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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 DME trademarked or trademarked 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 transportation charges 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 such time as we are satisfied with the balance of the material as scrap.

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 of 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, made-to-order items, date-sensitive products, or items not shown in our catalog are considered non-returnable. 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 an 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.
MOLD COMPONENTS
Sales and Ordering Information

U.S.A.

TERMS AND CONDITIONS OF SALE: See previous page.

PHONE ORDERS – TOLL FREE: 800-626-6653. DME’s Customer Service Dept. operates Monday through Friday from 7 a.m. to 7 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 DME products or services, provide on-the-spot feedback on product availability and shipping details, or take any messages you wish relayed to your local DME sales, manufacturing or technical service representatives.

MAIL ORDERS: If you prefer to order by mail, please address your order to:
- DME Company, 29111 Stephenson Highway, Madison Heights, Michigan 48071-2330
  ATTN: Customer Service Dept.

FAX: You may fax your order to:
- DME Customer Service
  888-808-4363

EMAIL: You may email your order to:
- DME Customer Service
  customer_service@dme.net

eStore: store.milacron.com

CHECKS OR MONEY ORDERS: When paying invoices by check or money order, please make payable to DME Company. Include remittance copy of invoice and mail to:
- DME Company, Department Lock Box 774867, 4867 Solutions Center, Chicago, IL 60677-4008

WALK-IN ORDERS, PICK-UPS AND RETURNS: If desired, ordered products in stock at your nearest DME 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 DME manufacturing location nearest you. Call our toll-free number if desired to clarify location which serves your area.

Estimating locations are:
- 29111 Stephenson Highway, Madison Heights, MI 48071, FAX: 888-808-4363
- 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

Please add “DME 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: DME Company, 6210 Northwest Drive, Mississauga, Ontario L4V 1J6.

CHECK OR MONEY ORDERS: Make payable to DME Company. Include remittance copy of invoice and mail to Mississauga address above.

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

FACILITATING GREATER MOLDING PRODUCTIVITY THROUGH SLIDE ACTION INNOVATION
SLIDE ACTION COMPONENTS
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Slide Retainers........................................12 to 24
Mini-Might® and Smart-Lock® designed to be small in size yet strong in holding capacity

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Supplied with a pre-machined spherical radius on the head to eliminate angle grinding

Wear Plates............................................. 30 to 37
Bronze-plated, self-lubricating wear surfaces for long-lasting results

Gib Assemblies...................................... 38 to 45
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The “Stay-Put” Lubricant

Visit store.milacron.com for the latest pricing, product availability and online ordering.
# Slide Action Components

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SLIDE ACTION COMPONENTS

Mini-Might® Slide Retainers

• Three sizes with retaining ratings for 10, 20 and 40 lbs.
• Small in size yet strong holding capacity
• Product design facilitates easy installation
• Slide can be removed without removing the slide retainer from the mold
• Self-contained design
• Line contact engagement

Installation Dimensions
for Machining V-Groove in Slide

![Image of slide retainers](image)

-0.005
+.005
V-GROOVE
DEPTH (TO THEORETICAL
SHARP CORNER)

90°

SLIDE

0.060 RADIUS
TYP

NOTE: See “Pocket Dimensions” for additional information.

Material: Hardened H-13 Steel (Body and Plunger)

All items in stock.

HOW TO ORDER: Use Item Numbers in charts for ordering.

*Each includes: slide retainer assembly, retaining key and #10-24 x .50 long flat head screw. Replacement parts are special order.

---

Dimensional Information
for Mini-Might® Slide Retainers – PSR

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>V-GROOVE DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSR1000</td>
<td>.091</td>
</tr>
<tr>
<td>PSR2000</td>
<td>.153</td>
</tr>
<tr>
<td>PSR4000</td>
<td>.194</td>
</tr>
</tbody>
</table>

*V-groove in slide will compress plunger approximately .01 to .03

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>MAXIMUM RECOMMENDED HOLDING WEIGHT</th>
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</thead>
<tbody>
<tr>
<td>PSR1000</td>
<td>10 POUNDS</td>
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<tr>
<td>PSR2000</td>
<td>20 POUNDS</td>
</tr>
<tr>
<td>PSR4000</td>
<td>40 POUNDS</td>
</tr>
</tbody>
</table>

Material: Hardened H-13 Steel (Body and Plunger)
**SLIDE ACTION COMPONENTS**

*Mini-Might® Slide Retainers*

**Typical Application**

---

**Todoes:**

1. Lubricate all metal-to-metal contact areas before first use and every 100,000 cycles (or more frequently as required). Use a good grade of moldmakers’ non-melting type grease rated for the operating temperature to be encountered.

2. Replace compression spring every 1,000,000 cycles or as required.

3. Do not operate at temperatures exceeding 250°F.

---

**Pocket Dimensions**

*for Mini-Might® Slide Retainers – PSR*

**NOTE:** Use .028 thick spacer under retaining key when mold has been machined for .500 thick wear plate. Mold maker to machine to suit.

**NOTE:** .500 thick wear plate can also be used to key and retain Mini-Might slide retainer instead of retaining key. Mold maker to machine to suit.

---

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø K</th>
<th>Ø L</th>
<th>Ø M</th>
<th>N DIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSR1000</td>
<td>.625</td>
<td>.869</td>
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<td>.670</td>
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<td>PSR2000</td>
<td>.750</td>
<td>.987</td>
<td>1.06</td>
<td>.715</td>
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<td>PSR4000</td>
<td>.875</td>
<td>1.105</td>
<td>1.19</td>
<td>.763</td>
</tr>
</tbody>
</table>
SLIDE ACTION COMPONENTS
SmartLock® Slide Retainer and Limit Switch

Available via

store.milacron.com

(U.S. Patent No. 6,126,429)

The SmartLock® slide retainer and limit switch is designed for injection molders to provide switching and a slide detent in one unique package. The SmartLock locking function prevents premature slide movement during molded part ejection while the SPDT switch is simultaneously actuated.

The SmartLock slide retainer and limit switch has been tested for reliability over 10 million cycles without failure. Two or more switches may be used for larger molds, or molds with multiple slides. Slide position verification and prevention of mold damage results when the Smartlock slide retainer and limit switch is installed in a mold.

• Prevents damage caused by premature slide movement
• 17 to 27 pounds holding force – adjustable for optimum operation
• 175°F (79.4°C) standard temperature rating enables use for most molding applications
• Quality tested over 10 million cycles to provide long, dependable service
• Flush-mounted switch is shielded from damage by mounting inside a protective milled pocket
• Stripped and tinned 6 ft. wire leads make the switch ready to install without modification
• Mounting screws and wire clips supplied for neat and easy installation

NOTE: Please contact DME for high-temperature applications.

MATERIALS
SWITCH ASSEMBLY BODY FIBERGLASS-REINFORCED NYLON
PLATE HARDENED STEEL
PLUNGER ASSEMBLY HARDENED STEEL
WIRE LEADS 22GA STRANDED, 3 CONDUCTOR, SHIELDED CABLE, 6 FT. (1.8M) LONG, ENDS STRIPPED AND TINNED

SPECIFICATIONS
BREAK-AWAY 17 TO 27 LBS.
FORCE (USER ADJUSTABLE)
ELECTRICAL 250VAC/28VDC
4 AMPS INDUCTIVE
5 AMPs RESISTIVE
REQUIRES 3-PIN CONNECTOR WITH MINIMUM RATINGS LISTED ABOVE
OPERATING TEMPERATURE 175°F MAX.
(79.4°C MAX.)
SWITCHING SPDT

SmartLock® Slide Retainer and Limit Switch – SLS2220

Available via

store.milacron.com

4mm/0.157in CENTER OF PLUNGER TO CENTER OF SWITCH ASSEMBLY

4mm/0.157in CENTER OF PLUNGER TO CENTER OF SWITCH ASSEMBLY

SmartLock Slide Retainer and Limit Switch – SLS2220

NOTE: Please contact DME for high-temperature applications.
SLIDE ACTION COMPONENTS
SmartLock® Slide Retainer and Limit Switch

The SmartLock switch is designed for use in very low power mold protection control circuits. It is not intended to switch heavy loads in power applications.

Rated Current vs. Steel Temperature – SLS2220

<table>
<thead>
<tr>
<th>AMPS</th>
<th>°F</th>
<th>°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>85</td>
<td>29.4</td>
</tr>
<tr>
<td>4.0</td>
<td>120</td>
<td>49.0</td>
</tr>
<tr>
<td>3.0</td>
<td>155</td>
<td>68.3</td>
</tr>
<tr>
<td>2.0</td>
<td>175</td>
<td>79.4</td>
</tr>
</tbody>
</table>

Parts Included in SmartLock Slide Retainer and Limit Switch – SLS2220

- Switch Assembly
- Switch Mounting Screws (#6-32 X 3/8” Flat Head) 2
- Wire Clamps (5’ X .82” X .15” With .213” Mounting Hole) 2
- Wire Clamp Screws (#10-24 X 1/2” Button Head) 2
- Plunger Assembly 1
- PLUNGER, SMALL - SLP222A
- PLUNGER SPRING - SLPS222
- INSTRUCTION SHEET 1

SmartLock includes 2 wire clamps.

Suggested machining and wire routing.

Rated Current vs. Steel Temperature – SLS2220

<table>
<thead>
<tr>
<th>AMPS</th>
<th>°F</th>
<th>°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>85</td>
<td>29.4</td>
</tr>
<tr>
<td>4.0</td>
<td>120</td>
<td>49.0</td>
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<tr>
<td>3.0</td>
<td>155</td>
<td>68.3</td>
</tr>
<tr>
<td>2.0</td>
<td>175</td>
<td>79.4</td>
</tr>
</tbody>
</table>

Break-away Force vs. Bore Depth

[Bore Depth D (Inches)]
SLIDE ACTION COMPONENTS
Slide Retainer Assemblies

The DME Slide Retainer provides a compact and economical means of slide retention, which makes obsolete the cumbersome external spring or hydraulic methods. Its simple and positive operation makes it equally suitable for new tooling design or retrofitting existing molds. Available in three sizes with increasing weight-holding capacities, the Slide Retainers can be used individually or in multiples for larger or heavier slides.

Generally mounted behind and below the slide (see drawing at right), the DME Slide Retainer is a compact unit that can be entirely contained within the mold. Interference with machine tie bars or safety gates is no longer a problem. (It can even be installed completely underneath the slide if space is limited.)

As the mold opens, the dowel pin installed in the slide positively locks into the retainer until disengaged by the mold’s closing action. The custom-designed spring placed crosswise in the retainer maintains the force required to keep the dowel pin in the jaws when the mold is open.

The Slide Retainer is designed with a generous lead-in at the jaw opening so the dowel pin will enter the jaws even if there is a slight misalignment between the retainer and the pin.

SLIDE RETAINER ASSEMBLY

<table>
<thead>
<tr>
<th>ITEM</th>
<th>NUMBER</th>
<th>MAXIMUM \NEWLINE RECOMMENDED \NEWLINE HOLDING WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSL0001</td>
<td>22 POUNDS</td>
<td></td>
</tr>
<tr>
<td>PSL0002</td>
<td>44 POUNDS</td>
<td></td>
</tr>
<tr>
<td>PSL0003</td>
<td>88 POUNDS</td>
<td></td>
</tr>
</tbody>
</table>

HOW TO ORDER:
Use Item Numbers in charts for ordering.

Material: Investment Cast from 8620 steel
Hardness: Case-Hardened 58-62 HRC

*Includes top and bottom jaw plate, compression spring, shoulder screw with thread locking element and dowel pin.

*Dimension F, the distance from dowel pin centerline at end of slide travel and centerline of shoulder screw, is important. Overtravel of dowel pin beyond clearance provided at back of jaw area could result in damage to retainer.

<table>
<thead>
<tr>
<th>ITEM† NUMBER</th>
<th>MAXIMUM \NEWLINE RECOMMENDED \NEWLINE HOLDING WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSL0001</td>
<td>22 POUNDS</td>
</tr>
<tr>
<td>PSL0002</td>
<td>44 POUNDS</td>
</tr>
<tr>
<td>PSL0003</td>
<td>88 POUNDS</td>
</tr>
</tbody>
</table>

NOTE:
To prevent the dowel pin from contacting and applying pressure against the back of the retainer jaw (which could cause bending or shearing of the dowel pin or hold-down shoulder screw) the installation dimensions shown on these pages are recommended.
Pocket Dimensions/Installation Guidelines
(Slide Retention Application Shown)

Section A-A

Pocket must provide support for slide retainer positioning guides in areas specified by dimension P on both sides of slide retainer. If nut or retainer is surface mounted, centering guide blocks must be added to provide support in these areas.

Pocket clearance must always be maintained under the head of the shoulder screw. After installation with shoulder screw firmly tightened, check to be sure slide retainer is completely free to pivot.

Use set screw to lock dowel pin in place as required.

Tapped hole must not be countersunk.

A positive stop block must be installed and properly located to prevent dowel pin from applying pressure against back of jaw area.

.06 min. clearance below slide (or plate)

Clearance must always be maintained underneath the head of the shoulder screw.

Retrofit Data for Molds with Previous Design Slide Retainers

**Dimension T is for reference only. See charts and application drawings to determine specific installation dimensions.

**NOTES:**
1. Dimension F, the distance from dowel pin centerline at end of slide travel and centerline of shoulder screw, is important. Overtravel of dowel pin beyond clearance provided at back of jaw area could result in damage to retainer.

**NOTES:**
1. Lubricate all metal-to-metal contact areas before first use and every 100,000 cycles (or more frequently as required). Use a good grade of moldmakers' non-melting type grease rated for the operating temperature to be encountered.
2. Do not operate at temperatures exceeding 225°F.
3. If two or more retainers are used, mount them uniformly to provide a balanced operation. Retainer sizes should not be mixed in a multiple retainer application.
4. Surface to which retainer is mounted should not prevent retainer from pivoting freely.
5. Replace retainer assembly and/or dowel pin when total wear in jaw area or on dowel pin exceeds .010.
6. Replace compression spring every 1,000,000 cycles or as required, following procedures packaged with retainer.

HOW TO ORDER: Use Item Numbers in charts for ordering. All items in stock.

A. Existing pocket and tapped hole for previous slide retainer (MRT22, 44 or 88).
B. Drilling, tapping and counterboring for shoulder screw at new location is required per drawing and chart dimensions.
C. Existing pocket must provide support for retainer positioning guides in areas designated by dimension P or centering guide blocks must be added.

Table:

<table>
<thead>
<tr>
<th>Item Number</th>
<th>F</th>
<th>P</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>R</th>
<th>Tapped Hole and Tap Depth Below C'Bore</th>
<th>L</th>
<th>C'Bore</th>
<th>M</th>
<th>C'Bore Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSL0001</td>
<td>0.980</td>
<td>0.61</td>
<td>1.35</td>
<td>.39</td>
<td>1.00</td>
<td>0.31</td>
<td>#10-24 X .50 DEEP</td>
<td>.249</td>
<td>.310</td>
<td></td>
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</tr>
<tr>
<td>PSL0002</td>
<td>1.375</td>
<td>0.88</td>
<td>1.81</td>
<td>.56</td>
<td>1.50</td>
<td>0.37</td>
<td>1/4-20 X .56 DEEP</td>
<td>.3115</td>
<td>.430</td>
<td></td>
<td></td>
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<tr>
<td>PSL0003</td>
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<td>2.75</td>
<td>.88</td>
<td>2.00</td>
<td>0.50</td>
<td>5/16-18 X .62 DEEP</td>
<td>.374</td>
<td>.580</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Ref Only**
SLIDE ACTION COMPONENTS

Slide Retainer®
- PSL0001
- PSL0002
- PSL0003

Smart Lock® Slide Retainer
- SLS2220

Mini-Might® Slide Retainer
- PSR1000
- PSR2000
- PSR3000

Mold Open
Step 1: Mold is open, sliding cores are in position for molding parts.

Ejection
Molded part ejects. After ejection the mold may close. Angle pins will mate up with angle pin holes in sliding cores, pushing sliding cores towards the stationary cores.

Angle Pins– APD

Material: H-13 Type Steel, 65-74 HRC Nitrided Surface, 30-35 HRC Core

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Ø A*</th>
<th>B</th>
<th>C</th>
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<td>1.375</td>
<td>32</td>
<td>100</td>
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<tr>
<td>APD0305</td>
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<td>100</td>
</tr>
<tr>
<td>APD0305</td>
<td>1.375</td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>

See DME Standard Angle Pin Inserts, pre-machined for 10°, 15° or 20° angles.

Installation Notes
1. Ø A dimensions specified for hole will provide approximately .000 to .001 clearance with the Ø P or press fit area of the angle pins. Moldmaker to adjust Ø A hole dimensions to obtain specific fit required.
2. Cut angle pin to length as required to achieve desired travel on slide. Typically, a spherical radius or cone shape with a spherical radius is machined on end of angle pin (opposite the head).
3. Spherical radius on head is suitable for angles up to and including 20°.

All items in stock.

HOW TO ORDER: Use Item Numbers in charts for ordering.

DME Angle Pins are supplied with a pre-machined spherical radius on the head to eliminate angle grinding usually required on the pin head.
DME Angle Pin Inserts are pre-machined with 10°, 15° or 20° angle holes and are supplied with a flat machined to facilitate keying to prevent rotation. They are sized to accommodate DME standard angle pins.

- Pre-machined with 10°, 15° or 20° angle hole... eliminates costly angle set-ups and machining
- 51 size/angle combinations to suit most applications

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>D.A. HOLE</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H FLAT</th>
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<tbody>
<tr>
<td>API4203</td>
<td>10°</td>
<td>.283</td>
<td>.283</td>
<td>.750</td>
<td>.125</td>
<td>.219</td>
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<td>API4153</td>
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<td>.750</td>
<td>.125</td>
<td>.219</td>
<td>.650</td>
<td></td>
</tr>
</tbody>
</table>

**Typical Application**

Material: AISI 420 Type Stainless Steel  
Hardness: 32-38 HRC

**NOTE:** Mold making and installation data is available. Contact DME.
SLIDE ACTION COMPONENTS

Metric Angle Pins (Guide Pins)

Can be used as angle (CAM) pins or as straight leader pins.

Material: DIN 1.7131 (AISI 5115 Type) Steel

TYPE: APD

Metric ISO Tolerances

<table>
<thead>
<tr>
<th>NOMINAL SIZE (MM)</th>
<th>TOLERANCE (MM)</th>
</tr>
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<tbody>
<tr>
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<td>UNDER</td>
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<tr>
<td>0</td>
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<tr>
<td>0</td>
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<tr>
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</tr>
</tbody>
</table>

800-1100 N/mm² (Ref. Only ~27±5 HRC)

80 ± 2 HRC

R4

Ra3.2

Ra0.8

60 ± 2 HRC

HOW TO ORDER: Use Item Numbers in charts for ordering.

Available via

eSTORE

store.milacron.com
SLIDE ACTION COMPONENTS

Bronze-Plated Wear Plates

DME Bronze-Plated Wear Plates provide a long-lasting wear surface for Bronze-Plated molds requiring slides, cams or flat surfaces where frictional wear is a factor.

- Bronze plating of .008 to .010 thickness applied to the top surface of flat steel plates
- Close tolerance on thickness of +.000/-.002
- Easy to machine, saving time and tools
- No pre-drilled holes – allows flexibility in mounting patterns

**SLIDE ACTION COMPONENTS**

**Bronze-Plated Wear Plates – WPB**

<table>
<thead>
<tr>
<th>A (INCHES)</th>
<th>WEIGHT LBS. PER INCH*</th>
<th>T (INCH)</th>
</tr>
</thead>
<tbody>
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*To calculate weight, multiply the weight per inch by the number of inches (length) desired.*

**NOTE:**

Wear Plate lengths are available in one-inch increments. Cut length is provided with an additional 1/16 to 1/8 inch in length for machining. Minimum cut length is 3 inches (76.2mm).
Bronze-Plated Wear Plates – Metric

DME Bronze-Plated Wear Plates provide a long-lasting wear surface for Bronze-Plated molds requiring slides, cams or flat surfaces where frictional wear is a factor.

- In order to be flat this material must be fastened to a flat surface
- Parallel 0.025in. (0.635mm) within 47.992in. (1219mm)
- Thickness of bronze: 0.20in. to 0.25in. (5.08mm to 6.35mm)
- Milled edges

Standard wear strips are plated on one side only. Up to four sides can be plated; call DME for a cost quotation.

**NOTE:**
Machining may cause distortion which can result in the loss of flatness of the part. Once altered, DME will not replace wear strips.

DME offers custom wear strips that meet your application needs. Please send your prints to DME@dme.net to receive a cost quotation.

**NOTE:**
Wear Plate lengths are available in 1in. (25.4mm) increments.
Minimum cut length is 3in. (76.2mm.)

### ITEM NUMBER BY 1 IN. (25.4mm) THICKNESS WIDTH

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All items in stock.

**WHEN ORDERING, PLEASE SPECIFY:**
1. Item numbers from tables
2. Plate length
3. Number of pieces
4. Method of shipment
SLIDE ACTION COMPONENTS
Self-Lubricating Wear Plates

Self-Lubricating Wear Plates – SLP

Material: Aluminum Bronze with Graphite Plugs
Hardness: 179 BHN

DME Self-Lubricating Wear Plates provide a long-lasting wear surface for molds requiring slides, cams or flat surfaces where frictional wear is a factor.

- Low coefficient of friction
- No pre-drilled holes – allows flexibility in mounting patterns
- Standard plug pattern designed for maximum surface lubrication
- Close tolerance to ease installation

Available Models:

- SLP0444 2.50 (0.625 ± 0.001)
- SLP0446 3.00 (0.750 ± 0.001)
- SLP0448 3.50 (0.875 ± 0.001)
- SLP0450 4.00 (1.000 ± 0.001)
- SLP0452 4.50 (1.125 ± 0.001)
- SLP0454 5.00 (1.250 ± 0.001)

All items in stock.

HOW TO ORDER: Use Item Numbers in charts for ordering.
**SLIDE ACTION COMPONENTS**

**Self-Lubricating Wear Ways**

- Well-suited for custom applications
- Standard plug pattern facilitates cutting to a variety of lengths
- No pre-drilled holes – allows flexibility in mounting patterns

**Self-Lubricating Wear Ways – SLW**

Material: Aluminum Bronze with Graphite Plugs
Hardness: 179 Bhn

DME Self-Lubricating Wear Ways are supplied in 40-inch lengths. The plug pattern is consistent throughout the surface of the Wear Way, so that the Wear Way may be cut to a variety of lengths. Mounting holes are not supplied so that they may be drilled to suit custom applications.

Typical mounting procedure is to machine out the plug location to use for mounting screws. (See “Suggestions for Fastening” below.)

**Suggestions for Fastening**

Typical mounting procedure is to use plug location for screw location.

**ITEM NUMBER | T THICKNESS | A WIDTH**

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**ITEM NUMBER | T THICKNESS | A WIDTH**

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All items in stock.

**WHEN ORDERING, PLEASE SPECIFY:**

1. Item Numbers from charts
2. Quantity
3. Method of shipment
SLIDE ACTION COMPONENTS

Self-Lubricating Gib Assemblies

Material: Aluminum Bronze with Graphite Plugs

Hardness: 179 Bhn

- Standardized assembly
- Wide variety of applications
- Easily installed in pre-machined pocket
- Reduces design and assembly time

The Gib Assembly includes three components: two L-Gibs and a Base Plate. The L-Gibs are provided with screw holes and are spot-drilled for dowels; the Base Plate includes thru holes to allow for easy assembly.

### Self-Lubricating Gib Assemblies – SLA

#### Material:
Aluminum Bronze with Graphite Plugs

#### Hardness:
179 Bhn

#### Base Plates for Assemblies

#### Material:
Aluminum Bronze with Graphite Plugs

#### Hardness:
179 Bhn

### Item Numbers

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### NOTES:

1. Tolerances not noted are ±.010, Hole locations are ±.005.
2. Graphic plug pattern varies by product size.

### Base Plates for Gib Assemblies – SBP

#### Material:
Aluminum Bronze with Graphite Plugs

#### Hardness:
179 Bhn

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### FOR ITEM NO. SBP1001

HOLE LOCATIONS ONLY

- .28 DIA. THRU HOLE S.H.C.S. HOLE QTY. SEE CHART FOR SBP1001 THRU SBP4003
- .34 DIA. THRU HOLE S.H.C.S. HOLE QTY. SEE CHART FOR SBP1001 THRU SBP4003
**SLIDE ACTION COMPONENTS**

L-Gibs for Gib Assemblies

- **L-Gibs for Gib Assemblies – SGA**
  - **Material:** Aluminum Bronze with Graphite Plugs
  - **Hardness:** 179 Bhn

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**NOTES:**

1. Tolerances not noted are ±0.010. Hole locations are ±0.005.
2. Graphic plug pattern varies by product size.

**WHEN ORDERING PLEASE SPECIFY:**

1. Item Numbers from charts
2. Quantity
3. Method of shipment

**All items in stock.**

**DME Industrial Supplies has tens of thousands of products to fill your MRO needs.**

- **Equipment** - conveyors, loaders, dryers, dumpers, hoppers, storage bins, MoldVac
- **Machine Parts** - feed screws, barrels, mixing nozzles, nozzle filters, nozzle tips, rupture disks
- **Tooling Supplies** - quick ejector tie-in systems, swivel lifting shackles, hoist rings & magnets
- **Shop Supplies** - hand tools, brushes, fans, files, pry bars, cleaning pads, desiccant
- **Cooling Products** - flowmeters & regulators, manifolds, sockets & plugs, elbows, hose
- **Temperature & Voltage Control** - mold & cable checkers, heater bands, temperature controllers
- **Cutters & Trimmers** - gate cutters (hand, heated & pneumatic), deburring tools, knives
- **Releases, Lubricants & Adhesives** - SLIDE releases & cleaners, diamond compound, sealants
- **Safety Supplies** - gloves, glasses, ear plugs, spill control socks, pillows & wipes, hand cleaners
SLIDE ACTION COMPONENTS

Bronze-Plated L-Gibs – LGB

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Typical Applications of L-Gibs and Wear Plates

Bronze-Plated L-Gibs

- Low coefficient of friction
- No pre-drilled holes – allows flexibility in mounting patterns
- Close tolerance

DME Self-Lubricating L-Gibs provide a long-lasting wear surface for high-production molds using slides and cams. L-Gibs are easy to machine and can be shaped to any configuration, requiring no special tools.

They are supplied with no pre-drilled holes, providing the designer with flexibility in mounting patterns. This allows the designer to work around water lines and other components in the mold.

Self-Lubricating L-Gibs – SLG

Material: Aluminum Bronze with Graphite Plugs

Hardness: 179 Bhn

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NOTES:
1. Tolerances are ±.010 unless otherwise indicated.
2. Graphic plug pattern varies by product size.

When ordering, please specify:
1. Item Numbers from charts
2. Quantity
3. Method of shipment

All items in stock.
SLIDE ACTION COMPONENTS
Self-Lubricating L-Gibs – Metric

- Plastics injection molds
- Special machines
- Press gibbing
- Special slide applications

DME Self-Lubricating L-Gibs provide a long-lasting wear surface for high-production molds using slides and cams. L-Gibs are easy to machine and can be shaped to any configuration, requiring no special tools.

Self-Lubricating L-Gibs – Metric

DME Self-Lubricating L-Gibs – Metric

Self-Lubricating Square Gibs – SSG

Material: Aluminum Bronze with Graphite Plugs
Hardness: 179 Bhn

WHEN ORDERING, PLEASE SPECIFY:
1. Item Numbers from tables
2. Quantity
3. Method of shipment

SLIDE ACTION COMPONENTS
Self-Lubricating Square Gibs

- Plastics injection molds
- Special machines
- Press gibbing
- Special slide applications

DME Self-Lubricating Square Gibs

Self-Lubricating Square Gibs – SSG

Material: Aluminum Bronze with Graphite Plugs
Hardness: 179 Bhn

WHEN ORDERING, PLEASE SPECIFY:
1. Item Numbers from charts
2. Quantity
3. Method of shipment

NOTES:
1. Tolerances are ±0.010 unless otherwise indicated.
2. Graphic plug pattern varies by product size.
DME HYDRAULIC LOCKING CORE PULL CYLINDERS FOR PLASTICS AND DIE CAST TOOLS

ENABLING COST-SAVING MOVEMENT OF SLIDING CORES

Product Benefits

- Withstands high loads
- Large locking surfaces promote extended service life
- Pulls sliding cores in injection molds and die cast tools
- Withstands temperatures up to 356°F (180°C)*
- Proximity sensors recognize full forward and full reverse

*Refer to Note #1.

