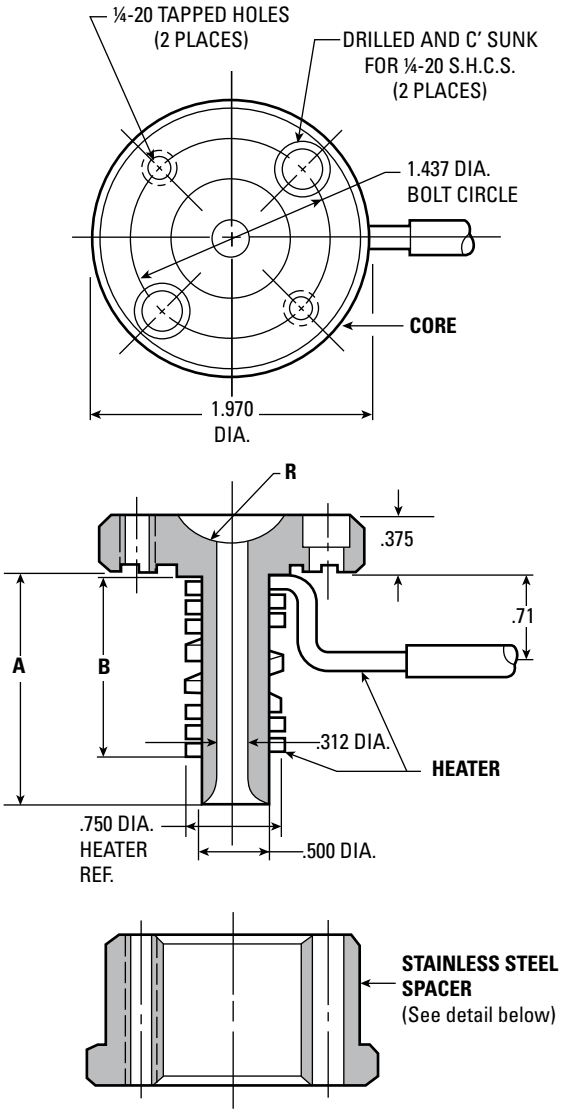
ITEM NO.	DIA.	LENGTH	WATTS	CONTROL
HCTC-04-4	.500	4″	380	15 AMP
HCTC-04-5		5″	500	
HCTC-04-6		6″	600	
HCTC-04-7		7″	700	
HCTC-04-8		8″	820	
HCTC-04-9		9″	920	
HCTC-04-10		10″	1030	
HCTC-04-11		11″	1140	
HCTC-04-12		12″	1250	
HCTC-04-13		13″	1350	
HCTC-04-14		14″	1460	
HCTC-04-15		15″	1570	
HCTC-04-16		16″	1680	
HCTC-04-17		17″	1780	
HCTC-04-18		18″	1900	
HCTC-04-19		19″	2010	
HCTC-04-20		20″	2110	
HCTC-04-21		21″	2220	
HCTC-04-22		22″	2330	
HCTC-04-23		23″	2400	
HCTC-04-24		24″	2400	
HCTC-04-25		25″	2400	
HCTC-04-26		26″	2400	
HCTC-04-27		27″	2400	
HCTC-04-28		28″	2400	
HCTC-04-29		29″	2400	
HCTC-04-30		30″	2400	

ITEM NO.	DIA.	LENGTH	WATTS	CONTROL
HCTC-05-5	.625	5″	620	15 AMP
HCTC-05-6		6″	750	
HCTC-05-7		7″	880	
HCTC-05-8		8″	1020	
HCTC-05-9		9″	1160	
HCTC-05-10		10″	1300	
HCTC-05-11		11″	1430	
HCTC-05-12		12″	1570	
HCTC-05-13		13″	1700	
HCTC-05-14		14″	1840	
HCTC-05-15		15″	1980	
HCTC-05-16		16″	2110	
HCTC-05-17		17″	2250	
HCTC-05-18		18″	2390	
HCTC-05-19		19″	2520	
HCTC-05-20		20″	2660	
HCTC-05-21		21″	2800	
HCTC-05-22		22″	2930	
HCTC-05-23		23″	3070	
HCTC-05-24		24″	3200	
HCTC-05-25		25″	3340	
HCTC-05-26		26″	3480	

ITEM NO.	DIA.	LENGTH	WATTS	CONTROL
HCTC-05-27	.625	27″	3620	30 AMP
HCTC-05-28		28″	3750	
HCTC-05-29		29″	3900	
HCTC-05-30		30″	4020	
HCTC-05-31		31″	4160	
HCTC-05-32		32″	4300	
HCTC-05-33		33″	4430	
HCTC-05-34		34″	4570	
HCTC-05-35		35″	4710	
HCTC-05-36		36″	4840	
HCTC-05-37		37″	4980	
HCTC-05-38		38″	5120	
HCTC-05-39		39″	5250	
HCTC-05-40		40″	5390	
HCTC-05-41		41″	5520	
HCTC-05-42		42″	5520	
HCTC-05-43		43″	5520	
HCTC-05-44		44″	5520	

Nozzle Locator Assemblies, Cores and Heaters

Heated Nozzle Locator Assemblies



ITEM NO.		A DIM.	B DIM.
R = ½	R = ¾		
HNL-462	HNL-662	1.809	1.450
HNL-472	HNL-672	2.309	1.950

HNL-462 and HNL-662 assemblies include:
- HNC-46 or HNC-66 core, respectively
- SSTC-62-90 heater
- HNS-67 spacer (stainless steel)

HNL-472 and HNL-672 assemblies include:
- HNC-47 or HNC-67 core, respectively
- SSTC-72-90 heater
- HNS-67 spacer (stainless steel)

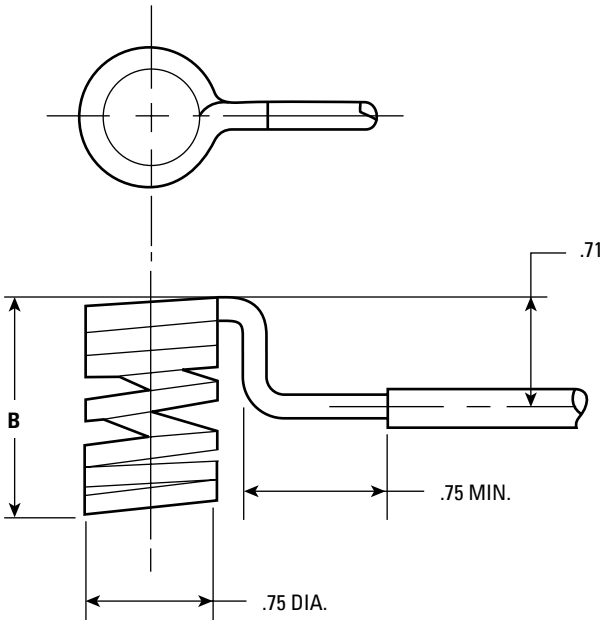
Replacement Nozzle Locator Cores

(See drawing at left for A Dim. reference and detail)

ITEM NUMBER		A DIM.
R = ½	R = ¾	
HNC-46	HNC-66	1.809
HNC-47	HNC-67	2.309

Replacement Thermocouple (T/C) Square Coil Nozzle Locator Heaters

(240 VAC, 250 Watts, T/C type J grounded, 34" leads)



ITEM NO.	B DIM.	USED WITH
SSTC-62-90	1.450	HNC-46 & HNC-66 Cores
SSTC-72-90	1.950	HNC-47 & HNC-67 Cores

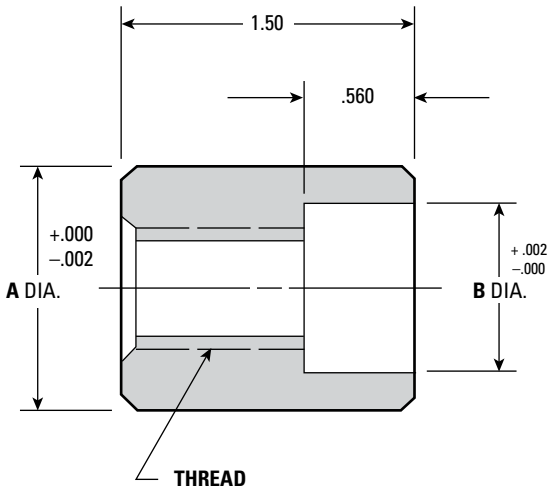
WIRING INFORMATION

Power leads — BLACK OR MULTI-COLORED
T/C leads — RED & WHITE
RED is negative (–)
WHITE is positive (+)

End Caps, Nozzle Locators and Spacer

End Caps

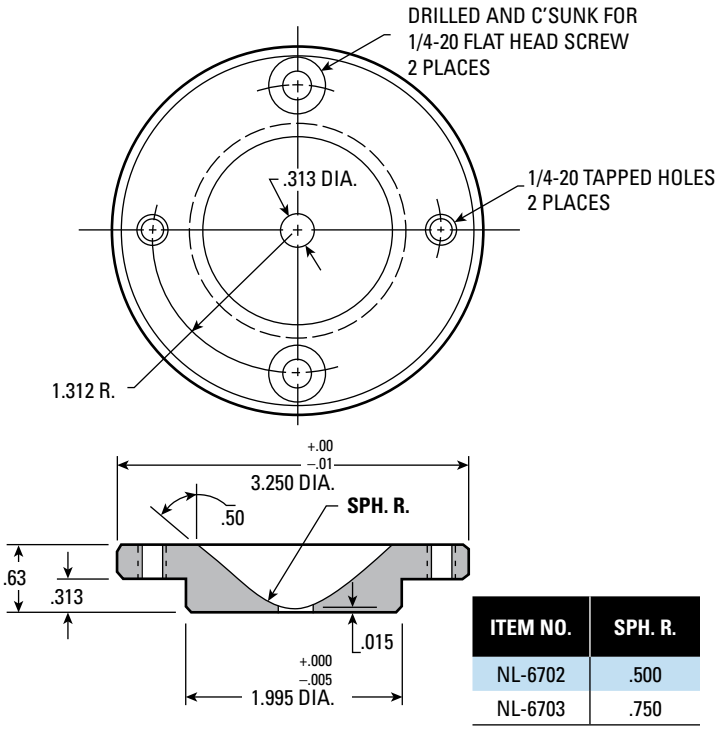
MATERIAL: AISI 4140 STEEL



ITEM NO.	A DIA.	B DIA.	THREAD	USED WITH
EC-12-07	1.249	.875	5/8"-11	1.250 DIST. BORE
EC-20-15	1.999	1.625	3/4"-10	2.000 DIST. BORE

Nozzle Locators (Optional)

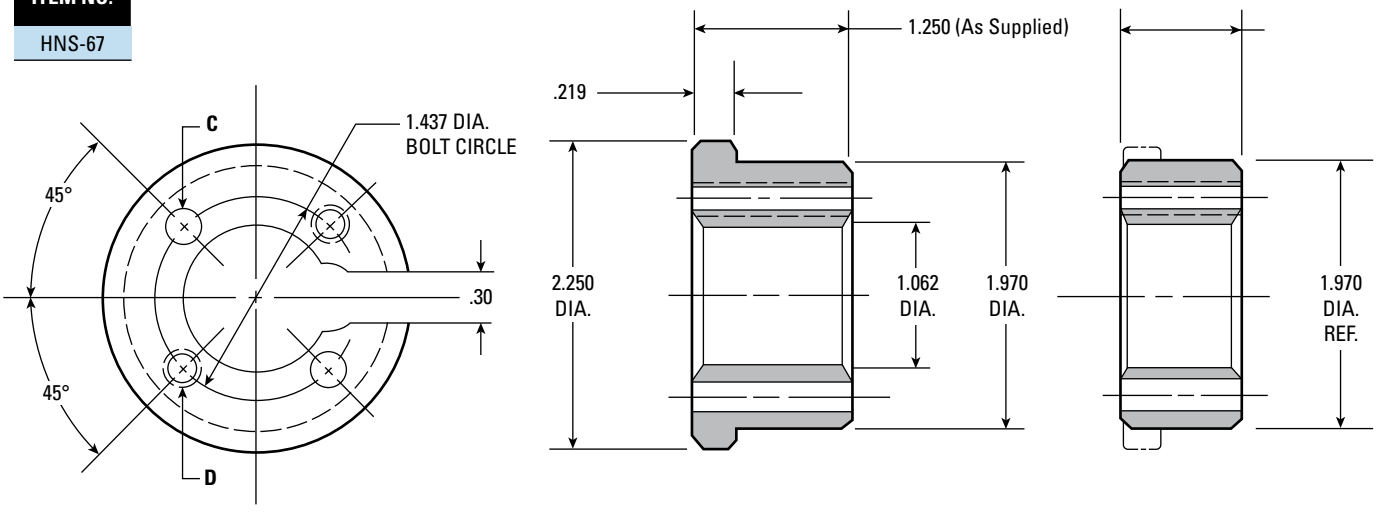
Heated Nozzle Locator is Recommended



ITEM NO.	SPH. R.
NL-6702	.500
NL-6703	.750

Replacement Nozzle Locator Spacer

ITEM NO.
HNS-67



C = .312 Dia. thru Hole (2 Places), Used with Bolt-Thru Style Application.
D = 1/4-20 Tapped Hole (2 Places), Used with Clamp Style Application.

NOTE: For bolt-thru style remove 2.250 dia. flange and adjust 1.250 height to suit application.

Probes and Gate Insert Applications

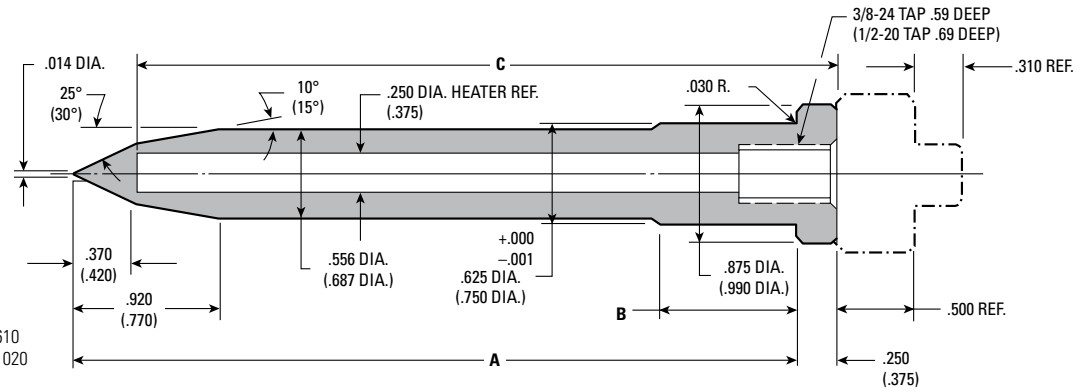
Auto-fixed® Finless Probe (Item Nos. AFPN-410, -510, and -610) (Item Nos. AFPN-720, -820, -920, and -1020)

MATERIAL: AISI D-2 STEEL
HARDNESS: 50-55 HRC

Important: Dimensions shown in parentheses apply to longer probes AFPN-720 thru 1020 only. Tolerances shown also apply to dimensions in parentheses.

Example:

$^{+.000}_{-.001}$ ← FOR ALL PROBES
.625 DIA. ← FOR AFPN-410 THRU 610
(.750 DIA.) ← FOR AFPN-720 THRU 1020

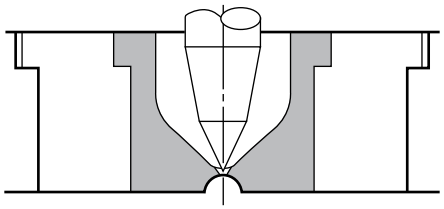


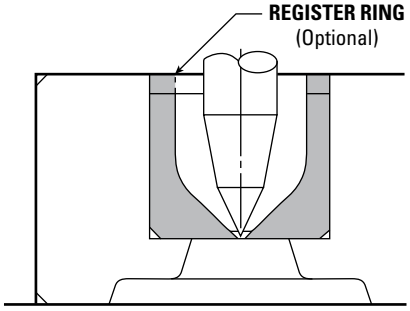
ITEM NO.	A DIM.	B DIM.	C DIM.	T/C HEATER NO.*
AFPN-410	3.625	.875	3.470	AFTC-214-2
AFPN-510	4.625	.875	4.470	AFTC-215-2
AFPN-610	5.609	.875	5.450	AFTC-216-2

*OMIT "T" From T/C Heater Number When Ordering Non-T/C Heaters.

ITEM NO.	A DIM.	B DIM.	C DIM.	T/C HEATER NO.
AFPN-720	7.000	1.500	6.925	AFTC-327-2
AFPN-820	8.000	1.500	7.925	AFTC-328-2
AFPN-920	9.000	1.500	8.925	AFTC-329-2
AFPN-1020	10.000	1.500	9.925	AFTC-3210-2

Gate Insert Applications

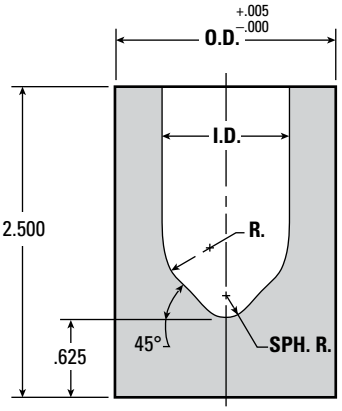




GATE INSERTS (For Finless Probes)

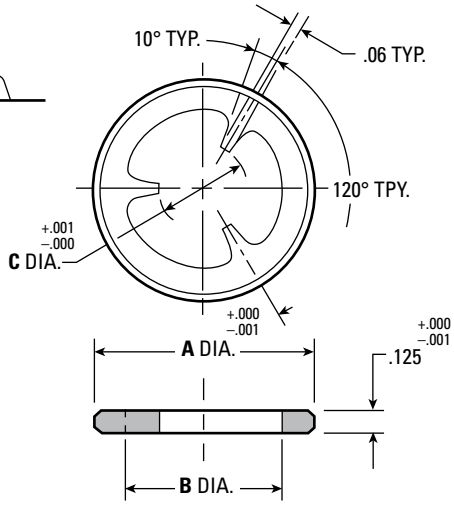
MATERIAL: AISI S-7 STEEL (pre-hardened)
HARDNESS: 30-34 HRC

Hardness can be increased to a higher value by heat treatment, if desired.



REGISTER RINGS

MATERIAL: AISI H-13 STEEL
HARDNESS: 48-52 HRC



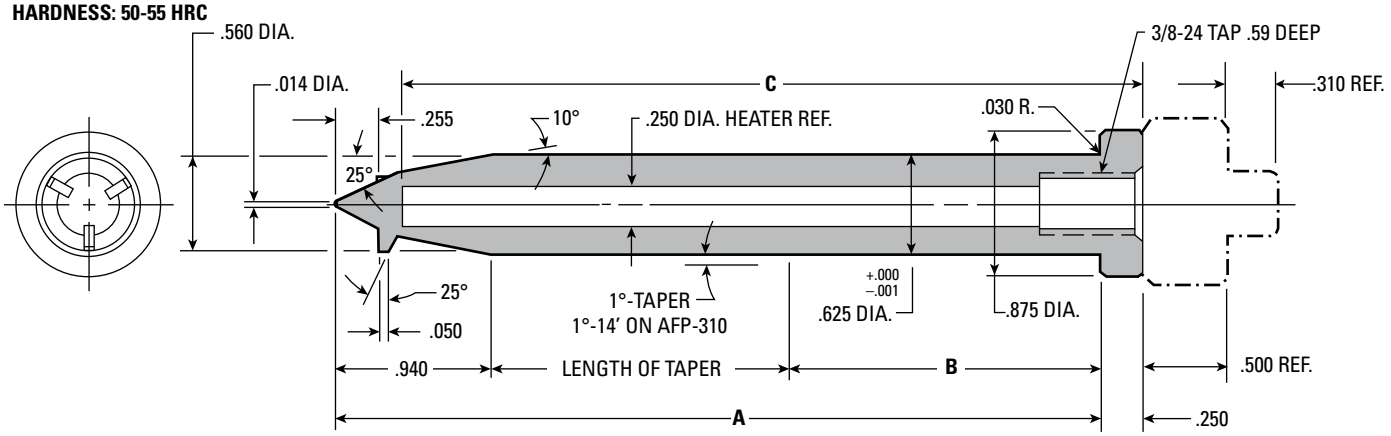
ITEM NO.	O.D.	I.D.	SPH. R.	R.	USED WITH
AFGI-10N	1.750	1.000	.187	.375	AFPN-410 THRU 610
AFGI-20N	2.000	1.125	.250	.500	AFPN-720 THRU 1020

ITEM NO.	A DIA.	B DIA.	C DIA.	USED WITH
AFRR-10N	1.375	1.000	.562	AFPN-410 THRU 610
AFRR-20N	1.500	1.125	.693	AFPN-720 THRU 1020

Probes and Gate Insert Applications

Auto-fixed® Probe (Item Nos. AFP-410, -510, and -610)

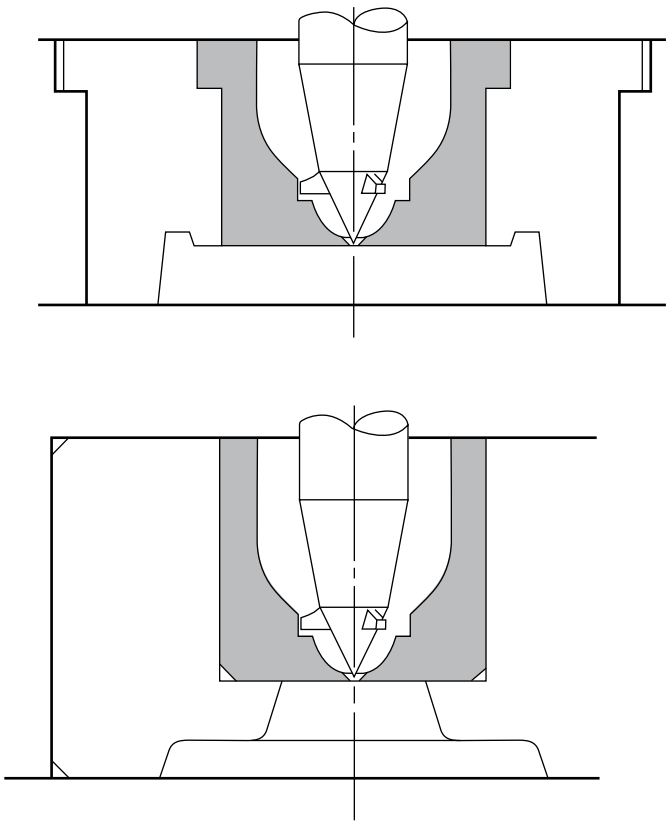
MATERIAL: AISI D-2 STEEL
HARDNESS: 50-55 HRC



ITEM NO.	A DIM.	B DIM.	C DIM.	T/C HEATER NO.*
AFP-410	3.625	.890	3.470	AFTC-214-2
AFP-510	4.625	1.890	4.470	AFTC-215-2
AFP-610	5.609	2.900	5.450	AFTC-216-2

*OMIT "T" From T/C Heater Number When Ordering Non-T/C Heaters.

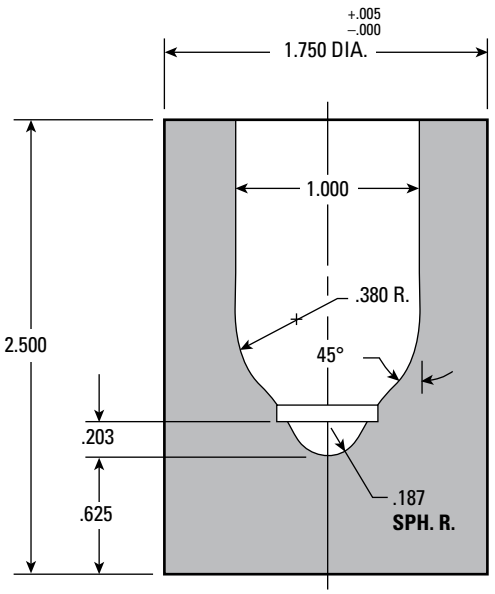
Gate Insert Applications



GATE INSERTS (ITEM NO. AFGI-10)

MATERIAL: AISI S-7 STEEL (pre-hardened)
HARDNESS: 30-34 HRC

Hardness can be increased to a higher value by heat treatment, if desired.