System Cost Savings

Cost savings achieved when the Hydraulic Locking Core Pull Cylinder is used instead of traditional methods:

- Mold design and manufacturing time
- Mold fitting and assembly time
- Mold maintenance time
- Material cost (smaller mold base required)
- Cycle time reduction

NOTES:

1. When using proximity sensors standard to Core Pull Cylinders, the cylinder assembly will withstand temperatures up to 212°F (100°C).
2. When an external method for sensing sliding core position is used, the cylinder assembly will withstand temperatures up to 356°F (180°C).
3. Proximity sensors are replaced by plugs - Item# (WD81NANON)

Improved sensor design with LED indicator

HYDRAULIC LOCKING CORE PULL CYLINDERS

Benefits, Cost Savings and Product Overview
HYDRAULIC LOCKING CORE PULL CYLINDERS

Benefits, Cost Savings and Product Overview

Product Overview
When designing molds with sliding cores, the mold designer is often faced with the challenge of fitting all traditional components in as small a mold base as possible. There are different methods of actuating a sliding core, the most common of which uses horn or angle pins (Fig. 1) to move the slide when the mold opens or closes. Heel blocks are normally used behind the sliding core to withstand injection pressure acting on the sliding core. Not only do these components use up precious mold space, but they are tied to the movement of the platen. Some molded parts also require that the sliding core be moved prior to opening a mold. While it is possible to use standard cylinders (Fig. 2) to actuate the sliding core or heel block, typical designs require additional mold design and machining, and waste mold space.

HYDRAULIC LOCKING CORE PULL CYLINDERS

The Hydraulic Locking Core Pull (HLCP) Cylinder replaces traditional slides and heel blocks, enabling independent movement of the sliding core while eliminating the need for a heel block. By using a segmented ring that presses into an internal groove inside the cylinder assembly while in closed position, the injection pressure from the part cavity acts against the cross section of the segmented ring, eliminating the need for heel blocks.

Eliminating separate heel blocks or additional cylinders can result in a smaller mold base size, simplifying mold designs and increasing cost savings!

The HLCP Cylinder is a robust, compact design. Available in seven sizes, each size has two available standard strokes. Due to the modular design of the HLCP Cylinder, special strokes are available upon request with quick delivery. The cylinder is constructed of hardened steel for extra long service life. Because of the cylinder’s special design and breadth of assembly sizes available, a wide range of holding forces are possible with a hydraulic holding pressure of only 870 PSI minimum.

NOTES: Special stroke lengths are available upon request. Shown with required spacer used for setting preload when shutting off on core face.

Fig. 1. Slide Movement example using an angle pin and locking with a heel block (wedge).

Fig. 2. Slide Movement example using a hydraulic cylinder to actuate slide, and a separate cylinder to actuate the heel block.

Fig. 3. Slide Movement example using the Hydraulic Locking Core Pull Cylinder.
## HYDRAULIC LOCKING CORE PULL CYLINDERS

### The HLCP Cylinder Advantage

The HLCP Cylinder operates between fully opened and fully closed positions, both of which are sensed by high pressure proximity sensors without any mechanical contact. The HLCP Cylinder has a built-in cushion at the fully retracted end of the piston stroke, extending the service life of the cylinder.

The HLCP Cylinder’s integral flange allows easy installation and mounts to the mold using socket head cap screws. Socket head cap screw sizes used for mounting the HLCP Cylinder to the mold are UNC-type. A spacer plate (shim) is supplied with the HLCP Cylinder for installation beneath the HLCP Cylinder flange, enabling fine adjustment in the mold. The spacer plate also provides important preload on the cylinder rod, particularly when the sliding core must shut off against the opposing wall of the core. Hydraulic fittings are NPTF-type fittings.

Due to the nature of the flange mounting design, the same size HLCP Cylinders are easily interchangeable. The cylinder’s flange and screw mounting method ensures that the proximity sensors will always be positioned in the same orientation when the HLCP Cylinder is installed to the side of the mold.

**NOTES:**

Sensors require power.*

* NPN and PNP sensors function in a similar manner, except the power supply polarities are reversed for each type. NPN inductive sensors are more common in North America, while PNP is more common in Asia and Europe. If PNP is not requested, the cylinders will be delivered with NPN sensors, even for special orders.

---

### TABLE

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<td>HLCP200-3500DW</td>
<td>3.50”</td>
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<td>HLCP750-6000DW</td>
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<td>105 mm</td>
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</table>

### HYDRAULIC LOCKING CORE PULL CYLINDERS

The HLCP Cylinder Advantage

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**NOTES:**

Sensors require power.*

* NPN and PNP sensors function in a similar manner, except the power supply polarities are reversed for each type. NPN inductive sensors are more common in North America, while PNP is more common in Asia and Europe. If PNP is not requested, the cylinders will be delivered with NPN sensors, even for special orders.
### The HLCP Cylinder Advantage

**HYDRAULIC LOCKING CORE PULL CYLINDERS**

**Mold Design & Installation Considerations**

Available in seven sizes, each size of the Hydraulic Locking Core Pull Cylinder has two available "standard" stroke lengths. If a stroke is required that is different than the available standard strokes, then a non-standard stroke design is required. When ordering this product, specify the required stroke if the available standard strokes are not suitable for the intended application.

### Hydraulic Locking Core Pull Cylinder Assembly Sizes

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**Slide Action Components**

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<tr>
<td>HLCP750-6000DW</td>
<td>225 mm</td>
<td>1000 mm</td>
<td>1/4</td>
</tr>
</tbody>
</table>

**Notes**

- **ITEM**: Item number for each component.
- **PART NAME**: Name of the component.
- **NOTES**: Additional information or instructions on the component.
The HLCP Cylinder maintains a sliding core in full back (retracted) or full forward (extended) positions. In order for the cylinder assembly to “lock”, the piston must be fully extended forward. This product’s provided spacer plate is placed between the front of the body flange and pocket installation. The spacer plate must be properly ground to ensure suitable fit at the desired mold operation temperature. The adjustment of the spacer plate is important for when the sliding core must “shut off” against an opposing core wall or face, so that plastic flashing is avoided.

Positional alignment of the cylinder assembly is achieved by aligning the forward collet of the cylinder body (protrudes forward of the mounting flange) into the mold plate via the outer diameter of the collet. The collet will protrude past the spacer plate. Rotational alignment of the overall assembly is achieved via the mounting screws, as rotational alignment is only used to position the proximity sensors and hydraulic fitting connections and/or hoses within the overall installation. The piston may freely rotate; therefore, if rotational alignment of the sliding core is required, rotational alignment of the sliding core must be achieved via other means.

While recommended installation pocket details are based on the cylinder assembly being recessed into the side of the mold plate, it is possible to have the cylinder assembly mounted fully “proud” of the side of the mold plate. However, positional alignment of the cylinder assembly to the mold plate requires the forward collet (protruding forward of the mounting flange of the cylinder body) to be recessed partially into the side of the mold. An overall installation adjustment is required to fit each application, while maintaining minimum clearances for the hydraulic fitting connections and/or hoses, as well as maintaining clearances for the proximity sensors.
**KRYTOX™ TM7 GREASE**
The ‘Stay-Put’ lubricant

**Extreme Conditions. Extreme Performance.**
Chemour Krytox™ TM7 grease is specifically designed for the lubrication of segmented molds, both electrically and steam-heated. This lubricant eliminates carbon residue buildup on the molds associated with hydrocarbon and hydrocarbon-based synthetic greases. It exhibits excellent adhesion and will not bleed out to the parting line due to high heat tolerance, allowing the operator to significantly increase production by extending lubrication intervals.

Krytox TM7 is a fluorinated grease with polytetrafluoroethylene (PTFE) thickeners and selected additives. It has excellent thermal stability and load-carrying abilities. TM7 has a high degree of chemical inertness and extremely high hydrolytic stability. Contact with boiling water or steam has no effect on this product, it will stay in the location it was applied, providing the best lubrication possible.

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**TYPICAL PROPERTIES OF Chemour Krytox™ TM7**

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<td>Estimation Useful Temperature Range</td>
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<td>Base Oil Viscosity, cSt</td>
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</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>100 °C (212 °F)</td>
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<td>Oil Volatility, % in 22 hr, 260 °C (500 °F), D972 modified</td>
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<td>Page</td>
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<tr>
<td>Typical Application</td>
<td>60</td>
</tr>
<tr>
<td>Core Blades</td>
<td>61-62</td>
</tr>
<tr>
<td>U-Couplings &amp; T-Gibs</td>
<td>63</td>
</tr>
<tr>
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<td>64</td>
</tr>
</tbody>
</table>
UNILIFTER® UNDERCUT RELEASING SYSTEM

Standard components simplify mold design and construction for release of molded undercut.
- Radiused dovetail design lets core blade seat automatically at the required angle.
- Smooth travel of U-Coupling in T-Gib eliminates heel binding often encountered in other fixed angle designs.
- Wide size selection covers more applications than similar standardized systems.
- H-13 core blades for easy conventional machining.
- Aluminum Bronze blades for high heat transfer application.

TYPICAL APPLICATION:
MOLD AND RELEASE INTERNAL UNDERCUT

Core Blades
Material: H-13 Steel
Hardness: 38-42 HRC

Flat Core Blades – INCH

<table>
<thead>
<tr>
<th>STYLE</th>
<th>SERIES (MPN)</th>
<th>R</th>
<th>HT</th>
<th>MT (MIN. THK.)</th>
<th>ITEM NUMBER</th>
<th>T x .000</th>
<th>W x .000</th>
<th>L x .000</th>
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Flat Core Blades – METRIC (dimensions in mm)

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<th>MT (MIN. THK.)</th>
<th>ITEM NUMBER</th>
<th>T x .000</th>
<th>W x .000</th>
<th>L x .000</th>
</tr>
</thead>
<tbody>
<tr>
<td>MiniLifter</td>
<td>.350</td>
<td>.350</td>
<td>.196</td>
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<tr>
<td>UniLifter</td>
<td>.500</td>
<td>.406</td>
<td>.187</td>
<td>.82</td>
<td>.49</td>
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Round Core Blades – INCH

<table>
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<th>SERIES (MPN)</th>
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<th>ITEM NUMBER</th>
<th>T x .000</th>
<th>W x .000</th>
<th>L x .000</th>
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</thead>
<tbody>
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<td>.25</td>
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<td>.75</td>
</tr>
<tr>
<td>UniLifter</td>
<td>.500</td>
<td>.406</td>
<td>.187</td>
<td>.82</td>
<td>.49</td>
<td>.750</td>
<td>.750</td>
<td>.10</td>
</tr>
<tr>
<td>XG-Lifter</td>
<td>1.000</td>
<td>.875</td>
<td>.375</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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Round Core Blades – METRIC (dimensions in mm)

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<th>HT</th>
<th>MT (MIN. THK.)</th>
<th>ITEM NUMBER</th>
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<th>W x .000</th>
<th>L x .000</th>
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<tr>
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<td>XG-Lifter</td>
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<td>1.00</td>
<td>1.00</td>
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<td>1.00</td>
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</tbody>
</table>

NOTE:
1. Thickness (T) and width (W) can be ground for fitting to insert pockets and/or to accommodate a nominal size molded detail.
2. Diameter (D) of round core blades is supplied ± .000/−.001" (or ±.025mm) for fitting in a bored hole or bushing.
UNILIFTER® UNDERCUT RELEASING SYSTEM

Core Blades
Material: Ampco 21
Hardness: 29 RC

Flat Core Blades – INCH
W T D L HT MW R MT

Round Core Blades – INCH
W T D L HT MW R MT

T-Gibs
Material: 4140 Pre-hardened Steel
Hardness – Surface: 60-70 RC
Hardness – Core: 38-42 RC

T-GIBS – INCH

T-GIBS – METRIC

T-GIBS – INCH

T-GIBS – METRIC

NOTE:
1. Thickness (T) and width (W) (when possible) can be ground by the moldmaker for fitting to insert pockets and/or to accommodate a nominal size molded detail.
2. Diameter (D) of round core blades is supplied +.000/−.001" or +.025/−.025mm for fitting in a bored hole or bushing.

UNILIFTER® UNDERCUT RELEASING SYSTEM

UNILIFTER® UNDERCUT RELEASING SYSTEM

UNILIFTER® UNDERCUT RELEASING SYSTEM

U-Couplings
Material: H-13 Steel
Hardness – Surface: 60-70 RC
Hardness – Core: 38-42 RC

U-COUPINGS – INCH

U-COUPINGS – METRIC

T-Gibs
Material: 4140 Pre-hardened Steel
Hardness – Surface: 60-70 RC
Hardness – Core: 38-42 RC

T-GIBS – INCH

T-GIBS – METRIC

NOTE:
1. Thickness (T) is provided with an additional +.010" (or +.25mm) for final adjustment of entire UniLifter system.
2. Values shown above include fitting stocks.

Each UniLifter assembly is comprised of a Core Blade, U-Coupling and T-Gib. Always select components of the same Series (.250, .500, 1.000 or 10) when ordering assemblies.

Flat Core Blades – INCH
W T D L HT MW R MT

Round Core Blades – INCH
W T D L HT MW R MT

T-Gibs
Material: 4140 Pre-hardened Steel
Hardness – Surface: 60-70 RC
Hardness – Core: 38-42 RC

T-GIBS – INCH

T-GIBS – METRIC

NOTE:
1. Thickness (T) and width (W) (when possible) can be ground by the moldmaker for fitting to insert pockets and/or to accommodate a nominal size molded detail.
2. Diameter (D) of round core blades is supplied +.000/−.001" or +.025/−.025mm for fitting in a bored hole or bushing.

UNILIFTER® UNDERCUT RELEASING SYSTEM

UNILIFTER® UNDERCUT RELEASING SYSTEM
UNILIFTER® UNDERCUT RELEASING SYSTEM

Design Guidelines

1. General Installation
   It is recommended that lifters be installed as shown in Fig. 1, with T-Gib mounted to top of ejector plate. The appropriate X and Y dimensions are as follows (min. Y dimension prevents mounting screws from interfering with U-Coupling travel):

<table>
<thead>
<tr>
<th>SERIES</th>
<th>X</th>
<th>Y_MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>.400</td>
<td>.78</td>
</tr>
<tr>
<td>500</td>
<td>.406</td>
<td>.37</td>
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<tr>
<td>1000</td>
<td>.375</td>
<td>.71</td>
</tr>
<tr>
<td>10</td>
<td>12</td>
<td>11</td>
</tr>
</tbody>
</table>

   10mm 12mm 11mm

2. Angles
   Designs using angles from 5 to 10 degrees will typically yield the best results. Angles up to 15 degrees are permissible by using lifter guides in the bottom of the support plate. (Lifter guides to be made by moldmaker).

3. Lifter Guides
   Lifter guides are recommended for designs with angles of 15 degrees (see 2 above) or whenever less than half of the core blade is bearing in the core insert.

4. Guided Ejection
   It is recommended that guided ejection be used in all designs.

5. Fit and Finish
   Recommended clearance for core blade is .001–0.015” (0.025–0.038 mm) where permissible. Although standard core blades are approximately 10 Rc above P-20 and 10 Rc below hardened tool steel, additional performance can be obtained by treating after finish machining (TiN coating, chrome flash, etc).

6. Locking Angles
   Locking angles (see Fig. 2) may be designed in if required to provide a locking surface to counter against molding pressure.

7. Non-Standard Shapes/Materials
   L-shaped core blades as shown in Fig. 3 may be machined by removing stock from thicker core blades. Material from the heel area should not be removed. The bearing dimension T-1 should be on the same center as radius R.

L-shaped core blades, or blades made from other materials can also be supplied on special order. Contact DME for details.

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Ordering Information................................. 76
Dual Rod Design Benefits......................... 77-78
VectorForm Lifter Advantages

- 30° Angle – Half the stroke for the same undercut
- Simple plate machining
- Easy installation
- May be ganged
  - Multiple systems may be "ganged" to lift a large lifter core
  - A single system can lift multiple lifter cores
- Accelerate or decelerate the motion of the lifter core relative to the ejector plate
- Cooling may be added
- Design flexibility is improved

VECTORFORM LIFTER SYSTEMS

Overview

VectorForm Lifter System Features & Benefits

- Simple plate machining
- Easy installation
- Accelerate or decelerate the motion of the lifter core relative to the ejector plate
- Design flexibility is improved

VectorForm Slide Bases

VectorForm Lifter Systems offer three types of slide bases to meet the needs of your applications.

- The Standard Slide Base (SB) is the most flexible and the most economical slide base. The Standard Slide Base can be custom machined by the mold builder to meet specialized application requirements. The Standard Slide Base is also the most robust slide base with respect to loads and forces.
- The Joint Slide Base (JB) permits the lifter core assembly to be retained with a single pin.
- The Universal Slide Base (UB) is similar to the Joint Slide Base, although the single pin is replaced by a universal joint which offers greater flexibility than the Joint Slide Base (JB) while still requiring only one screw to retain the lifter core assembly.

VectorForm Lifter System Features & Benefits

- Moves freely at angles up to 30°. For angles greater than 30° please contact DME Technical Service for design guidance.
- Plate machining is significantly simplified as no diagonal hole machining is required in order to install the VectorForm Lifter System.
- Maximum lifter angle is greatly improved with the VectorForm Lifter System. Lifter cores may be installed at any given angle up to 30°.
- The robust design and construction of the VectorForm Lifter System ensures that it is secure at any given ejector stroke regardless of angle used.
- The compact design of the VectorForm Lifter System minimizes potential for interference with the other components within the mold.
- DME Supplied
- Customer Supplied

VectorForm Lifter Advantages

- 30° Angle – Half the stroke for the same undercut
- Simple plate machining
- Easy installation
- May be ganged
  - Multiple systems may be “ganged” to lift a large lifer core
  - A single system can lift multiple lifter cores
- Accelerate or decelerate the motion of the lifter core relative to the ejector plate
- Cooling may be added
- Design flexibility is improved

General installation. Standard Slide Base in typical ejector plate installation shown.
**VECTORFORM LIFTER SYSTEMS**

**Design Guidelines**

**Mold Base Overview**

- TOP (STATIONARY) CLAMP PLATE
- "A" (CAVITY) PLATE
- "B" (CORE) PLATE
- SUPPORT PLATE
- EJECTOR BOX SIDE RAIL
- EJECTOR RETAINER PLATE
- BOTTOM CLAMP PLATE
- BOTTOM CLAMP PLATE
- EJECTOR RETAINER PLATE
- EJECTOR PLATE

**VectorForm Lifter Overview**

The lifter core (supplied by moldmaker) may be a single-piece component or an assembly of several components including a modified Guide Rod.

**VectorForm Lifter Operating Sequence**

LENGTH OF GUIDE ROD:

\[ y = C + H_g + h \]

\[ L' = \frac{y}{\cos K^\circ} \]

\[ L = L' + 2R \]

1. **General Installation**
   - It is recommended that the VectorForm Lifter System be installed as shown above.
   - For each given VectorForm set, all components MUST be of the same size. However, separate sets of different sizes may be installed in the same mold.
   - Actuation of VectorForm Lifter Systems can be accelerated or decelerated by an inclined sliding surface on the ejector plate and ejector retainer plate.

2. **Angles**
   - The VectorForm Lifter System may be used with angles ranging from 5° (minimum) to 30° (maximum).
   - Deep undercuts in the molded part can be obtained by using a larger angle in the lifter core and by increasing the ejector plate stroke.

3. **Lifter Core Guidance**
   - The lifter core must have sufficient guidance in the tool. For multiple lifter cores installed in tandem in the tool, additional guidance in the core inserts is recommended.
   - If resistance in actuation is great, an additional Guide Plate may be placed directly below the core insert.

4. **Guided Ejection**
   - Guided ejection is recommended for all designs.

5. **Fit and Finish**
   - Standard component dimensions and Rockwell hardness are provided in the component specifications section of this brochure. Should the standard components need to be modified, additional performance can be obtained by treating after finish machining (TiN coating, flash-chrome, etc.). Component installations can be fitted to suit. Ensure a loose fit on the Holder Bushing and Guide Plate installation. Ensure a precise fit between the lifter core and the Guide Plate. The Holder Bushing will automatically align prior to bolting the bushing to the clamp plate.
   - Lubrication is not generally required nor recommended. If lubrication is used, it should be low-viscosity.

6. **Locking Angles/Component Back-Up**
   - Locking angles may be designed to provide a locking surface to counter against molding pressure.
   - A block construction using a square lifter core can also allow the resin pressure to be backed up by the core insert.
   - If the axial load acting on the lifter core exceeds the limit allowed for the slide base pin (used in JB and UB Slide Bases), use a Standard (SB) Slide Base and back the lifter core on the slide by machining a ledge that is perpendicular to the axis of the lifter core. The lifter core must then seat firmly against the angled face of the Slide Base.

7. **Non-Standard Shapes/Materials**
   - Lifter core blocks may be machined to any desired shape and size, provided the chosen number and size of the VectorForm Lifter System core standard components will support the lifter core blocks. Lifter core blocks are to be supplied by the moldmaker.
Example of multiple lifter cores being actuated in parallel by a Standard Slide Base (SB).

Deep undercut attained by increasing the shift angle and by having sufficient stroke “S”. Standard Slide Base (SB) shown.

Avoid interference with the adjacent components by using a small section lifter core and by using reverse installation. Universal Slide Base (UB) shown.

In cases of high ejection resistance, serial tandem guidance can be aided by using two or more Guide Rod assemblies. Joint Slide Base (JB) shown.

Example of two VectorForm Lifter System assemblies being used in parallel to lift a large lifter core assembly (UB shown).

Multiple VectorForm Lifter Systems shown in parallel, actuating a large water-cooled lifter core through an extended Standard Slide Base.

Multiple VectorForm Lifter Systems can be operated in tandem by a single Guide Rod assembly with the use of a simple extension coupled with a standard slide plate. Joint Slide Base (JB) shown.

NOTE: Ejector pins are secured to, and move with, the ejector plate assembly, not the Vectorform System Slide Base.
VECTORFORM LIFTER SYSTEMS
VectorForm Component Specifications

Standard Slide Base – SB
Material: SCM-440 / DIN 42 CrMo4 / AISI-4140
Hardness: 30-33 HRC

Joint Slide Base – JB
Material: SCM-440 / DIN 42 CrMo4 / AISI-4140
Hardness: 29-34 HRC
Joint Pin material: SKH-51 / DIN S6-5-2 / AISI M2
Hardness: 60-63 HRC
Tempering temperature: 600°C

Universal Slide Base – UB
Material: SCM-440 / DIN 42 CrMo4 / AISI-4140
Hardness: 30-33 HRC
Heat Treatment: Nitriding is permissible

Additional Machining:
- Retaining bolt installation on lifter core rod or assembly
- Grooves as shown to far left of figure (for alignment) if required

Heat Treatment:
- Gas nitriding is permissible after additional machining has been performed

Table: Slide Base Ordering Information

<table>
<thead>
<tr>
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<th>58</th>
<th>60</th>
<th>62</th>
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<tr>
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<td>17</td>
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<tr>
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<td>04</td>
<td>05</td>
<td>06</td>
<td>08</td>
</tr>
</tbody>
</table>

Installation Classification:
- Applies to JB and UB only.

Additional Machining:
- None

Attachment: None

*NOTE: Dimensions for retaining step to be machined by moldmaker as necessary.
VECTORFORM LIFTER SYSTEMS
VectorForm Component Specifications

**Guide Rod – GR**
Material: S-UJ-2 / DIN 100C6 / AISI-52100
Hardness: 58-60 HRC
Heat Treatment: Induction hardening completed; heat treat is not required

**Guide Plate – GP**
Material: S-50-C / DIN C50 / AISI-1049
Hardness: 15-20 HRC
Heat Treatment: Gas nitriding is permissible after additional machining has been performed

**Holder Bushing – HB**
Material: S-50-C / DIN C50 / AISI-1049
Hardness: 15-20 HRC
Heat Treatment: Not required

**Additional Machining:**
- Center distance: 
  \[ L' = Y / \cos \alpha \]
  \[ L = L' + 2R \]
- All dimensions shown are to be held after any additional machining has been performed
- Non-designated chamfer “C” tolerance: 0.5 – 1.0

**NOTE:** Moldmaker to add grooves and chamfers per specifications shown.

**Guide Rod, Guide Plate, Holder Bushing Ordering Information**

<table>
<thead>
<tr>
<th>SYMBOL</th>
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<th>68</th>
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<td>190</td>
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<td>310</td>
<td>370</td>
<td>500</td>
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<td>K°</td>
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**GR – GUIDE PLATE**

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**GR – HOLDER BUSHING**

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<th>68</th>
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<tbody>
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<td>VF08HB</td>
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**VECTORFORM LIFTER SYSTEMS**
VectorForm Component Specifications

**Holder Bushing – HB**
Material: S-50-C / DIN C50 / AISI-1049
Hardness: 15-20 HRC
Heat Treatment: Not required

**Additional Machining:**
- Lifter core hole or slot
- As required to accommodate the lifter core assembly

**Guide Rod, Guide Plate, Holder Bushing Ordering Information**

<table>
<thead>
<tr>
<th>SYMBOL</th>
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**GR – GUIDE PLATE**

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VECTORFORM LIFTER SYSTEMS

Ordering Information

VectorForm Lifter Set Ordering Information

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VectorForm Lifter Sets include:
(1) Holder Bushing – HB
(1) Guide Rod – GR
(1) Guide Plate – GP
(1) Slide Base (Standard – SB, Joint – JB, or Universal – UB)

VECTORFORM LIFTER SYSTEMS

A New Approach to Designing Lifter Cores: Dual-Rod Design

Benefits of using a secondary guide rod on lifter core assemblies

Conventional lifter cores have been somewhat limited in their performance given the large mold footprints they create. Reactionary forces and bending moments within conventional lifter core rods require smaller rod angles, which can increase mold die height and footprint.

A new approach to designing lifter cores utilizes a second guide rod that is parallel to the lifter rod. This formation eliminates the bending moment seen in conventional single-rod lifter configurations, allowing for a greater lifter angle and reducing overall die height and mold footprint.

Single-Rod Lifter Systems

When designing mold cores for undercuts and side-action molding, the designer has several lifter system options. The first is using sliding cores and angle pins. This option requires considerable mold space and may result in selecting a lifting core with a smaller platen size at the expense of a larger die height.

Conventional lifter cores also have limits on the angles allowed. If the molded undercut is large, the mold footprint may need to be increased to accommodate the required side travel of the lifter core, increasing the required die height even further.

The single-rod lifter system is designed with the core, sliding plate and gib plates within the ejector plate assembly. Close alignment of the core is accomplished through tight tolerance entrance and exit holes in the core plate. This results in additional cost and added processing problems. An overriding problem of the conventional configuration: bending moment acting on the lifter rod, which leads to increased friction, abrasion and side loads.

If the lifter rod is not sized properly, premature wear or even breakage can result. Therefore, designers often over-design the lifter rod to account for additional loading. This increases component costs and limits the number of applications for the lifter mechanism.

Dual-Rod Lifter Systems

Use of a second guide rod parallel to the lifter core is a relatively new and under-utilized method. The additional guide rod ensures proper alignment of the sliding base within the ejector plates. It also eliminates the bending stresses that occur as a result of the typical load distribution described within the conventional setup.

The new configuration creates a parallelogram within the ejector plate assembly between the primary lifter core, secondary alignment rod, alignment plate and sliding alignment base, as shown in Fig. 1. The structurally sound parallelogram eliminates the bending moment that occurs in single-rod systems.

Mold designers should note that the strength of the assembly will be that of the weakest link.

The use of a fixed secondary pin eliminates friction between the secondary pin and the upper alignment plate. The actuating load transferred to the primary lifter core is now centered on the axis of the lifter core and in the same direction as the motion of the core. The reduction in friction and bending moment permits a greater lifter angle, allowing the designer to reduce both the necessary die height and the mold footprint on the platen (see Fig. 2).
VECTORFORM LIFTER SYSTEMS

Dual Rod Design Benefits

How to Incorporate Dual-Rod Technology

As shown in Fig. 1, an ejector housing cross-section must be designed with the desired plate thickness and necessary ejector stroke. By increasing the lifter core angle, mold designers can achieve faster part ejection and a larger undercut feature. Sufficient space around the lifter core rod is needed when placing and sizing the guide plate. Starting from the retaining feature for the guide rod in the guide plate (in this case, a dowel), a line parallel to the centerline of the lifter core rod should be drawn into place. Ideally, standard components for these lifter systems will be developed ensuring all guide rods feature a round design, as opposed to one with a rectangular cross-section. A sliding assembly, such as a block base, may be used to reciprocate along the plane of the ejector plate assembly as the machine’s ejector rod moves though the extent of the ejector stroke.

By using a pivoting guide bushing with sufficient close-fit tolerance to the guide rod, in combination with a loose-fit backup and support behind the lifter core rod, the joint pins retaining the lifter core rod. Make sure the joint pin and the overall lifter are sized accordingly. If the anticipated loads acting axially on the lifter core will be excessive (the weight of the lifter core itself may even qualify as excessive), then making a tapered surface cut into the sliding plate will enable sufficient backup and support behind the lifter core rod.

Next, the lifter core must be physically connected to the sliding plate. A mold designer has several options, each with different benefits. If the anticipated loads acting axially on the lifter core will be excessive (the weight of the lifter core itself may even qualify as excessive), then making a tapered surface cut into the sliding plate will enable sufficient backup and support behind the lifter core rod.

By increasing the lifter core angle, mold designers can achieve faster part ejection and a larger undercut feature. If the expected axial load in the lifter core rod is moderate to low, then a pin or similar device is sufficient to retain the lifter core rod. Mold designers should note, however, that the strength of the assembly will be that of the weakest link; in this case, the joint pins retaining the lifter core rod. Make sure the joint pin and the overall lifter are sized accordingly.

In the final stages of lifter system design, the mold designer adds clearances for the slot used to retain the sliding plate, as well as clearances for the guide and lifter core rods. Use of a guide plate, slide plate and base-mounted retainer bushing eliminates the need of machining tightly toleranced, angled holes into the mold plates themselves.

By using a pivoting guide bushing with sufficient close-fit tolerance to the guide rod, in combination with a loose-fit installation on the base-mounted retainer bushing, the guide rod and sliding base assembly will effectively self-align. When the assembly technician is satisfied that the ejector plate assembly and lifter core system all move freely, the base-mounted installation on the base-mounted retainer bushing, the guide rod and sliding base assembly will effectively self-align. When the assembly technician is satisfied that the ejector plate assembly and lifter core system all move freely, the base-mounted retainer bushing can finally be bolted in place, providing the necessary guide rod retention for normal use.

Another benefit to the sliding base design is the rigid backup to the lifter core rod, which allows the use of lifter core cooling (provided the lifter core rod and overall assembly is large enough to accommodate the diametrical size of the intended waterlines, seals and fittings without affecting the lifter core rod rigidity required to move the intended lifter core mass). Refer to Fig. 3 for more detail regarding the addition of cooling to the lifter core assembly. The use of a guide rod to guide the slide base in the moving ejector plate assembly reduces stress on the lifter rod and allows for use of a smaller lifter core assembly. This also means that multiple lifter rods and the attached cores can be ganged together, and are actuated by either more or less slide base and guide rod assemblies, depending on the needs of the application. The level of flexibility and functionality offered by this approach can lead to increased competitive advantage for both the moldmaker and end user.

Many Advantages to Dual-Rod Design

Through incorporating a second guide rod in lifter core assemblies, mold designers can reduce reactionary forces in the mold and enable smaller assemblies. Without the conventional drawback of increased friction and loading due to bending moments, the dual-rod design allows deeper undercuts using steeper lifter core angles – leading to increased cost savings. The ease of design and assembly make it simple to add lifter cores to molding applications, as well as increase the molder’s capabilities when a small mold footprint is critical.

Fig. 1

Fig. 3

Example of lifter core assemblies with internal cooling features. This example also shows how two slide base assemblies may be “paired” together to actuate and support a single large lifter core.
HYDRAULIC UNSCREWING DEVICE

Components

1. Base Construction – ZG

Hydraulic Cylinder

NOTE:
End caps IA and IB, Internal Seals ZD, and NPT Pipe
Thread Adapters are included in Base Construction.

2. Flange – ZB

Standardized system for molding internal threads
• SAE-rack design
• Off-the-shelf replacement parts
• Simplifies mold design
• Applicable to different design styles
• Technical and application support
• Rack sized to provide maximum stroke lengths

NOTE:
"A" is the bore size of the ZG Base Construction Hydraulic Cylinder.

**Metric socket head cap screws included with Flange (see I).

NOTE:
"A" is the bore size of the ZG Base Construction Hydraulic Cylinder.

**M6 Metric socket head screw included.

NOTE:
"A" is the bore size of the ZG Base Construction Hydraulic Cylinder.

**Metric socket head cap screws included with Flange (see G).

NOTE:
"A" is the bore size of the ZG Base Construction Hydraulic Cylinder.
**HYDRAULIC UNSCREWING DEVICE**

### Components

#### S.A.E. Rack – ZZ

![Image of S.A.E. Rack – ZZ]

**20 Degree Pressure Angle Gear Teeth**

**Note:** Mating Gear to be supplied by moldmaker.

**Item No.** A | B | C | D | E | F | G | H | X | T | U | S | Metric
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
ZZ2501 | .984 | 896 | 918 | .906 | .772 | .118 | 48 | 12 | .561 | .250 | 1.949 | 1.063 | M 8x1.25x20
ZZ4001 | 1.575 | 1.102 | 1.166 | 1.118 | 48 | .945 | .250 | 2.539 | 1.328 | M 10x1.5x30
ZZ6301 | 2.480 | 1.890 | 1.953 | 1.894 | 48 | 1.894 | .312 | 2.825 | 2.165 | M 12x1.75x40

**Note:** "A" is the bore size of the 20 Base Construction Hydraulic Cylinder.

#### CAM Riser – ZL

(For use with S.A.E. Racks)

**Note:** Appropriate angle to be put on by moldmaker.

**Item No.** A | B | C | D | E | F | G | H | X | T | U | S | Metric
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
ZL2501 | .984 | 896 | 918 | .906 | .772 | .118 | 48 | 12 | .561 | .250 | 1.949 | 1.063 | M 8x1.25x20
ZL4001 | 1.575 | 1.102 | 1.166 | 1.118 | 48 | .945 | .250 | 2.539 | 1.328 | M 10x1.5x30
ZL6301 | 2.480 | 1.890 | 1.953 | 1.894 | 48 | 1.894 | .312 | 2.825 | 2.165 | M 12x1.75x40

**Note:** "A" is the bore size of the 20 Base Construction Hydraulic Cylinder.

### Guideway – ZF

![Image of Guideway – ZF]

**Notes:**
1. Two guideways are required per Rack or per Cam Riser.
2. Only one length is stocked and must be cut to length to fit for shorter Hydraulic Cylinders.
3. Metric flat head screws are included with Guideway (see III).

**Item No.** A | B | C | D | E | F | G | H | X | T | U | S | Metric
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
ZF0001 | .984 | 19.685 | 5x3.150 | 2.599 | 1.811 | 1.339 | .551 | .188 SM 5x.80x10
ZF0001 | 1.575 | 19.685 | 5x3.150 | 2.599 | 2.205 | 1.732 | .945 | .188 SM 5x.80x10
ZF0002 | 2.480 | 19.685 | 5x3.150 | 1.913 | 3.780 | 2.756 | 1.654 | .250 SM 8x1.25x16

**Note:** "A" is the bore size of the 20 Base Construction Hydraulic Cylinder.

### Maintenance Replacement Parts Only

#### End Caps (out) – ZHU

![Image of End Caps (out)]

**Item No.** L | D | P | S | Metric
--- | --- | --- | --- | ---
ZHU25 | .846 | .354 | 1/4” BSPP | 2.047
ZHU40 | 1.339 | .354 | 1/2” BSPP | 2.441
ZHU63 | .984 | .866 | 3/4” BSPP | 2.913

**Note:** BSPP = British Pipe Thread Parallel

#### End Caps (in) – ZHI

![Image of End Caps (in)]

**Item No.** L | D | P | T | Metric
--- | --- | --- | --- | ---
ZHI25 | .433 | .236 | 1/4” BSPP | 1.378
ZHI40 | .512 | .315 | 1/2” BSPP | 1.378
ZHI63 | .630 | .472 | 3/4” BSPP | 1.850

**Note:** Metric Flat Head Cap Screw

#### Seal Kit – ZD

![Image of Seal Kit – ZD]

**Item No.** ZD25 | ZD40 | ZD63
--- | --- | ---
ZD25 | ZD40 | ZD63

**Pipe Thread Adapters – ZG**

![Image of Pipe Thread Adapters – ZG]

**Adapter converts male BSPT to female NPT.**

**Item No.** ZG2501 | ZG4001 | ZG6301
--- | --- | ---
ZG2501 | ZG4001 | ZG6301

**Note:** All other dimensions in inches unless otherwise specified.
HYDRAULIC UNSCREWING DEVICE
Calculations/Specifications

Thread Lead = 1/(Threads per inch) = 1/Pitch = Inches/Thread
Thread Length = Length of threads to be removed from the cap

A. Stroke (Inches)
NOTE: Limit switches should be used if possible to limit full cylinder travel. This will extend the seal life inside the hydraulic cylinder.

a) Required revolutions (thread core)
   = Thread Length / Thread Lead + Safety (.5 revolutions minimum)

b) 1. Required stroke – Inches
   = Gear Pitch Diameter x x x Required Revolutions
   If required stroke is too long, a cogwheel transmission should be used.

2. Length of Rack
   = Cylinder Stroke – Required Rack Stroke

C. Unscrewing Force
These figures should only be used as a guideline, as many other factors will affect the calculation (material, variation of dimensions, material shrinkage, core surface area, temperature, lubricants, friction, etc. I).

f) Residual Pressure (PSI)
   = 1/100 of maximum injection pressure

g) Effective core surface area (Square inches or in², Outer Core Cylinder Shell)
   Flat end of threaded core neglected, x 2 value for 45° triangle thread shape
   = major thread dia. of the core x x x thread height x 2

h) Unscrewing torque (in-lb.)
   = Residual Pressure x Effective core surface area x major thread radius of core

i) Unscrewing force rack (lb.)
   = Unscrewing Torque x Number of cavities

k) Hydraulic force (lb.)
   NOTE: x 1.5 is 50% Safety Factor, if x 1.0 there would be no safety factor.
   = Unscrewing Force x 1.5
HYDRAULIC UNSCREwing DEVICE

Calculations/Specifications

Working Cylinder Stroke

Unscrewing force available at different hydraulic pressures (PSI)

Working Stroke

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<td>887 lb.</td>
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<td>Ø1.575”</td>
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<td>2,246 lb.</td>
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<td>Ø2.485”</td>
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NOTE: “A” is the bore size of the 20 Base Construction Hydraulic Cylinder.

Returning Cylinder Stroke

Force available at different hydraulic pressures (PSI)

Return Back

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<tr>
<th>A (PISTON)</th>
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<th>1,740 PSI</th>
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<td>Ø0.984”</td>
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<td>Ø1.575”</td>
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<td>1,574 lb.</td>
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<td>Ø2.485”</td>
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<td>3,777 lb.</td>
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NOTE: “A” is the bore size of the 20 Base Construction Hydraulic Cylinder.

HYDRAULIC UNSCREwing DEVICE

Applications

Applications

Required DME Component List

Application A

Without guiding thread with cam

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<td>ZL-xx-yyyy</td>
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<td>ZF-yyyy</td>
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Application B

With guiding thread

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Application C

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Application D

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<td>ZF-yyyy</td>
<td>2</td>
<td>Guideways for Cam</td>
</tr>
</tbody>
</table>

NOTE:
Moldmaker should provide limit switches for fully closed and for cylinder extended. Full cylinder extensions should be avoided to improve internal cylinder seal life.

A complete Engineering Design Guide, plus separate example, are available at www.dme.net/hud

A Safety Protection Box fabricated by moldmaker completely covers full movement of Unscrewing Device.
HYDRAULIC UNSCREWING DEVICE

Applications

Application C
With guiding thread

Application D
Long guiding cores

Safety Considerations:
Moldmaker must fabricate boxes over the rack areas which move to protect against injury to personnel. Moldmaker must also use safety interlocks to prevent movement of unscrewing device if these protection boxes are removed for any reason. Also, sheet metal should be used to cover areas where the gears are to prevent damage from loose debris falling between the gears and racks.
Economically produce complex plastic parts

The Collapsible Core is a major breakthrough for molding plastic parts requiring internal threads, undercuts, protrusions or cut-outs. The patented design incorporates only three moving parts, which utilize conventional mold movements.

The Collapsible Core’s automatic operation makes it possible for you to produce parts that, previously, had been considered impossible to mold. Parts with internal protrusions, dimples, interrupted threads and cut-outs can now be economically produced on a high- or low-volume basis.

For conventional threaded parts, the Collapsible Core could cut your cycle time up to 30% when compared with unscrewing or other complex actuating mechanisms.

Full technical details, including basic stripper plate mold construction, core grinding instructions, and core and mold machining dimensions are included in the Collapsible Core and Collapsible Mini-Core Design & Assembly Guide – contact DME for a copy.
**RT-Series Collapsible Cores**

Easily mold parts with closures as small as 13mm

The Collapsible Core DT Series broadens the applications of collapsible core molds for closures as small as 13mm. Due to the smaller diameters involved, these Mini-Cores employ three larger collapsing segments combined with three narrow, non-collapsing blades, which are an integral part of the center pin.

As a result, up to 80% full threads or undercuts can be molded without adding to the cycle time or requiring long rack and pinion mechanisms. In addition to threads, other undercuts can be molded into the part to hold such a seal in place.

The collapsing action also permits a longer threaded area to be formed, without adding to the cycle time or requiring long rack and pinion mechanisms. In addition to threads, other undercuts can be molded into the part to hold such a seal in place.

If a seal is required in the top of the closure, an undercut can be molded into the part to hold such a seal in place.

**Full technical details on core grinding and undercuts can be successfully molded. Three standard sizes of Collapsible Mini-Cores are available, for 13-16, 17-20 and 21-24mm closures.**

Full technical details on core grinding and undercuts can be successfully molded. Three standard sizes of Collapsible Mini-Cores are available, for 13-16, 17-20 and 21-24mm closures.

**Simplified Mold Design Maximizes Cost Savings**

The Collapsible Core DT Series provides a more compact and simplified solution to molding challenging internal undercut features such as o-ring grooves, slots and snap-fit designs. Available in four original standard sizes and in customized sizes, the DT Series Collapsible Core eliminates the need for unscrewing mechanisms.

**Dove Tail Core Advantages**

- Positive mechanically actuated Collapsible Core
- Collapse amount: 5% to 7% per side
- Eliminates costly Rack and Gear Systems
- Enables faster mold cycle times
- Patent Quick Lock (optional) helps cut service time
- Built-in center cooling channel
- Standard and custom sizes available

**Collapsible Core and Collapsible Mini-Core Design & Assembly Guide**

Contact DME for a copy.

---

### Collapsible Mini-Cores Table

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>OUT. DIAMETER RANGE</th>
<th>MIN. OF THREAD</th>
<th>CENTER PIN DIAMETER</th>
<th>WORKING LENGTH (IN)</th>
<th>COLLAPSE PER SIDE</th>
</tr>
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<tbody>
<tr>
<td>CCM001</td>
<td>13-16</td>
<td>.645</td>
<td>16.38</td>
<td>.425</td>
<td>12 12 78</td>
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<tr>
<td>CCM002</td>
<td>17-20</td>
<td>.965</td>
<td>24.51</td>
<td>.710</td>
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<td>CCM003</td>
<td>21-24</td>
<td>1.965</td>
<td>48.28</td>
<td>1.56</td>
<td>12 12 78</td>
</tr>
</tbody>
</table>

**NOTES:**

1. Cores listed above include core, center pin, positive collapse sleeve, clamping ring and a special, non-bladed center pin arbor required for proper core grinding.
2. Collapsible Mini-Cores with longer molding lengths, special diameters, collapse or requiring long rack and pinion mechanisms. In addition to threads, other undercuts can be molded into the part to hold such a seal in place.

---

### Collapsible Cores Table

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>OUT. DIAMETER</th>
<th>MIN. INNER DIAMETER</th>
<th>MOLDING LENGTH</th>
<th>CALI. COLLAPSE</th>
<th>CT CARRIER DIAMETER</th>
<th>L SHAFT LENGTH</th>
<th>SD BOLT</th>
<th>TD COOLING HOE</th>
<th>BH DISTANCE TO HOLD (BD)</th>
<th>POLY-PRODUCTION TOLERANCE</th>
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</thead>
<tbody>
<tr>
<td>DT154</td>
<td>21</td>
<td>11</td>
<td>22</td>
<td>1.1</td>
<td>1.5</td>
<td>16</td>
<td>6</td>
<td>6</td>
<td>40</td>
<td>±0.09</td>
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<tr>
<td>DT155</td>
<td>23</td>
<td>12</td>
<td>25</td>
<td>1.6</td>
<td>1.5</td>
<td>20</td>
<td>8</td>
<td>8</td>
<td>47</td>
<td>±0.09</td>
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<tr>
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<td>50</td>
<td>2.1</td>
<td>1.9</td>
<td>20</td>
<td>10</td>
<td>10</td>
<td>80</td>
<td>±0.25</td>
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<tr>
<td>DT157</td>
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<td>50</td>
<td>2.4</td>
<td>1.9</td>
<td>20</td>
<td>12</td>
<td>12</td>
<td>78</td>
<td>±0.40</td>
</tr>
</tbody>
</table>

**NOTE:**

*The tolerance on maximum depth of collimation is shown in the table above for 3B/3D per inch of part height requiring collapse.*

---

**Patent Pending**

For an engineering review, email your part drawing or application to dme_mech_eng@milacron.com
Expandable Cavities with an "A" side striker insert mold the complete part, enabling details to be machined in a one-piece unit eliminating the risk of error or mismatch that can occur with mating slides. Depending on the part configuration, the Expandable Cavity's striker insert can be used in the "A" or "B" side of the mold.

- Expandable Cavities with an "A" side striker insert mold the complete part, enabling details such as an outer thread or a snap ring to be released from the mold.
- Expandable Cavities with a "B" side striker insert are for part configurations where external profiles on circular plastic parts. The product is ideal for parts such as bottle caps, threads, snap rings, barbs, convex grooves, protrusions, logo details, etc.

The Expandable Cavity (EX-CAV®) simplifies design and cuts costs to reliably mold and release external profiles on circular plastic parts. The product is ideal for parts such as bottle caps, threads, snap rings, barbs, convex grooves, protrusions, logo details, etc.

STANDARD EXPANDABLE CAVITY SYSTEMS

Cost Savings & FAQs

- Cost Savings that Maximize Value
  - Simplified mold design
  - Maximizes cavities per mold
  - Lowers maintenance costs

Expandable Cavities eliminate the need for traditional slide action assemblies, thereby allowing higher cavitation within the same mold footprint to increase productivity. Expandable Cavities eliminate the need for traditional slide action assemblies, thereby allowing higher cavitation within the same mold footprint to increase productivity. Depending on the part configuration, the Expandable Cavity’s striker insert can be used in the “A” or “B” side of the mold.

- Expandable Cavities with an “A” side striker insert mold the complete part, enabling details such as an outer thread or a snap ring to be released from the mold.
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Frequently Asked Questions

Q. What are the material types from which an Expandable Cavity can be made, and how much hardness and wear resistance is expected?

A. A-2 tool steel is the default material. It has a hardness of 54-57 HRC. Wear resistance is very good.

Q. Are surface treatments recommended?

A. It depends on the application. The DME engineering staff will review potential options, if needed.

Q. Are there any temperature limitations?

A. Maximum temperature is 260°C/500°F.

Q. What is the expected life cycle of an Expandable Cavity and what maintenance is required?

A. Customers have run millions of cycles. The biggest factor for performance is not the flexing aspect or fatigue as much as cleanliness of the tool over the life of the mold.
STANDARD EXPANDABLE CAVITY SYSTEMS
EX-CAV System & Mounting Kits

EX-CAV System

Length can be modified to suit application.

10° (conical)

Mounting Kits

Hollow Bolt Mounting Kit Includes:
- Key (7 Thk. × 8 x 40)
- Hollow Bolt
- Standard DIN H-13 Ejector Pin (400mm long)
- Spacer

Pin Bolt Mounting Kit Includes:
- Key (7 Thk. × 8 x 40)
- Threaded Bolt/Pin (H-13, 40-44 HRC, 280mm long)
- Spacer

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>D NO. MM</th>
<th>T BOLT MM</th>
<th>SPACER SIZE (ID × OD × THK)</th>
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<tr>
<td>EXC20V</td>
<td>14</td>
<td>13</td>
<td>5.5</td>
<td>5</td>
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<td>EXC26V</td>
<td>18</td>
<td>20</td>
<td>5.5</td>
<td>5</td>
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<td>EXC38V</td>
<td>20</td>
<td>27</td>
<td>5.5</td>
<td>5</td>
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<tr>
<td>EXC50V</td>
<td>27</td>
<td>40</td>
<td>5.5</td>
<td>5</td>
</tr>
</tbody>
</table>

All dimensions and tolerances in millimeters. Mounting kits sold separately (see below). Expandable Cavity sizes not shown on this table are available by special order.

Technical Information:

- Available in four standard sizes to satisfy a wide range of applications.
- The Expandable Cavity expands along a conical shape; 10° per side.
- Manufactured from A-2 tool steel (54-57 HRC) for repeatable expansion. For optimal performance, the Expandable Cavity should ride against a hardened insert.
- Expandable Cavities are capable of operating without lubrication. However, treating the Expandable Cavity with an additional coating for wear reduction or corrosion resistance is beneficial.
- Expandable Cavities can be ordered with molding detail for a ‘mold ready’ component.
CUSTOM EXPANDABLE CAVITY SYSTEMS

Expandable Cavity System – Features and Benefits

Lowers development and processing costs
The Expandable Cavity saves money at every step – from initial tooling to processing to maintenance. Intelligent engineering reduces or eliminates many costly factors such as complex design details, core slides and required mechanical components, added maintenance and replacement of high-wear items often found in traditional slide action molds.

Broad range of benefits

Simple design
The revolutionary design and engineering of the Expandable Cavity saves steps and solves problems that have complicated plastics molding for years. In addition to simplifying new tooling design, it can be retrofitted to existing molds.

More reliable
Complete reliability of the Expandable Cavity is assured, not only by the simplicity of the design, but also by the use of superior materials and proven proprietary processing techniques. You can count on minimal downtime and higher productivity. The Expandable Cavity has been field tested over several million cycles.

More compact
Using the DME Expandable Cavity allows you to design more cavities in each mold.

Speeds molding process
The Expandable Cavity concept eliminates the need for slide-action mechanisms and the additional machining steps they require. Various part ejection methods can be employed.

Speeds development
The Expandable Cavity concept simplifies the engineering required to design and manufacture a new cavity. This means that your new products go into production in less time than was previously possible.

General maintenance
After 100-200 initial shots, the Expandable Cavity should be rechecked to ensure proper mechanical function.

A routine maintenance program of your Expandable Cavity System is recommended after 50,000 to 100,000 cycles. Thoroughly degrease and demagnetize system components. Observe for signs of abnormal wear. A light lubricant such as a P.T.F.E. should then be applied to the Striker Insert, Center Pin and the Expandable Cavity. This will increase the life of the system components. Never use a heavy grease. Re-install Expandable Cavity System.

If this maintenance procedure is performed as described above, several million cycles are easily obtainable.

Expandable Cavity
The Expandable Cavity is typically made of A-2 tool steel, hardened to 54-58 Rockwell “C”. The typical tool has four segments which expand radially away, under their own spring force, from the center axis of the tool. In the closed molding position, the precision fit between each segment permits flash-free molding.

Striker insert
The striker insert is made from different types of tool steel. It is typically hardened to 32-45 Rockwell “C” scale, depending on the application. The striker insert has a lower hardness than the Expandable Cavity to ensure the eventual wear will occur on the striker insert and not the detailed Expandable Cavity. Depending on the part configuration, the striker insert can be used in the “A” or “B” side of the mold (see Figs. 1 and 2 for details).

The striker insert must be closely fit to the Expandable Cavity to ensure that in the mold closed position the segments are completely sealed against one another. The tolerance on this fit must be held to ±0.0005 inch to ensure flash-free molding.

Interchangeable center pin
The solid center mandrel is the most common type of center pin. It may have an inner cooling channel depending on its size. The center pin provides an internal shut-off with the Expandable Cavity.

Ejector sleeve
An ejector sleeve is commonly used to ensure part ejection from the cavity. The sleeve rides forward over the center pin, once the mold is opened and the cavity expanded. Many times the expansion needed is dependent on leaving clearance for the ejector sleeve.

Expansion limiter sleeve
If part design is such that it could tend to stick in the “A” side of the mold when the Expandable Cavity opens, an expansion limiter sleeve can be used. This sleeve will restrict expansion and retain the part until activation of a stripper plate allows additional expansion prior to part ejection (see Fig. 3).
CUSTOM EXPANDABLE CAVITY SYSTEMS

Typical Applications

Fig. 1
With “A” Side Striker Insert

Fig. 2
With “B” Side Striker Insert

Fig. 3
With “A” Side Striker Insert and Expansion Limiter Sleeve

CUSTOM EXPANDABLE CAVITY SYSTEMS

Expandable Cavity and Striker Insert Design

The Expandable Cavity can mold a full 360 degrees around. The most common configuration is four (4) segments that mold 90 degrees each. The Expandable Cavity can also be designed as asymmetrical, such as two segments that mold 90 degrees each and three segments that mold 60 degrees each. (Contact DME Applications Engineering for details.) The amount of expansion varies according to the part requirements and clearances needed.

The general calculations for total expansion necessary are:

1. Calculate the critical expansion per side

The critical expansion (CE) needed to release the undercut is not the radial difference between major diameter (D) and minor diameter (d). For a typical four segment Expandable Cavity, the formula for calculating critical expansion is (see Fig. 4):

\[ CE = \frac{D^2 - (d/2)^2}{4} \]

2. Calculate the loss of expansion

Loss of expansion = molding length x 0.050in

The loss of expansion is the amount of expansion the tool loses as you move back from the cavity’s face. This is due to the fact that the segments expand radially outward from fixed points on the common base. The outward bend of a typical segment is about 2 to 3 degrees. The tool typically loses 0.050 inch per inch as you move into the Expandable Cavity from the tool’s face (see Fig. 5).

3. Calculate the total expansion

Total expansion = critical expansion per side + loss of expansion + 0.005 clearance

When the mold is closed, the exterior of the Expandable Cavity must be supported by the Striker Insert at least 7/8 of the molding length plus the shut-off, to ensure no flash conditions. Allow for 0.200 inch of shut-off length below the molding length – any more is excessive (see Fig. 6).
CUSTOM EXPANDABLE CAVITY SYSTEMS

Typical Operating Sequence

The possibilities are almost limitless

- **Size Range:** The Expandable Cavity is typically designed for parts with outside dimensions of 1/32 to 3 inches, but more custom designs are also available to suit your overall part size or undercut requirements
- **Can be designed for retrofit to existing molds**
- **Can be designed for use in combination with DME Collapsible Cores, Collapsible Mini-Cores, unscrewing cores or straight pull outs for interior of part**
- **Can be designed in inch or metric sizes**

**NOTE:** DME does not provide the part configuration detailing or machining. We can direct you to an appropriate source for this service if required.

**How to order**

The Expandable Cavity is designed and constructed based on part configuration and mold design requirements. For a quotation, copy and fill out the Quote Request Form on the next page and mail, fax or email to the address or fax number shown on the form. If you also include a part print and/or mold design, DME can assist you in determining the feasibility of molding with the Expandable Cavity and review your overall mold design.

The Expandable Cavity System may be subject to restrictions in its use for the molding of plastic tamper-indication closures in threaded caps under U.S. Patent No. 5,281,385 of Sunbeam Plastics Corporation. Roehr Tool disclaims any damages or responsibility for the use of its core when used in the method of such patent.

**Application Guidelines**

**Detailing**

Most Expandable Cavity details are usually ground or EDM’d. It is important when grinding to flood tool with suitable coolant for hardened tool steels. Do not grind with a loaded wheel (dress wheel frequently). The wheel must be of a soft grade (60J, 46J, etc.). When grinding make sure the Expandable Cavity is completely closed in a true circle by using the grinding ring supplied, as shown here.

After all finish grinding, polishing and EDM’ing work, be sure to demagnetize the Expandable Cavity to prevent adhesion of any metal particles that might find their way into the cavity during molding.

**The Expandable Cavity System**

GRINDING RING

Mold Closed

Mold Open, Cavity Expanded

Ejector Forward, Part Ejected
The Expandable Cavity was designed to produce external details. All commonly used thermoplastic molding polymers, including filled materials and engineering polymers, have been successfully molded with the Expandable Cavity. When using a corrosive polymer such as PVC, the Expandable Cavity must be surface treated with a protective coating. To prevent loss of expansion properties in the Expandable Cavity, the surface treatment process should not exceed a temperature of 600°F.

Good plastic design practice should be observed to avoid such conditions as distortion, sink marks, etc. These problems and their solutions are identical to those found in conventional moldings.

All undercuts, protrusions, windows, etc. will typically include two to five degrees of draft. The bottom edge of the part must also have approximately two to five degrees of draft. If molding is required on the top of the Expandable Cavity, two to five degrees of draft needs to be included. This is necessary because the segments flex radially away from the molding position in an arc. The draft allows the segments to expand freely.

NOTE: The amount of draft varies with tool design. Changes in tool design (length, body diameter, etc.) can minimize draft requirements.