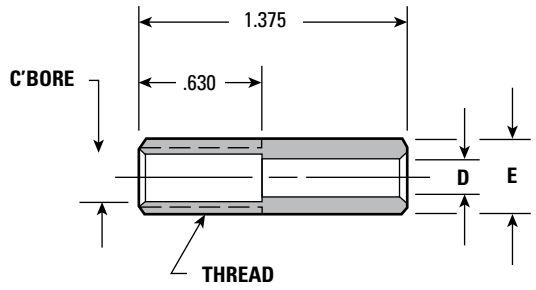


ITEM NO.	O.D.	USED WITH
AFGI-10	1.750	AFP-410 THRU 610

Probe Heaters and Components

Stop Sleeves

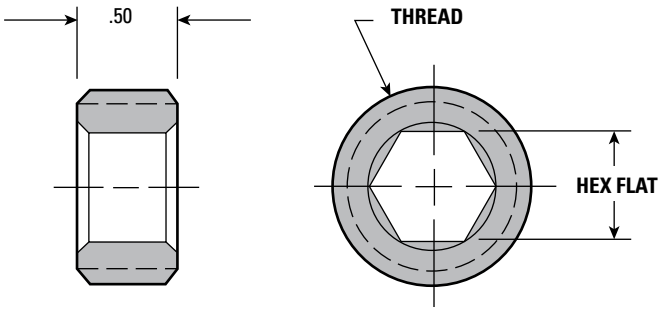
Packaged with all Probes



ITEM NO.	D	E	C'BORE	THREAD	USED WITH
AFSS-38	.187	.375	.265 DIA.	⅜"-24	AFP(N)-410 THRU 610
AFSS-12	.300	.500	.390 DIA.	½"-20	AFPN-720 THRU 1020

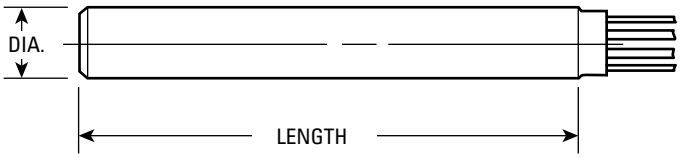
Hold-Down Nuts

Packaged with all Probes



ITEM NO.	THREAD	HEX FLAT	USED WITH
AFN-100	1"-8	9/16	AFP(N)-410 THRU 610
AFN-125	1¼-12	⅝	AFPN-720 THRU 1020

Thermocouple (T/C) Probe Heaters



WIRING INFORMATION

Power leads — BLACK OR MULTI-COLORED
T/C leads — RED & WHITE
RED is negative (–)
WHITE is positive (+)

.250 DIA.
(240 VAC, T/C type J grounded, 34" leads)

ITEM NUMBER*	FOR PROBE	WATTS	LENGTH
AFTC-214-2	AFP(N)-410	220	3.75
AFTC-215-2	AFP(N)-510	275	4.75
AFTC-216-2	AFP(N)-610	350	5.75

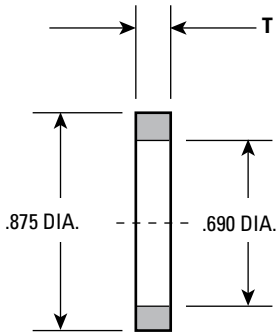
*OMIT "T" From T/C Heater Number When Ordering Non-T/C Heaters.

.375 DIA.
(240 VAC, T/C type J grounded, 48" leads)

ITEM NUMBER	FOR PROBE	WATTS	LENGTH
AFTC-327-2	AFPN-720	645	7.15
AFTC-328-2	AFPN-820	760	8.15
AFTC-329-2	AFPN-920	870	9.15
AFTC-3210-2	AFPN-1020	980	10.15

Adjustment Rings

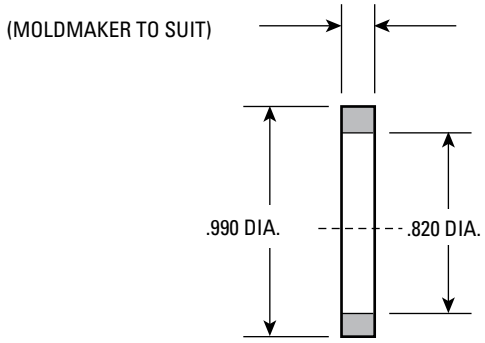
For AFP(N)-410 Thru 610



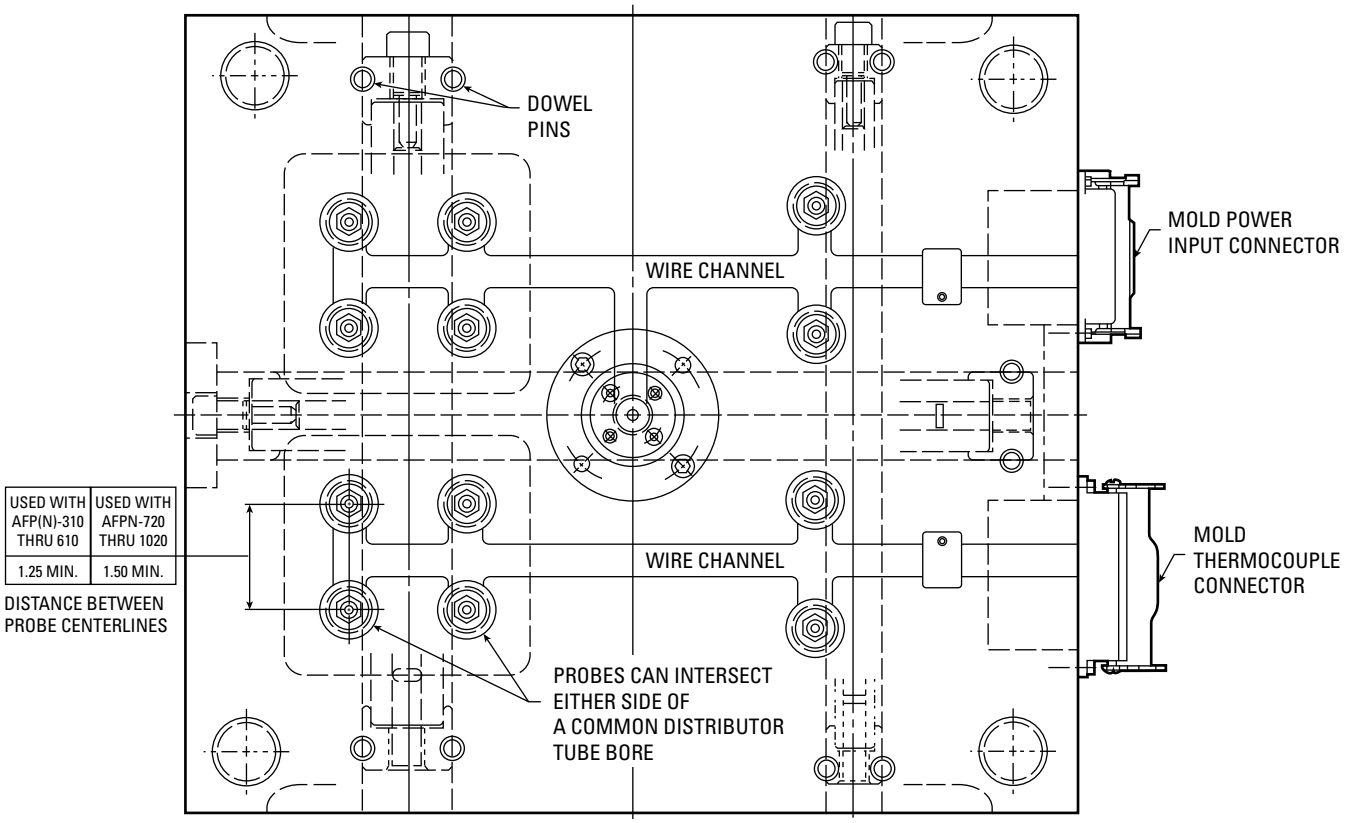
ITEM NUMBER	T DIM.
RAF-002	.002
RAF-003	.003
RAF-005	.005
RAF-007	.007
RAF-032	.032
RAF-062	.062
RAF-125	.125

For AFP(N)-720 Thru 1020

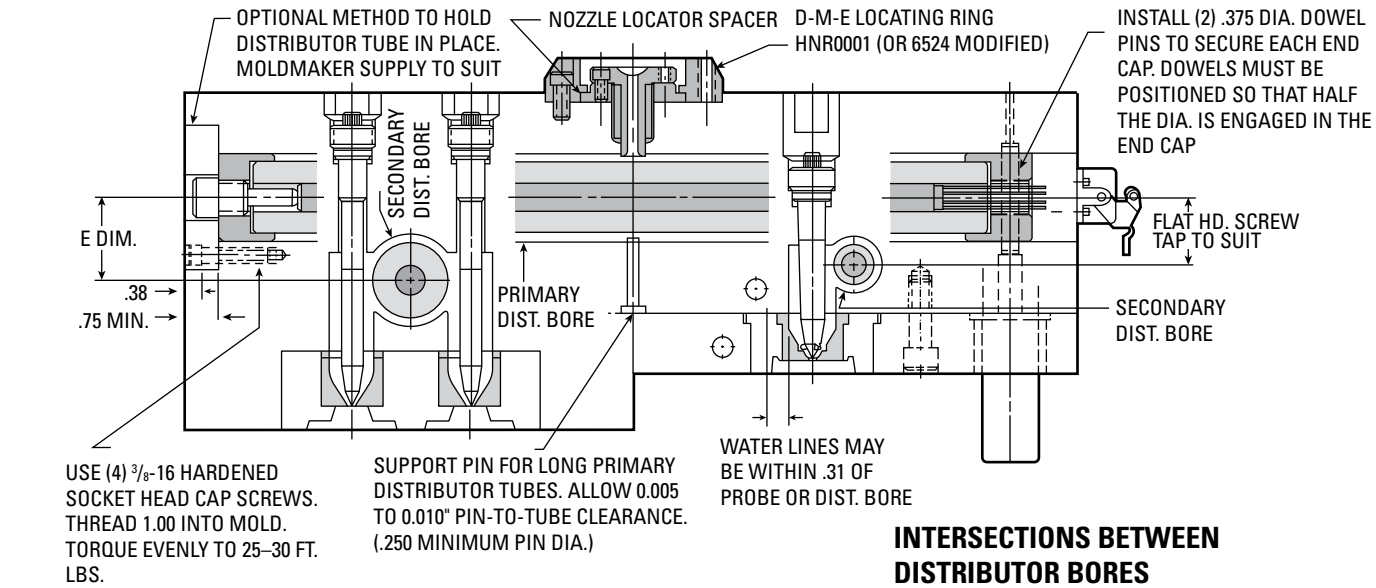
MOLDMAKER TO SUPPLY TO SUIT:



Solid Distributor Block Design and Machining Guidelines



TOP OF MOLD



NOTE: Finned and finless probes shown together for illustration purposes only.

D-M-E #3 STEEL IS RECOMMENDED FOR DISTRIBUTOR PLATES.

INTERSECTIONS BETWEEN DISTRIBUTOR BORES

PRIMARY DIST. BORE	SECONDARY DIST. BORE	E DIM. (± .020)
2.00	2.00	1.705
2.00	1.25	1.330
*1.25	1.25	.955

*The 2.00" distributor bore with 1.625 dia. tube is recommended.

Solid Distributor Block Design and Machining Guidelines

Heated Nozzle Locator

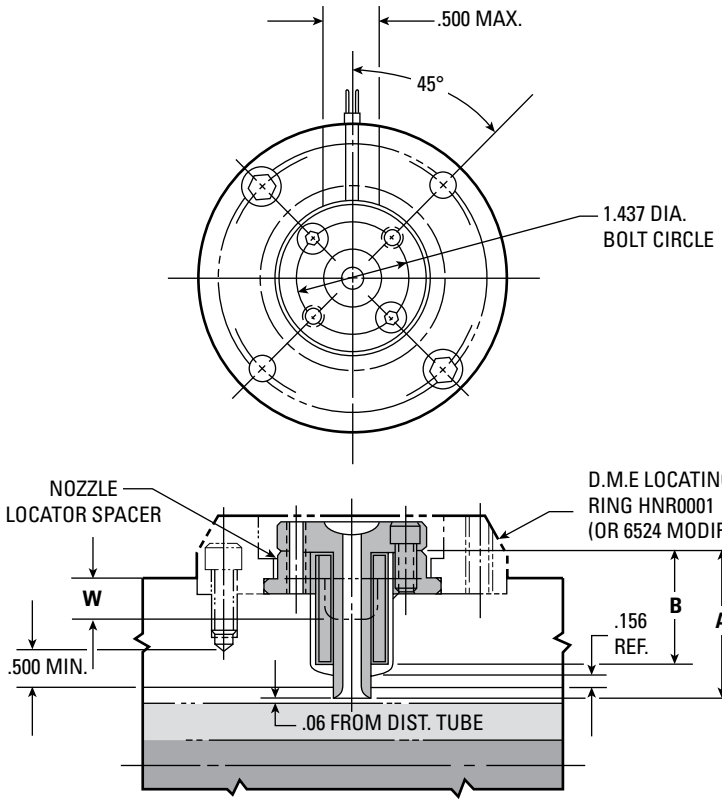


FIGURE 1

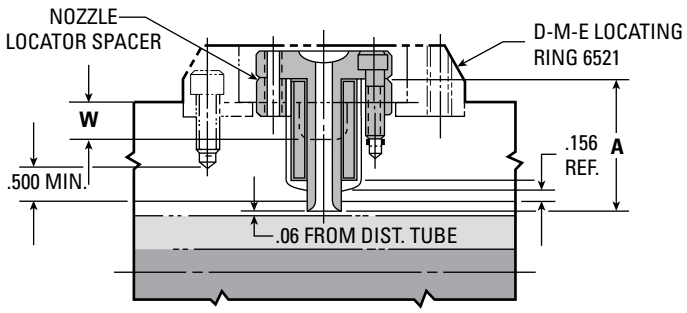


FIGURE 2

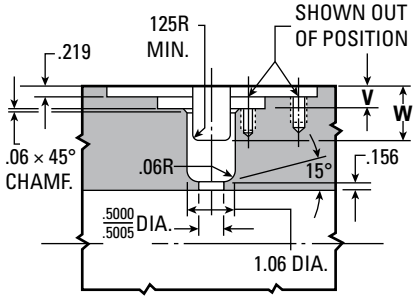


FIGURE 3

ALL APPLICATIONS

The locator's core tip should be positioned 0.060 from the top of the distributor tube, establishing the "**A**" dimension. In most cases, the dimension from the bottom of the core head to the locating ring counterbore will equal the adjusted height of the spacer. (The "**B**" dimension, for reference, is the heater length of 1.450 or 1.950, depending on core length being used.)

CLAMP STYLE SPACER APPLICATION (Figure 1)

The spacer is supplied with a flange and a 1.250 height. The flange may be used in conjunction with a D-M-E HNR0001 or modified 6524 locating ring to form a clamp-style spacer. To modify the locating ring, enlarge its 2.00 diameter counterbore to 2.281 (0.219 deep) and its 1.75 I.D. to 2.00. The core is secured to the spacer with two 1/4-20 S.H.C.S.

BOLT THRU STYLE SPACER APPLICATION (Figure 2)

Another option is to remove the flange and adjust the spacer height to the desired dimension, then secure the Heated Nozzle Locator through the spacer with two 1/4-20 S.H.C.S. into the mold plate. Use caution to insure that the tapped holes are 0.500 minimum from the distributor channel.

Spacer thickness should never be less than 0.250. However, if a condition results where the spacer would be less than 0.250, counterbore a 2.00 diameter into the plate to a "**V**" depth that will accept the 0.250 spacer **(see Figure 3)**.

ALL APPLICATIONS

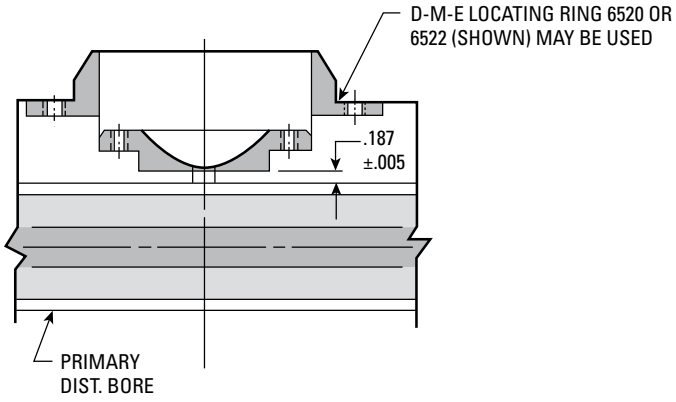
In order to maintain plate strength, the depth of the lead wire channel, dimension "**W**", must be no deeper than required to contain the heater leads. The distance from the bottom of the core head to the bottom of the heater leads is 0.800. Channel depth can be determined accordingly, based on the distance between the core head and the top of the mold.

If a condition occurs where the Heated Nozzle Locator would extend above the standard locating ring, a special locating ring with extended flange for protecting the Heated Nozzle Locator should be constructed.

Solid Distributor Block Design and Machining Guidelines

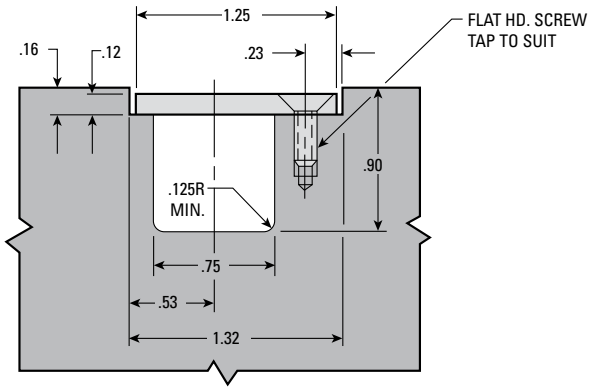
Nozzle Locator (Optional)

HEATED NOZZLE LOCATOR IS RECOMMENDED

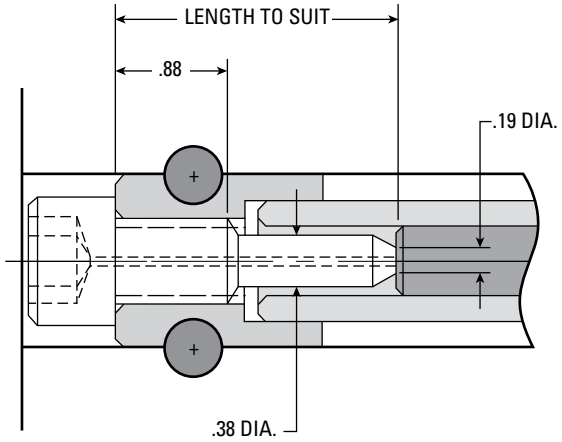


Recommended Wire Channels and Strap

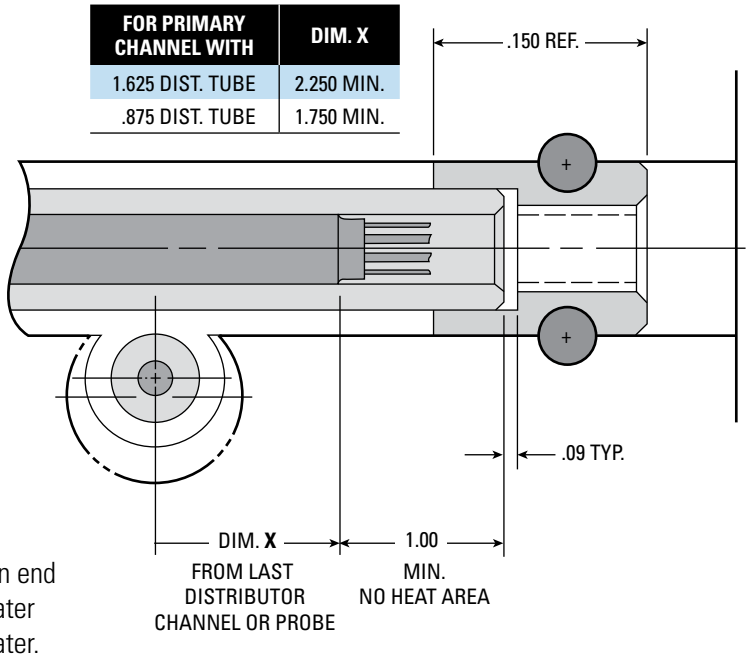
Break all sharp corners to prevent damage to heater lead wires. Moldmaker to supply to suit.



Recommended Relationship Between Thermocouple (T/C) Distributor Tube Heaters, Distributor Tubes and Intersecting Tubes or Probes



FOR PRIMARY CHANNEL WITH	DIM. X
1.625 DIST. TUBE	2.250 MIN.
.875 DIST. TUBE	1.750 MIN.



NOTE: Dimensions apply to both ends.

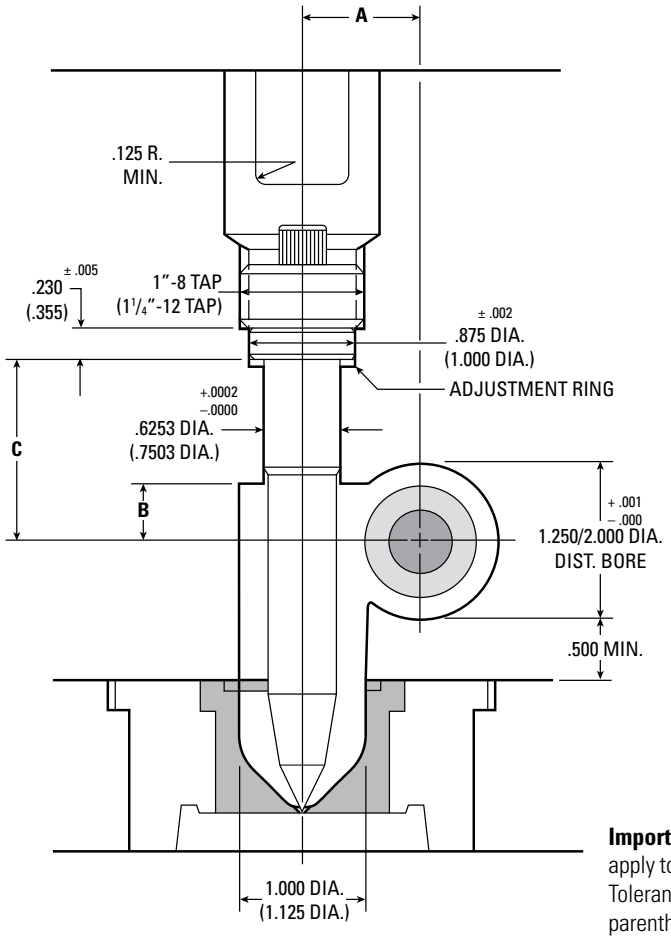
T/C DISTRIBUTOR TUBE HEATER STOP

A 5/8-11 or 3/4-10 socket head cap screw (thread based on end cap being used) is recommended to serve as a positive heater stop. One stop is required for each T/C distributor tube heater. Moldmaker supply to suit.

Solid Distributor Block Machining Guidelines

Auto-Fixed® Finless Probes (AFPN-410 thru 610)

Probe Machining Dimensions



USED WITH .875 DIA. DISTRIBUTOR TUBE (1.25 DIST. BORE)

PROBE ITEM NO.	A DIM. ± .020	B DIM. MIN.	C DIM. MIN.
AFPN-410	.796	.500	1.375
AFPN-510	.796	.500	1.375
AFPN-610	.796	.500	1.375
AFPN-720	.861	.750	2.250
AFPN-820	.861	.750	2.250
AFPN-920	.861	.750	2.250
AFPN-1020	.861	.750	2.250

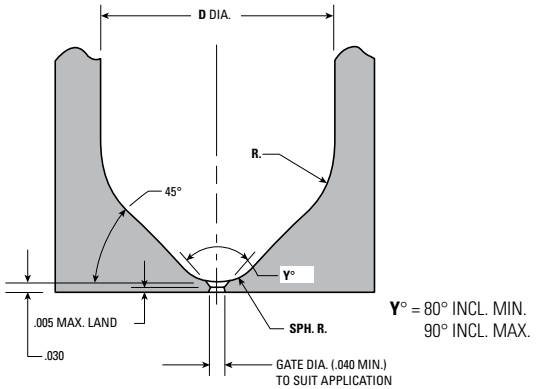
USED WITH 1.625 DIA. DISTRIBUTOR TUBE (2.00 DIST. BORE)

PROBE ITEM NO.	A DIM. ± .020	B DIM. MIN.	C DIM. MIN.
AFPN-410	1.171	.500	1.375
AFPN-510	1.171	.500	1.375
AFPN-610	1.171	.500	1.375
AFPN-720	1.236	.750	2.250
AFPN-820	1.236	.750	2.250
AFPN-920	1.236	.750	2.250
AFPN-1020	1.236	.750	2.250

Important: Dimensions shown in parentheses apply to longer probes AFPN-720 thru 1020 only. Tolerances shown also apply to dimensions in parentheses.

Example:
± 002 ← FOR ALL PROBES
.875 DIA. ← FOR AFPN-410 THRU 610
1.000 DIA. ← FOR AFPN-720 THRU 1020

Gate Machining Dimensions

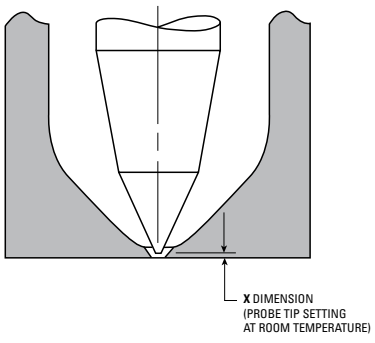


Y° = 80° INCL. MIN.
90° INCL. MAX.

PROBE ITEM NO.	D DIA.	SPH. R	R
AFPN-410 THRU-610	1.000	.187	.38
AFPN-720 THRU-1020	1.125	.250	.50

Initial Probe Set-up Dimensions

PROBE ITEM NO.	X DIM.
AFPN-410	.000-.004
AFPN-510	.000-.005
AFPN-610	.000-.006
AFPN-720	.000-.007
AFPN-820	.000-.008
AFPN-920	.000-.009
AFPN-1020	.000-.010



NOTE: X dimension is for initial probe set-up and may require further adjustment. Final position of probe tip will be determined by gate cosmetics and flow requirements.