EXPANDABLE CAVITY SYSTEMS

Company name: DME account #: 
Contact name: P.O. #: 
Phone: 
Address: E-mail: 
City: State/Province: 
ZIP/Postal Code: Country: 

SHIPPING METHOD: 
- UPS Ground 
- UPS 2nd Day Air 
- UPS Next Day 
- FedEx 
- Other

Expandable Cavity Requirements

I. POLYMER SPECIFICATIONS:
   A. What is the material to be molded? 
   B. What is the process temperature? 
      Filled 
      Unfilled 
      Glass 
      Mineral

II. DIMENSIONS OF EXPANDABLE CAVITY: (Part print is required)
   A. Specify largest diameter to be molded
   B. Specify smallest diameter to be molded
   C. Specify major diameter of undercut or thread
   D. Specify minor diameter of undercut or thread

III. MOLDED PART LENGTH:
   A. Molding Length: 
   B. Mold Shut-off: 0.200 (Shut-off land below part)

IV. EXPANSION REQUIREMENTS: (See Expandable Cavity and Striker Insert Design)
   A. Critical Expansion per side:
   B. Loss of expansion (.050in/in): 
      Multiply molding length (Distance from top of Expandable Cavity to bottom of last undercut) by .050in
   C. Clearance (Air) between plastic and steel upon expansion: .005

V. MOLD LAYOUT
   A. Distance from gate (center to center):
   B. Number of cavities:
      Retrofit 
      New Mold

NOTE: The amount of draft varies with tool design. Changes in tool design (length, body diameter, etc.) can minimize draft requirements.
EXPANDABLE CAVITY SYSTEMS
Typical Mold Layouts

Go from this …
Mold Layout with Conventional Slide Mold

Radial Mold Layout with Expandable Cavity

Nest Mold Layout with Expandable Cavity

to this …
Reduced Mold Size with Expandable Cavity
DME HELICAL GEAR STACK MOLD SYSTEMS
COST-EFFECTIVE SOLUTION FOR INCREASING CAPACITY
HELICAL GEAR STACK MOLD SYSTEMS
Comprehensive Options

DME delivers critical expertise with mold technology, while Milacron offers high-performance injection molding machinery when the application demands it. The combination is unbeatable.

With DME Stack Mold Systems – the choice is yours. Our systems feature complete flexibility – built around a family of product standards that simplify implementation. Only DME gives you this wide range of choices. And, because they’re from DME, you can expect reliability, advanced engineering, and outstanding performance.

Turnkey Systems Deliver a Total Solution
When you choose DME as your partner for Stack Mold Systems, you’re choosing a total solution. How big that solution is, will be your choice. We can deliver a turnkey molding system (excluding the cores and cavities) including a molding machine.

Our turnkey systems may include:
- Mold bases
- Hot runner systems and controllers
- Components – including centering and actuation devices
- System assembly
- Injection molding machines

Stack Molds
Today’s plastics processor has to do more with less – less labor, less capital investment, less floor space, and less time. DME can help with comprehensive options for high productivity. Stack Mold Systems can double the output of standard, single face molds between the same tie bar distance. Because the cavity forces cancel each other out, the necessary clamping forces for stack molds are essentially the same as for single face molds.

Key benefits of Stack Mold Systems include:
- Cost-effective solution for increasing capacity
- Optimum use of shop floor space and machine capacity
- Expanded molding capacity without capital expenditures
- More output per unit of shop floor labor – higher productivity in your operation

Stack Mold Systems are ideally suited for automotive applications, housewares, packaging, caps and closures, cutlery and electronic industries. Any applications that require mating parts (container and lid, top and bottom, or left and right) or strict color matching are also candidates for increased molded part quality and molding productivity through stack molds.

Engineering Expertise Ensures Success
The DME design and engineering team delivers over six decades of experience with injection molding, and injection mold design. Our engineering services can quickly scale to meet the specific needs of your program. Our designers can assist in the choice and application of our rigorously engineered and proven Stack Mold Systems and Components. We can offer the entire stack mold design, configuration, and assembly – including the mold base, centering and actuating components, hot runner system, and temperature controller.

All DME Stack Mold components have been designed for optimal utility and reliability. Because DME delivers industry-leading expertise with Stack Mold Systems, we’re able to provide a world class, integrated solution with all systems and components operating at optimum efficiency.
Helical Gear Centering Device Advantages

• Easily adjustable to compensate for machining inaccuracies or stack height adjustments
• Small footprint to accommodate side entry robots and/or secondary injection units
• Light-weight assemblies with aluminum housings for easy assembly and maintenance
• Built-in mold seizing safety mechanism: Nylon thread designed to fail before damage to mold or press
• Standardized components to simplify design, build, and maintenance
• Three (3) sizes to accommodate all applications
• Wear items are in stock
• Modular design
• Metric sizes

Standard Stack Mold Systems
DME offers a centering actuation system, Helical Gear, to suit your specific requirements. A choice of center support configurations is available — including support on the tie bars (top, bottom, or both), on the machine ways, or on both the ways and tie bars.

Standard Stack Mold Components
DME also supplies a full line of standard Stack Mold Components. These standard components are available off-the-shelf and can be ordered for immediate shipment to meet your needs. Experienced mold designers can customize any Stack Mold System to meet their needs by using our easy-to-follow standards.

Pre-Engineered Subassemblies

Centering Devices — to synchronize two or more parting line openings.
• Helical Gear

Center Supports — to support the center portion of the stack mold while the mold is open.
• Low-cost bronze shoes
• Frictionless Smart Line Center Support System

Hot Runner Systems — to deliver the plastics from the machine barrel to the cavities.
• Sprue bars
• Stack manifold
• Nozzles
DME Helical Gear stack mold systems greatly simplify the design and development of stack molds—leaving you more time to concentrate on core and cavity details.

**HELICAL GEAR CENTERING DEVICE** – complete assembly

**HELICAL GEAR SHAFT** – available in (3) sizes

**ROLLER BEARING**
**ROLLER BEARING HOUSING**

**NUT HOUSING**
**COVER**

**NYLON NUT** – available in left- or right-hand threads

**NUT HOUSING** – cut to length to meet the requirements of your application

NOTE: Number of assembly screws and tubular dowels vary with Helical Gear size.

**DME Helical Gear Stack Mold Centering Device Calculation Sheet**

**NOTE:**
All dimensions are in millimeters (mm).
Number of assembly screws and tubular dowels vary with Helical Gear size.
HELICAL GEAR STACK MOLD SYSTEMS

Helical Gear Stack Mold Systems

C1 = 2 x (A16 + B2) (Final Length of Helical Gear)
IF B4 + A10 + A19 <= 0.5 x B1
Y -> OK
N -> ERROR: NUT HOUSING IS TOO LONG: INCREASE B1 OR REDUCE B4
IF B3 <= A6
Y -> OK
N -> ERROR: CENTER PLATE IS TOO THIN: INCREASE B3
IF B2 + A10 + A19 <= 0.5 x B1
Y -> DK
N -> ERROR: GEAR IS TOO LONG: INCREASE B1 OR REDUCE B2
IF C1 <= B1 – 10
Y -> OK
N -> ERROR: GEAR IS TOO LONG: INCREASE B1
IF C1 <= A1
Y -> OK
N -> ERROR: GEAR IS TOO LONG: REDUCE B2

C2 = B4 + A10 – A6 – A5 – A4 (Final Length of Nut Housing)
IF C2 <= 0.5 x B1
Y -> OK
N -> ERROR: NUT HOUSING IS TOO LONG: REDUCE B1
IF C2 <= A6 – A5 – A4 – A19
Y -> OK
N -> ERROR: NUT HOUSING IS TOO SHORT: INCREASE B4

Helical Gear Components

Material: Pre-Hardened Steel

Variable length; cut to match your application.

Alignment Rod
Material: Steel

Shipping Strap
Material: Steel

Roller Bearing Housing
Material: Aircraft Aluminum

Tapered Roller Bearing
Material: Industry Standard

Nylon Nut (left and right)
Material: Outer Sleeve – Aluminum; Nylon Insert – High-strength nylon

Nylon insert provides lubricity and an engineered fail-safe. The nylon insert will strip from the outer sleeve should the stack mold seize. This minimizes the potential of costly damage to the mold.

DME is with you every step of the way!
Send your request or questions to DME Applications Engineering: appl_eng@dme.net, and we will take it from there.

Constant Dimensions

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<th>HELICAL GEAR SHAFT</th>
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MOUNTING SCREWS AND DOWELS

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<th>HELICAL GEAR SHAFT</th>
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</tbody>
</table>

NOTE: It is recommended that a set of spare nylon nuts be kept on hand.
ESTORE & CAD LIBRARY

DME – Your One Stop Shop For Mold Technologies

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2-STAGE EJECTORS

Benefits

- Both the first stage and second stage strokes are set independently
- Easy set-up and installation
- Fixed strokes cannot be tampered with or accidentally modified
- Internal installation – avoids interferences with water line connectors and externally mounted components
- Utilizes latching mechanism similar to DME Internal Latch Lock for smooth operation and guidance
- Three sizes to choose from for each style, to accommodate most standard DME mold bases
- Hardened steel components for long life

Positive, Precise Plate Control

DME 2-Stage Ejectors (TS) adapt to a number of mold base sizes and plate thicknesses. They are available in two ejection sequences: Top Last (TL) and Bottom Last (BL). Each ejection sequence is available in three sizes to accommodate most standard DME mold bases. The stroke range for each ejection stage is determined and fixed by the customer by cutting the Center Rod to the desired length (both TL and BL types) and by also cutting the Travel Sleeve to the desired length (BL type only). Once installed, the DME 2-Stage Ejector ensures positive, precise control of the sequence and distance of each stroke of the two ejector plates. Once installed, there are no adjustments that can be accidentally changed.

Select 20mm diameter (small), 26mm diameter (medium), or 32mm diameter (large) 2-Stage Ejector based on the width of the mold base (large molds, thick plates or heavy load applications may require the next size assembly).

Determine the travel range for each ejection stroke (first and second), being careful not to exceed the maximum stroke specified for the chosen 2-Stage Ejector style and size. This selection is based on the specific application.

In general, a minimum of two 2-Stage Ejectors are required. For larger molds, thick plates, or an application where loads are near maximum, additional assemblies and/or larger assemblies may be required. An application must never exceed the maximum recommended load values.

A balanced load must be maintained to avoid cocking and binding which could cause severe overloading. Only one size of 2-Stage Ejectors should be used in each mold base.

<table>
<thead>
<tr>
<th>2-STAGE EJECTOR ASSEMBLY ITEM NUMBER</th>
<th>BASIC CENTER ROD DIA</th>
<th>STROKE 1</th>
<th>STROKE 2</th>
<th>RECOMMENDED MAXIMUM MOLD BASE WIDTH</th>
<th>MAXIMUM RECOMMENDED LOAD VALUES (PER ASSEMBLY)</th>
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<td>3.3 kN</td>
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<td>3.3 kN</td>
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<td>9.5</td>
<td>3.9</td>
<td>9.5</td>
<td>4406 lbf</td>
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</table>

*Toller Pins are not included with BL Assemblies and must be ordered separately.

NOTE: Toller Pins are not shown. Toller Pin must be purchased separately.

2-STAGE EJECTORS

Size and Assembly Selection Guidelines

- Select 20mm diameter (small), 26mm diameter (medium), or 32mm diameter (large) 2-Stage Ejector based on the width of the mold base (large molds, thick plates or heavy load applications may require the next size assembly).

2-STAGE EJECTOR ASSEMBLY

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<thead>
<tr>
<th>ITEM NUMBER</th>
<th>BASIC CENTER ROD</th>
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<tbody>
<tr>
<td></td>
<td>DIA</td>
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<tr>
<td></td>
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<tr>
<td>MINIMUM</td>
<td>MAXIMUM</td>
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<tr>
<td>STATIC</td>
<td>DYNAMIC</td>
</tr>
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<tr>
<td>TS126A 26mm (Medium)</td>
<td>6.0</td>
</tr>
<tr>
<td>TS132A 32mm (Large)</td>
<td>8.0</td>
</tr>
</tbody>
</table>

* Puller Pins are not included with BL Assemblies and must be ordered separately.
2-STAGE EJECTORS

Top Last Sequencing

1. Ejector Plates Back

2. First Ejector Stroke

After a predetermined amount of travel, the latch mechanism latches onto the Center Rod, thereby fixing the position of the bottom (moving platen side) ejector plate assembly.

3. Second Ejector Stroke

The top (stationary platen side) ejector plate assembly continues to move through the “second” (or remaining) stroke until the top ejector plate assembly contacts the bottom of the support plate.

2-STAGE EJECTORS

Bottom Last Sequencing

1. Ejector Plates Back

2. First Ejector Stroke

After a predetermined amount of travel, the latch mechanism latches onto the Center Rod, thereby fixing the position of the bottom (moving platen side) ejector plate assembly.

3. Second Ejector Stroke

The bottom (moving platen side) ejector plate assembly continues to move through the “second” (or remaining) stroke until the bottom ejector plate assembly contacts the top ejector plate assembly.
2-STAGE EJECTORS
Application Examples

2-Stage Ejector Bottom Last – TSBL
Application Example 1
1. First ejector stroke lifts cavity plate and ejector sleeve. Center pin remains back. Part is free to be ejected.
2. Second stroke moves the ejector sleeve, releasing the part from cavity. This configuration is recommended for parts with outside details with smooth or round edges.

2-Stage Ejector Bottom Last – TSBL
Application Example 2
1. First ejector stroke pulls the central core pin and sleeve forward. Part is released from cavity.
2. Second stroke pulls the center pin and part forward. Because of plastic elasticity the part is stripped from core. Recommended for parts with an inner undercut – a circular detail placed on the edge (for example, inward undercut).

2-Stage Ejector Bottom Last – TSBL
Application Example 3
1. First ejector stroke moves forward the cavity plate with inner plate. This movement is forcing the edge to move inward. At the end of the stroke the edge clears the inner undercut.
2. Second stroke actuates the ejector pin. This releases the part from the core. This configuration is recommended for parts with non-circular deep undercut details.

2-Stage Ejector Bottom Last – TSBL
Application Example 4
1. First ejector stroke lifts the collapsible core off the center pin. Collapse segments retract. After a certain traveling distance, when puller pin is clearing the inner side of segments, the positive collapse sleeve is actuated for positive collapse.
2. Second stroke moves the stripper plate past the end of the core so the part can be ejected from the mold. This configuration is recommended for complex undercuts, collapsible core applications.
2-STAGE EJECTORS

Application Examples

2-Stage Ejector Bottom Last – TSBL
Application Example 5
1. First ejector stroke moves the angle slide up. As a result the horizontal slide with the exterior detail pulls away from the part.
2. Second stroke actuates the ejector pin. Part is lifted behind the inner cavity. This configuration is recommended for outside deep details and thru holes.

2-Stage Ejector Top Last – TSTL
Application Example
1. First ejector stroke lifts part, central pin and ejector bushing out of “B” plate.
2. Second stroke actuates the ejector bushing and the part is pushed out of the central pin core. This configuration is recommended for inner undercuts with round, smooth edges.

• Tolerances depicted here are installation tolerances
• See component detail drawings for specific component tolerances
• Refer to applicable tables for nominal dimension
### 2-STAGE EJECTORS

#### Component Information – CR

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>CENTER ROD DIA</th>
<th>CENTER ROD LENGTH</th>
<th>MINIMUM</th>
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<td>30.0</td>
<td>29.0</td>
<td>30.0 mm</td>
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<td>29.0</td>
<td>30.0 mm</td>
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<td>30.0 mm</td>
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#### Component Information – TS

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<th>CENTER ROD LENGTH</th>
<th>MINIMUM</th>
<th>MAXIMUM</th>
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<td>TSTL20A 20mm (Medium)</td>
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<td>29.0</td>
<td>30.0 mm</td>
</tr>
<tr>
<td>TSTL20A 20mm (Large)</td>
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<td>30.0</td>
<td>29.0</td>
<td>30.0 mm</td>
</tr>
</tbody>
</table>

#### Assembly and Installation Guidelines

- At end of first stroke, Body for Cam Fingers must seat firmly against Center Rod flange.
- The Body must not apply full static pressure against Cam Fingers at end of first stroke.
- The moldmaker must cut and/or grind the Center Rod to the required length prior to installation of the 2-Stage Ejector assembly into the mold base. Do not cut off more than the minimum stroke (H2). The recommended tolerance on the Center Rod length after the customer has cut the Center Rod is +0/-0.02mm or less.
- Stroke 1 (H1) is reduced by cutting and/or grinding the moving platen end of the Center Rod.
- Stroke 2 (H2) is reduced by cutting and/or grinding the stationary platen end of the Center Rod. Minimum H2 specified in table does not include additional stop pins to stationary-side spacer plate. To reduce H2 even further than what is specified in table, add stop pins.
- All 2-Stage Ejectors in a mold must be cut to the same strokes.
- It is recommended that guided ejection be used.
- Ejector speed must be controlled, ensuring that excessive shock loading does not occur.
- 2-Stage Ejectors are not suitable for severe load conditions.
- 2-Stage Ejectors must not be exposed to temperatures that exceed 150°C (302°F) at any time.
- Lubricate all metal-to-metal contact areas initially and periodically as required. A good grade of moldmakers non-melting type grease for the appropriate temperature should be used.

#### Travel Sleeve – TS

<table>
<thead>
<tr>
<th>ASSEMBLY ITEM NUMBER</th>
<th>CENTER ROD DIA</th>
<th>COMPONENT ITEM NUMBER</th>
<th>D1 DIA</th>
<th>D2 DIA</th>
<th>D17 DIA</th>
<th>L1 DIA</th>
<th>L2 DIA</th>
<th>L3 DIA</th>
<th>L22 DIA</th>
<th>C1 CHAMFER</th>
<th>R RADIUS</th>
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<td>29.0</td>
<td>29.0 mm</td>
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<td></td>
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<td></td>
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</table>

**NOTE:** All dimensions shown for components are intended for drawing layout purposes only and in some cases have been rounded off. Also, the same diameter dimension is shown for parts that fit together, the tolerances create the appropriate clearance or fit.
2-STAGE EJECTORS
Component Information – Top Last

Body for Cam Fingers – BD
(Body only without Cam Fingers)

Cam Finger Replacement Kit – KT
With (6) Cam Fingers, and (8) Locking Pins

NOTE: All dimensions shown for components are intended for drawing layout purposes only and in some cases have been rounded off. Also, where the same diameter dimension is shown for parts that fit together, the tolerances create the appropriate clearance or fit.

2-STAGE EJECTORS
Assembly and Installation Information – Bottom Last

• Tolerances depicted here are installation tolerances
• See component detail drawings for specific component tolerances
• Refer to applicable tables for nominal dimension
2-STAGE EJECTORS

Assembly and Installation Information – Bottom Last

Bottom Last – TSBL

<table>
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<tr>
<th>ITEM NUMBER</th>
<th>CENTER ROD DIA</th>
<th>CENTER ROD LENGTH</th>
<th>TRAVEL SLEEVE LENGTH</th>
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Assembly and Installation Guidelines

- At end of second stroke, Body for Cam Fingers must seat firmly against Center Rod head or spacer plate.
- The moldmaker must cut and/or grind the Center Rod to the required length prior to installation of the 2-Stage Ejector assembly into the mold base. The recommended tolerance on the Center Rod length after the customer has cut the Center Rod is +0/-0.02mm or less.
- The moldmaker must cut and/or grind the Travel Sleeve to the required length prior to installation of the 2-Stage Ejector assembly into the mold base.
- Stroke 1 (H1) is reduced by cutting and/or grinding the moving platen end of the Center Rod.
- Stroke 2 (H2) is reduced by cutting and/or grinding the moving platen end of both the Center Rod and the Travel Sleeve.
- All 2-Stage Ejectors in a mold must be cut to the same strokes.
- It is recommended that guided ejection be used.
- Ejector speed must be controlled, ensuring that excessive shock loading does not occur.
- 2-Stage Ejectors are not suitable for severe load conditions.
- 2-Stage Ejectors must not be exposed to temperatures that exceed 150°C (300°F) at any time.
- Lubricate all metal-to-metal contact areas initially and periodically as required. A good grade of moldmakers non-melting type grease for the appropriate temperature should be used.
- A minimum of (4) Puller Pins should be used with each mold. Larger molds may require additional Puller Pins.
- The moldmaker must cut and/or grind the Puller Pins to the required length.
- Puller Pins are not included with Bottom Last Assemblies and must be ordered separately.

Center Rod – CR

<table>
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<tr>
<th>ASSEMBLY ITEM NUMBER</th>
<th>CENTER ROD DIA</th>
<th>COMPONENT ITEM NUMBER</th>
<th>D1 DIA</th>
<th>D2 DIA</th>
<th>D17 DIA</th>
<th>L10 LENGTH</th>
<th>L2 TRACK LENGTH</th>
<th>L3 LENGTH</th>
<th>L4 LENGTH</th>
<th>L5 PLATES</th>
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<td>70.00</td>
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Travel Sleeve – TS

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<th>CENTER ROD DIA</th>
<th>COMPONENT ITEM NUMBER</th>
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<th>D17 DIA</th>
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Note: All dimensions shown for components are intended for drawing layout purposes only and in some cases have been rounded off. Also, where the same diameter dimension is shown for parts that fit together, the tolerances create the appropriate clearance or fit.
Body for Cam Fingers – BD
(Body only without Cam Fingers)

2-STAGE EJECTORS
Component Information – Bottom Last

NOTE:
(BODY ONLY without Cam Fingers)

Body for Cam Fingers – BD
Component Information – Bottom Last

2-STAGE EJECTORS

Locking Ring – LR

NOTE: All dimensions shown for components are intended for drawing layout purposes only and in some cases have been rounded off. Also, where the same diameter dimension is shown for parts that fit together, the tolerances create the appropriate clearance or fit.

NOTE: A minimum of (4) Puller Pins should be used with each mold. Larger molds may require additional Puller Pins.

NOTE: For Locking Pin

NOTE: All dimensions shown for components are intended for drawing layout purposes only and in some cases have been rounded off. Also, where the same diameter dimension is shown for parts that fit together, the tolerances create the appropriate clearance or fit.

NOTE: Puller Pins are not included with BL Assemblies and must be ordered separately.

Bottom Last Replacement Component Item Numbers

Top Last Replacement Component Item Numbers

2-STAGE EJECTORS
Component Information – Bottom Last
2-STAGE EJECTORS

Component Information

Alternate Configurations
System Configuration for Central Ejector Rod Location

The illustrations below show one 2-Stage Ejector assembly that has been centrally located on the ejector plates.

TL Assembly

BL Assembly

TL and BL 2-Stage Ejectors – Cam Finger Removal Guide

NOTES:
- Cold rolled, low carbon steel must be used as a removal punch to avoid damaging the Cam Fingers and/or Body.
- The contact surface of the punch (where it rests against the Cam Finger) should be profiled with a curved surface that matches the exposed surface of the Cam Finger.
- Ensure that Body for Cam Fingers is firmly retained before attempting Cam Finger removal.

TL and BL 2-Stage Ejectors – Installation

Fitting:
1. Mount ejector rod #1 together with ejector plate. For safety please use LOCKRITE C 242.
2. Move over parts #2, 3 and 4 together and tighten up part #3 (SW2 see chart).
3. Tighten up adjusting bush #3 with assembly flange #4.

Recommended lubricants: C 135, C 160, C 170, etc.

Installation Instructions:
This device is preferably screwed together with the hydraulic machine ejector. The required internal or external thread of part #1 has to be made adequately. The ejector rod #1 may not be shortened by more than length k1, if the total stroke h3, including a possible deeper run in of part #1 into part #2, is not maintained. By rotating adjustment of bush #3 the first stroke h1 is continuously adjusted. With stroke h1 both ejector pin plates are moved simultaneously. On the following stroke h2 only the second ejector pin plate movement is continued. Choose the thickness of the spacer ring #7 so that there is at least 0.05mm clearance between the ejector pin plates (see Fig. 1).
**TWO-STAGE EJECTORS**

Two-Stage Single-Stroke Ejector – FW 1850

The two-stage single-stroke ejector can be integrated into ejection molding tools. This ejector automatically divides the motion into two sequential strokes.

The functional sequence associated with this makes it possible to create new mold ejection mechanisms.

<table>
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<tr>
<th>REF</th>
<th>d H MAX</th>
<th>H MIN</th>
<th>h1</th>
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<th>d2</th>
<th>d3</th>
<th>d4</th>
<th>d6</th>
<th>d7</th>
<th>d8</th>
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<th>I5</th>
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<th>SW2</th>
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**Adapter with Screw – FW 1851**

Material: 1.6582

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INTERNAL LATCH LOCK

DME’s Internal Latch Lock Allows Precision Control of Mold Plate Latching Operation

DME's unique internally-mounted latch lock mechanism adapts to a number of mold base sizes and plate thicknesses. It is available in four sizes to accommodate most standard DME stripper plate mold bases. Two travel ranges and two center puller pin lengths are available for each of the three latch lock sizes. Once installed, DME’s Internal Latch Locks control the sequence of one parting line opening after the first parting line has traveled a predetermined distance. After installation there are no adjustments that can be accidentally changed. The Internal Latch Locks are most commonly used on DME AX-Series stripper plate mold bases but can be used on other DME stripper plate mold bases as well.

- Four diameter sizes to choose from – 28mm, 34mm, 45mm and 60mm – depending on the size of the mold and the application
- Two travel ranges and two center puller pin lengths to choose from for each of the four sizes
- Hardened steel components for longer life
- Latching mechanism has built-in travel limitation
- When latch is released, latching cams hold released stripper plate in fully traveled position
- Easy set-up of timing for latching mechanism
- Internal installation avoids interferences with water line connectors and externally mounted components

Visit store.milacron.com for the latest pricing, product availability and online ordering.

INTERNAL LATCH LOCK SELECTION CHART

<table>
<thead>
<tr>
<th>MOLD BASE WIDTH</th>
<th>MINIMUM RECOMMENDED LOAD VALUES (PER ASS’Y.)</th>
<th>MAXIMUM RECOMMENDED LOAD VALUES (PER ASS’Y.)</th>
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<tr>
<td>STATIC</td>
<td>DYNAMIC</td>
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</tr>
<tr>
<td>19-3/4 in</td>
<td>220 lbs (1 kN)</td>
<td>440 lbs (2 kN)</td>
</tr>
<tr>
<td>20 in</td>
<td>350 lbs (1.6 kN)</td>
<td>700 lbs (3.2 kN)</td>
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<tr>
<td>22 in</td>
<td>500 lbs (2.2 kN)</td>
<td>1,000 lbs (4.5 kN)</td>
</tr>
<tr>
<td>24-1/2 in</td>
<td>620 lbs (2.8 kN)</td>
<td>1,250 lbs (5.6 kN)</td>
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<tr>
<td>27 in</td>
<td>770 lbs (3.5 kN)</td>
<td>1,540 lbs (7 kN)</td>
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<tr>
<td>30 in</td>
<td>920 lbs (4.2 kN)</td>
<td>1,840 lbs (8.4 kN)</td>
</tr>
<tr>
<td>35-1/2 in</td>
<td>1,200 lbs (5.4 kN)</td>
<td>2,400 lbs (10.8 kN)</td>
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<td>39 in</td>
<td>1,500 lbs (6.8 kN)</td>
<td>3,000 lbs (13.7 kN)</td>
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<tr>
<td>45 in</td>
<td>1,800 lbs (8.2 kN)</td>
<td>3,600 lbs (16.5 kN)</td>
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<tr>
<td>58 in</td>
<td>2,400 lbs (10.7 kN)</td>
<td>4,800 lbs (21.4 kN)</td>
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INTERNAL LATCH LOCK SIZE

INTERNAL LATCH LOCK ASSEMBLY ITEM NUMBER

<table>
<thead>
<tr>
<th>SIZE</th>
<th>DIA (Small)</th>
<th>DIA (Medium)</th>
<th>DIA (Large)</th>
<th>DIA (Extra)</th>
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<td>28mm</td>
<td>2811</td>
<td>2812</td>
<td>2821</td>
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<td>60mm</td>
<td>6011</td>
<td>6012</td>
<td>6021</td>
<td>6022</td>
</tr>
</tbody>
</table>

Visit store.milacron.com for the latest pricing, product availability and online ordering.
INTERNAL LATCH LOCK
Typical Application Design Guidelines

Basic Selection and Application Design Guidelines

1. Select the appropriate Internal Latch Lock size – 28mm diameter (small), 34mm diameter (medium), 45mm diameter (large) or 60mm diameter (extra) based on the width of the mold base, as indicated in the chart on page 123. However, large molds, thick plates or heavy load applications may require the next largest size assembly than is specified.

2. Select the appropriate travel range from the two choices for each size in the table on page 123. This selection is based on the specific application requirements for the amount of travel that must occur at one parting line prior to the latch being released. The total travel requirements are based on the amount needed for the application as explained above, plus 3mm (1/8") minimum additional allowance. This added 3mm minimum will make sure the full required travel has occurred before the latch lock starts its releasing action.

3. Select the appropriate length for the center puller pin from the two choices for each in the chart. The length of the pin is determined by the specific application including the mold base plate thicknesses, where the pin will be mounted, etc. If possible, the center puller pin should be mounted in the support plate. However, some applications require the center puller pin to be mounted in the bottom clamping plate. This will depend on the travel or the length of the split sleeve component which controls the travel and the plate thicknesses in the mold base.

4. The answers to the above items (1-3) should establish a specific item number as per the chart on page 123. A minimum of four assemblies are recommended per mold. However, for larger molds, thick plates, or an application where loads are near maximum, additional assemblies and/or next largest size assemblies may be required. An application must never exceed the maximum recommended load values. A balanced load must be maintained to avoid cocking and binding which could cause severe overloading. Only one size latch lock assembly should be used in each mold base.

5. The center puller pin should be counterbored into its mounting plate thickness, where the pin will be mounted, etc. If possible, the center puller pin should be mounted in the support plate. However, some applications require the center puller pin to be mounted in the bottom clamping plate. This will depend on the travel or the length of the split sleeve component which controls the travel and the plate thicknesses in the mold base.

6. The Internal Latch Lock is not recommended for severe load applications. The Internal Latch Lock must be exposed to temperatures that exceed 150°C (300°F) at any time.

7. An optional sleeve can be added to the latch lock that provides two additional functions. However, this optional sleeve is not required for the latch lock function. The optional sleeve can be added to incorporate guided ejection and/or normal ejector assembly return functions in the mold. Refer to page 127 for specific information regarding this sleeve option.

8. Injection molding machine mold opening speed may have to be reduced in order to make sure that excessive shock loading does not occur.

9. The answers to the above items (1-3) should establish a specific item number as per the chart on page 123. A minimum of four assemblies are recommended per mold. However, for larger molds, thick plates, or an application where loads are near maximum, additional assemblies and/or next largest size assemblies may be required. An application must never exceed the maximum recommended load values. A balanced load must be maintained to avoid cocking and binding which could cause severe overloading.

10. The Internal Latch Lock is not recommended for severe load applications. The Internal Latch Lock must be exposed to temperatures that exceed 150°C (300°F) at any time.

11. Lubricate all metal-to-metal contact areas initially and periodically and/or next largest size assemblies may be required. An application must never exceed the maximum recommended load values. A balanced load must be maintained to avoid cocking and binding which could cause severe overloading.

12. Only one size latch lock assembly should be used in each mold base.

13. The Internal Latch Lock is not recommended for severe load applications. The Internal Latch Lock must be exposed to temperatures that exceed 150°C (300°F) at any time.

14. An optional sleeve can be added to the latch lock that provides two additional functions. However, this optional sleeve is not required for the latch lock function. The optional sleeve can be added to incorporate guided ejection and/or normal ejector assembly return functions in the mold. Refer to page 127 for specific information regarding this sleeve option.

15. Injection molding machine mold opening speed may have to be reduced in order to make sure that excessive shock loading does not occur.

16. The answers to the above items (1-3) should establish a specific item number as per the chart on page 123. A minimum of four assemblies are recommended per mold. However, for larger molds, thick plates, or an application where loads are near maximum, additional assemblies and/or next largest size assemblies may be required. An application must never exceed the maximum recommended load values. A balanced load must be maintained to avoid cocking and binding which could cause severe overloading.

17. The Internal Latch Lock is not recommended for severe load applications. The Internal Latch Lock must be exposed to temperatures that exceed 150°C (300°F) at any time.

18. An optional sleeve can be added to the latch lock that provides two additional functions. However, this optional sleeve is not required for the latch lock function. The optional sleeve can be added to incorporate guided ejection and/or normal ejector assembly return functions in the mold. Refer to page 127 for specific information regarding this sleeve option.
INTERNAL LATCH LOCK
Component Dimensional Information

Assembly Retaining Screw

Spring Retainer

Body for Cam Fingers (Body Only Without Cam Fingers)

Spring for Holding Pin

Holding Pin for Cams

Slotted Travel Limiting Sleeve

NOTE:
All dimensions shown for components are intended for drawing layout purposes only and in some cases have been rounded off. These dimensions are not intended to be used for the manufacturing of any components. Also, where the same diameter dimension is shown for parts that fit together, the tolerances create the appropriate clearance or fit.

U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com
INTERNAL LATCH LOCK

Component Information

Cam Finger Replacement Kit

With (4) Cam Fingers, (6) Locking Pins, and (6) Rubber Springs*

*Two extra locking pins and rubber springs are included.

Component Item Numbers

LATCH SIZE DIA

28mm DIA

34mm DIA

45mm DIA

BASIC 45mm 34mm 28mm

LATCH LOCK CENTER PULLER PIN 40° INTERNAL LATCH LOCK ASSEMBLY ITEM NUMBER

L31 ITEM NO.

DKL2011 DKL2021 DKL2031 DKL2062 DKL2041 DKL2051

DKL2811 DKL2821 DKL2822

DKL3411 DKL3412, DKL3081 & DKL3072

DKL4511 DKL4512, DKL4081 & DKL4072

DKL6011 DKL6012, DKL6081 & DKL6072

COMPONENT ITEM NUMBER

DKL2011 DKL2021 DKL2031 DKL2062 DKL2041 DKL2051

DKL2811 DKL2821 DKL2822

DKL3411 DKL3412, DKL3081 & DKL3072

DKL4511 DKL4512, DKL4081 & DKL4072

DKL6011 DKL6012, DKL6081 & DKL6072

CENTER PULLER PIN

FINGER ITEM NUMBER

DKL2081

DKL2811, DKL2812, DKL2081

DKL3411, DKL3412, DKL3081 & DKL3072

DKL4511, DKL4512, DKL4081 & DKL4072

DKL6011, DKL6012, DKL6081 & DKL6072

NOTE:

All dimensions shown for components are intended for drawing layout purposes only and in some cases have been rounded off. These dimensions are not intended to be used for the manufacturing of any components. Also, where the same dimension is shown for parts that fit together, the tolerance creates the appropriate clearance or fit.

Add Guided Ejection and Return Pin Functions to Internal Latch Lock Mechanism with the Optional Sleeve

The optional Guided Ejection and Return Sleeves, although not required for the Internal Latch Lock, can add two functions to the mold base that are typically required in most molds. These optional sleeves can add guided ejection and ejector assembly return functions to the mold base. Additionally, these added functions fall within the space requirements of the plate latching mechanism. However, these optional sleeves do not create an early ejection return system that is occasionally required in some applications.

• Sleeves can add guided ejection function to mold base along with plate latching mechanism

• Sleeves can replace function of return pins in mold base for most applications using the plate latching mechanism

• Sleeves fit around the center puller pin of the plate latching mechanism and are mounted in the ejector assembly, thus eliminating the need for additional mold space usually required for the guided ejection and return pin functions

Replacement Components

Component Item Numbers

ITEM NO.

DKL2011 DKL2021 DKL2031 DKL2062 DKL2041 DKL2051

DKL2811 DKL2821 DKL2822

DKL3411 DKL3412, DKL3081 & DKL3072

DKL4511 DKL4512, DKL4081 & DKL4072

DKL6011 DKL6012, DKL6081 & DKL6072

COMPONENT Item Numbers

LATCH SIZE DIA

28mm DIA

34mm DIA

45mm DIA

BASIC 45mm 34mm 28mm

LATCH LOCK CENTER PULLER PIN 40° INTERNAL LATCH LOCK ASSEMBLY ITEM NUMBER

L31 ITEM NO.

DKL2011 DKL2021 DKL2031 DKL2062 DKL2041 DKL2051

DKL2811 DKL2821 DKL2822

DKL3411 DKL3412, DKL3081 & DKL3072

DKL4511 DKL4512, DKL4081 & DKL4072

DKL6011 DKL6012, DKL6081 & DKL6072

COMPONENT ITEM NUMBER

DKL2011 DKL2021 DKL2031 DKL2062 DKL2041 DKL2051

DKL2811 DKL2821 DKL2822

DKL3411 DKL3412, DKL3081 & DKL3072

DKL4511 DKL4512, DKL4081 & DKL4072

DKL6011 DKL6012, DKL6081 & DKL6072

CENTER PULLER PIN

FINGER ITEM NUMBER

DKL2081

DKL2811, DKL2812, DKL2081

DKL3411, DKL3412, DKL3081 & DKL3072

DKL4511, DKL4512, DKL4081 & DKL4072

DKL6011, DKL6012, DKL6081 & DKL6072

NOTE:

1. Choose the appropriate length sleeve so that it can be cut off to a length that will fully return the ejector assembly. See installation data.
2. The center puller pins must support and guide the sleeves, as well as the ejector assembly. The pins must have sufficient bearing surface contact as specified by dimension “L47” minimum.
3. Additional bearing surface contact for the center puller pins may require a thicker bottom clamping plate or the addition of another plate to the bottom of the mold for some applications. See installation data.
4. A minimum of four assemblies are typically recommended per mold. However, for larger molds, thick plates, or an application where loads are near maximum, additional assemblies and/or next largest size assemblies may be required. An application may never exceed the maximum recommended load values. A balanced load must be maintained to avoid cocking and binding which could cause severe overloading. Only one size latch lock assembly should be used in each mold base.
INTERNAL LATCH LOCK

Typical Applications

To float "A" plate away from top clamp plate while locking "A" and "B" plates. Center rod tied into bottom clamp plate.

EXTERNAL LATCH LOCK

Positive and Precise Positioning of Floating Plates

To float "X" plate away from "A" plate while locking "X" and "B" plates. Center rod tied into bottom clamp plate.
ACCELERATED KNOCK-OUTS

Accelerated Knock-Outs – Typical Application

The DME Accelerated Knock-Outs are simple in design, using a pivot-type motion for accelerated ejection. Mechanical advantage is 1:1. They will accommodate ejector pins up to 3/8” in diameter. (Pins with head diameters greater than 5/8” can be ground down to fit.)

Simplicity of design permits DME Accelerated Knock-Outs either to be inserted into the ejector plate (as shown below) or top-mounted, depending on space available for the ejection movement.

Typical Applications

DME External Latch Lock Allows Precision Control of Mold Plate Latching Operation

- Ideal for molds with floating plates, including stripper plates & 3-plate molds
- Floating plates are positively locked in place during mold opening and closing, preventing potential mold damage
- Ensures floating plates will be in the correct location throughout the life of the mold
- Positively and precisely positions plates every time the mold opens and closes, allowing molds to run faster
- Simplifies mold design while improving design flexibility
- Designed and engineered to hold large loads while saving space inside the mold

Example without delayed stroke sequence

Example with delayed stroke sequence

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<thead>
<tr>
<th>ITEM NUMBER</th>
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</tr>
</thead>
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<td></td>
</tr>
</tbody>
</table>

SA..PU - shock absorber, buffer damper
DI - maximum delayed stroke
D1 - maximum delayed stroke
TF - traction force (always retain the lowest)
LF - locking force (maximum holding force after stroke 1)
Sz - switching zone, stroke 2 begins slightly before the end of stroke 1
Backlash - Segments need clearance/play to allow the locking/unlocking sequence (built into the product)
**ACCELERATED EJECTORS**

**Accelerated Ejectors – General Information**

DME Accelerated Ejectors use a rack and pinion mechanism to provide up to 5/8” additional ejector stroke. Their simple, linear movement can be used to increase the speed and stroke of ejector pins, ejector sleeves or entire ejector assemblies. The flanges and rounded corners on these units facilitate installation within the ejector assembly. The rectangular cross-section of the racks prevents them from rotating. Included with each unit is a bumper stud, which ensures positive return of the racks when the ejector assembly is fully returned.

DME Accelerated Ejectors are available in two sizes (small or regular) and two types (pin or bumper). The pin type units are used for individual ejector pin acceleration (one unit per pin). Bumper type units are used for accelerating the entire upper ejector assembly in a dual ejector assembly mold (a minimum of four units are normally used in this application).

**Accelerated Ejector Dimensions**

**Bumper Type**

**Pin Type**

**U.S. Patent No. 3,893,644**
EARLY EJECTOR RETURN ASSEMBLY

Early Ejector Return assemblies are designed to save you time and money. Unique design permits simple, low-cost internal installation. Internal installation also helps control your maintenance costs as there are no outside projections to break or bend or to interfere with water line connections or slide movements. All wear surfaces are hardened to provide long life. The drawings below illustrate the simple, positive operation.

**For returning ejector plate before mold is closed**

**Early Ejector Return Operation Sequence**

**Normal Installation in Mold Base**

**Installation for Ejector Pin Travel Beyond Stripper Plate**

**NOTES:**
1. Care should be taken to ensure that the ejection assembly is evenly loaded. It is recommended that Guided Ejection be used.
2. Four (4) early ejector return assemblies are recommended per mold. Larger molds may require additional assemblies.
3. Timing of all units to be within ±.005 inch.

**Determining Post Length**

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<thead>
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<th>Mold Base Size</th>
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<th>1212A-Thru 1329A</th>
<th>1518A-Thru 2435A</th>
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<tbody>
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<td>1.000</td>
<td>1.000</td>
<td>1.500</td>
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<tr>
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<td>2.800</td>
<td>1.000</td>
<td>2.200</td>
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<tr>
<td>3 1/2</td>
<td>2.800</td>
<td>2.800</td>
<td>1.000</td>
<td>2.800</td>
</tr>
</tbody>
</table>

*Remove this amount of stock from bottom end of post.*
KNOCK OUT PUCKS

Knock Out Extension Pucks

Reversible K.O. Extension Puck

KO Extensions standardize mold ejector systems by unifying press knock out rod lengths. Wide range of thread configurations available for many different press types. The reversible puck can be mounted on either side to accommodate two different sizes of knock out rods.

**ITEM NUMBER**
- BCPE1038: 3/8"-16 UNC
- BCPE1058: 5/8"-11 UNC
- BCPE1034: 3/4"-10 UNC
- BCPE1538: 3/8"-16 UNC
- BCPE1558: 5/8"-11 UNC
- BCPE1534: 3/4"-10 UNC

**Material:**
Steel - 4140 or P20
Hardness - 28-32 HRc
Surface Treatment - Black Oxide

(4) 1/4"-20 SHCS included
* NT - No Thread, Mold Maker to Machine
**JIFFY LATCH-LOK™ ASSEMBLIES**

**Jiffy Latch-Lok™ Assemblies - Application Information**

A Simple, Easy-to-Install Device to Mechanically Float Plates

The DME Jiffy Latch-Lok™ provides new freedom in design to mechanically float plates. There is no need for electric switches, pneumatic controls or timing devices with delicate adjustments. The action of the Jiffy Latch-Lok is positive.

Once properly installed, the Latch-Lok eliminates the possibility of smashing the mold because there are no adjustments that can change, or connections that can be accidentally knocked off. The Jiffy Latch-Lok is available in sizes for regular or 90° (right angle) designs to provide maximum installation flexibility.

A minimum of four assemblies required per mold. Large molds may require additional assemblies.

**Replacement parts are available.**

<table>
<thead>
<tr>
<th>JIFFY LATCH-LOK™ ASSEMBLIES</th>
<th>Jiffy Latch-Lok™ Assemblies - Application Information</th>
</tr>
</thead>
</table>

**To Control Stripper Plate**

Cycle time is often wasted waiting for the press knock-out bar to function. With the application of the DME Jiffy Latch-Lok, as illustrated to the left, the stripper plate is moved in a secondary action of the mold opening without the aid of the press knock-out bar. The Jiffy Latch-Lok permits you to shorten the ejection stroke, improve cycle time and increase the number of parts per shift.

**To Float “X-1” Plate Away from “A” Plate while Locking “X-1” and “B” Plates**

In this application of the Jiffy Latch-Lok, the “X-1” plate is floated away from the “A” plate in the first mold opening sequence. At a predetermined opening (you determine the distance) the “X-1” plate is released from the “B” plate for the second mold opening. This application of the Jiffy Latch-Lok is particularly effective on “AX” or three-plate top runner molds.

**To Float “A” Plate Away from Top Clamp Plate while Locking “A” and “B” Plates**

In the DME Latch-Lok application illustrated here, the “A” plate moves away from the top clamp plate in the first mold opening. During this portion of the cycle, the “A” and “B” plates are locked. As the release bar passes the rocker, the “A” and “B” plates part in the second mold opening.

**Actuation of Ejector Assembly Without Aid of Press Knock-Out Bar (LL151 only)**

For those mold applications where a shorter press stroke is required, the DME Jiffy Latch-Lok is extremely effective. You can activate the Jiffy Latch-Lok at any time after the mold begins to open, and pull the ejector assembly forward. This simple action shortens cycle time and increases part production.

**Can also be used for “Reverse” Ejection from the Stationary Side of the Mold.**

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**JIFFY LATCH-LOK™ ASSEMBLIES**

**Jiffy Latch-Lok™ Assemblies - Application Information**

<table>
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<tr>
<th>ITEM NO.</th>
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<th>RELEASE BAR</th>
<th>SPACER</th>
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<tbody>
<tr>
<td>LL050</td>
<td>1/4</td>
<td>1/4</td>
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**Can also be used for “Reverse” Ejection from the Stationary Side of the Mold.**

**Replacement parts are available.**
**LATCH LOCKS**

**LATCH LOCKS**

**Latch Locks – General Information**

**KU**: Latch Locks – Baffle Bars

**KU112...**

appropriate for KL11070

**KL12...**

**KU12...**

appropriate for KL11070

**KL13...**

**KU22...**

appropriate for KL2256

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**LATCH LOCKS**

**Latch Locks – Typical Application**

**Combinations**

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---

**Spare Parts**

**KF**: Springs

**KK**: Heads

**KV**: Wearing Bars

---

**LATCH LOCKS**

**Strike**

**Detail “A”**

KL2/1/256

**KL1/1**

**KL1/2**

**KL1/3**

**KL2/2**

**KL2/256**

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**ITEM NUMBER**

**ITEM NUMBER**

**ITEM NUMBER**

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COUNTERVIEW® MOLD COUNTER

General Description

The CounterView R-Series accurately monitors mold operation, validates process monitoring data, and assists mold maintenance procedures. With a maximum operating temperature of 250°F (121°C), this precise unit has a non-resettable, mechanical, 7-digit counter and a glass-filled nylon housing for rugged durability.

The DME CounterView Mold Counter accurately monitors mold operation, validates process monitoring data, and assists mold maintenance procedures. With a maximum operating temperature of 250°F (121°C), this precise device uses a non-resettable, mechanical, 7-digit counter to record the number of times a mold closes. Easily mountable to accommodate changes for different mold insert heights, the unit’s counting mechanism relies on a sensor that detects when the mold has closed. Each mold cycle triggers the counting mechanism to increase the count on the display.

Benefits

- Positively monitors mold activity
- Confirms process monitoring data
- Maximizes mold maintenance procedures
- Enables access to mold information online at http://moldmonitor.com
- Glass-filled nylon housing for rugged durability

Each CounterView has a unique serial number that allows users to view mold information online at moldmonitor.com.
**General Description**

Expanding beyond the capabilities of the Counterview R-Series and 100/200 Series, the new CVe Monitor v2 tracks mold activity, allowing users to view the data on the display or from comprehensive reports using OnDemand software or the new CVe System.

**Mounting Options**

- **CVEMBID**: CVe Inch (with 8” rod) Extension (Includes 8” rod) #8-32 x 1” SHCS
- **CVEXT2**: External Mounting Block including #8-32 x 1” SHCS
- **CVEPLID**: CVe Inch Parting Line #8-32 x 1” SHCS
- **CVEINT**: Internal Extension Rod (8”/203mm) including #8-32 x 1” SHCS
- **CVEXC**: External Mounting Block including #8-32 x 1” SHCS
- **CVEXC2**: External Mounting Block including MetricSHCS
- **CVENMD**: CVe Inch (with Mounting Block) Parting Line #8-32 x 1” SHCS
- **CVEIMD**: CVe Inch Metric (with Mounting Block) Parting Line M4 x 25mm SHCS
- **CVEMBMD**: CVe Metric (with Mounting Block) Parting Line M4 x 25mm SHCS

**Benefits**

- 7-digit LCD display with a push button to move through the display modes
- 4GB flash drive for file storage and 4+ year battery life
- Water resistant with an ingress protection rating of IP52
- Maximum temperature: 190° F (90° C)
- Dimensional compatibility with mechanical CounterViews

**On-Mold Display Modes**

- **Cycle Count**: Total cycles for the life of the mold is presented on the main screen of the CVe Monitor.
- **Cycle Time**: Since the first production cycle, the cycle time is shown in seconds for the life of the mold.
- **Cycle Time - Recent**: Cycle time for the past 25,000 cycles.

**On-Demand Activity Log (Software Version 2.0.2.0) (3)**

- **U. S. 800-626-6653**
- **Canada 800-387-6600**
- **dme@milacron.com**
- **www.dme.net**
- **store.milacron.com**

---

**Counterview® Mold Counter**

**Alert Mode**

Once data is initialized using the OnDemand software, users will be alerted to different modes on the device:

**Preventive Maintenance**

During initialization, the initial preventive maintenance point and the PM interval is entered and saved onto the CVe Monitor. Then, when the PM is within 10% of the initial point, the display will flash “PM Due” as shown at right. Users can then ‘snooze’ the alert by holding for 2 seconds, returning it to Total Cycles.

When a PM is performed using OnDemand software and noted as such, the date/time will be written to the CVe Monitor and then the alert is stopped until reaching 10% of the next PM point. If no PM is performed, the CVe Monitor will continue to alert the user until snoozed or the PM is ultimately recorded.

**Low Battery**

The CVe Monitor has a battery life of approximately 4.5 years in typical molding environments where temperatures are controlled. When the battery is within 6 months of its expected end of life, the display will flash as shown at right. Users can then ‘snooze’ the alert by holding for 2 seconds, returning it to the Total Cycles. The alert will appear every 30 days as a reminder to transfer the stored data to a new CVe Monitor.

**Retrofitting and Removal**

Users can view additional data by double-clicking the button on the monitor:

**Retrofit CVe for CounterView Tools**

During initialization, users can start the cycle count with the tool’s actual cycle count from an existing CounterView or known cycles from maintenance records. Once entered, the user can see the total cycles for the tool, which includes the count of the cycles from the counter and those run with the CVe Monitor. In the screen at right, the tool had 1,000,000 cycles on it originally, but ran 507,288 cycles after the CVe Monitor was installed.

**Removal Monitoring**

When the CVe Monitor is removed from the tool for any reason (i.e. cleaning) the pins on the back of the device will record an event of its removal. After viewing the retrofit number above, the display will move into the screen shown at right, designating the number of times the monitor was removed from the mold.

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COUNTERVIEW® MOLD COUNTER

For real-time monitoring of tools, AST provides hardware and website access for OEMs and molders utilizing the CVe Monitors.

Features:
- Utilizes FCC and CE certified internal components
- Press Modules act as a node on a network, reducing the distance required in the plant for data submission to the Gateway
- Radio Frequency (RF) antennas are interference-free in typical molding environments
- Designated website for data collection, reporting, and file storage

Press Module
- 1 per press connects to the CVe Monitor via cables
- Power supply (US/International) included
- Sends data to the Gateway continuously
- Serves as a node on the network for tool running with a CVe Monitor

CVe Live Website
- Secure access for OEMs and molders is set up at the time of installation of the CVe Live hardware
- The dashboard gives information at a glance and allows for drill down into specifics on each tool
- User can mark favorites and also save searches for monitoring specific programs or suppliers
- Graphs for cycle times, efficiencies, and also preventative maintenance can be shown and saved
- Administration and security levels are controlled by the user, and access can be given to subcontractors to upload information or to initialize the CVe Monitors to begin submitting data

The file cabinet system is designed to store reports, tool and part drawings, and setup sheets can be utilized by customers with the Live system installed or those using OnDemand who are looking to have or give global access to tool information.

Program Watch™
OEMs and tool owners can view details and variances on their tools within a program by purchasing Program Watch from AST.

For more information, contact your territory manager, customer service, or email AST directly at orderdesk@ast-tech.de.

COUNTERVIEW® MOLD COUNTER

Drive comprehensive reporting using data from the CVe Monitor when running the OnDemand software is available at no charge from CVeMonitor.com.

OnDemand software enables the user to generate Adobe Acrobat (.pdf), Excel (.xls), and encrypted (.enc) reports to share with customers and other colleagues with these metrics:
A: When the CVe is initialized, users can identify their tool and align with the device serial number which is tracked on reports utilizing different field options.
B: The target cycle times and efficiency percentages can be entered. OnDemand also supports 10 languages: English, German, Mandarin, Spanish, French, Italian, Japanese, Korean, Portuguese and Thai. Reports, generated in the chosen language, compare actual values to targets, providing a quick view of any variances.
C: Statistics are provided to show quantity of total cycles and inactivity for the life of the tool.
D: Weekly sessions are presented graphically to show production efficiency levels.
E: Weekly cycle time tracking identifies tools with variances over the past year.
F: The productivity portion of the report takes the target preventive maintenance (PM) points set by the molder and compares them to actual maintenance.

The file cabinet system is designed to store reports, tool and part drawings, and setup sheets can be utilized by customers with the Live system installed or those using OnDemand who are looking to have or give global access to tool information.
This setup is designed for custom molders who use a variety of injection molds with different ejector patterns and ejector housing thicknesses.

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</tr>
<tr>
<td>2 or 4</td>
<td>FasTie Coupler</td>
</tr>
<tr>
<td>2 or 4</td>
<td>Fixed Length Ejector Bars or SpeedBar® Adjustable Length Bars</td>
</tr>
<tr>
<td>1</td>
<td>Air Manifold with tubing</td>
</tr>
</tbody>
</table>

**Couplers and Center Adapters on Press Ejector Plate**

Couplers are installed next to the press ejector plate. Pull studs are placed at the end of the mold-mounted ejector bars for easy removal. Molds are changed quickly without accessing the back of the press ejector plate. For example, a press with 4 ejector positions may be running molds using only the horizontal positions, but the next mold may need the 2 vertical ejector positions. Ejector housing shown is 1.062" thick. Air manifold supplies air to the end of each ejector bar for simultaneous coupler release.

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<tr>
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</table>

### FasTie® Quick Ejector Tie-In System Installation Examples

This setup is used where there is limited access to the back of the Press Ejector Plate. Custom molders using smaller presses will benefit from this application.

### Description & Use

In an injection molding press, the FasTie® system quickly "ties-in" the mold ejector plate to the press ejection system, dramatically reducing mold change time. The greatest time savings are realized in presses where space is limited and the ejector system is difficult to tie in using solid knockout bars.

The FasTie® coupler may be permanently mounted to the press ejector plate. The quick-connect locking mechanism in the coupler snaps mechanically onto the mold-mounted pull stud during mold installation.

To release the ejectors, apply shop air to the coupler. The coupler opens to release the pull stud, disconnecting the press and tooling ejector plates. The coupler remains in the open position, ready for a new mold to be set.

For multiple ejector locations, an air manifold is recommended to release all couplers simultaneously. See the following catalog pages for installation examples.

The FasTie® couplers and pull studs are available in 3 sizes to suit various applications: 1"-inch, 1-3/8"-inch and 2"-inch.

**Features & Benefits:**

- FasTie® installs easily into existing tapped holes; no additional machining is required
- FasTie® reduces mold setting time by quickly uncoupling, plus there are no loose parts to stow
- FasTie® remains coupled during mold cycling for increased "tie-in" reliability and reduced wear
- SpeedBar® adjusts quickly without tools to the exact length required (±1/2" (12.7 mm) from nominal in .006" (1.5 mm) increments)*
- SpeedBar® relieves molders from the time and trouble of machining ejector bars to fit different molds*

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* 1-inch only
FasTie®
Quick Ejector Tie-In System Installation Examples

Coupler in Center Ejector Position
Center Ejector Bar and Coupler are installed into the press ejector plate, with the Coupler attached to the end. The pull stud is installed in the mold ejector plate. Molds are changed quickly without accessing the back of the press ejector plate. Ejector housing shown is 1.062” thick. Shop air is supplied to the side of the center adapter. No air manifold is needed. Fully-threaded Center Ejector Bar may be shortened to proper length on-site. In many small machines, there may not be room for an ejector bar.

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</table>

High Strength Couplers and Studs are recommended for 1” applications.

For small presses with a center ejector, replace the cylinder bolt with a Center Ejector Bar and FasTie coupler.

Couplers at the End of Ejector Bars
Couplers are located at the end of the ejector bars mounted to the press ejector plate. Pull studs are mounted to each mold in storage. Ejector connection is made without changing ejector bars. Ejector housing shown is 1.062” thick. Air manifold supplies compressed air to the end of each ejector bar for simultaneous coupler release. Fixed length bars are finished on-site, cut to length and tapped with ½-13 female thread.