Solid Distributor Block Machining Guidelines

Auto-Fixed® Probes (AFP-410 thru 610)

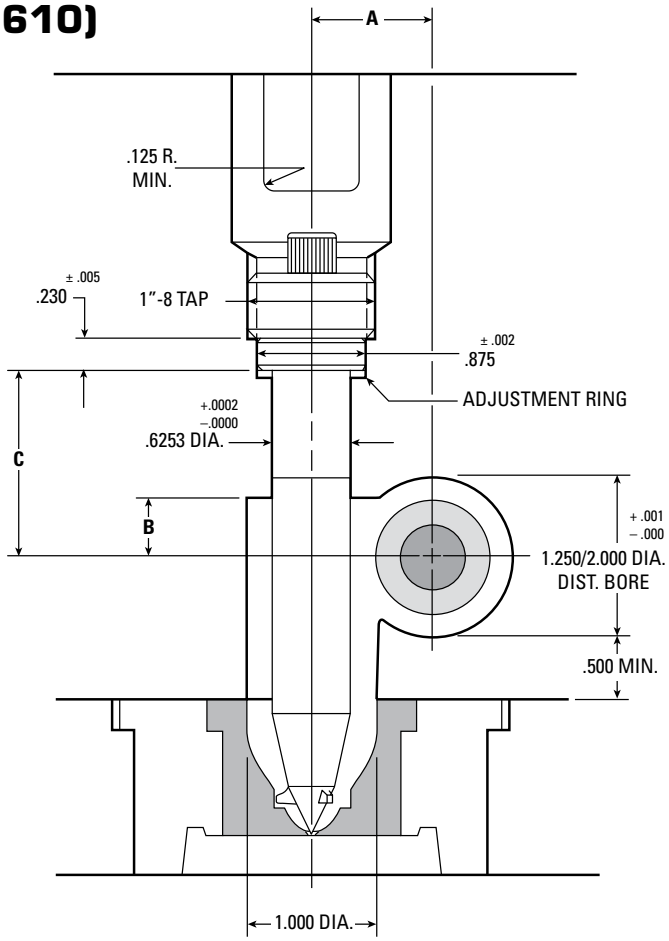
Probe Machining Dimensions

USED WITH .875 DIA. DISTRIBUTOR TUBE (1.25 DIST. BORE)

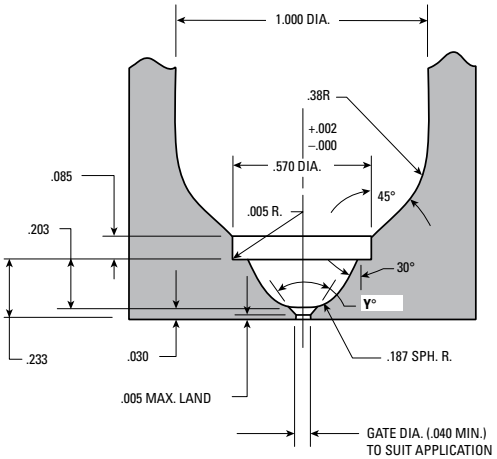
PROBE ITEM NO.	A DIM. ± .020	B DIM. MIN.	C DIM. MIN.
AFP-410	.830	.500	1.375
AFP-510	.830	.500	1.375
AFP-610	.830	.500	1.375

USED WITH 1.625 DIA. DISTRIBUTOR TUBE (2.00 DIST. BORE)

PROBE ITEM NO.	A DIM. ± .020	B DIM. MIN.	C DIM. MIN.
AFP-410	1.205	.500	1.375
AFP-510	1.205	.500	1.375
AFP-610	1.205	.500	1.375

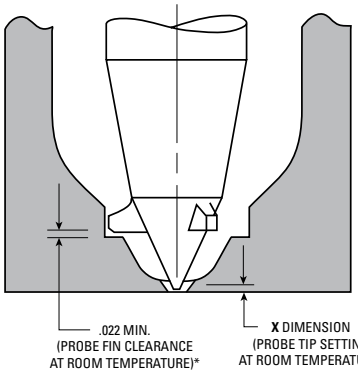


Gate Machining Dimensions



Y° = 80° INCL. MIN.
90° INCL. MAX.

Initial Probe Set-up Dimensions



PROBE ITEM NO.	X DIM.
AFP-410	.000-.004
AFP-510	.000-.005
AFP-610	.000-.006

*Some clearance must also be maintained at operating temperature (i.e. no metal to metal contact between fin and counterbore).

NOTE: X dimension is for initial probe set-up and may require further adjustment. Final position of probe tip will be determined by gate cosmetics and flow requirements.

D-M-E Hot Sprue Bushings

Reliable direct part gating in single cavity molds

D-M-E

Every step of the way

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High-performance capability with engineered and commodity-grade resins

Gate-Mate™ Hot Sprue Bushings.....153 to 160
Ideal for direct part gating, single-cavity molds

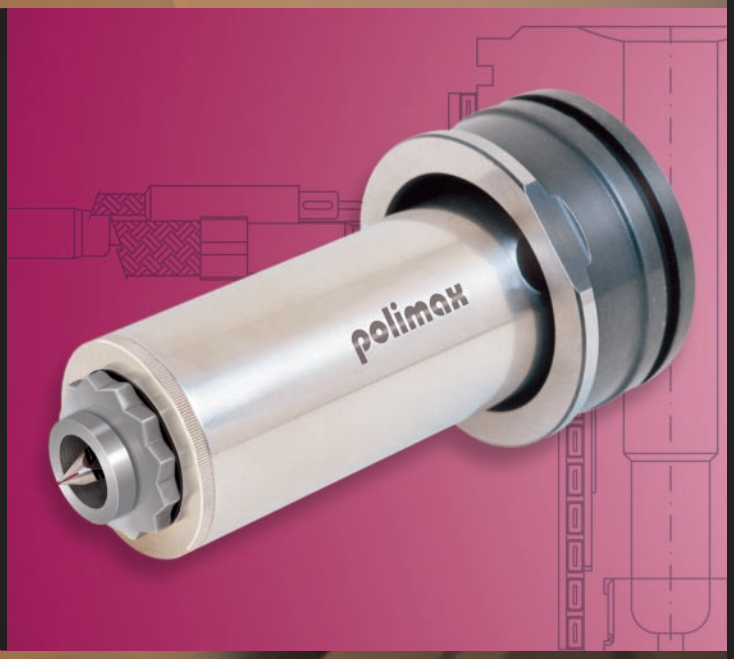
Straight-Shot™ Hot Sprue Bushings.....161 to 171
Reduce cycle times and save material costs

Online Price Guide

Go to www.dme.net/prices for the latest pricing guide.

D-M-E Polimax® Hot Sprue Bushings

HIGH-PERFORMANCE CAPABILITY
WITH ENGINEERED AND
COMMODITY-GRADE RESINS



Index

Plastic Materials and Specifications

- Large number of bushing and tip combinations
- Two flow channel sizes
- Lengths up to 185mm
- High performance capability
- Standard & wear-resistant tips
- Precise thermal control

PLASTIC MATERIAL PROCESS CONDITIONS

MATERIAL	STANDARD RESIN SYMBOL	PROCESS TEMPERATURE		MOLD TEMPERATURE		HOT RUNNER TEMPERATURE		DENSITY MELTING		SOLID DENSITY	
		[°C]	[°F]	[°C]	[°F]	[°C]	[°F]	[g/cm³]	[lbs/Inch³]	[g/cm³]	[lbs/Inch³]
Styrene Butadiene	SB	210	410	70	158	230	446	0,93	0.0366	1,02	0.0369
Poliuretane	PUR	220	428	45	113	240	464	0,93	0.0366	1,11	0.0401
Poly (Vinil Chloride)	PVC/FLEX	175	347	35	95	200	392	1,02	0.0405	1,38	0.0499
Styrene/acrylonitrile	SAN	230	446	80	176	255	491	0,99	0.0358	1,08	0.0390
Polystyrene	PS	210	410	45	113	230	446	0,95	0.0343	1,05	0.0379
Polycarbonate	PC	300	572	80	176	330	626	1,08	0.0390	1,20	0.0434
Polyphenylene Oxide-Styrene	PPO	260	500	80	176	300	572	0,99	0.0358	1,13	0.0408
Polyethylene	PE	200	392	25	77	225	437	0,74	0.0267	0,96	0.0347
Polypropylene	PP	225	437	40	104	245	473	0,73	0.0264	0,91	0.0329
Polyether-etherketone	PEEK	330	626	165	329	370	698	1,13	0.0408	1,37	0.0495
Poly (phenylene sulfide)	PPS	300	572	110	230	330	626	1,53	0.0553	1,70	0.0614
Polyebutylene terephthalate	PBT	265	509	60	140	290	554	1,44	0.0520	1,57	0.0567
6 Polyamide	PA 6	220	428	90	194	250	482	0,98	0.0354	1,14	0.0412
66 Polyamide	PA 6.6	255	491	90	194	280	536	1,09	0.0394	1,26	0.0455
Thermal Plastic Elastomers	TPE	240	464	35	95	265	509	0,78	0.0282	0,90	0.0325
Poly (Oxymethylene) (Polyacetal)	POM	180	356	100	212	200	392	1,16	0.0419	1,42	0.0513
Poly (methyl methacrylate)	PMMA	235	455	70	158	250	482	1,09	0.0394	1,18	0.0426
Acrylonitrile Butadiene Styrene	ABS	225	437	70	158	250	482	0,95	0.0343	1,08	0.0390

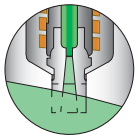
PLASTIC MATERIAL FLOW RATES

HIGH MFI	MEDIUM MFI		LOW MFI	
SB	ABS		PVC/FLEX	
PS	SAN	PA 6	PEI	PC
PE	PPO	PA 6.6	TPE	PBT
PP	PPS	POM	PEEK	PUR
	PET	PMMA		

NOTE: Temperature and density values shown above are general, and may not apply to your application. Please refer to proper processing data for the resin grade intended for your specific application. Failure to use temperature settings appropriate to the specific resin and resin grade intended for your application may result in poor part quality, or inability to produce acceptable molded parts.

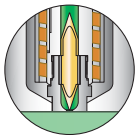
Bushing Selection

HOT SPRUE BUSHING TIP STYLE



SPRUE GATE TIP
STANDARD / EXTENDED

For use where gate vestige is allowed. Provides low resistance to flow with excellent flow rates. Extended style provides additional stock for machining profiles or part contours.



RING GATE TIP
STANDARD / EXTENDED

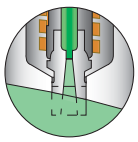
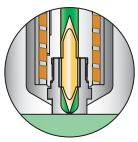
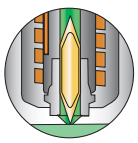
Ideal for low vestige commodity and engineering grade resin applications. The Ring Gate features a sealed tip for efficient shut-off at the part surface. Available with standard or wear resistant needles. Extended style provides additional stock for machining profiles or part contours.

POINT GATE TIP

Suitable for high viscosity resins, engineering plastics and applications requiring optimum gate cosmetics with minimal gate vestige. Available with standard or wear resistant needles.

BUSHING TIP AND PLASTIC MATERIAL COMPATIBILITY

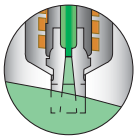
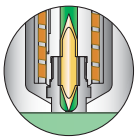
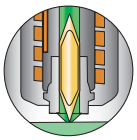
* HIGH PERFORMANCE SPRUE BUSHING RECOMMENDED FOR THIS RESIN.

NOZZLE	THERMOPLASTIC RESIN TYPE																									
	AMORPHOUS								SEMI-CRYSTALINE																	
	SB	PUR *	PEI *	PVC/FLEX	SAN *	PS	PC *	PPO *	PE	PP	PEEK	PPS *	PET *	PBT *	PA *	TPE *	POM *	PMMA *	ABS	TPO *	ABS/PC *	PPE/PS *	PSU	LCP
 SPRUE GATE TIP STANDARD / EXTENDED	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
 RING GATE TIP STANDARD / EXTENDED	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
 POINT GATE TIP	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● Green – Works well with this resin
● Yellow – Contact D-M-E Engineering for guidance
● Red – Not recommended

Maximum Flow Capacity Tables

MAXIMUM BUSHING FLOW CAPACITY

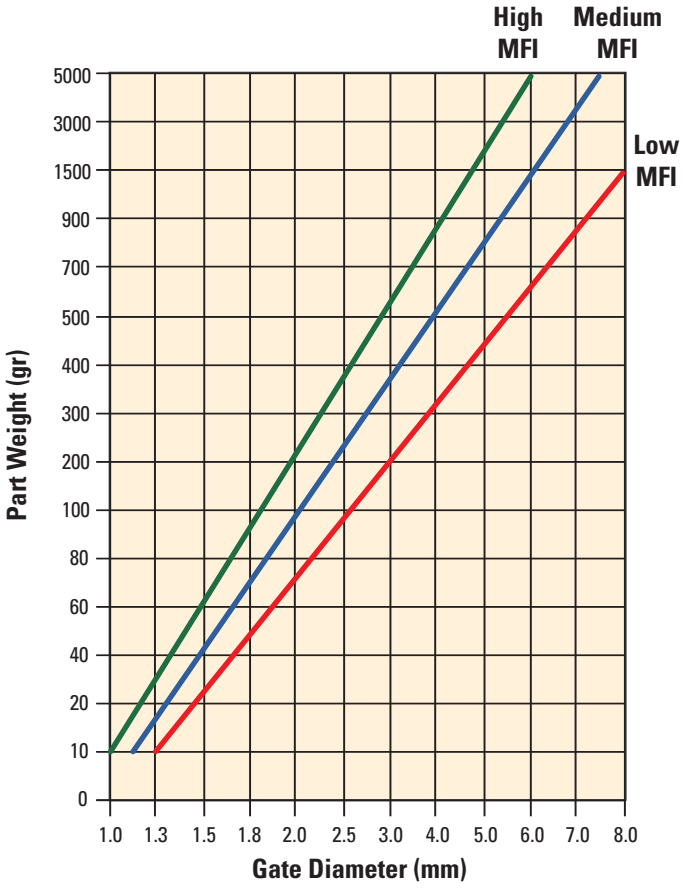
MAXIMUM LOAD WEIGHT IN GRAMS WITH MAXIMUM HOLE DIAMETERS			
NOZZLE	**200 SERIES**	**500 SERIES**	**FLUID (Melt Flow Index)**
 SPRUE GATE TIP STANDARD / EXTENDED	800	1400	HIGH
	400	700	MEDIUM
	200	300	LOW
 RING GATE TIP STANDARD / EXTENDED	210	980	HIGH
	105	490	MEDIUM
	52	210	LOW
 POINT GATE TIP	210	980	HIGH
	105	490	MEDIUM
	52	210	LOW

DEFINITION OF MATERIAL INPUT

The optimal gate diameter will vary according to the resin Mold Flow Index and part weight.

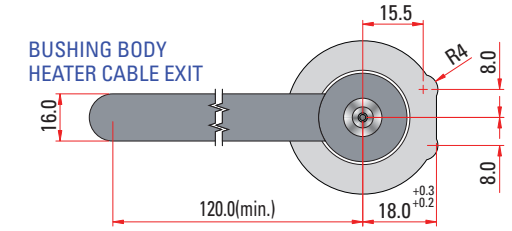
Please refer to the chart for guidelines. Other factors to consider when defining gate requirements for a D-M-E Polimax System are:

- Product geometry
- Polymer type
- Mold and injection machine conditions



Polimax High Performance Series 200

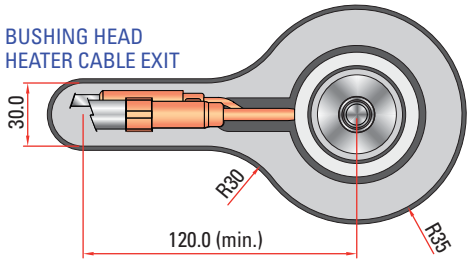
CAVITY BLOCK VIEW A

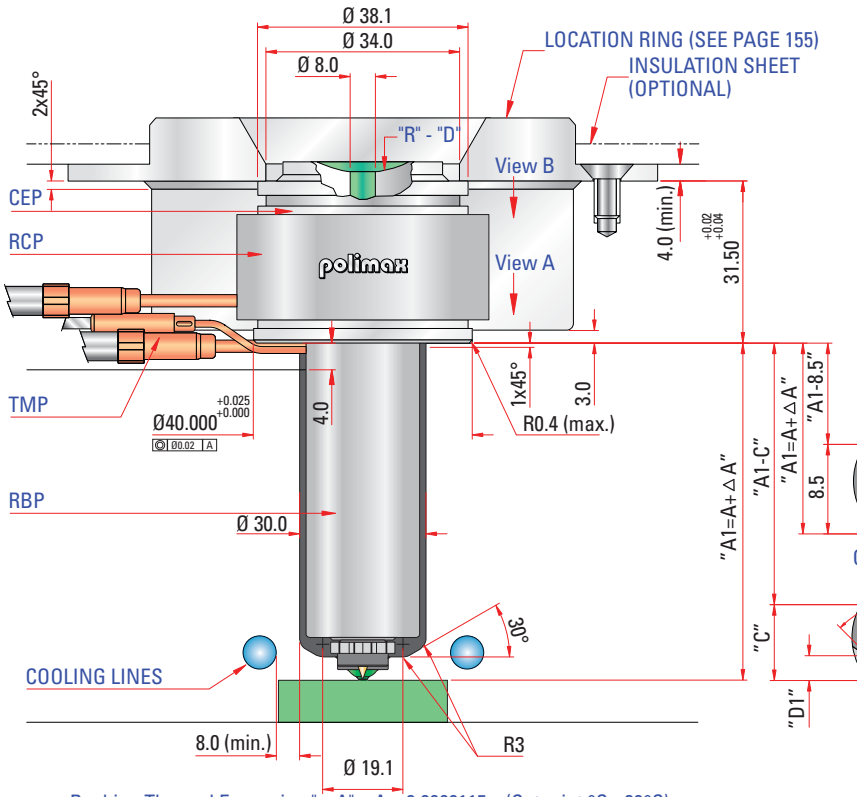


(View of Bushing body installation Hole and Body Heater Clearance Slot from Stationary Platen)

CAVITY BLOCK VIEW B

(View of Bushing body installation Hole and Head Heater Clearance Slot from Stationary Platen)



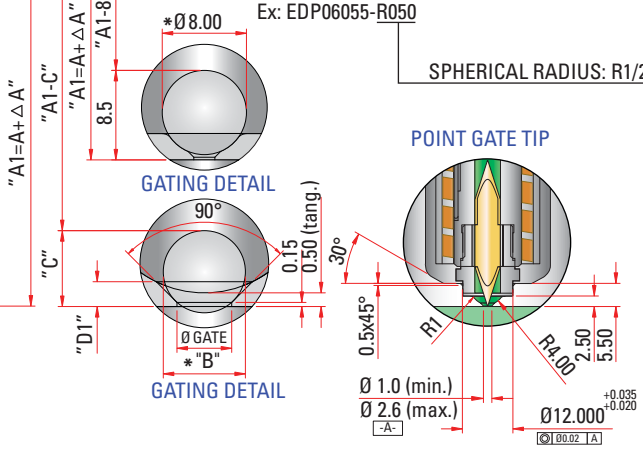


Bushing Thermal Expansion "△A" = A x 0.0000115 x (Setpoint °C - 20°C)
or "△A" = A x 0.0000064 x (Setpoint °F - 68°F)

CODE FOR DETAIL	SPHERICAL "R"	CHAMFER "D"
…-R000	0	
…-R155	15.5	
…-R400	40.0	
…-R050	1/2"	
…-R075	3/4"	
…-D090		90° - incl.

Ex: EDP06055-R050

SPHERICAL RADIUS: R1/2"



BUSHING AND COMPONENT SPECIFICATIONS

ASSEMBLY	DIMENSION "A"	ASSEMBLY COMPONENTS					
		BUSHING BODY	HEATER	WATTS	HEAD HEATER	WATTS	THERMOCOUPLE
EDP06055-R…	55.00	CEP06055-R…	RBP06053	460W	RCP38020	295W	TMP01080
EDP06067-R…	67.50	CEP06067-R…	RBP06065	460W			TMP01100
EDP06080-R…	80.00	CEP06080-R…	RBP06078	690W			TMP01120
EDP06092-R…	92.50	CEP06092-R…	RBP06092	690W			TMP01140
EDP06105-R…	105.00	CEP06105-R…	RBP06104	760W			TMP01160
EDP06130-R…	130.00	CEP06130-R…	RBP06129	850W			TMP01180
EDP06155-R…	155.00	CEP06155-R…	RBP06155	1100W			TMP01200

GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D1"
Ø 1.0	Ø 2.00	2.06	0.62
Ø 1.2		1.96	0.66
Ø 1.4		1.86	0.70
Ø 1.6	Ø 3.00	2.97	0.75
Ø 1.8		2.87	0.82
Ø 2.0		2.77	0.91
Ø 2.2	Ø 4.00	3.88	1.02
Ø 2.4		3.78	1.18
Ø 2.6		3.68	1.54

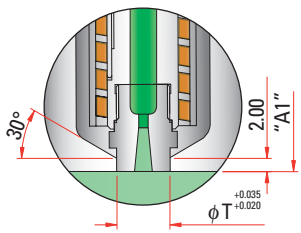
NOTE: Maximum Operating Pressure in Bushing 138 MPa (20,000 PSI).
NOTE: Maximum Operating Temperature of Bushing 343°C (650°F).

* The "B" and 8.00 Diameter Dimensions are correct Ball Gauges to be used for checking the "A1-C" and "A1-8.5" Dimensions.

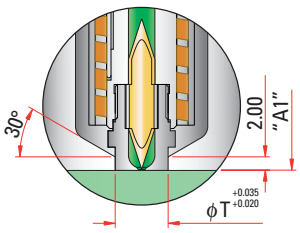
TIP OPTIONS

NOTE: For Extra Stock Tips, Customer Must Modify and Add Relief, Such that Average Land Contact is 2.00mm.

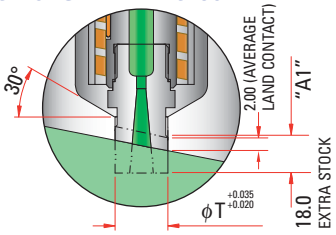
SPRUE GATE TIP



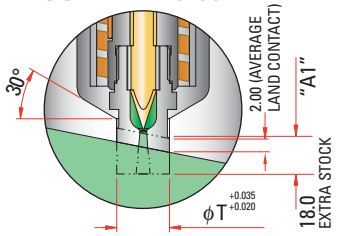
RING GATE TIP



SPRUE GATE EXTRA STOCK TIP

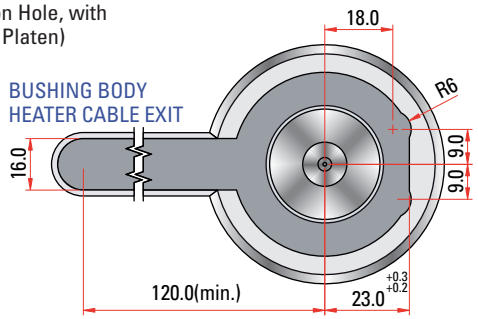


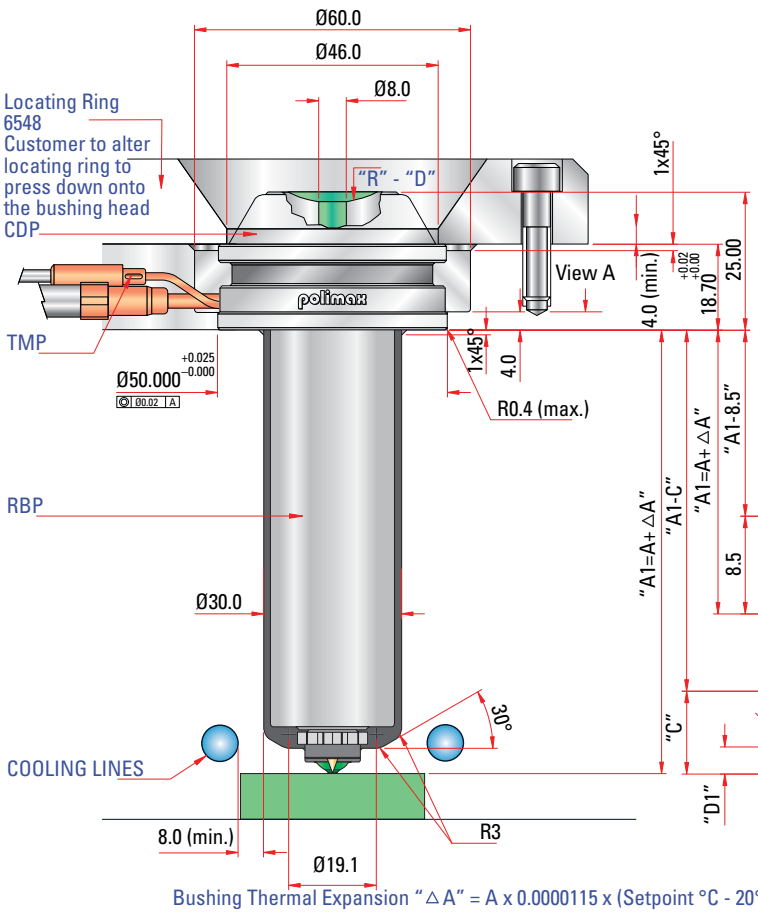
RING GATE EXTRA STOCK TIP

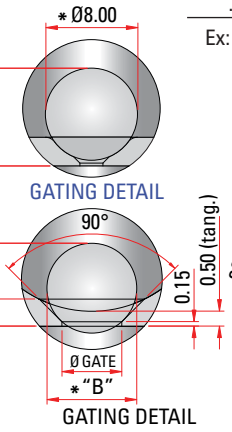


Polimax Standard Series 200

View A (View of Body and Head Installation Hole, with Body Heater Slot, Viewed from Stationary Platen)



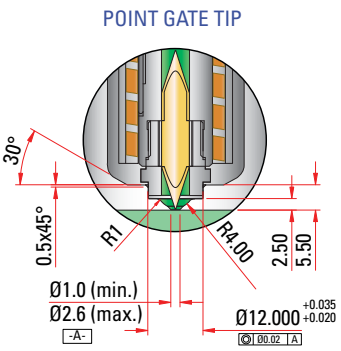




CODE FOR DETAIL	DIMENSION "R"	CHAMFER "D"
…-R000	0	
…-R155	15.5	
…-R400	40.0	
…-R050	1/2"	
…-R075	3/4"	
…-D090		90° - incl.