Parts List
<table>
<thead>
<tr>
<th>Qty</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FasTie Pull Stud</td>
</tr>
<tr>
<td>1</td>
<td>FasTie Coupler</td>
</tr>
<tr>
<td>1</td>
<td>Fixed Length Ejector Bars or SpeedBar® Adjustable Length Bars</td>
</tr>
<tr>
<td>1</td>
<td>Air Manifold with tubing</td>
</tr>
</tbody>
</table>

Accessories
Additional parts to aid installation and use:

- **SPEEDBAR Adjustable Length Ejector Bar**
  Changes length without tools in increments of .006”. Air passes through the bar for air hook-up at the back of the press ejector plate.

- **Fixed Length Ejector Bar**
  Provides an air passage to the back of the press ejector plate. Several lengths are stocked with one blank end for on-site finishing.

- **Center Ejector Bar and Center Adapter**
  Provides an air passage in front of the press ejector plate for center knockout. Also for use with multiple knockouts.

- **Air Manifold**
  Splits single air supply into four circuits to aid air connection. Comes with ¼” diameter tubing and pneumatic connectors.

*1-inch, ½-13 threaded only

FasTie®
Quick Ejector Tie-In System Installation Examples

Specifications
- **Maximum operating temp** ............... 300°F (149°C)
- **Air pressure range** ..................... 80–100 psi
- **Pull stud material** ................. Hardened Steel (58–62 Rc)
- **Ejector bar and coupler material** .......... High Strength Steel
- **Threaded studs** ......................... B7 Alloy or Comparable
- **Air manifold material** ........... Aluminum
- **Air tubing material** ................. Alum∙nium ¼” OD Nylon

Press Requirements

**COUPLER SIZE**

<table>
<thead>
<tr>
<th>Press Tonnage</th>
<th>1-inch</th>
<th>1-⅛-inch</th>
<th>2-inch</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–250</td>
<td>1” HS</td>
<td>1” HS</td>
<td>1” HS</td>
</tr>
<tr>
<td>250–500</td>
<td>1-⅛” or 1-⅞”</td>
<td>1” HS or 1-⅞”</td>
<td></td>
</tr>
<tr>
<td>500–750</td>
<td>2”</td>
<td>1-⅛” or 2”</td>
<td>1-⅞” or 2”</td>
</tr>
<tr>
<td>750–1000</td>
<td>2”</td>
<td>1-⅛” or 2”</td>
<td>1-⅞” or 2”</td>
</tr>
<tr>
<td>1000+</td>
<td>Do not use</td>
<td>2”</td>
<td></td>
</tr>
</tbody>
</table>

KNOCKOUT QUANTITY

<table>
<thead>
<tr>
<th>Press Tonnage</th>
<th>1” Center</th>
<th>2”</th>
<th>4”</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–250</td>
<td>1” HS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>250–500</td>
<td>1” HS or 1-⅞”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>500–750</td>
<td>2” HS or 2”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>750–1000</td>
<td>2” HS or 2”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000+</td>
<td>Do not use</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Recommended FasTie Size Per Press Size & Knockout Qty

For best results, use the largest FasTie that will fit into the press.

SpeedBar®
U.S. Patent No. 6,315,544

Fixed Length Ejector Bar

Center Ejector Bar

Center Adapter

Air Manifold

Contact DME for special thread sizes for Ejector Bars and Center Adapters
FasTie®
Quick Ejector Tie-In System - 1-inch Couplers and Pull Studs

FasTie Coupler Design employs three locking lugs, to dramatically increase the load-bearing surface area of the components.

Standard FasTie Couplers and Pull Studs

High Strength FasTie Couplers and Pull Studs
Center knockout, multiple and high-speed ejection indicate the need for High Strength FasTie Couplers and Pull Studs. High Strength Couplers and Pull Studs are longer than the original parts (see above), and are not to be used in combination with Original Couplers and Pull Studs. All accessories are compatible with both styles of Couplers and Pull Studs.

NOTE: Do not use HS FasTie Couplers in combination with standard version (above). Damage to couplers will result. Maximum installed center line misalignment of coupler and pull stud is +/- 3.5mm/0.138”.

FasTie®
Quick Ejector Tie-In System - 1-inch Accessories

Fixed Length Ejector Bar ½-13 threads

SPEEDBAR Adjustable Ejector Bar ½-13 threads
Adjusts +/- 1/2” from base height

Center Bar (use with FTFHS-63 only)

Center Adapter

FasTie Pull Stud in Locked Position

Contact Area

Threads per Model Number

Threads per Model Number

FasTie Pull Stud

FasTie Coupler

FasTie High Strength Coupler

FasTie High Strength Pull Stud

FasTie Pull Stud

FasTie High Strength Pull Stud

Air Handling Parts

FTAM100 Air Manifold Assembly
FTPF2 Pneumatic Fitting
90° Elbow, 10–32 × 1/8" OD tube
FTTI125 Tubing 1/8" OD, nylon

Call DME for a quote on thread sizes not shown

FTMH538 5/8-11
FTMH550 5/8-11
FTMH5M12 M12 × 1.75
FTMH5M16 M16 × 2
FTMH5M20 M20 × 2

FTMH5S3 5/8-11
FTMH5S50 5/8-11
FTMH5SM12 M12 × 1.75
FTMH5SM16 M16 × 2
FTMH5SM20 M20 × 2

FTFHS50 5/8-11
FTFHS5S3 5/8-11
FTFHS5M12 M12 × 1.75
FTFHS5M16 M16 × 2

FTF50 1/2-13
FTF63 5/8-11
FTFM12 M12 × 1.75
FTFM16 M16 × 2

FTM38 3/8-16
FTM50 1/2-13
FTM63 5/8-11
FTMM12 M12 × 1.75
FTMM16 M16 × 2
FTMM20 M20 × 2

FTF50 1/2-13
FTF63 5/8-11
FTFM12 M12 × 1.75
FTFM16 M16 × 2

FTCA63 5/8-11
FTCAM16 M16 × 2
FTCAM20 M20 × 2

FTAM100 Includes:
- Manifold
- (4) 5/8” elbow pneumatic fittings
- (4) 1/4” × 4ft tubing

Linear = mm
inch (TYP)
### FastTie Components

#### FastTie 1-3/8-Inch Components

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>THREADED SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTF1-M20</td>
<td>M20 × 2.5</td>
</tr>
</tbody>
</table>

#### FastTie 2-Inch Components

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>THREADED SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTF2-M36</td>
<td>M36 × 4</td>
</tr>
</tbody>
</table>

### FastTie 3 Inch Couplers & Pull Studs

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>THREAD SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTFL3-M3XV</td>
<td>M36 x 6</td>
</tr>
</tbody>
</table>

### FastTie 1-3/8 & 2-Inch Couplers and Pull Studs

**Quick Ejector Tie-In System**

**FasTie Fasteners**

**FasTie Components**

**Ejector Bars for 1-3/8-inch and 2-inch FasTie’s** are special orders. Contact DME Industrial Supplies for information.

---

**Finished Bar Fixed Length Knockout (Typical Applications)**

- Thru-hole centering
- Unthreaded both ends, cut to length
- End threads are optional (shown for position only, not included)

**Maximum installed center line misalignment of coupler and pull stud is +/-5mm (0.197")**

**Determining Knockout Bar Length**

1. **Determine length of Solid Knockout Bar**
   - Subtract Connected FasTie length from Solid Knockout Bar length
   - Subtract Center Adapter length if necessary
   - \[ \text{Result} = \text{FasTie Knockout Bar length} \]

2. **Determine Ejector Bar Length**
   - Subtract Connected FasTie length from table
   - \[ \text{Ejector Bar length} = \frac{\text{Result} - \text{Connected FasTie Length}}{2} \]

3. **Determine Knockout Bar Length**
   - **Standard FasTie**
     - FTFL-s and FTM-s
     - \[ \text{Connected FasTieLength} = \frac{\text{Result} - \text{Connected FasTie Length}}{2} \]
   - **High Strength FasTie**
     - FTFLHS-s and FTMHS-s
     - \[ \text{Connected FasTieLength} = \frac{\text{Result} - \text{Connected FasTie Length}}{2} \]
   - **3" FasTie**
     - FTFL3-s and FTM3-s
     - \[ \text{Connected FasTieLength} = \frac{\text{Result} - \text{Connected FasTie Length}}{2} \]

---

**Minimum clearance needed to disengage coupler and pull stud**

<table>
<thead>
<tr>
<th>SIZE</th>
<th>CLEARANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot; HS</td>
<td>0.50” (13mm)</td>
</tr>
<tr>
<td>1-3/8&quot;</td>
<td>0.61” (12mm)</td>
</tr>
<tr>
<td>2&quot;</td>
<td>1.00” (25mm)</td>
</tr>
<tr>
<td>3&quot;</td>
<td>1.34” (34mm)</td>
</tr>
</tbody>
</table>

---

**Maximum Installed Misalignment (reference)**

- **Maximum center line misalignment per coupler size:**
  - \[ \text{Max. Inst. Misalignment} = \frac{\text{Result} - \text{Connected FasTie Length}}{2} \]
Quick Action Ejector Return Couplings for Presses with Hydraulic Ejection

**Economical**
- Shorts changeover times
- Only one unit required per injection molding machine

**Universal**
- Can be put into existing molds to save time and money
- Hydraulic return by means of fixed coupling
- Pulsating ejection possible

**Hydraulic return by means of fixed coupling**

**Pulsating ejection possible**

**Only one unit required per injection**

**Shortens mold changeover times**

**Ejector Return Couplings – General Information**

**Ejector Return Couplings – AR**

**AR01 Ø24**

**AR02 Ø42**

**Quick return coupling (incl. connecting plug)**

**Connecting plug**

**Installation**

1. Move the ejector plate to the molding position (mold closed).
2. Move also the ejector cylinder rod to the fully retracted position. It is important to check by hand, that the rod is fully pushed back to the fully retracted position before measuring.
3. Measure the distance between the coupling and the ejector cylinder rod.
4. Extend the ejector cylinder rod with an extra knock-out rod of the measured length + 30mm for AR01 and 50mm for AR02.
5. Move the mold ejector plates to the forward position (mold open).
6. Lock both the extra knock-out rod and at the other end the coupling is made. If not, adjust.
7. Move the mold ejector plates back to the mold closed position and make the coupling between ejector plate and ejector cylinder rod. Make sure that the plate and cylinder rod are both in the mold closed position as soon as the coupling is made. If not, adjust.
8. Do not use with quick-change mold systems.

**Technical Data**

**Item**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Hole Diameter (mm)</th>
<th>Hole Finish</th>
<th>Hole Depth</th>
<th>Maximum Force (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP10D</td>
<td>10</td>
<td>M5-8</td>
<td>3</td>
<td>30.5kg (67lb)</td>
</tr>
<tr>
<td>FP13D</td>
<td>13</td>
<td>M6-1</td>
<td>4</td>
<td>82.5kg (184lb)</td>
</tr>
<tr>
<td>FP16D</td>
<td>16</td>
<td>M8-1.25</td>
<td>5</td>
<td>150kg (330lb)</td>
</tr>
<tr>
<td>FP20D</td>
<td>20</td>
<td>M10-1.5</td>
<td>6</td>
<td>212.5kg (468lb)</td>
</tr>
</tbody>
</table>

**NOTE:** Dimensions are in millimeters (mm).

**Quick Action Ejector Return Couplings for Presses with Hydraulic Ejection**

**Friction Pullers**

Friction Pullers provide optimal parting line control. The Friction Puller controls plate movement by using friction at a specified setting to release the mold plate when the travel limit is achieved. Available in four sizes (10mm, 13mm, 16mm and 20mm), Friction Pullers may be used to consistently draw floating plates and inserts.

**Friction Puller Advantages and Benefits**

- Reference arrows enable easy adjustment
- Self-locating even if plates shift due to thermal expansion or machining variances
- Internal self-venting eliminates the need for additional machining
- Fastener includes Nylok® patch for secure installation

**FRICTION PULLERS**

**FRICTION PULLERS – Advantages and Benefits**

**DME Friction Pullers provide optimal parting line control. The Friction Puller controls plate movement by using friction at a specified setting to release the mold plate when the travel limit is achieved. Available in four sizes (10mm, 13mm, 16mm and 20mm), Friction Pullers may be used to consistently draw floating plates and inserts.**
LIMIT SWITCHES

Thinswitch® Liquid-Resistant Limit Switch

General Description
Thinswitch® Liquid-Resistant Limit Switch is designed to verify ejector plate return in areas where occasional water or oil spray is present. The Thinswitch helps prevent accidental mold close in injection molding applications by providing a position switch that is tied to the injection molding machine control. The liquid resistant switch uses the same mounting hole locations as the original Thinswitch.

The Thinswitch has been tested for reliability over 10 million cycles without failure. Two switches can be used in series for larger molds to ensure the ejector plate return, preventing costly mold damage.

Features and Benefits
• Over 10 million cycle life
• 175°F (79.4°C) standard temperature rating
• 250°F (121°C) high-temperature unit for higher temperature needs
• Adjustable actuation between .187" and .250" from the mold base
• ⅛" thick design fits snugly behind the ejector plate between the rest buttons
• Stripped and tinned 6 ft. wire leads
• Mounting screws and wire clips included

NOTE: Premature spring and switch failure may result by adjusting the operating point more than .020" (.5mm) before the end of the ejector plate stroke.

The Thinswitch® Limit Switch is specially designed to verify ejector plate return before permitting the mold to close in injection molding machines. Thin enough to fit inside the ejector housing, it can also be used for core slides, or any place space is limited.

The Thinswitch Limit Switch has been tested for reliability in more than 10 million cycles without failure. Two switches can be used in series for larger molds to ensure the ejector plate returns, preventing costly mold damage.

The Thinswitch Limit Switch is designed for use in very low power mold protection control circuits. It is not intended to switch heavy loads in power applications.

• Prevents costly damage by ensuring the ejector assembly is fully returned
• Adjustable operating point allows actuation between .187" and .250" from the base
• ⅛" thick design fits snugly behind the ejector plate in the space provided by the rest buttons
• Included mounting hardware installs the Thinswitch Limit Switch easily

High Temperature Thinswitch HT291

The Thinswitch® Limit Switch is specially designed to verify ejector plate return before permitting the mold to close in injection molding machines. Thin enough to fit inside the ejector housing, it can also be used for core slides, or any place space is limited.

The Thinswitch Limit Switch has been tested for reliability in more than 10 million cycles without failure. Two switches can be used in series for larger molds to ensure the ejector plate returns, preventing costly mold damage.

The Thinswitch Limit Switch is designed for use in very low power mold protection control circuits. It is not intended to switch heavy loads in power applications.

• Prevents costly damage by ensuring the ejector assembly is fully returned
• Adjustable operating point allows actuation between .187" and .250" from the base
• ⅛" thick design fits snugly behind the ejector plate in the space provided by the rest buttons
• Included mounting hardware installs the Thinswitch Limit Switch easily

NOTE: Premature spring and switch failure may result by adjusting the operating point more than .020" (.5mm) before the end of the ejector plate stroke

In stock to provide same-day delivery

Thinswitch includes 2 cable tabs.

Note: Design and specifications are subject to change.

The Thinswitch® Limit Switch is designed for use in very low power mold protection control circuits. It is not intended to switch heavy loads in power applications.

Ejector Housing Base

Rest Button

Drill and tap A10-24 x 3/8" deep to accept #10-24 button head screws included with Thinswitch® liquid resistant limit switch

6.4mm/.250in Max Actuation Height

4.8mm/.188in Min Actuation Height

4.8mm/.188in Min Actuation Height

4.8mm/.188in Min Actuation Height

CABLE

DRILL AND TAP A10-24 x 3/8" DEEP TO ACCEPT #10-24 BUTTON HEAD SCREWS INCLUDED WITH THINSWITCH® LIQUID RESISTANT LIMIT SWITCH

31.8mm/1.250in

38.1mm/1.500in

25.4mm/1.000in

6.4mm/.250in

5.5mm/0.217in

3.5mm/.138in

3.5mm/.138in

3.5mm/.138in

3.5mm/.138in

2 cable tabs.
LIMIT SWITCHES

**Thinswitch**® Limit Switch

**LIMIT SWITCHES**

**Rest Button**

Ejector Housing Base

**Actuation Height**

**Dimensions**

- **Body:** Fiber-reinforced nylon
- **Spring:** Stainless steel
- **Dome:** Polyester film

**Specifications**

**Material**

- Body: Fiber-reinforced nylon

**Wire Leads**

- 28 ga. stranded, 2-conductor shielded cable, 2m long

**Contact Action**

- SPDT, switching action, with gold-plated internal switch mechanism

**Operating Temperature**

- **EU Standard**
  - Maximum: 176°F (80°C)
  - Minimum: 65°F (18°C)

- **NA Standard**
  - Maximum: 250°F (121°C)
  - Minimum: 65°F (18°C)

**Rated Current (Resistive) vs. Operating Steel Temperature**

<table>
<thead>
<tr>
<th>Condition</th>
<th>EU Standard</th>
<th>NA Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>100°F (37°C)</td>
<td>9.2</td>
<td>4.5</td>
</tr>
<tr>
<td>150°F (65°C)</td>
<td>9.2</td>
<td>6.5</td>
</tr>
<tr>
<td>200°F (93°C)</td>
<td>9.2</td>
<td>8.5</td>
</tr>
<tr>
<td>250°F (121°C)</td>
<td>9.2</td>
<td>10.5</td>
</tr>
</tbody>
</table>

**Installation Instructions for Bracket**

1. Thinswitch Limit Switch
2. Allen Wrench (for height adjustment)
3. Screwdriver (No. 1 x 1/2" button head)
4. Wire Clamps (0.5" x 0.2" with 2" ASME mounting hole)
5. Instruction Sheet

**Rated Current (Inductive) vs. Operating Steel Temperature**

<table>
<thead>
<tr>
<th>Condition</th>
<th>EU Standard</th>
<th>NA Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>100°F (37°C)</td>
<td>9.2</td>
<td>4.5</td>
</tr>
<tr>
<td>150°F (65°C)</td>
<td>9.2</td>
<td>6.5</td>
</tr>
<tr>
<td>200°F (93°C)</td>
<td>9.2</td>
<td>8.5</td>
</tr>
<tr>
<td>250°F (121°C)</td>
<td>9.2</td>
<td>10.5</td>
</tr>
</tbody>
</table>

**Part Numbers for Inductive Loads**

- 348-480-682 (~2m)
- 348-480-683 (2x) screw
- Use Clip M3x6 or (2x) screw
- Drill and Tap #10-24 x 3/8" DP to accept cable

**Common Materials**

- brass (White)
- stainless steel (Black)
- nylon (Red)

**Contact Colors**

- Opens: Black
- Closes: White
MOLD INTERLOCKS

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Visit store.milacron.com for the latest pricing, product availability and online ordering.
MOLD INTERLOCKS
IN2 Mold Interlock Benefits

DME Side Interlocks provide:
• Accurate alignment of mold halves
• Easy installation
• Easy and cost-effective maintenance
• Industry-compatible sizes

Installation
• Install four (4) IN2 Side Interlocks per mold (one per side)
• Install IN2 Side Interlocks on the Center Line of each side of the mold
• Replace IN2 Interchangeable Inserts as desired

Side Interlock Dimensions

<table>
<thead>
<tr>
<th>WIDTH</th>
<th>HEIGHT FEMALE</th>
<th>HEIGHT MALE</th>
<th>INTERLOCK HEIGHT</th>
<th>INTERLOCK BASE</th>
<th>THICKNESS</th>
<th>RADIUS</th>
<th>SCREW LOCATIONS</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.500</td>
<td>0.875</td>
<td>0.875</td>
<td>0.490</td>
<td>0.450</td>
<td>0.300</td>
<td>0.26</td>
<td>#8-32 X .62</td>
<td>1/16</td>
</tr>
<tr>
<td>2.000</td>
<td>1.375</td>
<td>0.875</td>
<td>0.640</td>
<td>0.750</td>
<td>0.300</td>
<td>0.26</td>
<td>#10-32 X .62</td>
<td>3/16</td>
</tr>
<tr>
<td>3.000</td>
<td>1.875</td>
<td>0.875</td>
<td>1.250</td>
<td>1.250</td>
<td>0.39</td>
<td>0.375</td>
<td>1/4-20 X .88</td>
<td>3/8</td>
</tr>
</tbody>
</table>

Side Interlock Ordering Information – SIS, SII

Material – Male Interlock: High-Speed Tool Steel
Material – Interlock Inserts: Graphitic Tool Steel
Hardness: 61-65 HRC
Hardness: 48-52 HRC

<table>
<thead>
<tr>
<th>INTERLOCK SET* ITEM NUMBER</th>
<th>W INTERLOCK WIDTH</th>
<th>REPLACEMENT INTERCHANGEABLE INSERTS** ITEM NUMBER</th>
<th>REPLACEMENT INTERCHANGEABLE INSERT SET*</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIS150023</td>
<td>1.500</td>
<td>48150 (3)</td>
<td>48150A</td>
</tr>
<tr>
<td>SIS200023</td>
<td>2.000</td>
<td>50200 (5)</td>
<td>50200A</td>
</tr>
<tr>
<td>SIS300023</td>
<td>3.000</td>
<td>51300 (9)</td>
<td>51300A</td>
</tr>
</tbody>
</table>

*Sets include one (1) female, one (1) male, two (2) inserts, four (4) SHCS.
**Replacement Interchangeable Inserts are sold as pairs.

DME offers another innovation: IN2 Innovative Interlocks with Interchangeable Inserts. Interchangeable Inserts offer you simple, cost-effective maintenance. No need to replace the entire set when you use IN2 Innovative Interlocks with Interchangeable Inserts.

Precision tolerancing, precision manufacturing means off-the-shelf interchangeability
DME IN2 Mold Interlocks are manufactured to exacting standards. Precise dimensional and geometrical tolerances ensure interchangeability. Interchangeability that no one else in the industry matches – no one. Precision tolerancing and manufacturing ensures that all DME IN2 Mold Interlock components are interchangeable – off-the-shelf. Replace any DME IN2 Mold Interlock component independently – no need to replace the entire set. No one else offers this level of interchangeability – no one.

The DME Standard of Interchangeable Interlock Components sets DME apart from the industry.

And now …
IN2 Mold Interlocks provide:
• Accurate alignment of mold halves
• Easy installation
• Easy and cost-effective maintenance
• Industry-compatible sizes

Installation:
• Install four (4) IN2 Side Interlocks per mold (one per side)
• Install IN2 Side Interlocks on the Center Line of each side of the mold
• Replace IN2 Interchangeable Inserts as desired

High-Speed Tool Steel
Hardness: 61-65 HRC

With Interchangeable Inserts
DME offers another innovation: IN2 Innovative Interlocks with Interchangeable Inserts. Interchangeable Inserts offer you simple, cost-effective maintenance. No need to replace the entire set when you use IN2 Innovative Interlocks with Interchangeable Inserts.

IN2 Mold Interlock Benefits

DME IN2 Mold Interlocks are manufactured to exacting standards. Precise dimensional and geometrical tolerances ensure interchangeability. Interchangeability that no one else in the industry matches – no one. Precision tolerancing and manufacturing ensures that all DME IN2 Mold Interlock components are interchangeable – off-the-shelf. Replace any DME IN2 Mold Interlock component independently – no need to replace the entire set. No one else offers this level of interchangeability – no one.

The DME Standard of Interchangeable Interlock Components sets DME apart from the industry.

And now …
DME offers another innovation: IN2 Innovative Interlocks with Interchangeable Inserts. Interchangeable Inserts offer you simple, cost-effective maintenance. No need to replace the entire set when you use IN2 Innovative Interlocks with Interchangeable Inserts.

Precision tolerancing, precision manufacturing means off-the-shelf interchangeability
DME IN2 Mold Interlocks are manufactured to exacting standards. Precise dimensional and geometrical tolerances ensure interchangeability. Interchangeability that no one else in the industry matches – no one. Precision tolerancing and manufacturing ensures that all DME IN2 Mold Interlock components are interchangeable – off-the-shelf. Replace any DME IN2 Mold Interlock component independently – no need to replace the entire set. No one else offers this level of interchangeability – no one.


IN2 Mold Interlock Dimensions

<table>
<thead>
<tr>
<th>WIDTH</th>
<th>HEIGHT FEMALE</th>
<th>HEIGHT MALE</th>
<th>INTERLOCK HEIGHT</th>
<th>INTERLOCK BASE</th>
<th>THICKNESS</th>
<th>RADIUS</th>
<th>SCREW LOCATIONS</th>
<th>SIZE</th>
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<tbody>
<tr>
<td>1.500</td>
<td>0.875</td>
<td>0.875</td>
<td>0.490</td>
<td>0.450</td>
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<td>0.26</td>
<td>#8-32 X .62</td>
<td>1/16</td>
</tr>
<tr>
<td>2.000</td>
<td>1.375</td>
<td>0.875</td>
<td>0.640</td>
<td>0.750</td>
<td>0.300</td>
<td>0.26</td>
<td>#10-32 X .62</td>
<td>3/16</td>
</tr>
<tr>
<td>3.000</td>
<td>1.875</td>
<td>0.875</td>
<td>1.250</td>
<td>1.250</td>
<td>0.39</td>
<td>0.375</td>
<td>1/4-20 X .88</td>
<td>3/8</td>
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Side Interlock Ordering Information – SIS, SII

Material – Male Interlock: High-Speed Tool Steel
Hardness: 61-65 HRC
Material – Interlock Inserts: Graphitic Tool Steel
Hardness: 48-52 HRC

<table>
<thead>
<tr>
<th>INTERLOCK SET* ITEM NUMBER</th>
<th>W INTERLOCK WIDTH</th>
<th>REPLACEMENT INTERCHANGEABLE INSERTS** ITEM NUMBER</th>
<th>REPLACEMENT INTERCHANGEABLE INSERT SET*</th>
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</thead>
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<tr>
<td>SIS150023</td>
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<td>48150 (3)</td>
<td>48150A</td>
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<tr>
<td>SIS200023</td>
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<td>SIS300023</td>
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*Sets include one (1) female, one (1) male, two (2) inserts, four (4) SHCS.
**Replacement Interchangeable Inserts are sold as pairs.
MOLD INTERLOCKS

Straight-Side Interlocks

• Provides positive alignment for molds with interlocking cavities and cores

![Straight-Side Interlocks – PLM, PLF](image)

Material: 8620 Steel-Carburized, Hardened and Ground

Hardness: PLM: 50-55 HRC, PLF: 55-60 HRC

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A NOMINAL</th>
<th>B</th>
<th>C</th>
<th>P NOMINAL</th>
<th>E</th>
<th>F*</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
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<tr>
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<td>1.5000</td>
<td>.870</td>
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<td>1.1800</td>
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<td>.281</td>
<td>.437</td>
<td>.281</td>
<td>.620</td>
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<td>PLM0002</td>
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<td>.870</td>
<td>1.16</td>
<td>.8000</td>
<td>.870</td>
<td>1/4-20 X 3/4</td>
<td>.375</td>
<td>.375</td>
<td>.437</td>
<td>.375</td>
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<td>1.910</td>
<td>1.3500</td>
<td>1.3700</td>
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<td>.375</td>
<td>.688</td>
<td>.375</td>
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<td>1.8700</td>
<td>3/8-16 X 1</td>
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<td>.625</td>
<td>.875</td>
<td>.625</td>
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<td>1.8000</td>
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<td>.750</td>
<td>.875</td>
<td>.750</td>
<td>1.120</td>
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</table>

*F-size S.H.C.S included with each interlock.

MOLD INTERLOCKS

X-Style Straight-Side Interlocks

• Provides positive alignment between three adjacent plates when mold has two parting line openings, providing close alignment for interlock cavities and cores in stripper plate-type molds

• Used with AX-Series (floating plate) and X-Series (stripper plate) mold bases, as well as other mold bases with floating plates

• Interchangeable male PXM and female PLF details can be purchased individually

![X-Style Straight-Side Interlocks – PLF, PXM](image)

Material: AISI 8620 Steel-Carburized, Hardened and Ground

Hardness: PXM: 50-55 HRC, PLF: 55-60 HRC

| ITEM NUMBER | X STYLE | X PLATE THICKNESS | A | B | C | D | E | F | G | H | J | K | L | M | N | P | Q | R |
| PLF0001     | 1.2500  | 875.0000         | 1.350 | 1.150 | 1.170 | 1.000 | .870 | 20 | 1/4-20 X 3/4 | .300 | .19 |
| PLF0002     | 2.0000  | 1400.0000        | 1.350 | 1.150 | 1.170 | 1.000 | .870 | 20 | 1/4-20 X 3/4 | .375 | .19 |
| PLF0003     | 2.5000  | 1900.0000        | 1.350 | 1.150 | 1.170 | 1.000 | .870 | 20 | 1/4-20 X 3/4 | .437 | .19 |
| PLF0004     | 3.0000  | 2400.0000        | 1.350 | 1.150 | 1.170 | 1.000 | .870 | 20 | 1/4-20 X 3/4 | .500 | .19 |
| PLF0005     | 4.0000  | 2900.0000        | 1.350 | 1.150 | 1.170 | 1.000 | .870 | 20 | 1/4-20 X 3/4 | .620 | .19 |
| PLF0006     | 5.0000  | 3400.0000        | 1.350 | 1.150 | 1.170 | 1.000 | .870 | 20 | 1/4-20 X 3/4 | .745 | .19 |

NOTE: (2) socket head cap screws and (1) dowel of the size and length indicated in the chart are included with each X-Style interlock. Additionally, (2) socket head cap screws of the size and length indicated in the chart are included with each female interlock.
### MOLD INTERLOCKS

#### X-Style Staight-Side Interlocks

**Basic Dimensions for Machining Pockets for X-Style and Female Interlocks on Centerlines of the Closed and Clamped Mold Assembly**

The DME X-Style straight-side interlocks are designed for use on molds with floating plates when the two parting lines must be closely aligned with each other. The X-Style straight-side interlocks are designed to be used, and to mate with two of the equivalent size DME female straight-side interlocks. The X-Style interlocks are typically used on “K” and “AX” series mold bases, as well as other mold bases with floating plates.

Typical application is for use on a mold base with a stripper or mold bases, as well as other mold bases with floating plates. The X-Style straight-side interlocks are designed for use on molds with floating plates when the two parting lines must be closely aligned with each other. The X-Style straight-side interlocks are designed for use on molds with floating plates when the two parting lines must be closely aligned with each other.

**Moldmaker to adjust fit to suit as needed for specific application. Please contact DME for complete installation instructions for the X-Style Interlocks.**

**Mold machining and installation data are available. Contact DME.**

**NOTE:** (2) socket head cap screws and (1) dowel of the size and length indicated in the chart are included with each female interlock. Additionally, (2) socket head cap screws of the size and length indicated in the chart are included with each female interlock.

![Diagram of Mold Interlocks](image)

### MOLD INTERLOCKS

#### Parting Line Interlocks

**Left-Hand Gib**

**Right-Hand Gib**

**Typical Application**

The male interlock is typically installed in the ejector half of the mold. Left- and right-hand gibs are typically installed in the stationary half of the mold.

Mold machining and installation data are available. Contact DME.

**Center Male Interlock – PLL**

![Diagram of Center Male Interlock](image)

**Material:** 57 Steel, 80-85 HRC, Chromium Nitrided 80-85 HRC for wear and lubricity.

### Mold Interlocking Chart

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<thead>
<tr>
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</tr>
</tbody>
</table>

**NOTE:** (2) socket head cap screws and (1) dowel of the size and length indicated in the chart are included with each female interlock. Additionally, (2) socket head cap screws of the size and length indicated in the chart are included with each female interlock.

See next page for right- and left-hand gibs for parting line interlocks.
DME Tapered Interlocks provide positive metal-to-metal mold registry to align mold halves, mold plates or individual cavities and cores. The larger sizes are generally used with large molds or plates. The 1/8 and 1/4 sizes are generally used with small molds or to align cavities and cores. At least two sets are recommended for small molds or inserts, four for medium-size molds and six or more for large molds.

To obtain accurate registry, the installation holes or pockets must be accurately aligned. For this reason, through construction is recommended because the two plates can be clamped together and line-bored. Combination construction can also be line-bored or at least partially line-bored to create a pilot for the blind pocket. Blind pocket construction in both plates is the most difficult installation. Close attention is required to make certain the two pockets line up.

The tapered interlocks are intended to seat on the taper, NOT the face of the interlock. This provides positive alignment without the need for the face of the male and female to touch. There could be a gap of 0.000" to 0.005" between the faces of the interlock in mold closed position.

There is stock allowance at the back of both male and female details to permit fitting at assembly to match specific mold plate thicknesses and/or pocket depths.

See previous page for center male parting line interlock.


See previous page for center male parting line interlock.
**MOLD INTERLOCKS**

**Tapered Interlocks (Round)**

**Female Tapered Interlocks – FT (Round)**

<table>
<thead>
<tr>
<th>O.D. (mm)</th>
<th>F.D. (mm)</th>
<th>TAP SIZE</th>
<th>M +/-.0005</th>
<th>F.D. +/-.001</th>
<th>ITEM NUMBER</th>
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**Male Tapered Interlocks – MT (Round)**

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<th>L</th>
<th>TAP SIZE</th>
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**Shoulder Plates for Tapered Interlocks – AGS**

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<thead>
<tr>
<th>MALE MALE</th>
<th>Ø x H</th>
<th>K</th>
<th>Ø x J</th>
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**MOLD INTERLOCKS**

**Tapered Interlocks (Round) – METRIC**

**Tapered Interlocks – FT**

**Shoulder Plates for Tapered Interlocks – AGS**

**Material: DIN 1.7131 58-62 HRC**

**AGS: Typical Application**

*Measure actual height of assembled pair FT + MT and mill countersink accordingly.*
MOLD INTERLOCKS

Tapered Interlocks (Rectangular)

DME Standard Rectangular Tapered Interlocks provide positive, metal-to-metal alignment between mold or die halves, between plates or between individual cavities and cores. These Tapered Interlocks will maintain proper alignment while permitting thermal expansion between the mold or die halves. Mating sets are mounted in-line and/or perpendicular to one another (never parallel).

DME Rectangular Tapered Interlocks are made of shock-resisting S-7 tool steel, and are hardened and ground to precision tolerances, which permit interchangeability.

Male Tapered Interlocks – MTR (Rectangular)

<table>
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<th>g. mm.</th>
<th>l. mm.</th>
<th>W (in.)</th>
<th>L (in.)</th>
<th>A</th>
<th>G</th>
<th>ITEM NUMBER</th>
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Female Tapered Interlocks – FTR (Rectangular)

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<th>W (in.)</th>
<th>L (in.)</th>
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<td>1.500</td>
<td>.25</td>
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</tbody>
</table>

Installation Guidelines

Each mounting pocket must be accurately aligned with the pocket for the mating interlock in the other half of the mold or die. The width of each pocket serves as a precision keyway to maintain the steadfast position of each interlock.

Each pocket must be flat and parallel to the parting line. The mating interlocks should be fitted with a slight preload to ensure metal-to-metal engagement.

The pocket lengths should be long enough to provide clearance.

MOLD INTERLOCKS

Black and Gold Side Interlocks

Industry-Leading Interchangeability

Thanks to precision manufacturing and precision tolerancing, every DME mold interlock component can be replaced independently, eliminating the need to swap out an entire set.

DME Side Interlocks provide:

- Accurate alignment of mold halves
- Easy installation
- Industry-compatible sizes

Installation

- Install four (4) Side Interlocks per mold (one per side)
- Install Side Interlocks on the Center Line of each side of the mold

Black and Gold Side Interlocks – BGS

Female Interlock – Material: A2 Steel
Heat Treat: Core Hardened to 58-62 HRC
Surface Treatment: TiN – Titanium Nitride Coated

Male Interlock – Material: AISI H-13 Steel
Heat Treat: 40-44 HRC
Surface Treatment: Melonited (SBN)

Male Tapered Interlocks – MTR (Rectangular)

<table>
<thead>
<tr>
<th>g. mm.</th>
<th>l. mm.</th>
<th>W (in.)</th>
<th>L (in.)</th>
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<th>G</th>
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<td>.25</td>
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Female Tapered Interlocks – FTR (Rectangular)

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<td>.25</td>
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</tr>
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</table>

NOTE: Male and female lengths must match.

MOLD INTERLOCKS

Tapered Interlocks (Rectangular)

DME Standard Rectangular Tapered Interlocks provide positive, metal-to-metal alignment between mold or die halves, between plates or between individual cavities and cores. These Tapered Interlocks will maintain proper alignment while permitting thermal expansion between the mold or die halves. Mating sets are mounted in-line and/or perpendicular to one another (never parallel).

DME Rectangular Tapered Interlocks are made of shock-resisting S-7 tool steel, and are hardened and ground to precision tolerances, which permit interchangeability.

MOLD INTERLOCKS

Tapered Interlocks (Rectangular)

DME Standard Rectangular Tapered Interlocks provide positive, metal-to-metal alignment between mold or die halves, between plates or between individual cavities and cores. These Tapered Interlocks will maintain proper alignment while permitting thermal expansion between the mold or die halves. Mating sets are mounted in-line and/or perpendicular to one another (never parallel).

DME Rectangular Tapered Interlocks are made of shock-resisting S-7 tool steel, and are hardened and ground to precision tolerances, which permit interchangeability.
MOLD INTERLOCKS
Black and Gold Top Interlocks

DME Top Interlocks provide:
• Accurate alignment of mold halves
• Easy installation
• Industry-compatible sizes

Installation
• Install four (4) Top Interlocks per mold (one per side)
• Install Top Interlocks on the Center Line of each side of the mold

MOLD INTERLOCKS
Black and Gold Side Interlocks – Metric

Industry-Leading Interchangeability
Thanks to precision manufacturing and precision tolerancing, every DME mold interlock component can be replaced independently, eliminating the need to swap out an entire set.

DME Side Interlocks provide:
• Accurate alignment of mold halves
• Easy installation
• Industry-compatible sizes

Installation
• Install four (4) Side Interlocks per mold (one per side)
• Install Side Interlocks on the Center Line of each side of the mold

Black and Gold Top Interlocks – BGT
Female Interlock — Material: A2 Steel  Heat Treat: Core Hardened to 58-62 HRC  Surface Treatment: TiN – Titanium Nitride Coated
Male Interlock — Material: AISI H-13 Steel  Heat Treat: 40-44 HRC  Surface Treatment: Melonited (SBN)

* Part radius “R” is 1.00mm larger than recommended pocket radius.

ITEM NUMBER T  W  A  B  C  D1  D2  R  S1  S2  CLEARANCE PER SIDE  SHCS SIZE  SHCS SIZE
BGT1000 1.000  .500  .375  .280  .3750  .500  .192  .250  .688  #6-32 x 1⁄2”  #6-32 x 5⁄8”
BGT1250 1.250  .625  .500  .410  .4380  .625  .255  .312  .875  #6-32 x 5⁄8”  #6-32 x 3⁄4”
BGT12501 1.250  .625  .500  .385  .4380  .750  .255  .375  .875  #8-32 x 5⁄8”  #8-32 x 3⁄4”
BGT1500 1.500  .875  .750  .530  .5000  1.000  .380  .500  1.375  #8-32 x 7⁄8”  #8-32 x 1”
BGT15001 1.500  .875  .375  .500  .5000  1.000  .380  .500  1.375  1⁄4-20 x 1⁄2”  1⁄4-20 x 1”
BGT2000 2.000  1.125  .750  .660  .7500  1.000  .505  .500  1.375  1⁄4-20 x 1⁄2”  1⁄4-20 x 11⁄4”
BGT20001 2.000  1.125  .750  .505  .7500  1.375  .505  .500  1.375  1⁄4-20 x 1⁄2”  1⁄4-20 x 11⁄4”
BGT2500 2.500  1.375  .750  .660  .7500  1.750  .505  .875  2.250  5⁄16-18 x 11⁄8”  5⁄16-18 x 15⁄8”
BGT3000 3.000  1.500  .750  1.125  1.125  1.125  .505  1.000  2.250  3⁄8-16 x 1”  3⁄8-16 x 2”
BGT30001 3.000  1.500  .750  .750  1.125  1.125  .505  1.000  2.250  3⁄8-16 x 1”  3⁄8-16 x 2”

Black and Gold Side Interlocks – BGS
Female Interlock — Material: D2 Steel  Heat Treat: Core Hardened to 57-61 HRC  Surface Treatment: TiN – Titanium Nitride Coated
Male Interlock — Material: AISI H-13 Steel  Heat Treat: 40-44 HRC  Surface Treatment: Melonited (SBN)

* Part radius “R” is 1.00mm larger than recommended pocket radius.

ITEM NUMBER T  W  A  B  C  D1  D2  SHCS SIZE  SHCS SIZE
BGS05016 16.00  50.00  21.50  21.50  12.0  17.000  17.000  5.0  8.0  11.0  M6-1.0 × 20 LG
BGS07519 19.00  75.00  36.00  36.00  17.0  25.000  25.000  5.0  12.5  18.0  M10-1.5 × 25 LG
BGS10019 19.00  100.00  45.00  45.00  23.0  35.000  35.000  5.0  15.0  22.0  M10-1.5 × 25 LG
BGS12525 25.00  125.00  45.00  45.00  23.0  35.000  35.000  5.0  20.5  22.0  M10-1.5 × 30 LG

NOTE: To enter an individual Male interlock, add the suffix “M” to the item number.
To enter an individual Female interlock, add the suffix “F” to the item number.
MOLD INTERLOCKS
Black and Gold Top Interlocks – METRIC

Industry-Leading Interchangeability
Thanks to precision manufacturing and precision tolerancing, every DME mold interlock component can be replaced independently, eliminating the need to swap out an entire set.

DME Top Interlocks provide:
- Accurate alignment of mold halves
- Easy installation
- Industry-compatible sizes

Black and Gold Top Interlocks – BGT

Female Interlock – Material: D2 Steel
Heat Treat: Core Hardened to 57-61 HRC
Surface Treatment: TiN – Titanium Nitride Coated

Male Interlock – Material: AISI H-13 Steel
Heat Treat: 40-44 HRC
Surface Treatment: Melonite (SBN)

Black and Gold Top Interlocks – BGT

DME Top Interlocks provide:
- Accurate alignment of mold halves
- Easy installation
- Industry-compatible sizes

Installation
- Install four (4) Top Interlocks per mold (one per side)
- Install Top Interlocks on the Center Line of each side of the mold

MOLD STRAPS
Mold Straps – Features and Benefits

DME Mold Straps – Features and Benefits
- Ideal for securing mold assembly stack-ups during transport or storage
- Offered as pairs in three sizes
- Constructed of cast metal for strength and durability
- Yellow-powder coating provides corrosion resistance and high visibility

MOLD STRAPS
Mold Straps – Features and Benefits

MARKFI150 1⁄4” - 20 UNC x 1” LONG 1000 LBS 150 FT LBS

MARKFI200 5⁄16” - 18 UNC x 1-1⁄4” LONG 1500 LBS 270 FT LBS

MARKFI250 3⁄8” - 16 UNC x 1-3⁄4” LONG 2000 LBS 300 FT LBS

BLACK AND GOLD TOP INTERLOCKS

ITEM NO | SHCS | CAPACITY | TORQUE
--- | --- | --- | ---
BGT02020 | M4 × 12 LG | 20.000 | 20.000 | 14.000 | 14.000 | 7.0 | 9.0000 | 9.0000 | 5.0
BGT03526 | M5 × 20 LG | 26.000 | 25.000 | 25.000 | 15.000 | 16.0 | 11.0000 | 11.0000 | 8.0
BGT04530 | M6 × 18 LG | 30.000 | 30.000 | 30.000 | 20.000 | 20.0 | 15.0000 | 15.0000 | 8.0
BGT05536 | M8 × 25 LG | 36.000 | 36.000 | 36.000 | 30.000 | 30.0 | 20.0000 | 20.0000 | 8.0
BGT07536 | M10 × 25 LG | 55.000 | 55.000 | 55.000 | 40.000 | 40.0 | 25.0000 | 25.0000 | 8.0
BGT10045 | M10 × 65 LG | 100.000 | 100.000 | 100.000 | 60.000 | 60.0 | 40.0000 | 40.0000 | 8.0

NOTE: To order an individual Male interlock, add the suffix “M” to the item number.
To order an individual Female interlock, add the suffix “F” to the item number.
* Part radius “R” is 1.00 mm larger than recommended pocket radius.
ROHS/WEee compliant micro-welding system for precision mold repair

ProWeld Micro-Welding System

As an essential resource to thousands of customers around the globe, DME is diligent in making certain its products are compatible in every region of the world. That’s why every component within the ProWeld system satisfies all international compliances. This included RoHS (Restriction of Hazardous Substances) that prohibits or restricts the use of six potentially harmful materials in electronic equipment, and WEEE (Waste Electrical and Electronic Equipment) that requires equipment made after August 2005 to be returned to the manufacturer and recycled, rather than just “thrown away.”

Standard Equipment

Complete ProWeld system includes:

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMW0001</td>
<td>Power pack with welding cord, grounding cord and plate, power cord, foot switch and all accessories listed below</td>
</tr>
<tr>
<td>P-501</td>
<td>Weld Cord</td>
</tr>
<tr>
<td>P-502</td>
<td>Ground Cord</td>
</tr>
<tr>
<td>UMW0002</td>
<td>N51—Standard SKH-51 steel powder (40 grams) (63 Rc; for D-2/M-2/S-7 steels)</td>
</tr>
<tr>
<td>UMW0003</td>
<td>N80—Standard NAK80 steel powder (40 grams) (38-40 Rc; for P-20/P-21 steels)</td>
</tr>
<tr>
<td>UMW0004</td>
<td>NAK80—Standard steel sheet 10 sheets, 0.1T x 5W x 100L (38-40 Rc; for P-20/P-21 steels)</td>
</tr>
<tr>
<td>UMW0005</td>
<td>NTA1—Ni Alloy sheet (10 sheets, 0.1T x 30W x 70L) (125HV; for all steels)</td>
</tr>
<tr>
<td>UMW0006</td>
<td>NTA2—Ni Alloy sheet (10 sheets, 0.2T x 30W x 70L) (125HV; for all steels)</td>
</tr>
<tr>
<td>UMW0009</td>
<td>Magnet electrode (2 dia. x 50L)</td>
</tr>
<tr>
<td>UMW0010</td>
<td>Magnet electrode (3 dia. x 50L)</td>
</tr>
<tr>
<td>UMW0011</td>
<td>Magnet electrode (4 dia. x 60L)</td>
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<tr>
<td>UMW0012</td>
<td>Magnet electrode (4 dia. x 50L)</td>
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<table>
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<tr>
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<th>DESCRIPTION</th>
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<tr>
<td>UMW0013</td>
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<td>Standard electrode (3 dia. x 50L)</td>
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<td>UMW0015</td>
<td>Standard electrode (4 dia. x 50L)</td>
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<tr>
<td>UMW0016</td>
<td>Standard electrode (1.2T x 5W x 35L)</td>
</tr>
<tr>
<td>UMW0017</td>
<td>Standard electrode holder (black) (used with UMW0015)</td>
</tr>
<tr>
<td>UMW0018</td>
<td>Magnet electrode holder (brown) (used with UMW0011 and UMW0012)</td>
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<tr>
<td>UMW0019</td>
<td>Standard electrode holder (black) (used with UMW0016)</td>
</tr>
<tr>
<td>UMW0020</td>
<td>Standard electrode holder (black) (used with UMW0013)</td>
</tr>
<tr>
<td>UMW0021</td>
<td>Standard electrode holder (black) (used with UMW0014)</td>
</tr>
<tr>
<td>UMW0022</td>
<td>Magnet electrode holder (brown) (used with UMW0009 and UMW0010)</td>
</tr>
</tbody>
</table>

NOTE: Contact DME for replacement parts and additional welding materials.
MOLD INSERTS
INDEXABLE & FRONT REMOVABLE DIMENSIONS, TOLERANCES AND REPLACEMENT SPRINGS.............................. 206-207
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CAVITY AND CORE COMPONENTS

Indexable and Front Removable Mold Inserting Inserts

Features of Indexable and Front Removable Inserts
- Designed for plastics injection molds
- Maximum operating temperature is 150°C (300°F)
- Numerals are 0.2mm deep and arrow is 0.4mm deep
- Arrow is adjustment slot

Installation and Machining for Both Insert Styles
- Press-fit installation required
- Maintain a close tolerance press fit. Too loose a fit could allow the insert to move out of position, while too tight a press fit might prevent the inner insert from rotating when required.
- Accurately measure the D (D) for each part and machine D (D) hole to provide about 0.005mm (0.002) press fit
- Relate on bottom of insert will align insert orientation
- An aluminum rod should be placed against the edge of the insert with the rod larger in diameter than the Outer Insert. The aluminum rod should be tapped with a hammer to move the insert to its flush position.
- Inner insert must be flush or below flush during installation.

Dimensions and Tolerances of Indexable and Front Removable Inserts

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<thead>
<tr>
<th>ITEM NUMBER (PACKAGE OF 5)</th>
<th>Ø D</th>
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<tbody>
<tr>
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<td>0.06</td>
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<td>8</td>
<td>0.12</td>
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<td>12</td>
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<tr>
<td>16</td>
<td>0.24</td>
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<tr>
<td>20</td>
<td>0.30</td>
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</table>

Notes:
- Springs are for Front Removable Inserts only.

Complete Assemblies

Outer Inserts

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Ø D (mm)</th>
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<tbody>
<tr>
<td>Month (1 thru 12)</td>
<td>4</td>
</tr>
<tr>
<td>Year (0 thru 10)</td>
<td>8</td>
</tr>
<tr>
<td>Day (0 thru 10)</td>
<td>12</td>
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<tr>
<td>&quot;Shft&quot; (0 thru 10)</td>
<td>16</td>
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</tbody>
</table>

Inner Inserts

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Ø D (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month (1 thru 12)</td>
<td>4</td>
</tr>
<tr>
<td>Year and Arrow</td>
<td>8</td>
</tr>
<tr>
<td>&quot;Shft&quot; (0 thru 10)</td>
<td>12</td>
</tr>
</tbody>
</table>

Mold Dating Inserts – Ordering Information

INDEXABLE INSERT

INFORMATION KEY:
- Insert
- Front Removable
- Indexable
- 3D Years (outer), Arrow (inner)
- 2D Years (outer), Arrow (inner)
- "Shft" (outer), Arrow (inner)
- Blank (outer), Arrow (inner)

NOTES:
1. When ordering date-sensitive assemblies, add digits of engraved year (e.g., 2012) as shown in item number (6). Ordering date-sensitive assemblies, add digits of engraved year (e.g., 2012) as shown in item number (6).
2. Availability of year-sensitive items will vary during last quarter of each calendar year. Order next year’s Mold Dating Inserts during October to beat the rush.
CAVITY AND CORE COMPONENTS
Mold Dating Inserts Hi-Temperature/Blind Hole

Features of Hi-Temperature Mold Date Inserts

- Withstands temperatures up to 644°F (340°C)
- Designed to be easily removed from cavity plate with a metric screw, no need for a thru-hole
- Newly engineered inner insert is removed with less rotations due to shorter threads
- Inner inserts use ball detents to click into position

Dimensions and Tolerances of High-Temperature Inserts

Material: Stainless Steel
Hardness: 50-55 HRC
Max. Temp: 340°C (644°F)
Dimensions: All dimensions are in mm, except as noted

Removal of Hi-Temperature Inserts

1. Remove the inside insert. Insert cap bolt into outer insert hole.
2. Turn the cap bolt clockwise into the outer insert to lock the outer insert up from the plate.
3. Continue turning the cap bolt clockwise releasing the outer insert up from the plate.
4. Remove the inside insert from the plate when it has cleared the hole.

Complete Assemblies

<table>
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<tr>
<th>DESCRIPTION</th>
<th>Ø D (mm)</th>
<th>ITEM NUMBER</th>
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<td>Year and Arrow (inner)</td>
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<tr>
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</tbody>
</table>

NOTES:
1. When ordering date-sensitive assemblies, add digits of engraved year requested where asterisks (*) are shown in item number (e.g., UUY1816).
2. Availability of year-sensitive items will vary during last quarter of each calendar year. Order next year’s Mold Dating Inserts during October to beat the rush.

CAVITY AND CORE COMPONENTS
Mold Dating Inserts Hi-Temperature Hole/Blind Hole

Inner Inserts

<table>
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<th>OUTER RING Ø D (mm)</th>
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Outer Inserts

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<th>ITEM NUMBER</th>
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<tr>
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</table>

OUTER INSERT | INNER INSERT | TOLERANCES |
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<td>Ø F (h7)</td>
<td>L</td>
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<tr>
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</table>
Patented Indexable Mold Date Insert Technology

The Dual-Ring Mold Dating Insert from DME features a date insert valid for six years and is based on Indexable Mold Date Insert technology. The Dual-Ring Insert eliminates the need to install two date inserts or change the inner insert each year. This easy-to-use indexable insert provides the flexibility you need to keep your mold dating current, especially as the lifetime of molds becomes shorter.

- Outer ring: 12 months, months 1 through 12
- Inner ring: 6 years + arrow (arrow points to month)
- Center insert: arrow (points to year & adjusts position of both arrows)

**Features and Benefits**

- Double indexable: both arrows independently “click into position”
- Change positions easily with only a screwdriver using arrow in inner insert
- Turn clockwise to change “year” arrow (6 years)
- Turn counter-clockwise to change “month” arrow (12 months)
- All inserts remain flush when rotated
- Dual-Ring Insert may be interchanged for the 20mm, 16mm, 10mm, 8mm to 6mm diameter Indexable and Front Removable inserts

**Installation and Machining**

- Press-fit installation required
- Maintain a close tolerance press fit. Too loose a fit could allow the insert to move out of position, while too tight a press fit might prevent the inner insert and inner ring from rotating when required
- Accurately measure the Ø D for each part and machine hole to provide about 0.005mm (0.002”) press fit

**Pocket for installation** (hold pocket depth as required by the application)

**NOTES:**

1. When ordering date-sensitive assemblies, add digits of engraving year requested where asterisks (*) are shown in item number (e.g., UUY1816).

2. Availability of year-sensitive items will vary during last quarter of each calendar year. Order next year’s Mold Dating Inserts during October to beat the rush.

**Dual-Ring Mold Dating Insert – MD Dimensions and Assembly**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø D</th>
<th>Ø E</th>
<th>Ø F</th>
<th>Ø L</th>
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<tr>
<td>M8D20_3, *</td>
<td>20</td>
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* When ordering, add digits of engraved year required where asterisks (*) are shown in item number (e.g., MD 10 32, *, MD 10 32 13; MD 10 32 14, *, MD 10 32 14 13).
CAVITY AND CORE COMPONENTS

Features of Resin Identifiers
- Easily interchangeable
- Save on outsourcing and engraving costs
- Easily installed and interchangeable
- Designed to conform with ASTM International
- Maximum operating temperature is 150°C (300°F)
- Specials quoted upon request

<table>
<thead>
<tr>
<th>RESIN</th>
<th>A</th>
<th>B</th>
<th>M</th>
<th>ITEM NUMBER</th>
<th>RESIN IDENTIFICATION CODE - OPTION A</th>
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CAVITY AND CORE COMPONENTS

Features
- Save on outsourcing and engraving costs
- Easily installed and interchangeable
- Specials quoted upon request

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<thead>
<tr>
<th>REF</th>
<th>A</th>
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<th>M</th>
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<td>M5</td>
<td>Top Rack Dishwasher</td>
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Insert Spacers
Insert spacers from DME allow you to change to a shorter insert quickly and easily. Simply install the spacer in the existing hole and then install your insert right on top. The spacer is made to the exact specifications to make it just that easy.

Material: Stainless Steel
Hardness: 48-52 HRC
Max. Temp: 150°C (300°F)
CAVITY AND CORE COMPONENTS

Recycling Inserts

Features
- Saves outsourcing and engraving costs
- Easily installed and interchangeable
- Complies with SPI standards

Recycling Inserts (METRIC) — MRI

Material: Stainless Steel
Hardness: 48-52 HRC
Max. Temp.: 150°C (300°F)

Installation
- Press fit installation required
- Maintain a close tolerance press fit. Too loose a fit could allow the insert to move out of position
- Accurately measure the ØD for each part and machine hole to provide about 0.005mm (.0002”) press fit

Recycling Electrodes

Features
- Saves outsourcing and engraving costs
- No drilling required for installation
- Complies with SPI standards
- Material: Electrolitic Copper E-Cu

NOTE: Additional material codes are available. Contact DME for quote.
Cavity and Core Components

Sintered Vents – For Plastics Injection Molding

Features and Benefits of Sintered Vents – USV

- Venting of air or gas reduces occurrence of short shots and burned parts
- Self-contained standardized vents save time in design, installation and maintenance
- Wide variety of off-the-shelf standard sizes available
- Fast and easy replacement or cleaning of sintered vents improves productivity
- Field tested to ensure product reliability

Sintered vents are a unique venting plug composed of a large number of straight, parallel and uniform pores made through a powdered metallurgy process. The pores allow trapped air or gas to escape from the mold cavity during the injection molding process, thereby reducing the occurrence of defective parts.

Application Recommendations

Plastics injection molding

A 0.03mm vent diameter should be used with polymers such as polyethylene or polypropylene. Use a vent with a pore diameter of 0.05mm for low-flow polymers such as polycarbonate, nylon, or ABS. When molding highly viscous material (very low-flow properties), use a vent with a 0.10mm pore diameter.

Stainless Steel sintered vents are recommended for plastic materials that are particularly gaseous or corrosive, such as PVC. Stainless Steel sintered vents are also recommended for plastic materials containing flame-retardants.