Ex: BDP06055-R400

SPHERICAL RADIUS: 40mm



Bushing Thermal Expansion "△A" = A x 0.0000115 x (Setpoint °C - 20°C)
or "△A" = A x 0.0000064 x (Setpoint °F - 68°F)

BUSHING AND COMPONENT SPECIFICATIONS					
ASSEMBLY	DIMENSION "A"	ASSEMBLY COMPONENTS			
		BUSHING BODY	HEATER	WATTS	THERMOCOUPLE
BDP06055-R…	55.00	CDP06055-R…	RBP06053	460W	TMP01080
BDP06067-R…	67.50	CDP06067-R…	RBP06065	460W	TMP01100
BDP06080-R…	80.00	CDP06080-R…	RBP06078	690W	TMP01120
BDP06092-R…	92.50	CDP06092-R…	RBP06092	690W	TMP01140
BDP06105-R…	105.00	CDP06105-R…	RBP06104	760W	TMP01160
BDP06130-R…	130.00	CDP06130-R…	RBP06129	850W	TMP01180
BDP06155-R…	155.00	CDP06155-R…	RBP06155	1100W	TMP01200

NOTE: Maximum Operating Pressure in Bushing 138 MPa (20,000 PSI).
NOTE: Maximum Operating Temperature of Bushing 288°C (550°F).

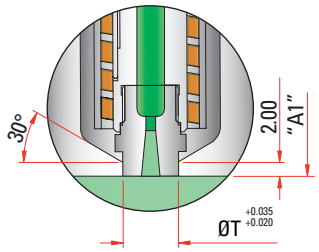
GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D1"
Ø 1.0	Ø 2.00	2.06	0.62
Ø 1.2		1.96	0.66
Ø 1.4		1.86	0.70
Ø 1.6	Ø 3.00	2.97	0.75
Ø 1.8		2.87	0.82
Ø 2.0		2.77	0.91
Ø 2.2	Ø 4.00	3.88	1.02
Ø 2.4		3.78	1.18
Ø 2.6		3.68	1.54

* The "B" and 8.00 Diameter Dimensions are correct Ball Gauges to be used for checking the "A1-C" and "A1-8.5" Dimensions.

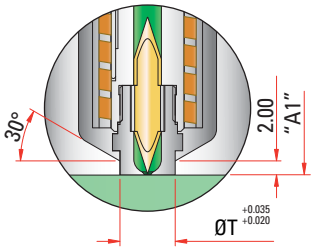
TIP OPTIONS

NOTE: For Extra Stock Tips, Customer Must Modify and Add Relief, Such that Average Land Contact is 2.00mm.

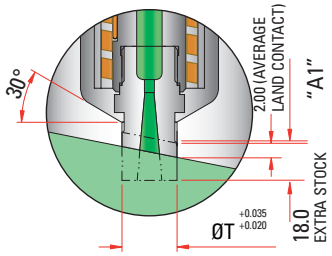
SPRUE GATE TIP



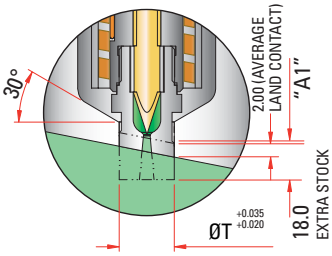
RING GATE TIP



SPRUE GATE EXTRA STOCK TIP

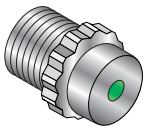


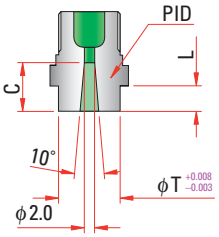
RING GATE EXTRA STOCK TIP



Polimax Series 200 Tips

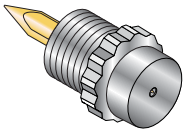
SPRUE GATE TIP

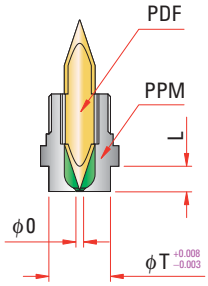




TIP DIMENSIONS			
TIPS	DIMENSION "T"	DIMENSION "L"	DIMENSION "C"
PID06001	12.00	5.50	9.00
PID06002	18.00	5.50	9.00
PID06003	12.00	23.50	27.00
PID06004	18.00	23.50	27.00

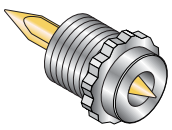
RING GATE TIP

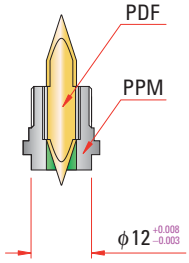




TIP DIMENSIONS						
ASSEMBLY	ASSEMBLY COMPONENTS		MATERIAL	DIMENSION "T"	DIMENSION "0"	DIMENSION "L"
	NEEDLE	RETAINER TIP				
PMA06009	PDF06502	PPM06601	WEAR RESISTANT	12.00	1.50	5.50
PMA06010		PPM06602		12.00	2.00	
PMA06011		PPM06603		18.00	1.50	
PMA06012		PPM06604		18.00	2.00	
PMA06013		PPM06605		12.00	1.50	23.50
PMA06014		PPM06606		12.00	2.00	
PMA06015		PPM06607		18.00	1.50	
PMA06016		PPM06608		18.00	2.00	
PMA06109	PDF06802	PPM06601	STANDARD D-M-E	12.00	1.50	5.50
PMA06110		PPM06602		12.00	2.00	
PMA06111		PPM06603		18.00	1.50	
PMA06112		PPM06604		18.00	2.00	
PMA06113		PPM06605		12.00	1.50	23.50
PMA06114		PPM06606		12.00	2.00	
PMA06115		PPM06607		18.00	1.50	
PMA06116		PPM06608		18.00	2.00	

POINT GATE TIP

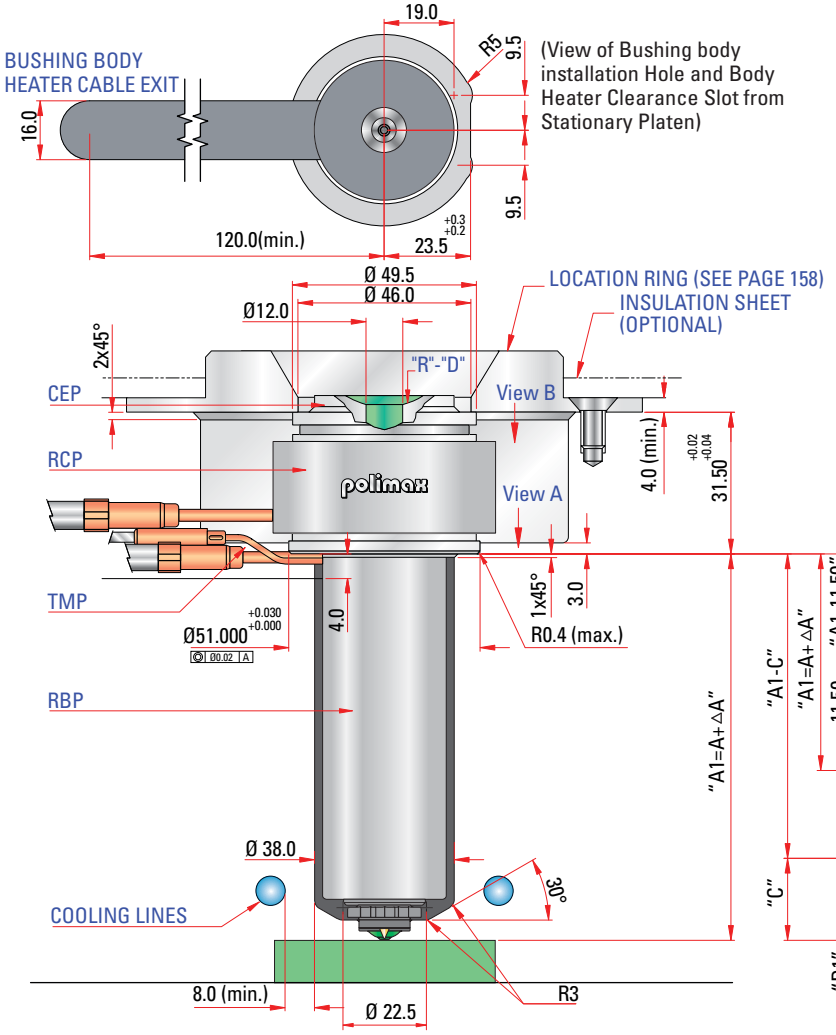




ASSEMBLY	POINT GATE COMPONENTS		
	NEEDLE	RETAINER TIP	MATERIAL
PVM06002	PDF06502	PPM06609	WEAR RESISTANT
PVM06009	PDF06802	PPM06609	STANDARD D-M-E

Polimax High Performance Series 500

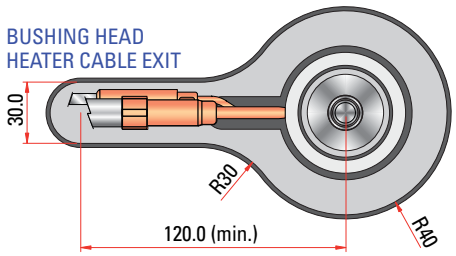
CAVITY BLOCK VIEW A



Bushing Thermal Expansion "△A" = A x 0.0000115 x (Setpoint °C - 20°C)
or "△A" = A x 0.0000064 x (Setpoint °F - 68°F)

CAVITY BLOCK VIEW B

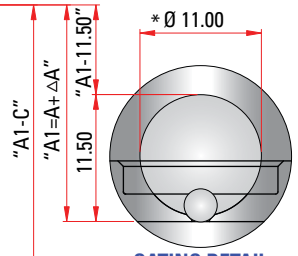
(View of Bushing Head Installation Hole and Head Heater Clearance Slot from Stationary Platen)



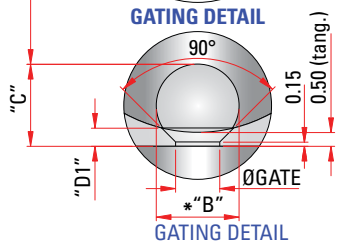
CODE FOR DETAIL	SPHERICAL "R"	CHAMFER "D"
...-R000	0	
...-R155	15.5	
...-R400	40.0	
...-R050	1/2"	
...-R075	3/4"	
...-D090		90° - incl.

Ex: EDP10060-R050

SPHERICAL RADIUS: R1/2"

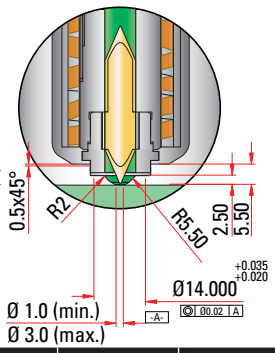


GATING DETAIL



GATING DETAIL

POINT GATE TIP



BUSHING AND COMPONENT SPECIFICATIONS

ASSEMBLY	DIMENSION "A"	ASSEMBLY COMPONENTS					
		BUSHING BODY	HEATER	WATTS	HEAD HEATER	WATTS	THERMOCOUPLE
EDP10060-R...	60.00	CEP10060-R...	RBP10056	500W	RCP50020	400W	TMP01080
EDP10072-R...	72.50	CEP10072-R...	RBP10069	690W			TMP01100
EDP10085-R...	85.00	CEP10085-R...	RBP10081	760W			TMP01120
EDP10097-R...	97.50	CEP10097-R...	RBP10094	760W			TMP01140
EDP10110-R...	110.00	CEP10110-R...	RBP10107	760W			TMP01160
EDP10135-R...	135.00	CEP10135-R...	RBP10131	850W			TMP01180
EDP10160-R...	160.00	CEP10160-R...	RBP10158	1100W			TMP01200
EDP10185-R...	185.00	CEP10185-R...	RBP10183	1300W			TMP01220

GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D1"
Ø 1.0	Ø 2.00	2.06	0.58
Ø 1.2		1.96	0.60
Ø 1.4		1.86	0.63
Ø 1.6	Ø 3.00	2.97	0.66
Ø 1.8		2.87	0.69
Ø 2.0		2.77	0.73
Ø 2.2	Ø 4.00	3.88	0.78
Ø 2.4		3.78	0.83
Ø 2.6		3.68	0.89
Ø 2.8	Ø 5.00	4.78	0.96
Ø 3.0		4.68	1.05

NOTE: Maximum Operating Pressure in Bushing 138 MPa (20,000 PSI).

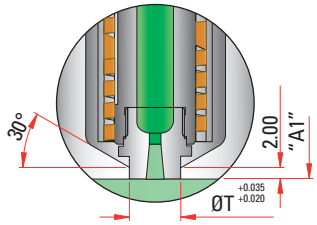
NOTE: Maximum Operating Temperature of Bushing 343°C (650°F).

* The "B" and 11.00 Diameter Dimensions are correct Ball Gauges to be used for checking the "A1-C" and the "A1-11.50" Dimensions.

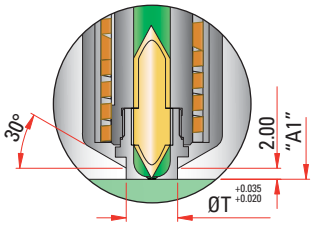
TIP OPTIONS

NOTE: For Extra Stock Tips, Customer Must Modify and Add Relief, Such that Average Land Contact is 2.00mm.

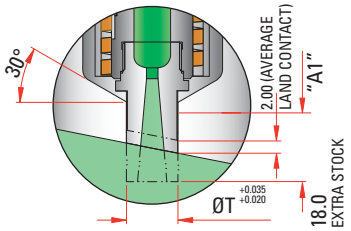
SPRUE GATE TIP



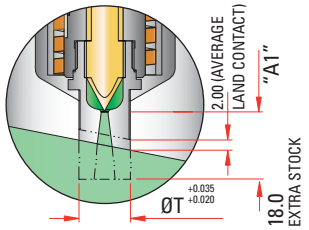
RING GATE TIP



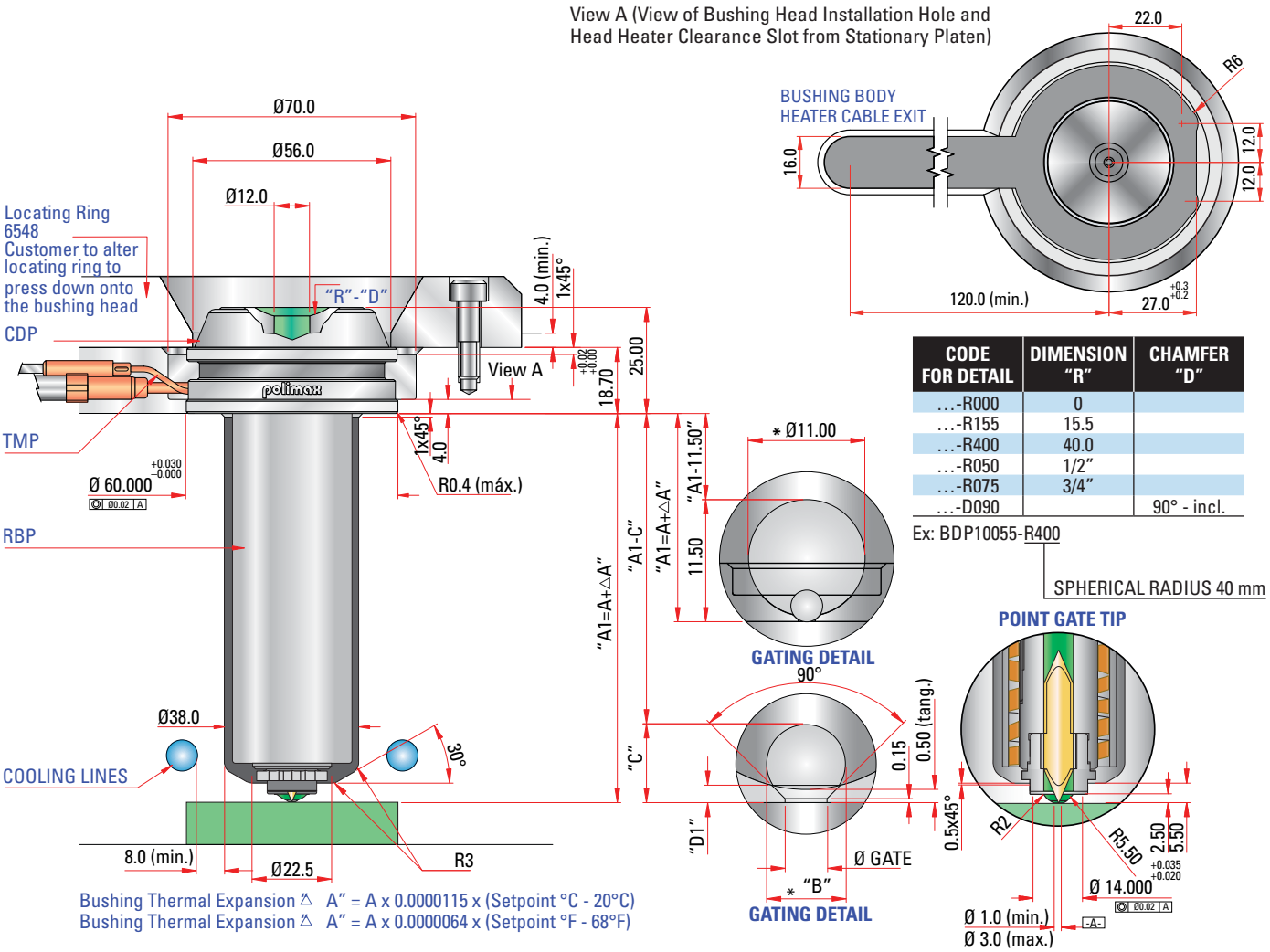
SPRUE GATE EXTRA STOCK TIP



RING GATE EXTRA STOCK TIP



Polimax Standard Series 500



CODE FOR DETAIL	DIMENSION "R"	CHAMFER "D"
...-R000	0	
...-R155	15.5	
...-R400	40.0	
...-R050	1/2"	
...-R075	3/4"	
...-D090		90° - incl.

Ex: BDP10055-R400

SPHERICAL RADIUS 40 mm

Bushing Thermal Expansion △ A" = A x 0.0000115 x (Setpoint °C - 20°C)
Bushing Thermal Expansion △ A" = A x 0.0000064 x (Setpoint °F - 68°F)

BUSHING AND COMPONENT SPECIFICATIONS

ASSEMBLY	DIMENSION "A"	ASSEMBLY COMPONENTS			
		BUSHING BODY	HEATER	WATTS	THERMOCOUPLE
BDP10055-R...	55.00	CDP10055-R...	RBP10056	500W	TMP01080
BDP10067-R...	67.50	CDP10067-R...	RBP10069	690W	TMP01100
BDP10080-R...	80.00	CDP10080-R...	RBP10081	760W	TMP01120
BDP10092-R...	92.50	CDP10092-R...	RBP10094	760W	TMP01140
BDP10105-R...	105.00	CDP10105-R...	RBP10107	760W	TMP01160
BDP10130-R...	130.00	CDP10130-R...	RBP10131	850W	TMP01180
BDP10155-R...	155.00	CDP10155-R...	RBP10158	1100W	TMP01200
BDP10180-R...	180.00	CDP10180-R...	RBP10183	1300W	TMP01220

NOTE: Maximum Operating Pressure in Bushing 138 MPa (20,000 PSI)

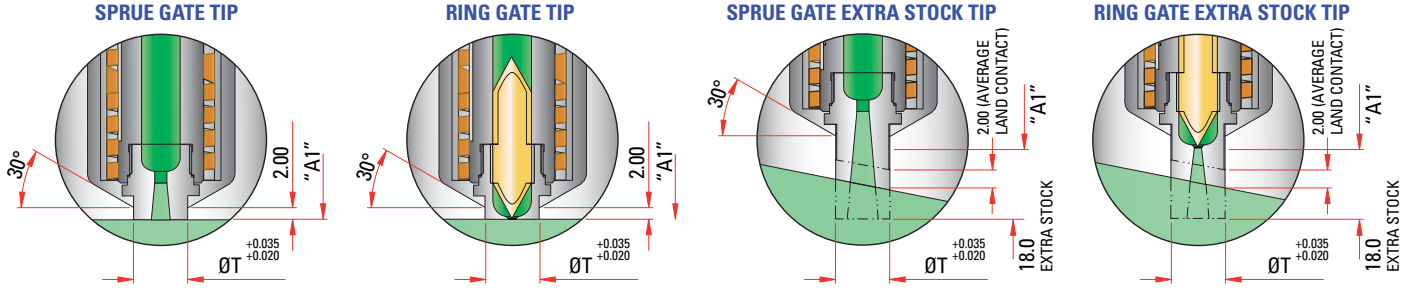
NOTE: Maximum Operating Temperature of Bushing 288°C (550°F)

GATE DIAMETER	DIMENSION "B"	DIMENSION "C"	DIMENSION "D1"
Ø 1.0	Ø 2.00	2.06	0.58
Ø 1.2		1.96	0.60
Ø 1.4		1.86	0.63
Ø 1.6	Ø 3.00	2.97	0.66
Ø 1.8		2.87	0.69
Ø 2.0		2.77	0.73
Ø 2.2	Ø 4.00	3.88	0.78
Ø 2.4		3.78	0.83
Ø 2.6		3.68	0.89
Ø 2.8	Ø 5.00	4.78	0.96
Ø 3.0		4.68	1.05

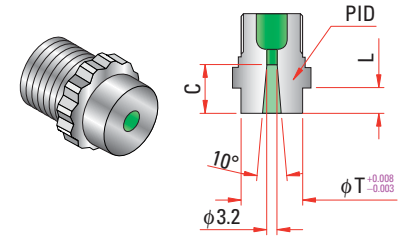
* The "B" and 11.00 Diameter Dimensions are correct Ball Gauges to be used for checking the "A1-C" and "A1-11.50" Dimensions.

TIP OPTIONS

NOTE: For Extra Stock Tips, Customer Must Modify and Add Relief, Such that Average Land Contact is 2.00 mm.

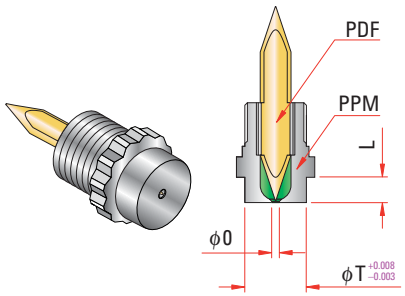


Polimax Series 500 Tips



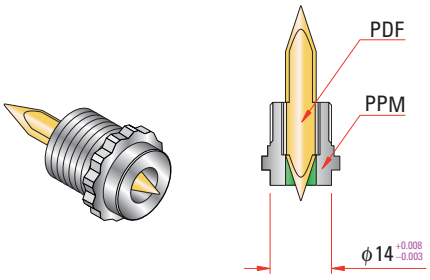
SPRUE GATE TIP

TIP DIMENSIONS			
TIPS	DIMENSION "T"	DIMENSION "L"	DIMENSION "C"
PID10001	14.00	6.00	9.50
PID10002	18.00	6.00	9.50
PID10003	14.00	24.00	27.50
PID10004	18.00	24.00	27.50



RING GATE TIP

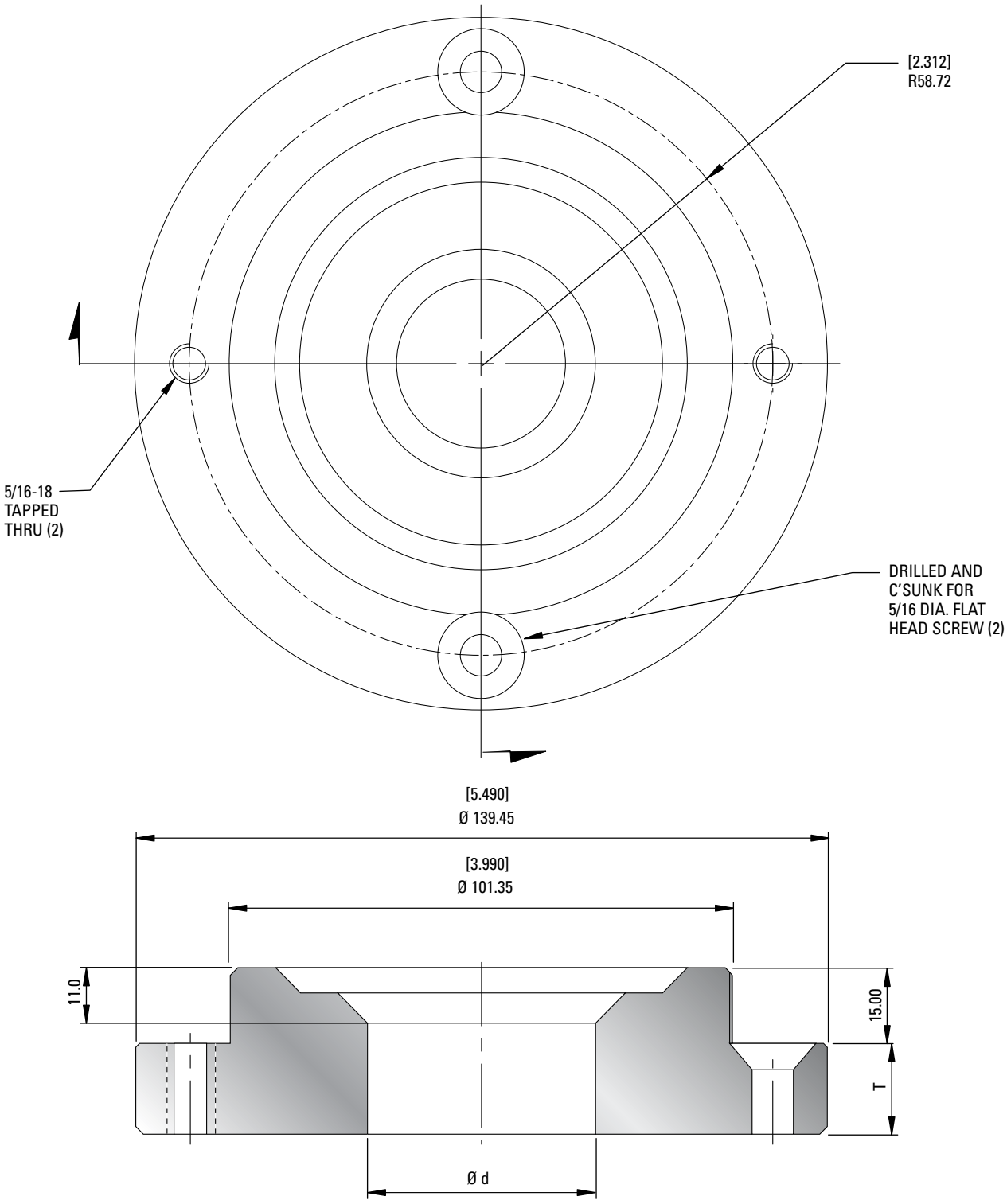
TIP DIMENSIONS						
ASSEMBLY	ASSEMBLY COMPONENTS		MATERIAL	DIMENSION "T"	DIMENSION "O"	DIMENSION "L"
	NEEDLE	RETAINER TIP				
PMA10009	PDF10502	PPM10601	WEAR RESISTANT	14.00	2.00	6.00
PMA10010		PPM10602		14.00	2.50	
PMA10011		PPM10603		18.00	2.00	
PMA10012		PPM10604		18.00	2.50	
PMA10013		PPM10605		14.00	2.00	24.00
PMA10014		PPM10606		14.00	2.50	
PMA10015		PPM10607		18.00	2.00	
PMA10016		PPM10608		18.00	2.50	
PMA10109	PDF10802	PPM10601	STANDARD D-M-E	14.00	2.00	6.00
PMA10110		PPM10602		14.00	2.50	
PMA10111		PPM10603		18.00	2.00	
PMA10112		PPM10604		18.00	2.50	
PMA10113		PPM10605		14.00	2.00	24.00
PMA10114		PPM10606		14.00	2.50	
PMA10115		PPM10607		18.00	2.00	
PMA10116		PPM10608		18.00	2.50	



POINT GATE TIP

ASSEMBLY	POINT GATE COMPONENTS		
	NEEDLE	RETAINER TIP	MATERIAL
PVM10002	PDF10502	PPM10609	WEAR RESISTANT
PVM10009	PDF10802	PPM10609	STANDARD D-M-E

200 & 500 High Performance Locating Rings



200 & 500 SERIES HIGH PERFORMANCE LOCATING RINGS

HOT SPRUE BUSHING	ITEM NUMBER	Ø d	T
200 Series	PML0251	34.0 (1.34")	18.00 (0.709")
200 Series	PML0253	34.0 (1.34")	5.54 (0.218")
500 Series	PML0551	46.0 (1.81")	18.00 (0.709")
500 Series	PML0553	46.0 (1.81")	5.54 (0.218")

Gate-Mate™ Applications and Benefits

D-M-E Gate-Mate™ Hot Sprue Bushings

The D-M-E Gate-Mate™ Hot Sprue Bushing is designed for direct part gating in single-cavity molds, eliminating the conventional cold sprue. The unique design of the bushing provides minimal gate vestige, without the objectionable witness lines so commonly found on direct gated parts.

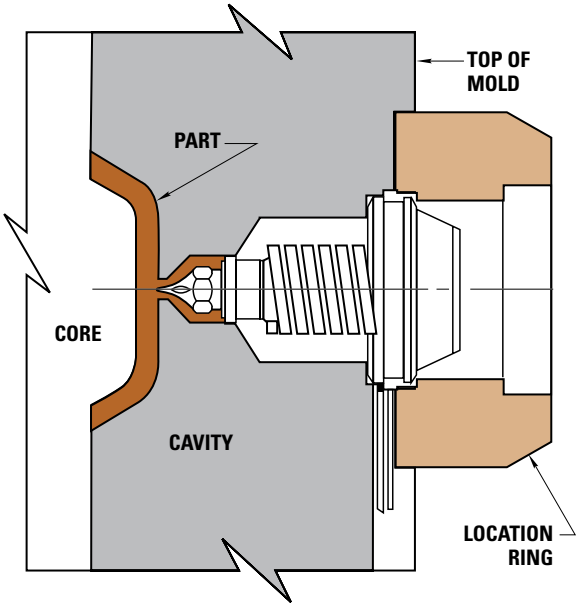
The bushing transfers molten plastics from the machine nozzle to the mold cavity via a direct channel in the body. The plated copper alloy tip provides an improved temperature profile in the gate area.

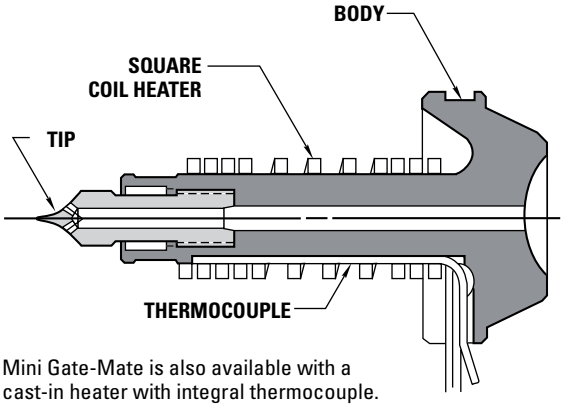
The D-M-E Gate-Mate™ Hot Sprue Bushing utilizes an advanced design square coil heater and independent thermocouple, strategically located for precise temperature control. The bushing is available in three sizes to suit a variety of applications.

See the D-M-E Control Systems Catalog for Smart Series® Single Zone Temperature Controllers. (For Multi-Cavity, see D-M-E Gate-Mate Nozzles).

Mini and Jumbo Style Gate-Mate Bushings Shown

Typical Applications





NOTE: Mini Gate-Mate is also available with a cast-in heater with integral thermocouple.

Benefits

- Eliminates sprues, reduces cycle time, improves part quality, increases production
- Provides optimum gate cosmetics
- Plated copper alloy tip improves temperature profile in gate area
- Self insulating material layer surrounds tip for better tip control and part cooling
- Square coil heater and independent thermocouple provide precise temperature control
- Optional cast in heater available for Mini Gate-Mate bushing

Advantages

- Direct part gating eliminating a cold sprue to trim and no witness lines on the molded part
- Minimal gate vestige resulting in better part appearance
- Faster start-ups providing positive temperature control of gate area
- Reduced cycle times because the bushing allows cooling channels to be placed closer to the gate area
- Cooler cavities with no direct contact between bushing tip and cavity
- Improved part quality with a shorter injection path and elimination of sprue, meaning no regrind
- Increased production with faster cycles and no sprue trimming
- Easy installation and operation, and available in three standard sizes suitable for most applications
- Positive temperature control with J-Type thermocouple and D-M-E Smart-Series® (and G-Series) controllers

Mini Gate-Mate™

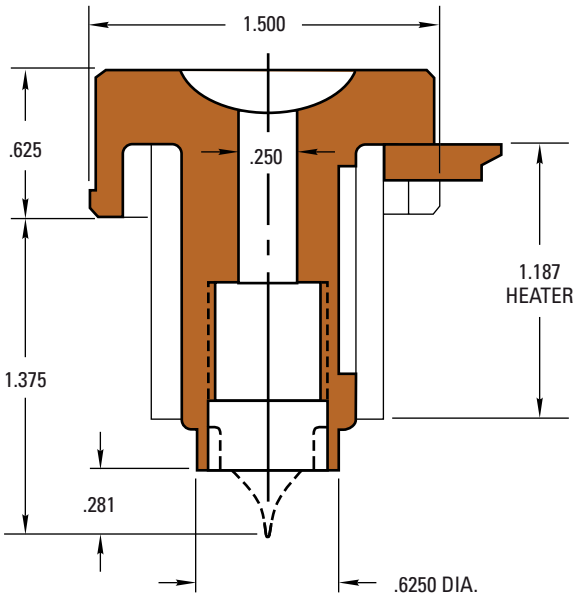
Radius Type

Flat Type

The Mini Gate-Mate Bushings are ideal for fast cycling single cavity molds. The compact design permits shorter overall stack-up of the "A" side mold plates. The Mini Gate-Mate Bushings are provided with either a square coil heater or a cast-in heater. Thermocouple placement provides better heater control, and the overall body design improves thermal insulation. Square coil heater, thermocouple and tip are all replaceable.

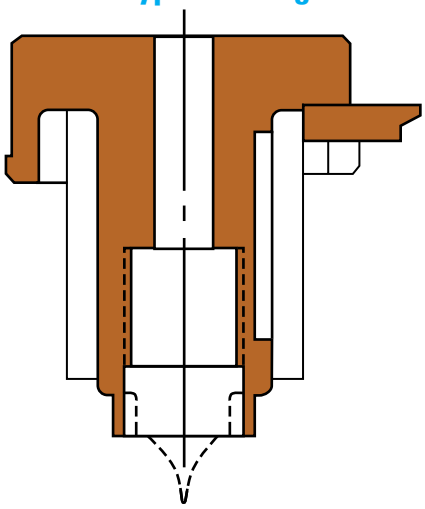
Sub-assemblies include square coil heater and thermocouple or cast-in heater with integral thermocouple. Tip to be ordered separately.

½" SPH. Radius Type Bushing



½ SPH. RADIUS BUSHING SUB-ASSEMBLY	
ITEM NUMBER	HEATER TYPE
GMB0116	SQUARE COIL
GMB0111	CAST-IN

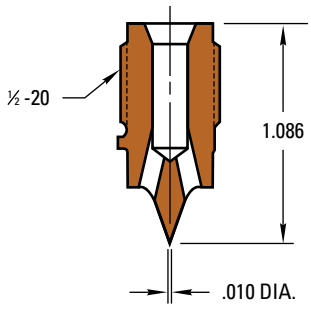
Flat Type Bushing



Dimensions same as radius type bushing

FLAT BUSHING SUB-ASSEMBLY	
ITEM NUMBER	HEATER TYPE
GMB0117	SQUARE COIL
GMB0112	CAST-IN

Mini Gate-Mate™ Tips

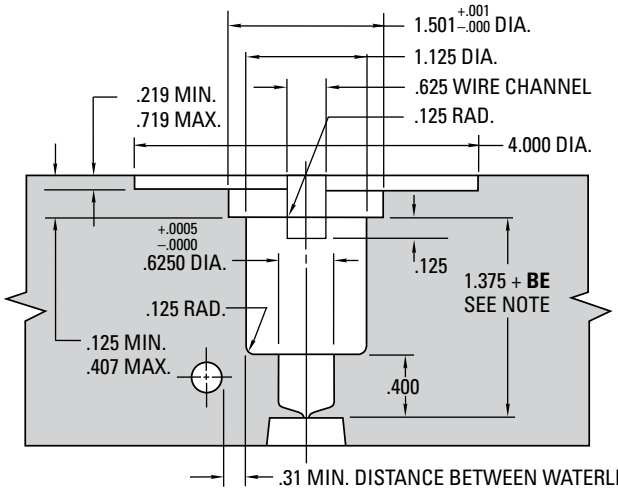


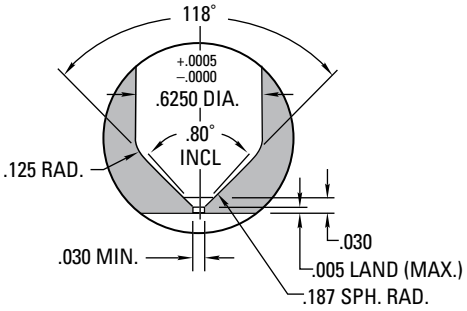
ITEM NUMBER	TIP STYLE
GMT0100	STANDARD
GMT4101	WEAR RESISTANT

Contact for D-M-E for tip recommendations and assistance with your application.

Mini Gate-Mate™ Machining Dimensions

Machining Dimensions for Bushings





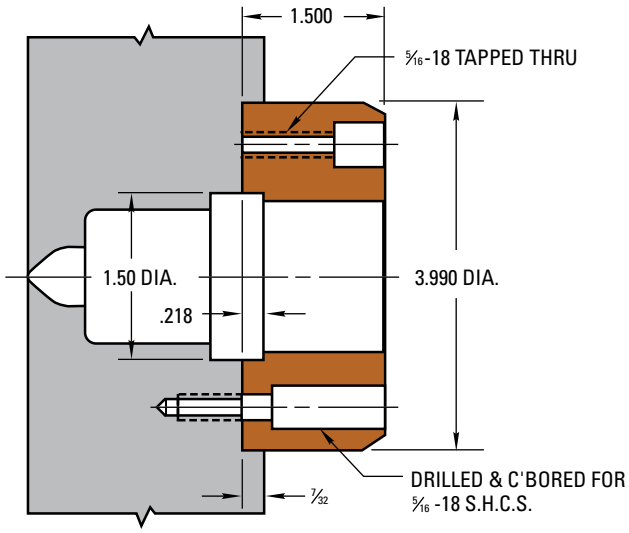
NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is as follows:
BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F. BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379.
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.

Replacement Parts

SUB-ASSEMBLY REFERENCE	BODY TYPE	HEATER TYPE (240 VAC, 250 WATT)	THERMOCOUPLE (36" LEADS)
GMB0111	½ RADIUS	(CAST IN) CIH0100	N/A (INTEGRAL TO HEATER)
GMB0112	FLAT		
GMB0116	½ RADIUS	(SQUARE COIL) SCH0004	TCG0100
GMB0117	FLAT		

Mini Gate-Mate Bushing Locating Ring



ITEM NUMBER
6548

NOTES:
1. Two (2) 5/16-18 S.H.C.S. are included with Locating Ring
2. Two (2) Drilled and C'bored holes for 5/16-18 S.H.C.S. are on a 1.656 circle radius in Locating Ring
3. C'bore depth in Top Clamp Plate and C'bore depth in Locating Ring can be altered to suit application

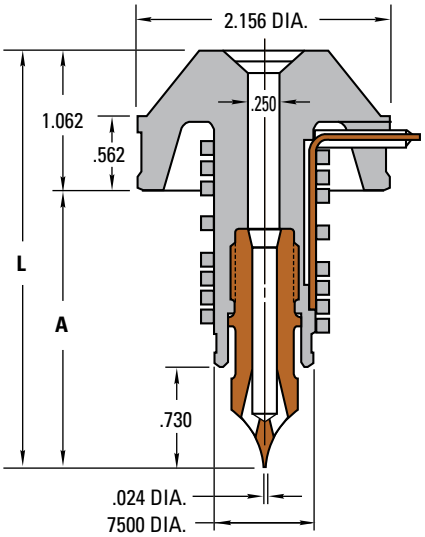
Medium Gate-Mate™

The Medium Gate-Mate Bushing is designed for direct part gating in single cavity molds, eliminating the conventional cold sprue. The unique design of the bushing provides minimal gate vestige, without the objectionable witness lines so commonly found on direct gated parts.

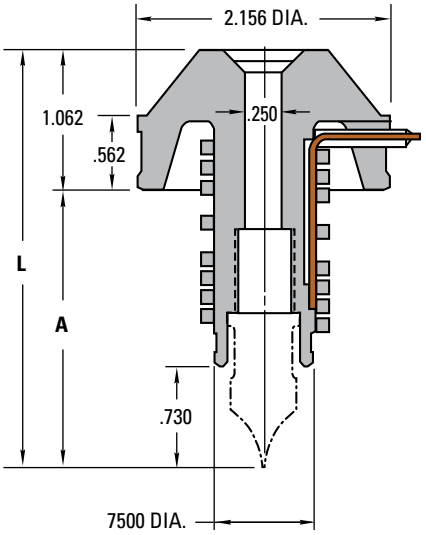
The bushing transfers molten plastics from the machine nozzle to the mold cavity via a direct channel in the body. The bushing, in conjunction with the recommended tip and gate configuration, controls gate vestige height.

The Medium Gate-Mate Bushing utilizes an advanced design square coil heater and an independent thermocouple, strategically located for precise temperature control.

Bushing Assembly



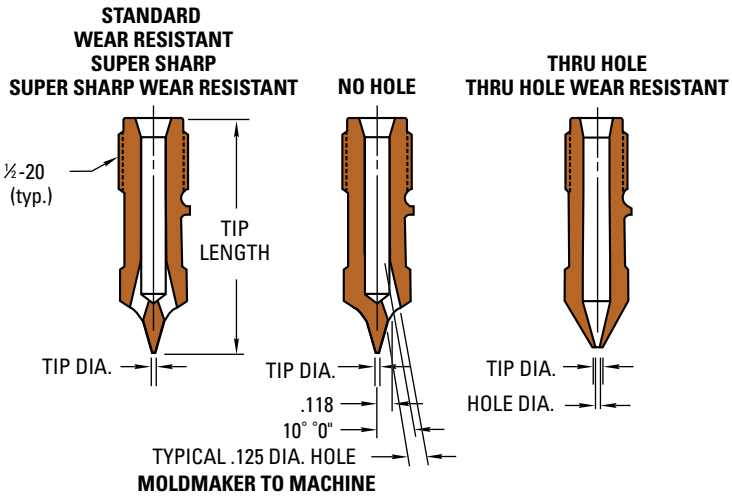
Bushing Sub-Assembly



BUSHING ASSEMBLY (INCLUDES GMT-2 TIP)			
ITEM NUMBER	A	L	DUAL SPH. RAD.
GMB-523-2	2.375	3.437	1/2 & 3/4
GMB-533-2	3.375	4.437	

BUSHING SUB-ASSEMBLY (ORDER TIP SEPARATELY)			
ITEM NUMBER	A	L	DUAL SPH. RAD.
GMB0020	2.375	3.437	½ & ¾
GMB0030	3.375	4.437	

Gate-Mate 4™ Tips



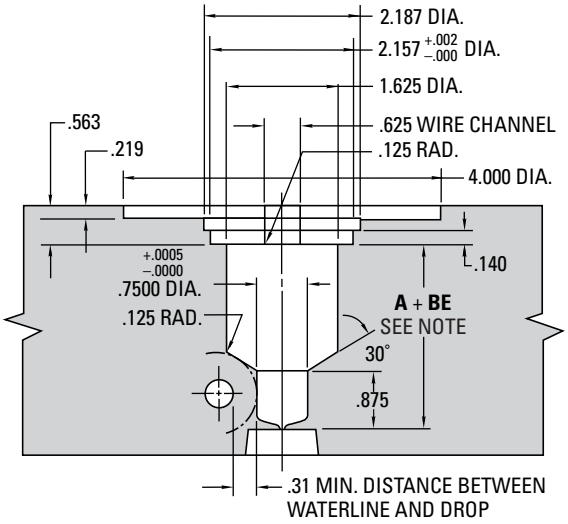
*Contact D-M-E for details to modify thru-hole tips for larger "O" diameters.

TIP STYLE	TIP ITEM NUMBER	O DIA.	TIP LENGTH	TIP DIA.	HOLE DIA.
STANDARD	GMT-2	.044 MIN.	1.730	.024	N/A
WEAR RESISTANT	GMT0400	.055 MIN.			
SUPER SHARP	GMT0301	.030 MIN.		.010	
SUPER SHARP WEAR RESISTANT	GMT0401	.055 MIN.			
THRU HOLE	GMT0302*	.030 MIN. .050 MAX	1.690	.090	.050
THRU HOLE WEAR RESISTANT	GMT0402*	.055 MIN.			
NO HOLE	GMT0303	.044 MIN.	1.730	.024	N/A

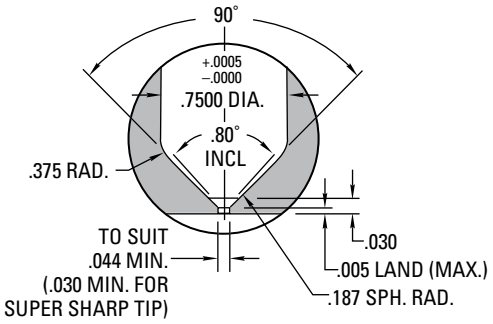
NOTES:
1. Thru-hole tip is designed .040 shorter in length to be a direct replacement for the standard tip; use a .030 to .060 diameter gate
2. A .030 minimum diameter gate is recommended when using the super sharp tip
3. Contact D-M-E for tip recommendations and assistance with your application

Medium Gate-Mate™ Machining Dimensions

Machining Dimensions for Bushings



Improved tip insulation, elimination of material degradation in threaded area of tip, and faster color changes can be achieved through use of a Gate Shell Insulator. See page 65 for details.



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 = A dimension × .0000063 × (bushing set point temp. – 68°).

EXAMPLE:
Given a 2.375 inch A dimension, with a Bushing Set Point temp. of 500°F.
BE = 2.375 × .0000063 × (500 – 68) = .006 thus A + BE will be 2.381.

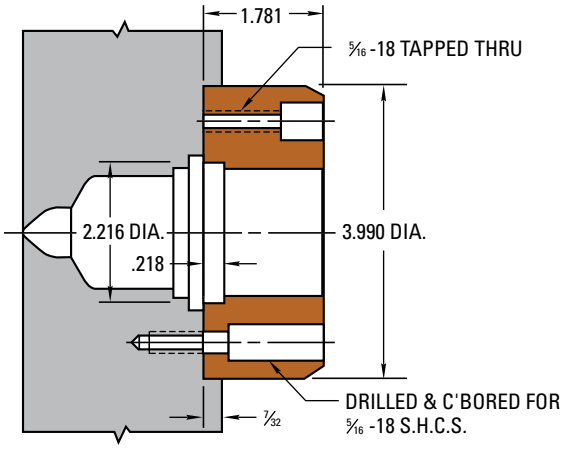
Please note that the above information is given as an example. Variations may occur based on mold configurations and cooling factor. In some instances, it may be necessary to obtain an empirical factor.

ITEM NUMBER REFERENCE		A
BUSHING ASSEMBLY	BUSHING SUB-ASSEMBLY	
GMB-523-2	GMB0020	2.375
GMB-533-2	GMB0030	3.375

Replacement Parts

ITEM NUMBER REFERENCE		SQUARE COIL HEATERS (240 VAC)			THERMOCOUPLE (TYPE J, 36" LEADS)	
BUSHING ASSEMBLY	BUSHING SUB-ASSEMBLY	ITEM NUMBER	WATTS	LENGTH	ITEM NUMBER	LENGTH
GMB-523-2	GMB0020	SCH3142	315	1.70	TC-9600	1.35
GMB-533-2	GMB0030	SCH3242	315	2.70	TC-9700	2.35

Medium Gate-Mate Locating Ring



ITEM NUMBER
6545

NOTES:
1. Two (2) 5/16-18 S.H.C.S. are included with Locating Ring
2. Two (2) Drilled and C'bored holes for 5/16-18 S.H.C.S. are on a 1.656 circle radius in Locating Ring
3. C'bore depth in Top Clamp Plate and C'bore depth in Locating Ring can be altered to suit application

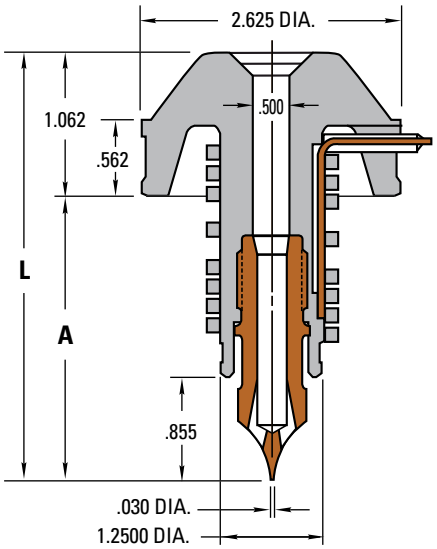
Jumbo Gate-Mate™

The Jumbo Gate-Mate Bushing is designed for direct part gating in single cavity molds, eliminating the conventional cold sprue. The unique design of the bushing provides minimal gate vestige, without the objectionable witness lines so commonly found on direct gated parts.

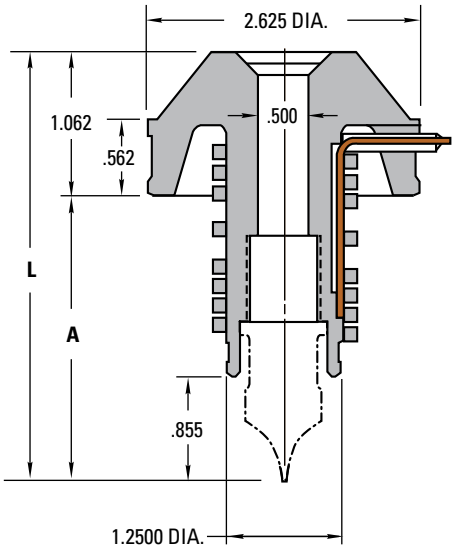
The bushing transfers molten plastics from the machine nozzle to the mold cavity via a direct channel in the body. The bushing, in conjunction with the recommended tip and gate configuration, controls gate vestige height.

The Jumbo Gate-Mate Bushing utilizes an advanced design square coil heater and an independent thermocouple, strategically located for precise temperature control.

Bushing Assembly



Bushing Sub-Assembly

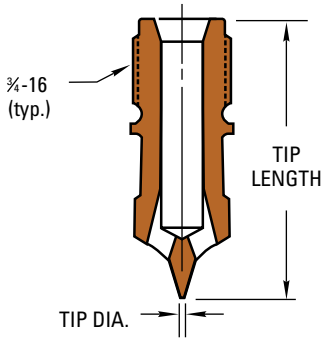


BUSHING ASSEMBLY (INCLUDES GMT0004 TIP)			
ITEM NUMBER	A	L	SPH. RAD.
GMB0008	2.500	3.562	1/2 & 3/4
GMB0009	3.500	4.562	

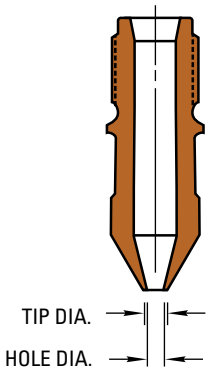
BUSHING SUB-ASSEMBLY (ORDER TIP SEPARATELY)			
ITEM NUMBER	A	L	SPH. RAD.
GMB0113	2.500	3.562	1/2 & 3/4
GMB0114	3.500	4.562	

Jumbo Gate-Mate™ Tips

STANDARD
WEAR RESISTANT



THRU HOLE
THRU HOLE WEAR RESISTANT



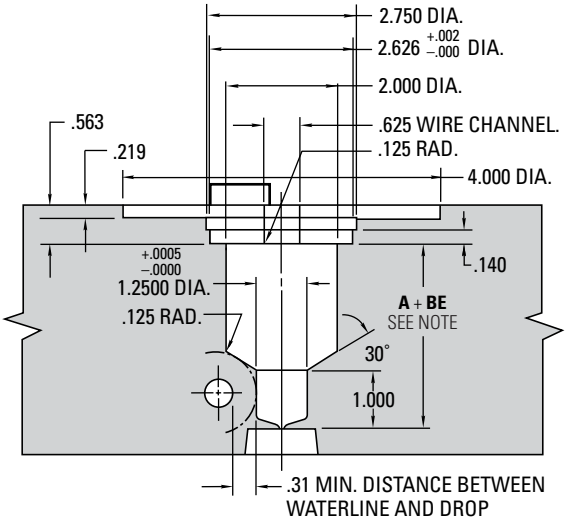
TIP STYLE	ITEM NUMBER	TIP LENGTH	TIP DIA.	HOLE DIA.
STANDARD	GMT0004	1.855	.030	N/A
WEAR RESISTANT	GMT0406			
THRU HOLE	GMT0007	1.815	.140	.100
THRU HOLE WEAR RESISTANT	GMT0407			

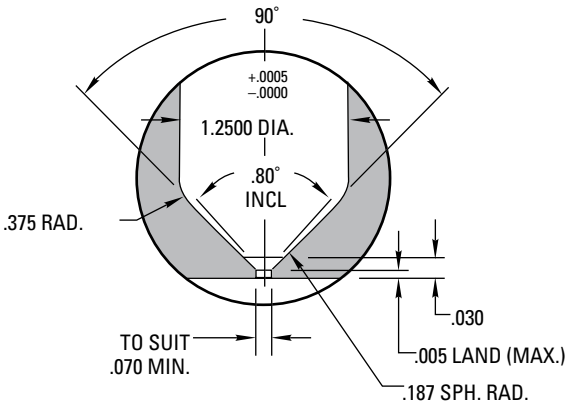
NOTES:

1. Thru-hole tip designed .040 shorter in length to be a direct replacement for the standard tip; use a .080 to .125 diameter gate
2. Contact D-M-E for tip recommendations and assistance with your application

Jumbo Gate-Mate™ Machining Dimensions

Machining Dimensions for Bushings





ITEM NUMBER REFERENCE		A
BUSHING ASSEMBLY	BUSHING SUB-ASSEMBLY	
GMB0008	GMB0113	2.500
GMB0009	GMB0114	3.500

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 = A dimension × .0000063 × (bushing set point temp. – 68°).

EXAMPLE:
Given a 2.500 inch A dimension, with a Bushing Set Point temp. of 500°F. BE = 2.500 × .0000063 × (500 – 68) = .007 thus A + BE will be 2.507.

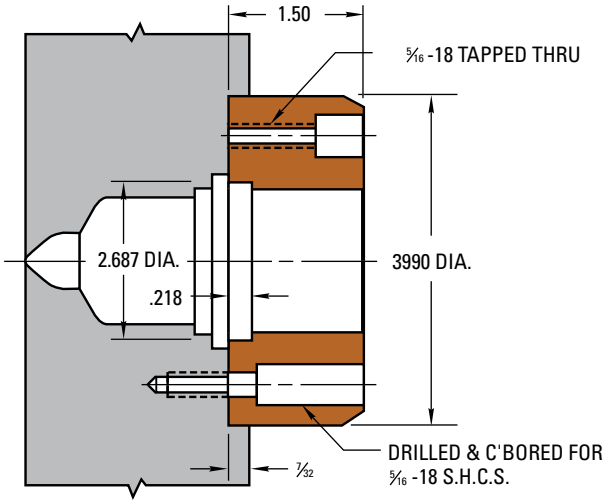
Please note that this information is given as an example. Variations may occur based on mold configurations and cooling factor. In some instances, it may be necessary to obtain an empirical factor.

Replacement Parts

Improved tip insulation, elimination of material degradation in threaded area of tip, and faster color changes can be achieved through use of a Gate Shell Insulator.

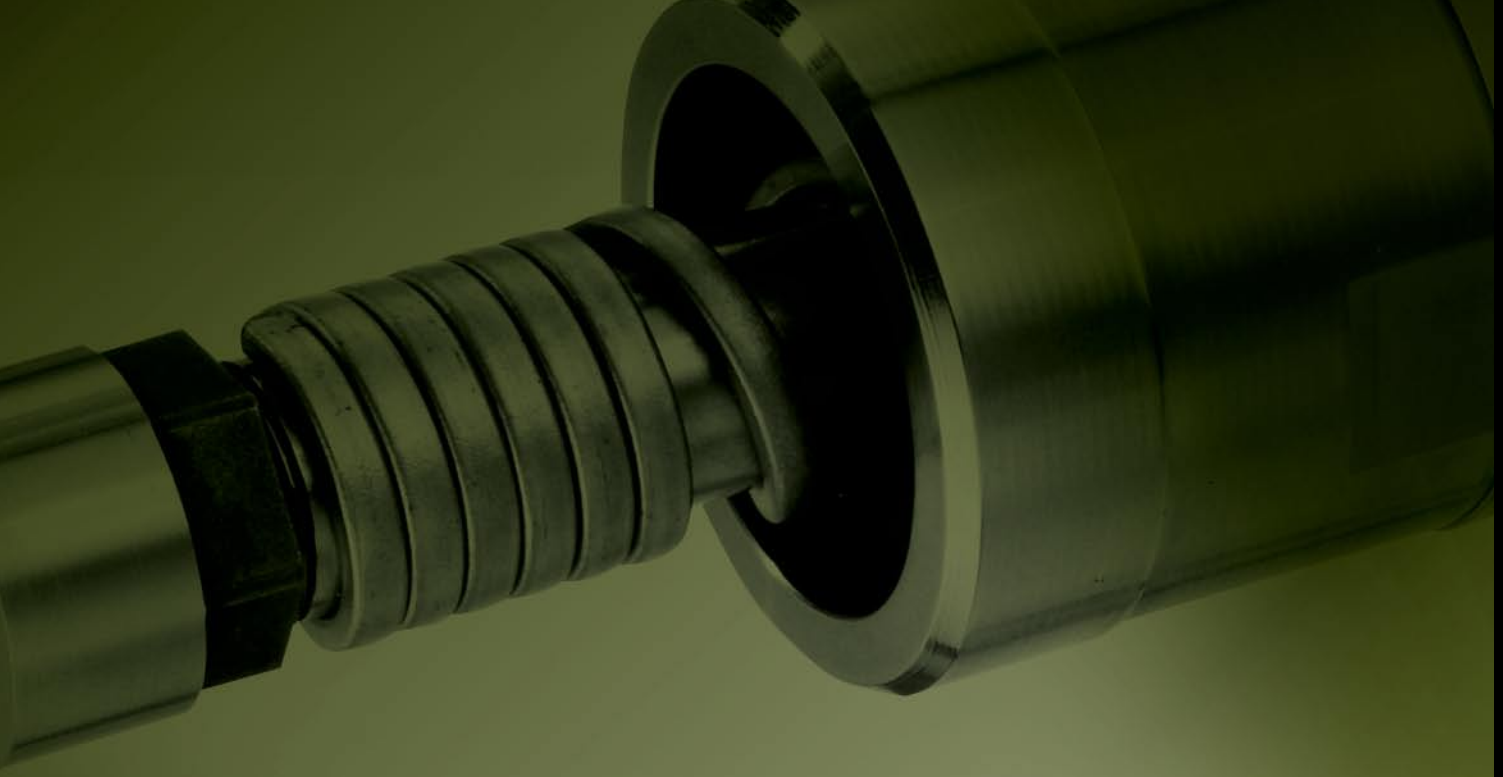
ITEM NUMBER REFERENCE		SQUARE COIL HEATERS (240 VAC)			THERMOCOUPLE (TYPE J, 36" LEADS)	
BUSHING ASSEMBLY	BUSHING SUB-ASSEMBLY	ITEM NUMBER	WATTS	LENGTH	ITEM NUMBER	LENGTH
GMB0008	GMB0113	SCH0002	600	1.70	TC-0002	1.18
GMB0009	GMB0114	SCH0001	800	2.70	TC-0001	2.18

Jumbo Gate-Mate Locating Ring



ITEM NUMBER
GMB0007

NOTES:
1. Two (2) 5/16 -18 S.H.C.S. are included with Locating Ring
2. Two (2) Drilled and C'bored holes for 5/16 -18 S.H.C.S. are on a 1.656 Circle radius in Locating Ring
3. C'bore depth in Top Clamp Plate and C'bore depth in locating ring can be altered to suit application



D-M-E Straight-Shot™ Hot Sprue Bushings

REDUCE CYCLE TIMES

AND SAVE MATERIAL COSTS

Index

High-Performance Series Straight-Shot™

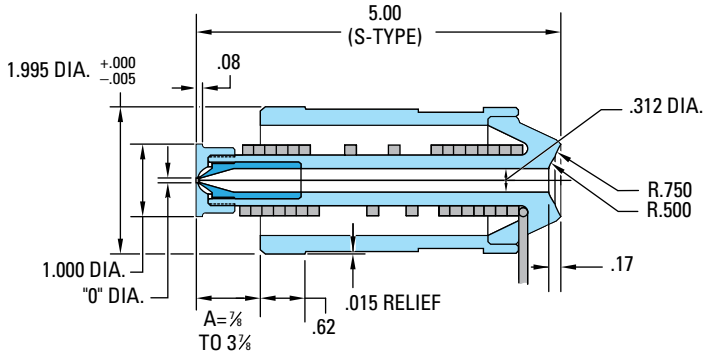
High-Performance Straight-Shot bushings are available as S-type

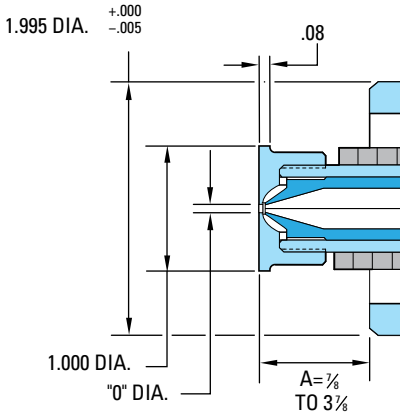
NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is as follows:
BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F.
BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379.
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.

"S" Type (Standard Tip Configuration)

- .062 or .125 DIA. Tips with .08 Land area
- Seven shoulder lengths from ⅞ to 3⅞
- .500 And .750 Spherical radius for machine nozzle
- Replaces conventional cold sprue bushings to reduce cycle time and save material costs
- Efficiently processes commodity or engineering grade resins
- Provides low vestige gate cosmetics (.062 or .125 Gate diameters available)
- High-watt density heater with distributed wattage to help prevent tip freeze-offs



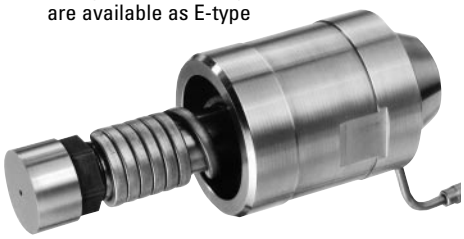


BUSHING ASSEMBLY			REPLACEMENT PARTS						
O DIA.	SHOULDER LENGTH A	BUSHING ASSEMBLY ITEM NUMBER	SHOULDER BUSHING ITEM NUMBER	TIP ITEM NUMBER	RETAINER ITEM NUMBER	BODY ITEM NUMBER	SPACER ITEM NUMBER	HEATER ITEM NUMBER	THERMOCOUPLE ITEM NUMBER
.062	⅞	HPS0607S2	HPS1007	HPT0001	HPT0601	HPS0001	HPT1001	HPS2001	HPS3001
	1⅜	HPS0613S2	HPS1013						
	1⅞	HPS0617S2	HPS1017						
	2⅜	HPS0623S2	HPS1023						
	2⅞	HPS0627S2	HPS1027						
	3⅜	HPS0633S2	HPS1033						
	3⅞	HPS0637S2	HPS1037						
.125	⅞	HPS1207S2	HPS1007	HPT0002	HPT1201	HPS0001	HPT1001	HPS2001	HPS3001
	1⅜	HPS1213S2	HPS1013						
	1⅞	HPS1217S2	HPS1017						
	2⅜	HPS1223S2	HPS1023						
	2⅞	HPS1227S2	HPS1027						
	3⅜	HPS1233S2	HPS1033						
	3⅞	HPS1237S2	HPS1037						

NOTE: High-Performance Series Straight-Shot Hot Sprue Bushings heater has voltage of 240 VAC, 700 watts. Thermocouple is "J" type.

High-Performance Series Straight-Shot™

High-Performance Straight-Shot Bushings are available as E-type



"E" Type (Extended Tip Configuration)

- Replaces conventional cold sprue bushings to reduce cycle time and save material costs
- Efficiently processes commodity or engineering grade resins
- High-watt density heater with distributed wattage to help prevent tip freeze-offs
- .062 or .125 DIA. Tips with .36 Land area for machining of molded part details
- Seven shoulder lengths from ⅞ to 3⅞
- .500 And .750 Spherical radius for machine nozzle

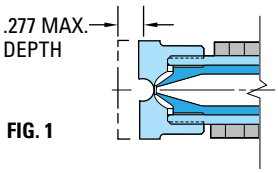


FIG. 1

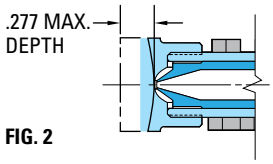


FIG. 2

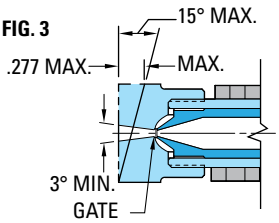


FIG. 3

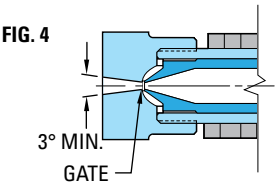
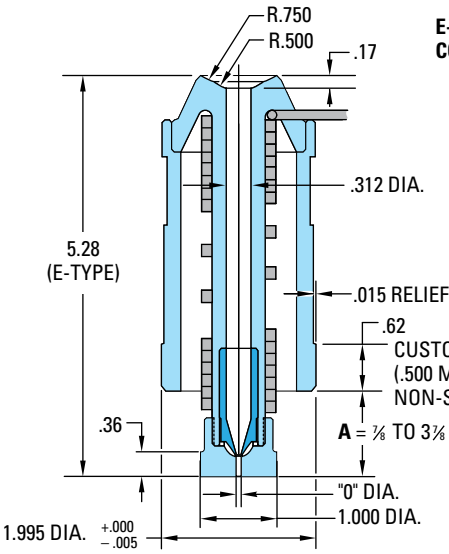


FIG. 4

Always machine runner or part contour to the .277 maximum depth at centerline of gate. However, do not weaken the bushing face by exceeding this maximum dimension (Figures 1 and 2). Always machine part contour to the .277 maximum depth at edge of retainer, with 15° maximum angle. Machine a 3° minimum taper to the gate diameter. This will result in a small sprue on the part being molded (Figure 3). Machine a 3° minimum taper to the gate for a reverse taper sprue on the part being molded (Figure 4). Retainer material is H-13 steel 46-52 HRC.



E-TYPE (EXTENDED TIP CONFIGURATION)

NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is as follows: BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F. BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379.

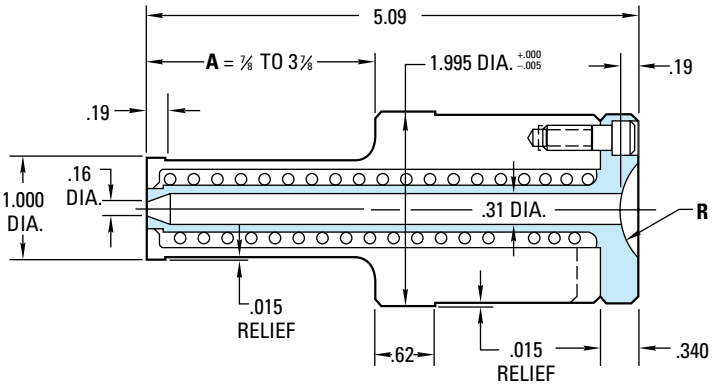
Please note that the above information is given as an example. Variations may occur based on mold configuration and cooling factor. In some instances, it may be necessary to obtain an empirical factor.

"O" DIA.	**SHOULDER LENGTH A**	**BUSHING ASSEMBLY ITEM NUMBER**	**SHOULDER BUSHING ITEM NUMBER**	**TIP ITEM NUMBER**	**RETAINER ITEM NUMBER**	**BODY ITEM NUMBER**	**SPACER ITEM NUMBER**	**HEATER ITEM NUMBER**	**THERMOCOUPLE ITEM NUMBER**
.062	⅞	HPS0607E2	HPS2007	HPT0001	HPT0602	HPS0001	HPT1001	HPS2001	HPS3001
	1⅜	HPS0613E2	HPS2013						
	1⅞	HPS0617E2	HPS2017						
	2⅜	HPS0623E2	HPS2023						
	2⅞	HPS0627E2	HPS2027						
	3⅜	HPS0633E2	HPS2033						
	3⅞	HPS0637E2	HPS2037						
.125	⅞	HPS1207E2	HPS2007	HPT0002	HPT1202	HPS0001	HPT1001	HPS2001	HPS3001
	1⅜	HPS1213E2	HPS2013						
	1⅞	HPS1217E2	HPS2017						
	2⅜	HPS1223E2	HPS2023						
	2⅞	HPS1227E2	HPS2027						
	3⅜	HPS1233E2	HPS2033						
	3⅞	HPS1237E2	HPS2037						

NOTE: High-Performance Series Straight-Shot Hot Sprue Bushings heater has voltage of 240 VAC, 700 watts. Thermocouple is "J" type.

S-Series Straight-Shot™

U.S. Patent No. 4,273,525



NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is as follows: BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F.
BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379.
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.

Larger Shots – Extended Heater Life

D-M-E developed Straight-Shot Hot Sprue Bushings to eliminate sprues, permit larger shots and faster fills, and greatly extend heater life.

The bushings feature an unrestricted "straight-shot" channel to feed the part or runner. Material in the channel is heated by a special helical tubular heater which surrounds the melt stream. This heater distributes heat uniformly throughout the bushing and is virtually impervious to moisture, gases and plastics contamination.

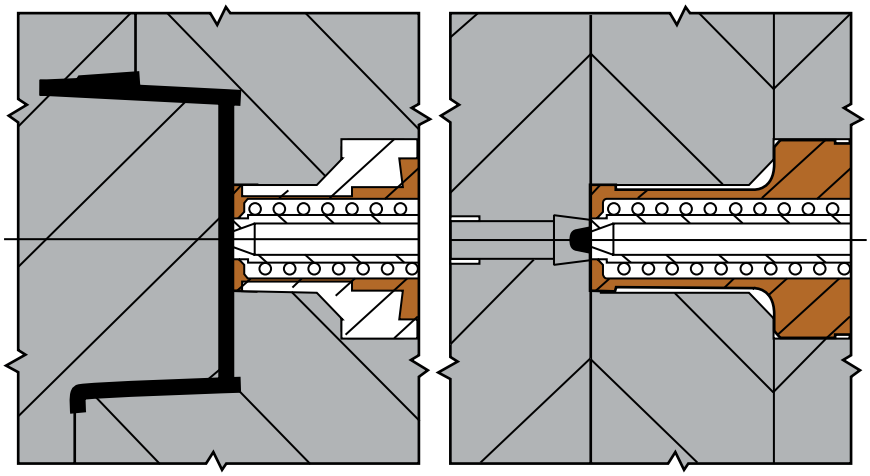
The helical tubular heater (120 or 240 volt) is thermocouple equipped so temperature can be closely controlled using a D-M-E single-zone Closed Loop Temperature Controller.

The Standard S-Series Straight-Shot is designed for direct part gating or for feeding half-round or trapezoidal runners. It is supplied with a .16 diameter gate and no gate land. Available in seven standard shoulder lengths with either a ½" or ¾" spherical radius and 120 or 240 volt heater. The S-Series Straight-Shot can be retrofitted to almost any mold that uses a conventional sprue bushing.

NOTE: 5° heater lead is standard. For 90° lead, add "90" to end of item number (e.g., SSBT-4507S-1-90).

R	WITH 120 VOLT HEATER ITEM NUMBER	SHOULDER LENGTH A	WITH 240 VOLT HEATER ITEM NUMBER
½	SSBT-4507S-1	⅞	SSBT-4507S-2
	SSBT-4513S-1	1⅜	SSBT-4513S-2
	SSBT-4517S-1	1⅞	SSBT-4517S-2
	SSBT-4523S-1	2⅜	SSBT-4523S-2
	SSBT-4527S-1	2⅞	SSBT-4527S-2
	SSBT-4533S-1	3⅜	SSBT-4533S-2
	SSBT-4537S-1	3⅞	SSBT-4537S-2
¾	SSBT-6507S-1	⅞	SSBT-6507S-2
	SSBT-6513S-1	1⅜	SSBT-6513S-2
	SSBT-6517S-1	1⅞	SSBT-6517S-2
	SSBT-6523S-1	2⅜	SSBT-6523S-2
	SSBT-6527S-1	2⅞	SSBT-6527S-2
	SSBT-6533S-1	3⅜	SSBT-6533S-2
	SSBT-6537S-1	3⅞	SSBT-6537S-2

Typical Applications



DIRECT PART GATING

FEEDING A TRAPEZOIDAL RUNNER

E-Series Straight-Shot™

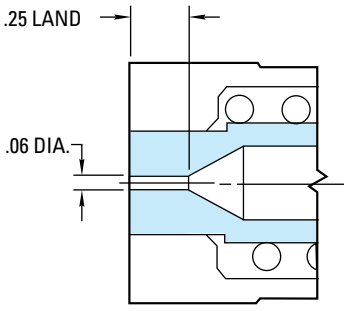
D-M-E Standard E-Series Straight-Shot Hot Sprue Bushings (Long and Short Styles) provide a .25 inch extra stock allowance on the front face to permit machining of runner profiles or part contours into that face. They are supplied with a .06 diameter gate and a .25 inch gate land. The gate diameter can be enlarged to suit the particular molding application.

Long Style

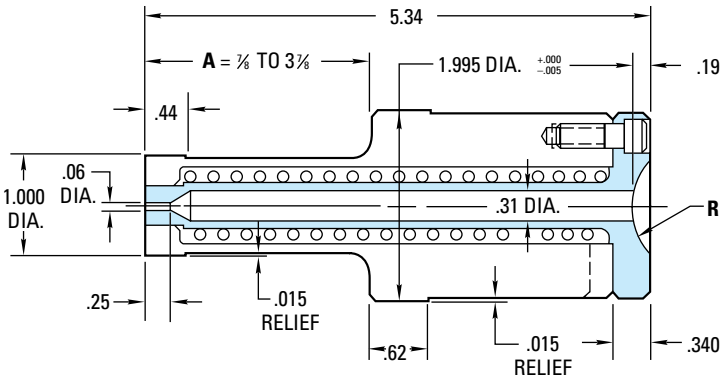
See D-M-E Control Systems Catalog for temperature controllers.

E-Series (Long Style)

NOTE:
Must always be altered as shown in Figures 1 thru 6 (see p. 166).



ENLARGED VIEW AS SUPPLIED



NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is as follows: BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F.
BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379.
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.

The D-M-E Standard E-Series Straight-Shot (Long Style) is available in seven standard shoulder lengths with either a ½" or ¾" spherical radius and 120 or 240 volt heater. The E-Series Straight-Shot (Long Style) can be retrofitted to suit the particular molding application.

NOTE: 5° heater lead is standard. For 90° lead, add "90" to end of item number (e.g., SSBT-4507E-1-90).

E-Series Straight-Shot (Long Style) Hot Sprue Bushings

R	WITH 120 VOLT HEATER ITEM NUMBER	SHOULDER LENGTH A	WITH 240 VOLT HEATER ITEM NUMBER
½	SSBT-4507E-1	⅞	SSBT-4507E-2
	SSBT-4513E-1	1⅜	SSBT-4513E-2
	SSBT-4517E-1	1⅞	SSBT-4517E-2
	SSBT-4523E-1	2⅜	SSBT-4523E-2
	SSBT-4527E-1	2⅞	SSBT-4527E-2
	SSBT-4533E-1	3⅜	SSBT-4533E-2
	SSBT-4537E-1	3⅞	SSBT-4537E-2
¾	SSBT-6507E-1	⅞	SSBT-6507E-2
	SSBT-6513E-1	1⅜	SSBT-6513E-2
	SSBT-6517E-1	1⅞	SSBT-6517E-2
	SSBT-6523E-1	2⅜	SSBT-6523E-2
	SSBT-6527E-1	2⅞	SSBT-6527E-2
	SSBT-6533E-1	3⅜	SSBT-6533E-2
	SSBT-6537E-1	3⅞	SSBT-6537E-2

E-Series Straight-Shot™

The D-M-E Standard E-Series Straight-Shot (Short Style) is intended to suit the requirements of smaller injection molding machines and is supplied with a 7/8" A dimension. The A dimension can be altered to suit the particular molding application.

NOTE: 5° heater lead is standard. For 90° lead, add "90" to end of item number (e.g., SSBT-4407E-2-90).

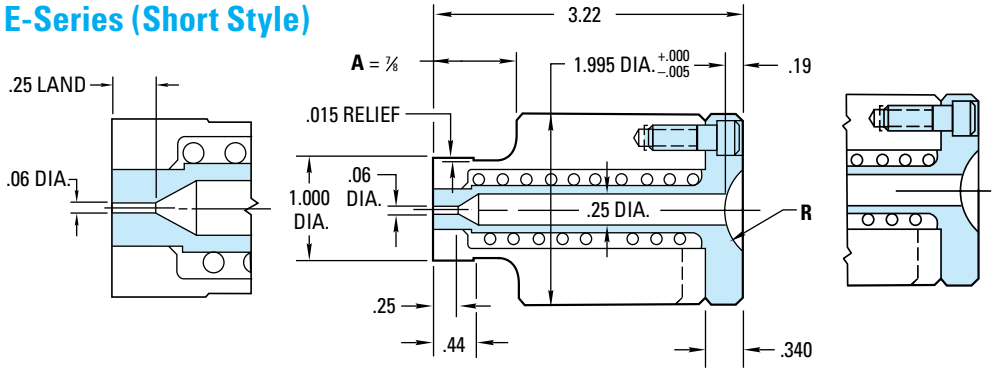
Short Style

See the D-M-E Control Systems Catalog for temperature controllers.

E-Series Straight-Shot Hot Sprue Bushings (Short Style)

WITH 240 VOLT HEATER ITEM NUMBER	R	A DIMENSION
SSBT-4407E-2	½	7/8
SSBT-0407E-2	NONE	

E-Series (Short Style)



ENLARGED VIEW AS SUPPLIED — SSBT-4407E-2 — SSBT-0407E-2

NOTE: Must always be altered as shown in Figures 1 thru 6.

NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is as follows: BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F.
BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379.
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.

Design Guidelines for Altering E-Series Straight-Shot Hot Sprue Bushings (Long and Short Styles)

Always remove the .25 extra stock allowance and alter the A dimension to suit whenever gating into a flat part surface. Minimum stock removal of .25 provides an approximate .06 gate diameter (Figure 1).

Maximum stock removal of .268 provides an approximate .08 gate diameter (Figure 2). Maximum stock removal of .268 is recommended for gate diameters larger than .08 (Figures 3 and 4).

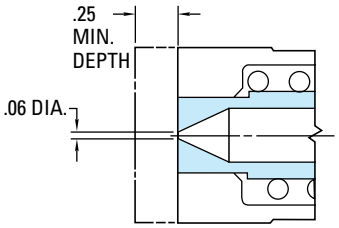


FIG. 1

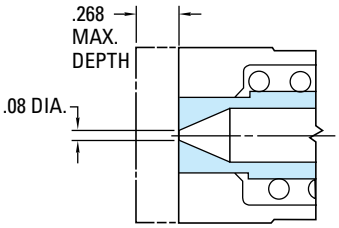


FIG. 2

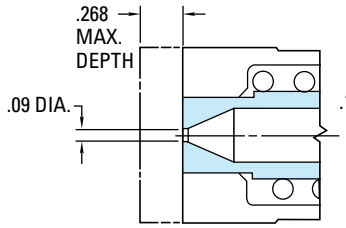


FIG. 3

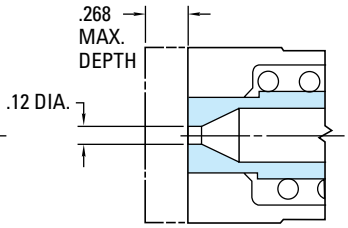


FIG. 4

Always machine runner profile or part contour to the .268 maximum depth at centerline of gate (Figures 5 and 6). However, do not weaken the bushing face by exceeding this maximum dimension.

* Resultant gate diameter may be enlarged to suit the particular molding application.

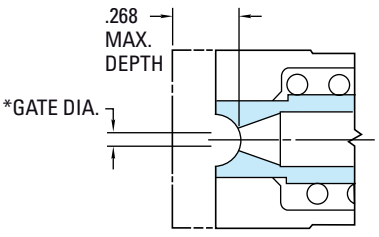


FIG. 5

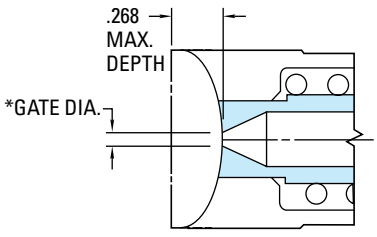


FIG. 6

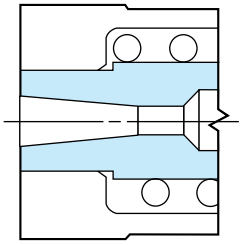
ER-Series Straight-Shot™

The D-M-E standard ER-Series Straight-Shot Hot Sprue Bushings (Long and Short Styles), like the standard E-Series, are supplied with a .25 inch extra stock allowance on the front face to permit machining of runner profiles or part contours into that face. These bushings feature a "reverse taper" design that originates from under the heat source, providing easier start-ups.

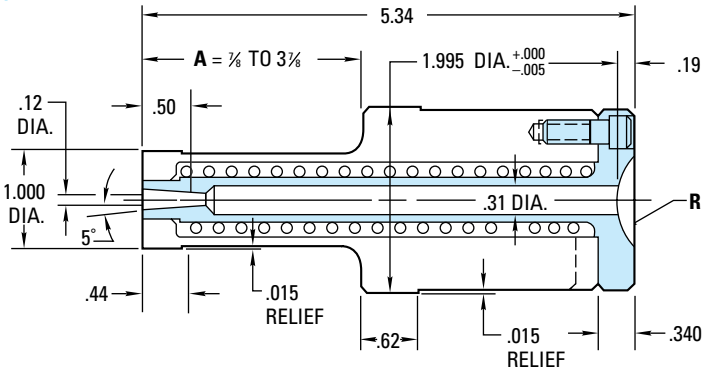
The ER-Series design can also be used when a reverse taper will benefit a particular application. These bushings are supplied with a .12 diameter orifice and a .50 long reverse taper. The orifice may be enlarged and the taper increased to suit.

(Long Style)

ER-Series (Long Style)



ENLARGED VIEW AS SUPPLIED



NOTE: For minimum projection on runner/part, alter the bushing face (See figures 1 thru 3 on p. 168).

NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is as follows: BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F.
BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379.
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.

ER-Series Straight-Shot (Long Style) Hot Sprue Bushings

R	WITH 120 VOLT HEATER ITEM NUMBER	SHOULDER LENGTH A	WITH 240 VOLT HEATER ITEM NUMBER
½	SSBT-4507ER-1	⅞	SSBT-4507ER-2
	SSBT-4513ER-1	1⅜	SSBT-4513ER-2
	SSBT-4517ER-1	1⅞	SSBT-4517ER-2
	SSBT-4523ER-1	2⅜	SSBT-4523ER-2
	SSBT-4527ER-1	2⅞	SSBT-4527ER-2
	SSBT-4533ER-1	3⅜	SSBT-4533ER-2
	SSBT-4537ER-1	3⅞	SSBT-4537ER-2
¾	SSBT-6507ER-1	⅞	SSBT-6507ER-2
	SSBT-6513ER-1	1⅜	SSBT-6513ER-2
	SSBT-6517ER-1	1⅞	SSBT-6517ER-2
	SSBT-6523ER-1	2⅜	SSBT-6523ER-2
	SSBT-6527ER-1	2⅞	SSBT-6527ER-2
	SSBT-6533ER-1	3⅜	SSBT-6533ER-2
	SSBT-6537ER-1	3⅞	SSBT-6537ER-2

The D-M-E Standard ER-Series Straight-Shot (Long Style) is available in seven standard shoulder lengths with either a ½" or ¾" spherical radius and 120 or 240 volt heater. The ER-Series Straight-Shot (Long Style) can be retrofitted to suit the particular molding application.

NOTE: 5° heater lead is standard. For 90° lead, add "90" to end of item number (e.g., SSBT-4507ER-1-90).

ER-Series Straight-Shot™

The D-M-E Standard ER-Series Straight-Shot (Short Style) is intended to suit the requirements of smaller injection molding machines and is supplies with a ⅞" A dimension. The A dimension can be altered to suit the particular molding application.

NOTE: 5° heater lead is standard. For 90° lead, add "90" to end of item number (e.g., SSBT-4407ER-2-90).


Short Style

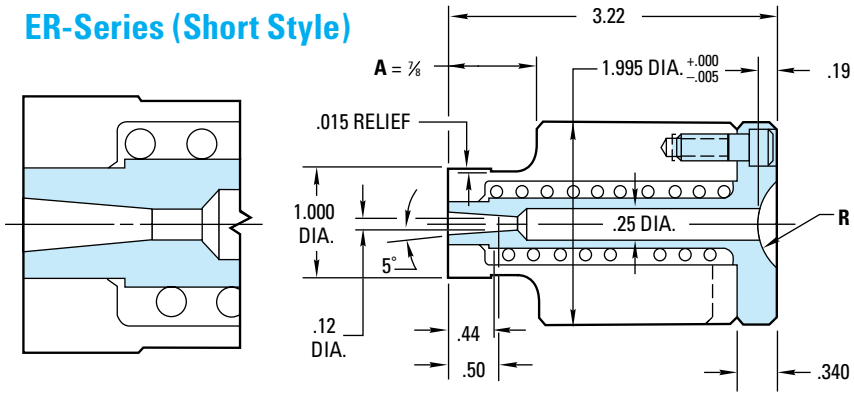
NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is, as follows: BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F. BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379. 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.

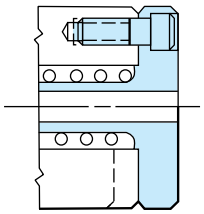
ER-Series Straight-Shot Hot Sprue Bushings (Short Style)

WITH 240 VOLT HEATER ITEM NUMBER	R	A DIMENSION
SSBT-4407ER-2	½	⅞
SSBT-0407ER-2	NONE	

ER-Series (Short Style)



ENLARGED VIEW AS SUPPLIED — SSBT-4407ER-2



SSBT-0407ER-2

NOTE:
For minimum projection on runner/part, alter the bushing face (See figures 1 through 3 below).

Design Guidelines for Altering ER-Series Straight-Shot Hot Sprue Bushings (Long and Short Styles)

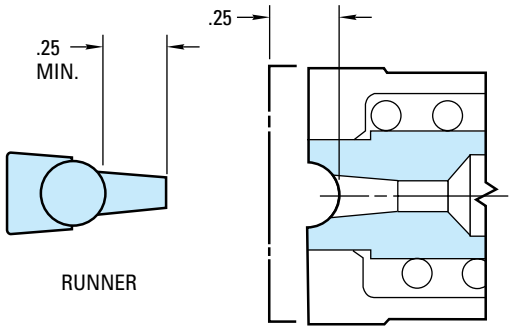


FIG. 1

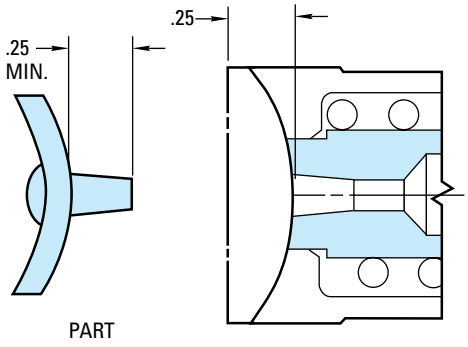


FIG. 2

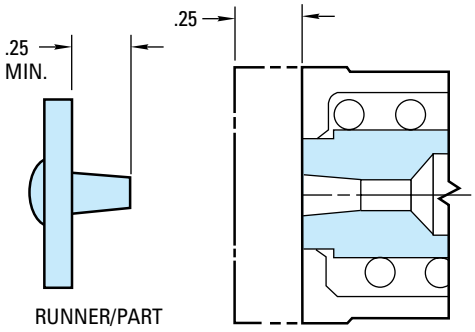


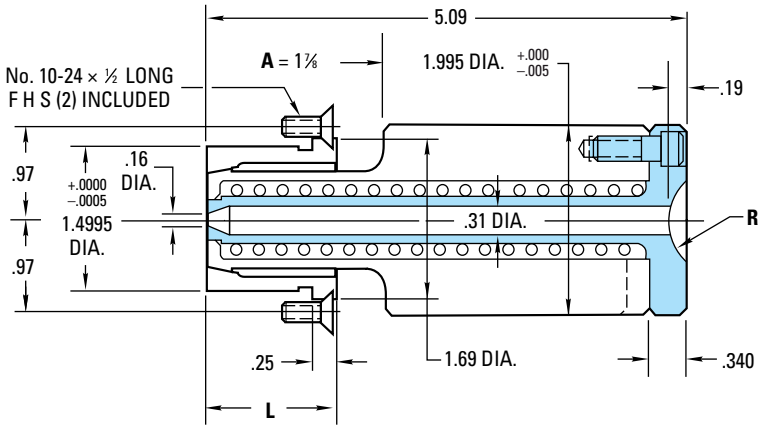
FIG. 3

For minimum projection on runner/part, machine the runner profile or part contour .25 inch deep into the bushing face at the centerline of the orifice (See Figures 1 and 2). When gating into a flat surface, remove the .25 inch extra stock allowance on the bushing face (See Figure 3). However, do not weaken the bushing face by exceeding the .25 inch dimension. The A dimension can be altered by removing stock from the front face of the 2.00 diameter bushing shoulder.

T-Series Straight-Shot™

The D-M-E Standard "T" Series Straight-Shot improves the performance of three-plate molds by virtually eliminating the sprue from the runner system. It is available with either ½" or ¾" spherical radius, 120 or 240 volt heater and a ⅞" or 1⅜" long stripper plate bushing to suit the application.

NOTE: 5° heater lead is standard. For 90° lead, add "90" to end of item number (e.g., SSBT-4517T-1-07-90).

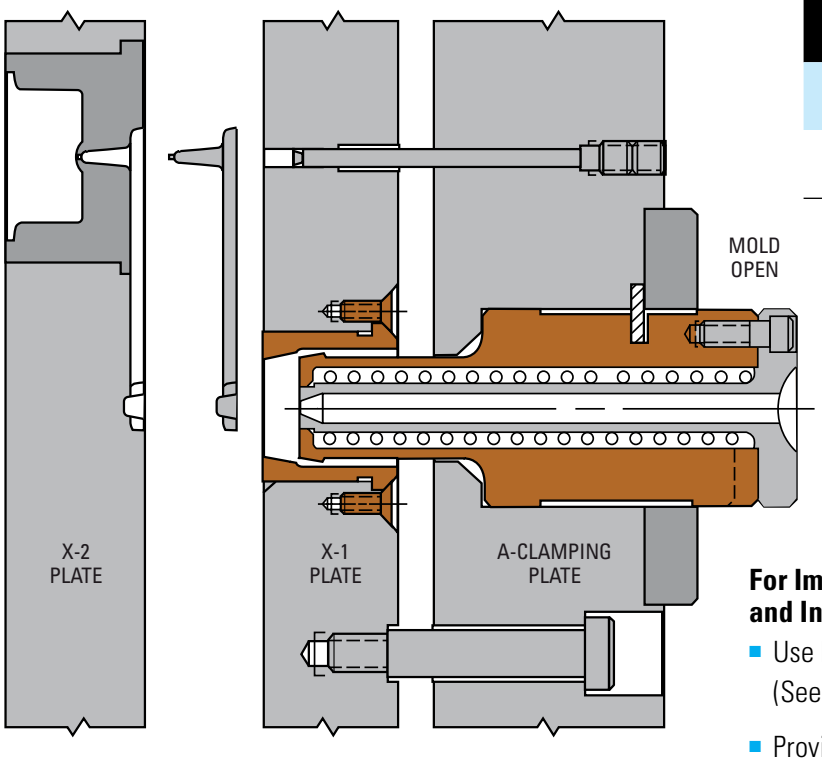


NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is as follows: BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F. BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379.

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.

Typical Application



T-Series Straight-Shot Hot Sprue Bushings

R	WITH 120 VOLT HEATER ITEM NUMBER	L	WITH 240 VOLT HEATER ITEM NUMBER
½	SSBT-4517T-1-07	⅞	SSBT-4517T-2-07
	SSBT-4517T-1-13	1⅜	SSBT-4517T-2-13
¾	SSBT-6517T-1-07	⅞	SSBT-6517T-2-07
	SSBT-6517T-1-13	1⅜	SSBT-6517T-2-13

Replacement Stripper Bushings

ITEM NUMBER*	L
SSSB-07	⅞
SSSB-13	1⅜

*Includes mounting screws.

For Improved Performance and Increased Productivity:

- Use D-M-E Standard T-Series (3-Plate) Mold Bases (See D-M-E Mold Bases and Plates Catalog)
- Provide Positive Runner Ejection with a D-M-E Jiffy-Jector (See D-M-E Mold Components Catalog)

TR-Series Straight-Shot™

NOTE:
The expansion factor must be taken into consideration prior to machining for and installation of the bushing. This factor (BE) must then be added to the A dimension. The formula for determining this expansion factor is as follows:
BE = 1.375 × .0000063 × (nozzle setpoint – 68°F).

EXAMPLE:
Given a setpoint of 500°F.
BE = 1.375 × .0000063 × (500 – 68) = .004 thus 1.375 + .004 = 1.379.
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.

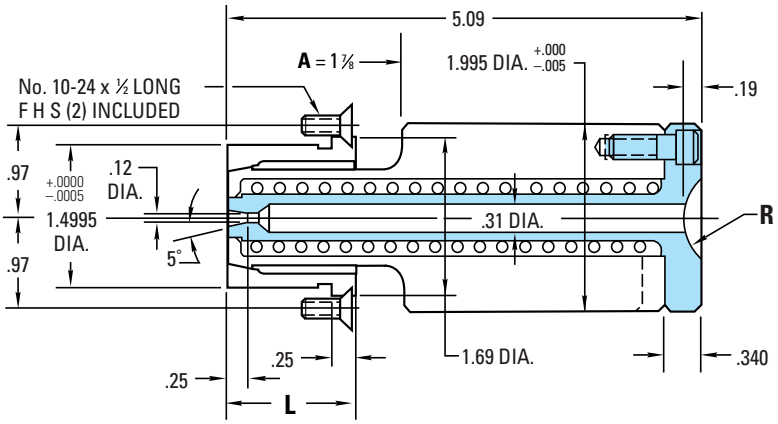
The D-M-E standard TR-Series Straight-Shot Hot Sprue Bushing, like the standard T-Series, improves the performance of three-plate runner molds by minimizing the length of protrusion on the runner system. This bushing features a "reverse taper" design that originates from under the heat source, providing easier start-ups.

The TR-Series design can also be used when a reverse taper will benefit a particular application. The bushing is supplied with a .12 diameter orifice and a .25 long reverse taper. The orifice may be enlarged and the taper increased to suit. The bushing is available with either ½" or ¾" spherical radius, 120 or 240 volt heater and a ⅞" or 1⅜" long stripper-plate bushing to suit the application.

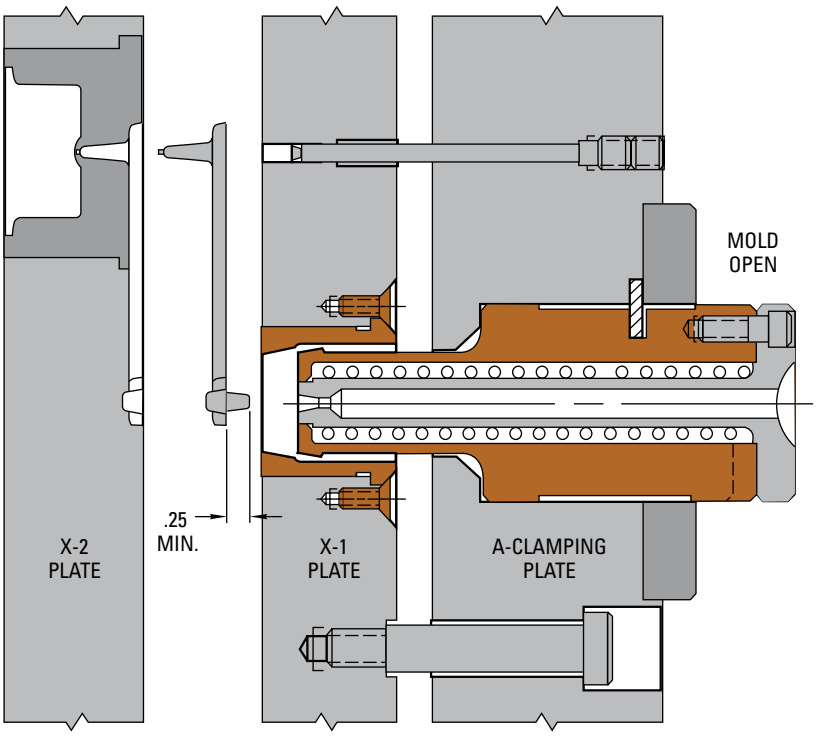
TR-Series Straight-Shot Hot Sprue Bushings

R	WITH 120 VOLT HEATER ITEM NUMBER	L	WITH 240 VOLT HEATER ITEM NUMBER
½	SSBT-4517TR-1-07	⅞	SSBT-4517TR-2-07
	SSBT-4517TR-1-13	1⅜	SSBT-4517TR-2-13
¾	SSBT-6517TR-1-07	⅞	SSBT-6517TR-2-07
	SSBT-6517TR-1-13	1⅜	SSBT-6517TR-2-13

NOTE:
5° heater lead is standard. For 90° lead, add "90" to end of item number (e.g., SSBT-4517TR-1-07-90).



Typical Application



Important:
To prevent "pushback" of the hot sprue bushing due to injection pressure – and assure a positive tapered seal with the stripper plate bushing – secure the hot sprue bushing to the A-Clamping Plate. A dowel or flat key installed under the locating ring (shown) or clamping-type locating ring may be used.

For Improved Performance and Increased Productivity:

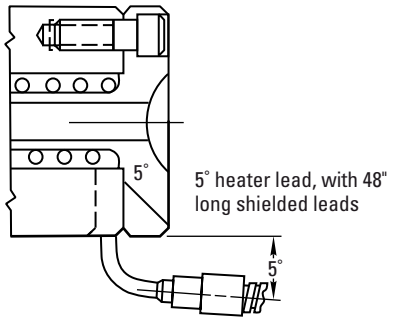
- Use D-M-E Standard T-Series (3-Plate) Mold Bases (see D-M-E Mold Bases and Plates Catalog)
- Provide Positive Runner Ejection with a D-M-E Jiffy-Jector (see D-M-E Mold Components Catalog)

Straight-Shot™ Bushings Replacement Parts

Replacement Heaters for Straight-Shot Hot Sprue Bushings Standard

ITEM NUMBER*	VOLTS	WATTS	L	BUSHING SERIES
SSTC-31	120	300	4⅝	S, E & ER (Long Style), T & TR
SSTC-32	240	300	4⅝	S, E & ER (Long Style), T & TR
SSTC-42	240	460	2½	E & ER (Short Style)

* Includes installation wrench.



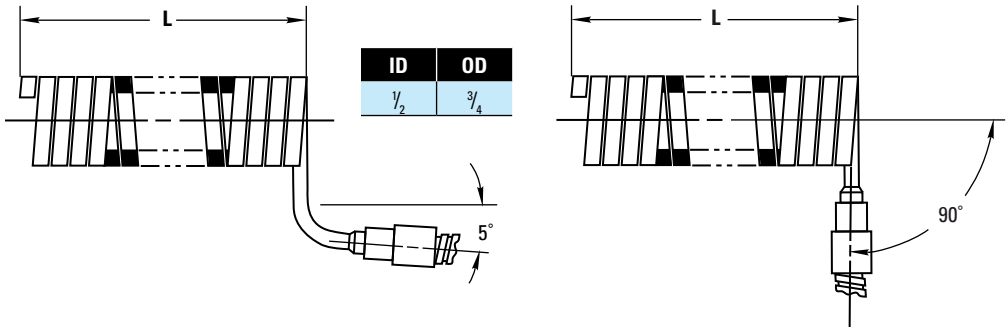
5° heater lead, with 48" long shielded leads

Straight-Shot Heater Installation and Removal Wrench

(Included with heaters above).

ITEM NUMBER	USED WITH
WR 087-5	SSTC-31 & 32 Series
WR 087-4	SSTC-42 Series

Available On Request:
Heaters with 90° exit leads. Add "90" to item number.
Example: SSTC-31-90



Replacement Parts for Discontinued Hot Sprue Bushings (HBT-6630 through 6636), Temperature Controllers (PFC-5) and Control Modules (FC-5)

Band Heaters

INSIDE DIA.	WIDTH	VOLTS	WATTS	ITEM NUMBER
2	2	240	350	HBN-2020-2†

Band heaters supplied with flexible leads and metal sheath 46" long.

†**NOTE:** Not recommended for processing engineering materials.

Cartridge Heaters

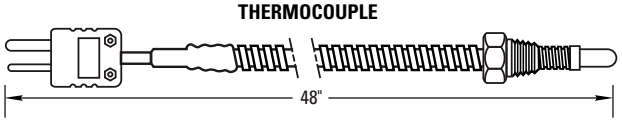
DIA.	LENGTH	WATTS	VOLTS	ITEM NUMBER
¼	2½	240	200	HBC-202-2*
¼	3¾	240	300	HBC-203-2@

* Used with Hot Sprue Bushings 5 3/16" long; heater supplied with leads 48" long.

@ Used with Hot Sprue Bushings 6 3/16" long; heater supplied with leads 46" long.

Thermocouple Cartridge Heaters

DIA.	LENGTH	VOLTS	WATTS	ITEM NUMBER
¼	2½	240	200	HBTC-202-2*
¼	3¾	240	300	HBTC-203-2@



Threaded type thermocouple is spring loaded and supplied with cable and mini plug.

ITEM NUMBER
TCT-4

ITEM NUMBER	AMPS
ABC-5	5
13X-5	5

Replacement Fuses for Temperature Control Modules (FC-5) and Temperature Controllers (PFC-5)

See the D-M-E Control Systems Catalog for new controllers.

Modular Components Deliver High-Performance Solutions

Today's increasingly feature-packed plastic products benefit tremendously from the right hot runner solution. Increasing resin costs and the complexity of engineered materials only compound this challenge. From hot sprue bushings to turnkey hot halves, D-M-E offers a wide range of solutions to almost any molding application.

Get the modular advantage with D-M-E hot runner systems

D-M-E's newest family of hot runner systems are built on an architecture of modular components so we can quickly custom configure a system that is ideal for your application. With the tremendous time pressures on moldmakers today, our modular architecture enables industry-leading delivery times. This modular approach shortens delivery, improves cost-effectiveness and optimizes performance. D-M-E's Meteor and Stellar hot runner systems offer standardized products, custom-configured to each application in only a few days.

Our dedicated team of application engineers works to understand the critical variables of your molding equation.

Here are a few areas in which our global capabilities make hot runner solutions more efficient and more economical.

Micromolding solutions

As plastic parts get smaller and more complex, micromolding solutions become more challenging. D-M-E Stellar Hot Runner Systems were designed for the demands of very small part molding with engineered or commodity materials. The Stellar hot runner system is available for applications with center-to-center dimensions as close as 17mm.

Application engineered solutions

As an industry leader in hot runner systems, D-M-E is able to offer our customers a comprehensive resource for hot runner solutions. Our dedicated team of application engineers works to understand the critical variables of your molding equation and engineer a hot runner system solution that is optimal for your project.

Powerful custom manufacturing capabilities

For more complex, custom and even high cavitation applications, D-M-E offers extensive manufacturing capabilities enabling complete, custom solutions. For example, turnkey hot half systems — fully assembled, wired, and electrically tested — are ready to drop in with no machining and minimal installation demands.

Cartridge Heaters

D-M-E Standard Cartridge heaters employ a swaged construction using the finest resistance wire and insulation available for optimum heating performance, long life and maximum dependability. These heaters are furnished with 10" long flexible lead wires, ready for fast installation. Thermocouple cartridge heaters are also available.

NOTE: Lead wires can withstand temperatures up to 450°F. If temperatures will exceed this amount, leads must be insulated.

DIA.	LENGTH (INCHES)	VOLTS	WATTS	ITEM NUMBER
1/4	2	120	40	CU-202-1
	2	240	40	CU-202-2
	3	120	75	CU-203-1
	3	240	75	CU-203-2
	4	120	100	CU-204-1
	4	240	100	CU-204-2
	6	120	150	CU-206-1
	6	240	150	CU-206-2
3/8	2	120	75	CU-302-1
	2	240	75	CU-302-2
	3	120	100	CU-303-1
	3	240	100	CU-303-2
	4	120	150	CU-304-1
	4	240	150	CU-304-2
	5	120	185	CU-305-1
	5	240	185	CU-305-2
	6	120	225	CU-306-1
	6	240	225	CU-306-2
	8	120	300	CU-308-1
	8	240	300	CU-308-2
1/2	2	120	75	CU-402-1
	2	240	75	CU-402-2
	3	120	150	CU-403-1
	3	240	150	CU-403-2
	4	120	180	CU-404-1
	4	240	180	CU-404-2
	5	120	200	CU-405-1
	5	240	200	CU-405-2
	6	120	300	CU-406-1
	6	240	300	CU-406-2
	8	120	400	CU-408-1
	8	240	400	CU-408-2
	10	120	500	CU-410-1
	10	240	500	CU-410-2
	12	120	600	CU-412-1
	12	240	600	CU-412-2
	16	120	800	CU-416-1
	16	240	800	CU-416-2

DIA.	LENGTH (INCHES)	VOLTS	WATTS	ITEM NUMBER
5/8	2	120	100	CU-502-1
	2	240	100	CU-502-2
	3	240	200	CU-503-2
	4	240	250	CU-504-2
	5	120	300	CU-505-1
	5	240	300	CU-505-2
	6	120	375	CU-506-1
	6	240	375	CU-506-2
	8	120	500	CU-508-1
	8	240	500	CU-508-2
	10	120	650	CU-510-1
	10	240	650	CU-510-2
	12	120	775	CU-512-1
	12	240	775	CU-512-2
	14	240	900	CU-514-2
	16	240	1050	CU-516-2
3/4	3	240	225	CU-603-2
	4	120	300	CU-604-1
	4	240	300	CU-604-2
	5	120	375	CU-605-1
	5	240	375	CU-605-2
	6	120	450	CU-606-1
	6	240	450	CU-606-2
	8	120	600	CU-608-1
	8	240	600	CU-608-2
	10	120	800	CU-610-1
	10	240	800	CU-610-2
	12	120	950	CU-612-1
	12	240	950	CU-612-2
	14	240	1100	CU-614-2
	16	240	1250	CU-616-2

NOTE: Special heaters are available on special order.

High Watt Density Cartridge Heaters

Fit Tolerances

The cavity or hole, into which a cartridge heater is inserted, should be reamed* to the nominal diameter of the heater. D-M-E cartridge heater diameters are actually .002 to .007 undersize. High Watt Density Cartridge Heaters are .004 undersize, held to a tolerance of ±.002. This sizing is maintained for easy installation and for best heat transfer. However, if close hole tolerances are not maintained, operating life of the heater may be drastically reduced. Also make sure that the heated area of the cartridge does not extend beyond the hole.

Spacing of Heaters

As a general rule it is not recommended to space heaters in a mold, die or platen any closer to each other than the diameter of the heater.

Contamination

Contamination consists of any foreign matter such as plastics, oil, grease, dirt or water entering through the terminal end or the end opposite the terminal. Care must be taken to protect the heater or these contaminants will shorten the effective heater life.

Proper Care and Maintenance

1. Heaters should be stored in a dry area, especially during periods of excess humidity.
2. Protect leads from abuse, abrasion, fatigue, etc.
3. Maintain temperature controllers and accessories in good working condition to avoid an overheating condition.
4. Transferring heaters from one die or platen to another is not recommended.

D-M-E High Watt Density Cartridge Heaters employ swaged construction for maximum heat transfer and high watt density for more demanding applications. Recommended for use when high temperatures are required (up to 1500°F) or where heaters will be subjected to vibration. Furnished with 10" long flexible lead wires. Special heaters are available on special order. Thermocouple cartridge heaters are also available.

DIA.	LENGTH (INCHES)	VOLTS	WATTS	ITEM NUMBER
1/4	1	120	100	CM-100-1
	1	240	100	CM-100-2
	1 1/2	120	150	CM-112-1
	1 1/2	240	150	CM-112-2
	2	120	200	CM-202-1
	2	240	200	CM-202-2
	3	120	300	CM-203-1
	3	240	300	CM-203-2
	4	240	375	CM-204-2
	5	240	450	CM-205-2
3/8	2	240	250	CM-302-2
	3	240	350	CM-303-2
	4	240	500	CM-304-2
	5	240	550	CM-305-2
	6	240	600	CM-306-2
1/2	2	240	250	CM-402-2
	3	240	300	CM-403-2
	4	240	400	CM-404-2
	5	240	800	CM-405-2
	6	240	1000	CM-406-2
	8	240	1200	CM-408-2
	10	240	1500	CM-410-2
	12	240	2000	CM-412-2
5/8	2	240	300	CM-502-2
	4	240	700	CM-504-2
	6	240	1000	CM-506-2
	8	240	1200	CM-508-2
	9	240	1400	CM-509-2
	10	240	1500	CM-510-2
	14	240	2000	CM-514-2
3/4	2	240	300	CM-602-2
	4	240	750	CM-604-2
	6	240	1200	CM-606-2
	10	240	1600	CM-610-2
	14	240	2200	CM-614-2

*See D-M-E Equipment and Supplies Catalog for D-M-E machine reamers and D-M-E straight shank long drills.

NOTE: Lead wires can withstand temperatures up to 450°F. If temperatures will exceed this amount, leads must be insulated.

Nozzle Heaters for Injection Molds

Features

- Square coil design for improved heat transfer
- High watt density on nozzle … up to 106 watts/in^2
- Heat is conducted from entire heater circumference…360° heat
- Unheated tail section reduces temperature at adapter
- Moisture-resistant seal
- Low profile
- 1200°F maximum operating temperature
- Available from stock

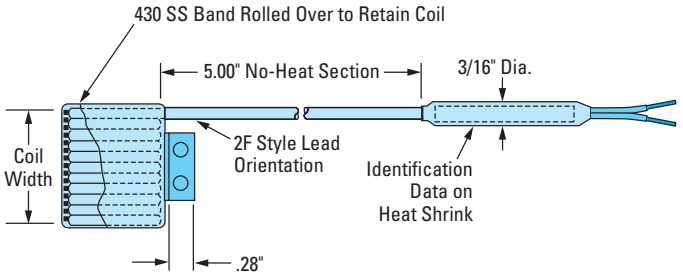
This nozzle heater features a five-inch long unheated tail section, and the adapter is provided with a moisture-resistant seal. These two design advantages practically eliminate failures in the adapter area due to overheating and moisture contamination.

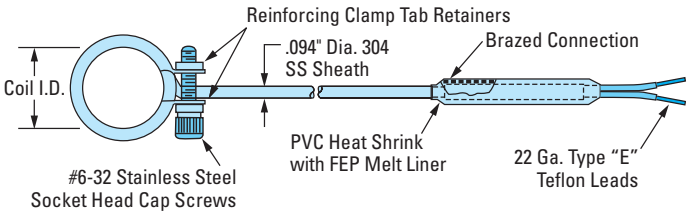
As with all D-M-E heaters, these new nozzle heaters are designed to give long life even when operated at 1200°F. These are very low profile heaters to facilitate easy installation in the tight environment of multiple gate molds.

All units have a resistance tolerance of ±5% to provide consistent operation and reduced adjustment time when it is necessary to replace a heater or bushing.

A stainless steel clamping band is installed on all units.

All units are stock coiled per the dimensions listed below. All units have Teflon covered power leads and fiberglass thermocouple leads as indicated.

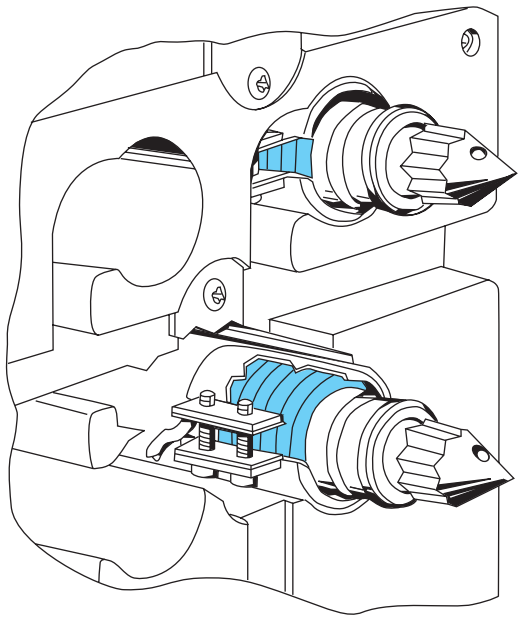




Nozzle Heaters (240 VAC)

WATTS	COIL I.D.	COIL O.D.	COIL WIDTH	LEAD LENGTH	THERMO-COUPLE	ITEM NUMBER
125	.750	.980	1.0"	36"	NO	SCH0103
125	.750	.980	1.0"	72"	NO	SCH0104
250	.750	.980	1.0"	36"	NO	SCH0105
250	.750	.980	1.0"	72"	NO	SCH0106
125	.750	.980	1.0"	36"	YES*	SCH0107
250	.750	.980	1.0"	36"	YES*	SCH0108
125	.875	1.10	1.0"	36"	NO	SCH0109
250	.875	1.10	1.0"	36"	NO	SCH0110

*A thermocouple is externally spotwelded to the sheath.



This installation illustrates D-M-E's square coil design fit over a nozzle. This heater was designed to fit any industry nozzle as a replacement for runnerless molding.

High Watt Density Thermocouple Cartridge Heaters

D-M-E High Watt Density Thermocouple Cartridge Heaters employ swaged construction for maximum heat transfer and high watt density for more demanding applications. Recommended for use when high temperatures are required (up to 1500°F) or where heaters will be subjected to vibration.

Fit Tolerances

The cavity or hole into which a cartridge heater is inserted should be reamed* to the nominal diameter of the heater. D-M-E cartridge heater diameters are actually .002 to .007 undersize. High Watt Density Cartridge Heaters are .003 undersize, held to a tolerance of ±.002. This sizing is maintained for easy installation and for best heat transfer. However, if close hole tolerances are not maintained, operating life of the heater may be drastically reduced. Also make sure that the heated area of the cartridge does not extend beyond the hole.

Contamination

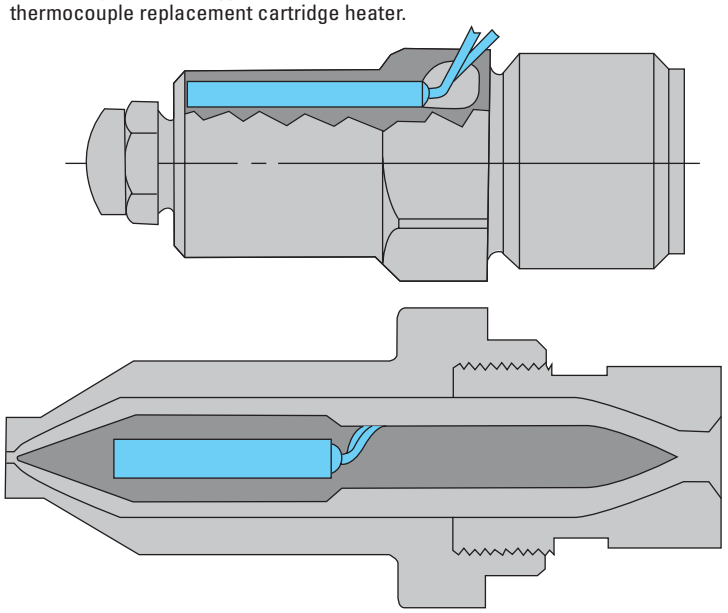
Contamination consists of any foreign matter such as plastics, oil, grease, dirt or water entering through the terminal end or the end opposite the terminal. Care must be taken to protect the heater or these contaminants will shorten the effective heater life.

Proper Care and Maintenance

1. Heaters should be stored in a dry area, especially during periods of excess humidity.
2. Protect leads from abuse, abrasion, fatigue, etc.
3. Maintain temperature controllers and accessories in good working condition to avoid an overheating condition.
4. Transferring heaters from one die or platen to another is not recommended.

*See D-M-E Equipment and Supplies Catalog for D-M-E machine reamers and D-M-E straight shank long drills.

These diagrams show typical installations of a thermocouple replacement cartridge heater.



High Watt Density Thermocouple Cartridge Heaters
(240 VAC, Type J Thermocouple, 36" Long Leads)

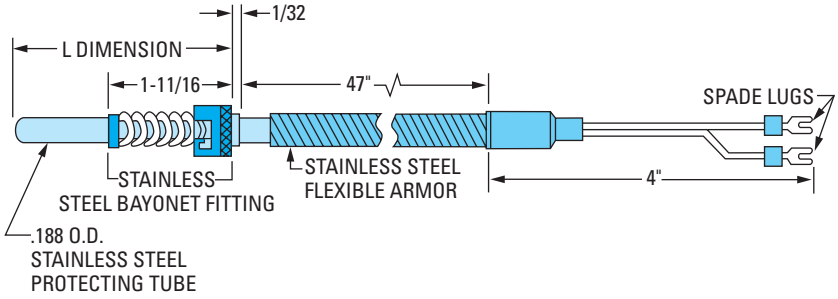
DIAMETER	LENGTHS IN	LENGTHS cm	VOLTS	WATTS	ITEM NUMBER
3/8" (9.42mm)	1 3/4	4.445	240	200	TCH0001
	2	5.08	240	250	TCH0002
	2 1/2	6.35	240	250	TCH0003
	3	7.52	240	250	TCH0004
	3 1/2	8.39	240	320	TCH0005
	4	10.15	240	370	TCH0006
	4 1/2	11.43	240	420	TCH0007
	5	12.70	240	470	TCH0008
	5 1/2	13.97	240	525	TCH0009
	6	15.24	240	575	TCH0010
	6 1/2	16.51	240	625	TCH0011
	7	17.78	240	675	TCH0012
	7 1/2	19.05	240	725	TCH0013
	8	20.32	240	775	TCH0014
1/2" (12.50mm)	3 1/2	8.89	240	420	TCH0015
	4	10.16	240	480	TCH0016
	4 1/2	11.43	240	550	TCH0017
	5	12.70	240	625	TCH0018
	5 1/2	13.97	240	700	TCH0019
	6	15.24	240	775	TCH0020
	6 1/2	16.51	240	850	TCH0021
	7 1/2	19.05	240	975	TCH0022

Thermocouples

D-M-E Bayonet Thermocouples are made of 20 gauge stranded glass-insulated wires. The grounded hot junction is in the end of a .188 O.D. stainless steel protecting tube for fast response and long life. Tube features a round tip and is fitted with a stainless steel spring loaded bayonet fitting. Lead wires are protected by rugged .188 I.D. flexible armor (lead wire calibration is ANSI Type J Iron/Constantan). Armor cable is 47" long; spade lugs are attached at the end of the lead wires for easy connection to terminal strip or plug.

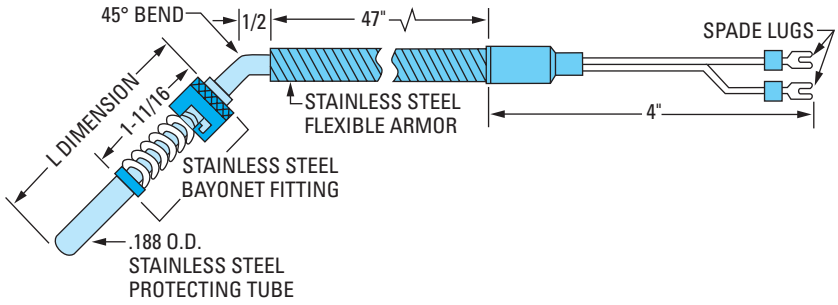
D-M-E Adjustable bayonet Type Thermocouples fit hole depths up to $10^1/_2$" and will conform to any angle.

D-M-E Spade Type Thermocouples are used between band heaters and machine nozzles in applications where space will not permit bayonet type thermocouples. The stainless steel spade is only .025 thick and can be easily contoured to fit various diameters.



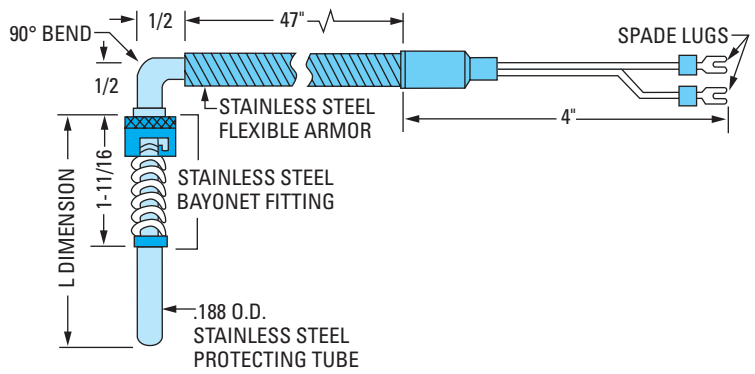
Straight Type

ITEM NUMBER	L
TC-2500	$2^1/_2$
TC-3500	$3^1/_2$
TC-6000	6"



45° Angle Type

ITEM NUMBER	L
TC-2545	$2^1/_2$
TC-3545	$3^1/_2$



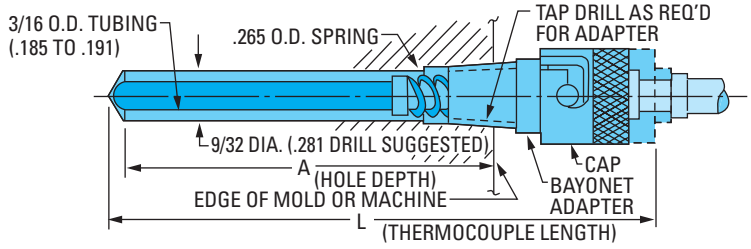
90° Angle Type

ITEM NUMBER	L
TC-2590	$2^1/_2$
TC-3590	$3^1/_2$
TC-6090	6"

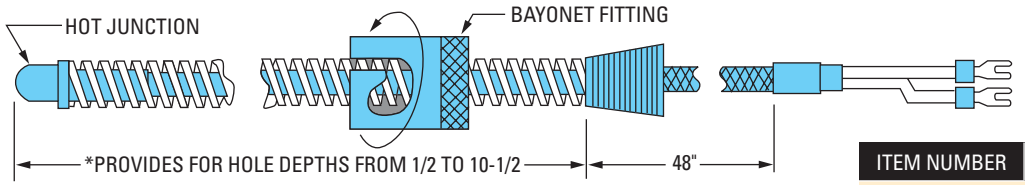
Thermocouples and Accessories

Hole Depth Chart

L THERMOCOUPLE LENGTH	A HOLE DEPTH FOR ADAPTER LENGTH	
	7/8	1 3/8
2 1/2	1" TO 1 3/8	1/2 TO 7/8
3 1/2	2" TO 2 3/8	1 1/2 TO 1 7/8
6"	4 1/2 TO 4 7/8	4" TO 4 3/8
10 1/2 ADJ.	1/2 TO 10 1/2	1/2 TO 10"



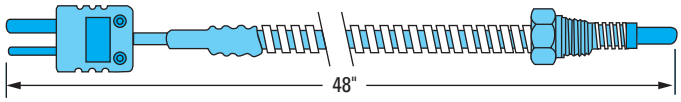
Adjustable Thermocouple



ITEM NUMBER
TC-8000

By turning the adjustable bayonet fitting along the spring, the D-M-E Adjustable Thermocouple can be set for the desired immersion length, from 1/2" to 10 1/2". Spring will conform to any angle. Hot junction of ANSI Type J I/C calibrated leads is inside round tip. Flexible metal braid is 48" long with 2 1/2" of lead wires at the end and spade lugs for ease of connection.

Threaded Type Thermocouple

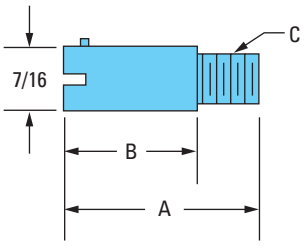


ITEM NUMBER
TCT-4

Threaded type thermocouple is spring loaded and supplied with cable and mini plug.

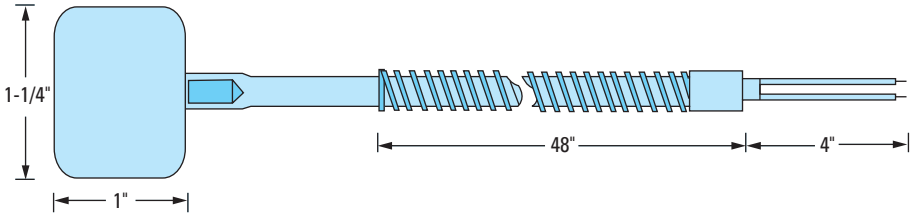
Bayonet Adapters

The stainless steel bayonet adapters accommodate the spring loaded bayonet fitting on the thermocouple, to bottom the hot junction where temperature sensing is desired. Adapter requires tapped hole for mounting.



ITEM NUMBER	A	B	C
BA1007	7/8	.465	1/8-27 NPT
BA1013	1 3/8	.934	1/8-27 NPT
BA4007	7/8	.465	3/8-24 NF
BA4013	1 3/8	.934	3/8-24 NF

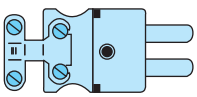
Spade Type Thermocouple



Used between band heaters and machine nozzles in applications where space will not permit bayonet type thermocouples. Stainless steel spade measures 1" x 1 1/4 x .025 thick and can be easily contoured to fit various diameters. Thermocouple is Type J I/C. Flexible stainless steel armor cable is 48" long with 4" of lead wires at the end.

ITEM NUMBER
TC-9000

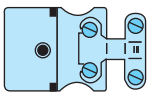
Plug (with Cable Clamp)



ITEM NUMBER
PL-10

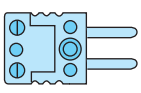
ROUND PINS AND SOCKETS (3/16 & 1/8)

Jack (with Cable Clamp)



ITEM NUMBER
PL-20

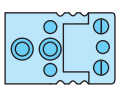
Mini Plug



ITEM NUMBER
M2MJ

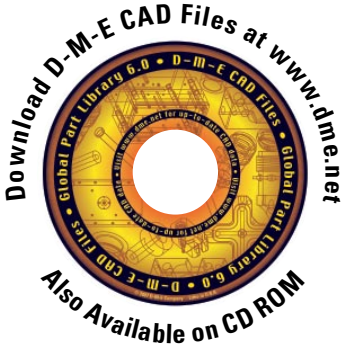
FLAT PINS AND SOCKETS

Mini Jack



ITEM NUMBER
M2F-J

D-M-E, an essential resource to the customers it serves worldwide, offers the industry's broadest range of market-leading products, unsurpassed knowledge and expertise, a global logistics infrastructure that ensures speed and accuracy, and a support organization unrivaled for its ability to assist customers when and where they need it. A complete line of hot runner systems, control systems, mold bases, MUD quick-change mold systems, mold components, moldmaking and molding equipment supplies, and technical services helps customers compete every step of the way.



D-M-E
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