Installation Information for All Sintered Vents

- The recommended press-fit is 0.01 to 0.02mm for outside diameters of 10mm or less, and 0.015mm to 0.025mm for outside diameters over 10mm
- Use a plastic or wooden hammer for installation. Do not tap the pore surface of the sintered vent with a metallic or hard tool. The use of hard tools will result in clogging or chipping of the vents
- Do not grind, machine, or cut the pore surfaces

Ultrasonic Cleaning

- Use ultrasonic cleaning to periodically clean pores in the sintered vents, as required

Sintered Vents for Plastics Injection Molding Applications

<table>
<thead>
<tr>
<th>VENT TYPE</th>
<th>ITEM NUMBER</th>
<th>OUTSIDE Ø (mm)</th>
<th>FULL LENGTH (mm)</th>
<th>NO. OF PORES</th>
<th>Ø (mm)</th>
<th>PORES % OF EFFECTIVE Ø</th>
<th>EFFECTIVE Ø (mm)</th>
<th>EFFECTIVE LENGTH (mm)</th>
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<tbody>
<tr>
<td>A</td>
<td>USV0005</td>
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<td>10</td>
<td>280</td>
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<td>25%</td>
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<td>25</td>
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<td></td>
<td>USV0006</td>
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<td>10</td>
<td>420</td>
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<td>15%</td>
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<td>USV0007</td>
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<td>640</td>
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<td>8%</td>
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<td>USV0008</td>
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<td>USV0009</td>
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<td>10</td>
<td>280</td>
<td>0.03</td>
<td>25%</td>
<td>3</td>
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<td></td>
<td>USV0010</td>
<td>8</td>
<td>10</td>
<td>500</td>
<td>0.05</td>
<td>4%</td>
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<td>USV0011</td>
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<td>500</td>
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<td>6%</td>
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Sintered Vents for Gravity & Low-Pressure Diecasting Applications

<table>
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<th>VENT TYPE</th>
<th>ITEM NUMBER</th>
<th>OUTSIDE Ø (mm)</th>
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<th>NO. OF PORES</th>
<th>Ø (mm)</th>
<th>PORES % OF EFFECTIVE Ø</th>
<th>EFFECTIVE Ø (mm)</th>
<th>EFFECTIVE LENGTH (mm)</th>
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<td>USV0021</td>
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<td>10</td>
<td>200</td>
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<td>3%</td>
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<td>USV0022</td>
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All dimensions are in millimeters (mm).
Vortex™ Core Pins and Plugs

Porcerax II™

Porcerax II is a porous, sintered metal with a porosity of 20 to 30% by volume. With a series of interconnected pores averaging a diameter of 7 (0.0002) or 20 (0.0008) microns throughout, the primary function is the elimination of gas. Vortex Pins and Plugs provide a location-specific method of venting gas. Due to its porosity volume, one fourth of the surface becomes a vent.

Vortex Pins & Plugs
- Pins are 3” long and are available in diameters of .250”, .375” and .500”
- Plugs are offered in .250”, .500” and 1.00” lengths in diameters of .250” and .375”
- Heat treated to 30–40 HRC [Hardness: HMV 300–400]
- Tensile strength: 74,000 lbs./sq.in.
- Thermal Linear Expansion Coefficient: (at 68˚F - 302˚F) 6.67-6.84 E-06 in./in./F˚
- Heat transfer coefficient (at room temperature): 16.93–19.35 BTU/ft. hr. F˚
- More durable and precision-made than competitive units
- Prevents mold damage due to ejection problems with deep-draw or thin-walled parts
- Porosity: 20 to 30% air by volume
- Pore size: 7 (.0003”) or 20 (.0008”) microns throughout, the primary function is the elimination of gas

Vortex Core Pins

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<tr>
<th>ITEM NUMBER</th>
<th>Ø PIN DIA</th>
<th>H HEAD DIA</th>
<th>Ø PIN LENGTH</th>
<th>Ø HEAD THICKNESS</th>
<th>VOLUME MICRONS</th>
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Vortex Plug

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“Air Poppet Valves – Applications

**Air Poppet Valves – VA**

**Features and Benefits**
- Prevents mold damage due to ejection problems with deep-draw or thin-walled parts
- More durable and precision-made than competitive units
- These precision-engineered valves are designed to remedy the vacuum problem often encountered during the molding of deep-draw (e.g., buckets) or thin-walled parts. Air flow, timed to coincide with the ejection cycle, opens the valve to break the vacuum and facilitate part ejection. A precision-ground valve seat helps prevent flash from entering the assembly during injection. Each valve is matched to the body to further assure reliable performance.

**Typical Application**

**AIR LINE (PRESSURE OFF)**

**Mold Closed**

**AIR LINE (PRESSURE ACTIVATED)**

**Mold Open**

**INFORMATION KEY:**
- Ø = Outside Diameter
- E = Housing Diameter
- F = Approx. Valve Diameter
- G = Hole Diameter
- H = Hole Depth
- K = Body Length
- L = Overall Length
- N = Depth
- T = Max Valve Travel

**Dimensions:** All dimensions are in mm

**Operating Air Pressure:** 58 PSI min. 87 PSI max

**Max. Temp:** 120°C (250°F)

**Valve Material:** DIN 1.2516

**Valve Surface Treatment:** DLC (diamond-like coating)

**Body Material:** Stainless Steel

**Body Hardness:** 52-54 HRC

**Applications:**
- For general information only. Sinto Steel, Molder’s World, Inc., International Mold Steel and/or their distributors disclaim any and all express or implied warranties of merchantability, suitability for any particular purpose or use, or freedom from infringement of any patent, trademark or copyright. Porcerax II® is a registered trademark of International Mold Steel, Inc. and SintoSteel."
CAVITY AND CORE COMPONENTS

Air Poppet Valves – Typical Installations –

Typical Installations

Standard ‘A’ Series Mold Base Installation (Ejector pins required for part ejection)

‘X’ Series Stripper Plate Mold Base Installation (Stripper plate required for part ejection)

Pocket Machining Dimensions

Installation Information

• Press-fit installation required
• Maintain a close tolerance press fit, as specified. Too loose a fit could allow the Air Poppet Valve to move out of position, while too tight a press fit could interfere with the movement of the valve

NOTES:
1. Pressure to air line of Air Poppet Valve and machine ejection should be activated at the same time. This allows valve to relieve negative pressure build-up (vacuum) in the cavity during part ejection.
2. The air flow to the poppet valve must be fully relieved to the atmosphere after each cycle to ensure that the poppet valve closes before the next injection cycle. Material injected into a partially open poppet valve could cause damage to the valve and/or the mold. Control valves and limit switches to be supplied by moldmaker and/or molder.
3. The Air Poppet Valve should never be used as the sole means of part ejection. Material shrinkage and other factors will not allow it to be used as an alternative to ejector pins or stripper plates.
4. Do not position Air Poppet Valve directly under hot drop.

Pocket Machining Dimensions

CAVITY AND CORE COMPONENTS

Runner Shut-Off Inserts – Applications

DME Runner Shut-Off Inserts provide a precise method of blocking or directing material flow to one or more cavities in multi-cavity or family molds.

• Safer and more positive than the use of brass or ejector pins
• Saves material
• Reduces scrap and sorting
• Improves cycle time

Inserts are supplied unmachined as shown in background of photo. Foreground shows sample runner machining, typically done with insert installed in mold.

Runner Shut-Off Inserts are shown above in the open position, which allows material to flow to all cavities.

By rotating the center core of the Runner Shut-Off Insert 90° or 180° with the screwdriver end of a brass rod, material flow to one or several cavities can be shut off, as shown above.

Runner Shut-Off Inserts are shown above in the open position, which allows material to flow to all cavities.

Shut-off the Runner to One or Several Cavities

Typical Applications

Runner Shut-Off Inserts – MRS

All dimensions shown are in millimeters (mm).
CAVITY AND CORE COMPONENTS
Runner Shut-Off Inserts – Machining Information

Dimensions for Machining Pocket for Runner Shut-off Inserts

- Pockets are typically bored in soft steel and jig ground in hardened steel
- Maintain a close tolerance press fit, as specified. Too loose a fit could allow the insert to move out of position, while too tight a press fit might prevent the center core from rotating when required

* When using a 7/8 thick plate with the MRS0013 or MRS0016 inserts, machine the .5118 or .6299 diameters through the plate. Inserts must seat against a supporting plate before any grinding or machining is done and during the molding process.

** Note:** All runners should be machined along the center line of the insert and at 90° to the center line. If this is not done the runners will not align closely when rotated 90° or 180° to shut-off material flow to a cavity. All runners should be machined with inserts installed in the mold.

Mold and Runner Machining/Installation Data
Additional machining and installation data available. Contact DME.

All dimensions are in inches except for a few metric reference dimensions that are in millimeters and are shown in parentheses.
**Jiffy-Tite® Delivers Trusted and Reliable Products**

The Jiffy-Tite® line of mold cooling components is the industry's most trusted and reliable product range in the injection molding industry. These highly durable and long-lasting components have been the industry benchmark for quality for injection molders for over five decades. It's no surprise that the plastics industry has come to rely on Jiffy-Tite, whose vision and innovation led to the invention of the original ground-breaking face seal technology for quick disconnects more than half a century ago.

These premium products deliver superior quality, unique design, unmatched performance, and the tightest tolerances in the industry – all at a competitive cost. Highly engineered components include quick-disconnect connectors, male and female plugs, extension plugs, straight and spiral brass baffles, water and cascade water junctions, pressure plugs, coolant bridges, and seal removal replacement kits. The bottom line is that Jiffy-Tite components are highly reliable and leak-proof, ensuring the most consistent and efficient mold cooling operations.

**Greater Value than the Rest**

Jiffy-Tite components manufactured from high-quality brass are distinguished by a wide range of unique benefits that differentiate them from the competition. Jiffy-Tite's quick-disconnect sockets feature a novel 0.005" to 0.015" step in the sealing surface of the socket to help prevent leaks. A Viton® fluoroelastomer seal provides greater heat resistance and chemical resistance versus typically used silicone seals. Tight-tolerance manufacturing results in consistent pressure in the socket which ensures leak-free performance.

Also unique is the valve component design which eliminates the risk of reverse shut off. With competitive brands, valve components could become dislodged or disengaged causing the valve to shut or stay shut during operation. The internal socket and plug and valve component design eliminate this problem and promote excellent part mating capabilities to ensure smoother operation.

Jiffy-Tite’s thread sealant offers superior performance for plugs. Jiffy Seal is pliable, resists drying, and offers significantly better sealing compared to less expensive products that may flake off. The high-performance seal eliminates the need for TPFE tape, thus reducing cost and speeding up set-up times.

Jiffy-Tite components are manufactured under ISO 9000/9001 quality standards and undergo extensive leak and compression testing. Supported by leading-edge engineering and technology, they are the time-tested standard which gives injection molders the required confidence and performance to run highly efficient and smooth mold cooling operations.

*NOTE: It is up to the customer to verify that the use of Viton seal is compatible with the application and coolant medium being used. Viton is incompatible with highly polar chemicals, organic acids, amines, ketones, acetone, eaters and acetic acid. Other seal materials can be provided on request.*
Jiffy-Tite® Sockets – JS
(Flow-Thru Type)

DME Jiffy-Tite Sockets have a large thru hole to provide unrestricted flow. These quick-connection couplers are available with either straight, 45° or 90° hose stems, or standard female or male NPT threads.

DME Jiffy-Tite and Jiffy-Matic Sockets have the same O.D., permitting complete interchangeability with the Jiffy-Tite Plugs already in your mold or die. Comparable sizes of both type sockets have the same O.D., permitting interchangeability even when the plugs are flush mounted.

Jiffy-Matic® Sockets – JS
(Automatic Shut-Off Type)

DME Jiffy-Matic Sockets open automatically when connected and shut off automatically when disconnected. Unlike most valve-type connectors, Jiffy-Matic Sockets are designed to keep flow restriction to a minimum.

**Jiffy-Tite® Extension Plugs – JPB**

Threaded area with Jiffy-Seal™ thread sealant pre-applied.

*Designed for use with existing or new NPT tapered pipe-tapped hole in mold or die. Straight threaded area allows easy length adjustment. Cut to suit. No tapering or re-tapping necessary.

**Male Plug Mounting Information**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>NPT HEX SIZE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>H</th>
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</thead>
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<tr>
<td>JPB25</td>
<td>1/8 NPT</td>
<td>3/16</td>
<td>3/8</td>
<td>1/2</td>
<td>1/2</td>
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<tr>
<td>JPB32</td>
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<td>5/8</td>
<td>3/4</td>
<td>3/4</td>
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<td>JPB50</td>
<td>3/8 NPT</td>
<td>1/2</td>
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</table>

**Female Plug Mounting Information**

<table>
<thead>
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<th>ITEM NUMBER</th>
<th>NPT HEX SIZE</th>
<th>A</th>
<th>B</th>
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<td>1/2</td>
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<tr>
<td>JPF32</td>
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<td>3/4</td>
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<tr>
<td>JPF50</td>
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<td>1/2</td>
<td>3/4</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**For Use with Jiffy-Tite or Jiffy-Matic Sockets (Including SV Series)**

**Threaded area with Jiffy-Seal™ thread sealant pre-applied.**

**All Male Plugs (including SV-Series) and Extension Plugs are now supplied with Jiffy-Seal™ thread sealant. Eliminating the initial need for joint tape or compound, the sealant will withstand temperatures up to 400°F and pressures up to 200 psi.**
The DME line of SV-Series Jiffy-Matic Connectors features a male plug and socket, each with an automatic shut-off stemmed valve. These connectors are designed for use with plastics molds and die-cast dies in water, air or heat transfer oil lines. They feature a combination of brass and stainless steel in a leakproof construction, have a maximum rated capacity of 200 psi and will withstand temperatures up to 400°F with supplied Viton seals.

The SV-Series Jiffy-Matic Male Plugs* can only be used for two-way shut-offs and must be used with the SV-Series Jiffy-Matic Sockets.

SV-Series Jiffy-Matic Male Plugs

- **Two-Way Automatic Shut-Off Type**

  - **Description:** Jiffy-Matic Male Plugs
  - **Thread Sealant:** Viton
  - **Maximum Temperature:** 400°F
  - **Maximum Pressure:** 200 psi

Mold Cooling

SV-Series Jiffy-Matic Connectors

Two-Way Automatic Shut-Off Type

The SV-Series Jiffy-Matic® Male Plugs can only be used for two-way shut-offs and must be used with the SV-Series Jiffy-Matic Sockets.

SV-Series Jiffy-Matic® Male Plugs

- **For Female and Male NPT Sockets Only**

SV-Series Jiffy-Matic® Sockets

- **With either Jiffy-Tite, V or SV, female or male NPT sockets only.**

Operating Combinations

Two-Way Shut-Off

- **Description:** Male Plugs
- **Threads:** NPT
- **Maximum Temperature:** 400°F
- **Maximum Pressure:** 200 psi

One-Way Shut-Off

- **Description:** Male Plugs
- **Threads:** NPT
- **Maximum Temperature:** 400°F
- **Maximum Pressure:** 200 psi

Mold Cooling

SV-Series Jiffy-Matic® Connectors

90° and 45° NPT Elbows

- **For Female and Male NPT Sockets Only**

<table>
<thead>
<tr>
<th>Description</th>
<th>Item Number</th>
<th>Threads</th>
<th>Elbow Type</th>
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<tbody>
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<td>1/4</td>
<td>25000 TO JS501M (V/SV)</td>
</tr>
<tr>
<td>30000</td>
<td>1/4 NPT</td>
<td>1/4</td>
<td>25000 TO JS501M (V/SV)</td>
</tr>
<tr>
<td>50000</td>
<td>1/2 NPT</td>
<td>1/2</td>
<td>25500 TO JS501M (V/SV)</td>
</tr>
<tr>
<td>20405</td>
<td>1/4 NPT</td>
<td>1/4</td>
<td>25000 TO JS501M (V/SV)</td>
</tr>
<tr>
<td>30405</td>
<td>1/4 NPT</td>
<td>1/4</td>
<td>25000 TO JS501M (V/SV)</td>
</tr>
<tr>
<td>50405</td>
<td>1/2 NPT</td>
<td>1/2</td>
<td>25500 TO JS501M (V/SV)</td>
</tr>
</tbody>
</table>

These 90° and 45° NPT elbows can be used with either Jiffy-Tite or Jiffy-Matic, V or SV, female or male NPT sockets only.
MOLD COOLING

With Clampless Hose Stems for use with “Push-To-Lock” Type Hose

- For use with “Push-to-lock” type hose only
- Saves set-up time by eliminating the need for hose clamps
- Hose stem barbs mate with “Push-to-lock” style rubber hose
- Popular sizes for interchangeability with existing Jiffy-Tite, Jiffy-Matic and Jiffy-Matic SV Sockets
- More compact and consistently sized than competitive products
- Socket connector seals are Viton® material
- Leakproof brass and stainless steel construction
- More compact and consistently sized than competitive products
- Popular sizes for interchangeability with existing Jiffy-hose
- Hose stem barbs mate with “Push-to-Lock” style rubber hose
- Saves set-up time by eliminating the need for hose clamps
- For use with “Push-to-Lock” type hose only

Jiffy-Lok Flow-Thru Style (Jiffy-Tite)

Jiffy-Lok One-Way Valve Style (Jiffy-Matic)

Jiffy-Lok SV-Series Valve Style* – JSL

Jiffy-Tite® Connector Seals, Seal Removal Tool Kit & Wrenches

For Replacement in Either Jiffy-Tite or Jiffy-Matic Sockets

Jiffy-Tite and Jiffy-Matic Sockets are supplied with Viton® seals for use with air, water or heat transfer oil applications that do not exceed 400°F and 200 psi. Seals should be replaced periodically as required to ensure leak-free connections.

Mold Cooling

Maximum Operating Temperature/Pressure – 400°F/200 PSI

For Use with Air, Water or Heat Transfer Oil

Viton® (Green)

JPF0351, 0352

JPF0353

JPF0553, 0544

JPF0555

Note: This tool kit is not required for “the original” or current line of Jiffy-Tite Sockets with replaceable hose stems.

Jiffy-Tite® Seal Removal Tool Kit – JSTK

The Jiffy-Tite® Seal Removal Tool Kit can be used for removal of connector seals from Jiffy-Matic Sockets (including SV Series). It can also be used with Jiffy-Tite Sockets to provide easier seal removal.

Includes handle, interchangeable tools for all socket sizes, seal pick and vinyl storage pouch.

Jiffy-Tite® Wrenches – SJP

For Jiffy-Tite Male, Female and Extension Plugs and Jiffy-Matic SV Series Male Plugs

DME Jiffy-Tite wrenches are accurately made from selected alloy steel, heat-treated and chrome-plated. They are specially designed for servicing flush-mounted plugs.

*SV-Series male plugs must be used to obtain two-way shutoff. Installation data available. Contact DME.
**MOLD COOLING**

**Jiffy-Tite® and Jiffy-Matic® Coolant Bridges**

For Compact Mold Connection of Adjacent Plugs Without Use of Conventional Hose Loop

- Provides more compact port-to-port connections than conventional hose methods
- coolant bridge socket adapters allow quick connections to Jiffy-Tite (flow thru) or Jiffy-Matic (one- or two-way shutoff) plugs
- socket adapter marked with cut-line groove for quick sizing of brass tube length
- leakproof socket adapters have replaceable seals and valves for long service life
- socket connector seals and O-ring seals are Viton

**Notes:**
1. coolant bridge consists of two socket adapters (including O-rings) and one chambered brass tube that are sold separately.
2. tubes are 18” long. Cut to suit for specific application using cut-line grooves. Then, chamber and deburr tube as indicated in Installation data.
3. coolant bridge Jiffy-Matic socket adapters will provide one-way shutoff when used with standard male, female and extension plugs and two-way shutoff when used with SV-Series Male Plugs.
4. maximum temperature rating is 400°F. Maximum PSI rating is 200.

**Coolant Bridge Consists of Two Socket Adapters (Including O-rings) and One Chambered Brass Tube that Are Sold Separately.**

Tubes are 18” long. Cut to suit for specific application using cut-line grooves. Then, chamber and deburr tube as indicated in installation data.

Jiffy-Tite® and Jiffy-Matic® Coolant Bridges – JCB, JBT

Installation data available. Contact DME.

**Notes:**
1. Bubbler tubes may be used as replacements in water junctions above.
2. The 200, 300 and 500 series water junctions are equipped with 200, 300 and 500 series viton seals respectively, rated at 300 psi and suitable for temperatures up to 400°F.

**Compact design**
- **360° seal– leak proof**
- **Accurate predetermination of port locations**
- **Easy “one-piece” installation and removal**
For cascade-type cooling applications, the Jiffy-Tite Cascade Water Junctions provide the utmost in versatility and ease of use. Their compact design makes them ideal for piping inserted cores or spigot cooling in hard to reach areas of molds or dies. They can be rotated a full 360° without affecting their positive Jiffy-Tite seal and are easily connected and disconnected – even when installed internally.

**Typical Applications**

**Jiffy-Tite® Cascade Water Junctions (JW)**

**Notes:**
1. Bubbler tubes may be used as replacements in water junctions above.
2. The 200, 300 and 500 series water junctions are equipped with 200, 300 and 500 series Viton seals respectively, rated at 300 psi and suitable for temperatures up to 400°F.

**U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com**

**U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com**
DME Flow-Thru Type Sockets have a large thru hole to provide unrestricted flow. These quick-connection couplers are available with either straight, 45° or 90° hose stems, or standard female or male NPT threads. DME Flow-Thru and Automatic Shut-Off Type Sockets have the same O.D., permitting complete interchangeability with Plugs installed in your mold or die. The Sockets can be used with either male, female or extension plugs.

DME男接头与DME自动断开型插座（包括SV系列）兼容，设计用于在断开时自动关闭。与其他类型的插座相比，DME插座的设计可完全限制流量。对于使用流道或自动断开插座（包括SV系列）的场合，所有Male Plug (包括SV系列) 和Extension Plugs 都采用带密封圈的螺纹。去除初始需要的接头带或化合物，密封圈将在300°F温度和200 psi压力下保持连接。
MOLD COOLING

MoldBasics® SV-Series Hose Connectors

**SV-Series Connectors – NS**

Two-Way Automatic Shut-Off Type

The DME line of SV-Series Connectors features a male plug and socket, each with an automatic shut-off stemmed valve. These connectors are designed for use with plastics molds and die-cast dies in water, air or heat transfer oil lines. They feature a combination of brass and stainless steel in a leak-proof construction, have a maximum rated capacity of 200 psi and will withstand temperatures up to 400°F with supplied Viton seals. The SV-Series Male Plugs add the capability of automatic shut-off at the mold, thereby minimizing coolant loss.

**SV-Series Male Plugs**

(Automatic Shut-Off Type with Stemmed Valve)

The DME SV-Series Male Plugs feature an automatic shut-off stemmed valve. This plug design adds the capability of automatic shut-off at the mold. The plug’s shut-off stemmed valve minimizes mold coolant loss, thereby decreasing clean-up time and the possibility of rust occurring on the mold surface. The SV-Series Male Plug can ONLY be used with the SV-Series Socket.

**SV-Series Connectors – NS**

(Automatic Shut-Off Type with Stemmed Valve)

The SV-Series Male Plugs are now supplied with thread sealant. Eliminating the initial need for joint tape or compound, the sealant will withstand temperatures up to 400°F and pressures up to 200 psi.

**SV-Series Sockets**

(Automatic Shut-Off Type with Stemmed Valve)

The DME SV-Series Sockets feature an automatic shut-off stemmed valve. This plug design adds the capability of automatic shut-off at the mold, thereby minimizing coolant loss.

**Operating Combinations**

Two-Way Shut-Off*  
One-Way Shut-Off

<table>
<thead>
<tr>
<th>Description</th>
<th>Item Number</th>
<th>Thread</th>
<th>Hose I.D.</th>
<th>Valve</th>
<th>Interchangeability</th>
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</thead>
<tbody>
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<td>NS200SV</td>
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<td>NS250 to 253 (SV)</td>
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<td>NS201MSV</td>
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<td>1/4</td>
<td>NS250 to 253 (SV)</td>
<td>NS200 to NS201M (V)</td>
<td></td>
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<tr>
<td>NS205SV</td>
<td>5/16 1/4</td>
<td>1/4</td>
<td>NS250 to 253 (SV)</td>
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<tr>
<td>NS206SV</td>
<td>3/8 1/4</td>
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<td>NS250 to 253 (SV)</td>
<td>NS200 to NS201M (V)</td>
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<tr>
<td>NS214SV</td>
<td>1/4 1/4</td>
<td>1/4</td>
<td>NS250 to 253 (SV)</td>
<td>NS200 to NS201M (V)</td>
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<td>NS215SV</td>
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<td>NS224SV</td>
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<td>NS300SV</td>
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<td>NS351 to 354 (SV)</td>
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<tr>
<td>NS306SV</td>
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<td>NS351 to 354 (SV)</td>
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<td>NS318SV</td>
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<td>NS351 to 354 (SV)</td>
<td>NS300 to NS304M (V)</td>
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</tr>
</tbody>
</table>

**90° and 45° NPT Elbows**

(For Female and Male NPT Sockets Only)

These 90° and 45° NPT elbows can be used with either V or SV, female or male NPT sockets only.
**MOLD COOLING**

MoldBasics® Hose Connector Sockets and Replacement Connector Seals

With Clampless Hose Stems for use with Push-To-Connect/Push-To-Lock Type Hose

- For use with push-to-connect/push-to-lock type hose only
- Saves set-up time by eliminating the need for hose clamps
- Hose stem barbs mate with “Push-to-Lock” style rubber hose
- Popular sizes for interchangeability with existing and SV Sockets
- More compact and consistently sized than competitive sockets
- Leakproof brass and stainless steel construction
- Replaceable seals and valves for long service life
- Socket connector seals are Viton

**Valve Style** – SVPL

**One-Way Valve Style** – VPL

<table>
<thead>
<tr>
<th>Item Number</th>
<th>I.D.</th>
<th>O.D.</th>
<th>Thread</th>
<th>O/D</th>
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<td>NS338VPL</td>
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<td>9/32</td>
<td>1/8 NS</td>
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</table>

**Replacement Connector Seals**

Sockets are supplied with Viton seals for use with air, water or heat transfer oil applications that do not exceed 400°F and 200 psi. Seals should be replaced periodically as required to ensure leak-free connections.

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**MOLD COOLING**

Bubbler Tubes – Available in brass or 304 stainless steel

DME Bubbler Tubes are for cooling cores in molds or dies. They are supplied threaded at both ends, thus permitting two threaded tubes to be cut from the 18” length supplied. They can be used as replacement tubes in Cascade Water Junctions.

**Brass Bubbler Tubes – BT**

- NS 351 TO 354 (SV)
- NS 553 TO 556 (FB)

**304 Stainless Steel Bubbler Tubes – BSS**

<table>
<thead>
<tr>
<th>Item Number</th>
<th>O/D</th>
<th>I/D</th>
<th>Thread</th>
<th>O/D</th>
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<tr>
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<td>1/8</td>
<td>0</td>
</tr>
<tr>
<td>NS332VPL</td>
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<td>1/8 NS</td>
<td>1/8</td>
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<td>9/32</td>
<td>1/8 NS</td>
<td>1/8</td>
<td>0</td>
</tr>
</tbody>
</table>

**Brass Diverting Plugs and Rod for Steam and Waterlines**

DME Brass Diverting Plugs and Rods are used to redirect water flow through waterlines drilled in a mold or die.

The plugs are pushed into the waterline, and the rods are cut to appropriate lengths to serve as spacers or stops between the plugs. All plugs are proportionately longer than their diameter to ensure that they will pass between waterlines without twisting into them.

**Brass Diverting Plugs – BF**

<table>
<thead>
<tr>
<th>Item Number</th>
<th>O/D x I/D</th>
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<tbody>
<tr>
<td>BF95</td>
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</tr>
<tr>
<td>BF30</td>
<td>1/4 x 1/16</td>
<td>37</td>
</tr>
<tr>
<td>BF50</td>
<td>1/4 x 1/16</td>
<td>25</td>
</tr>
</tbody>
</table>

**Brass Rod – BFS**

(1/8 dia. x 18’’ long)

**FOR USE WITH**

- Seal Material: Viton®, Buna
- Air, Water or Steam Flow

**ITEM NUMBER**

- NV905-12
- NV906-12
- NV910-12
- NV904-12

**ITEM NUMBER**

- NV905-12
- NV906-12
- NV910-12
- NV904-12

**Max Operating Pressure/Temperature/Pressure: 40°F-120°F**

*Pack of 2 (sold in packs of 12 only).*

**Mold Cooling**

Mold Cooling

MoldBasics® Hose Connector Sockets and Replacement Connector Seals

With Clampless Hose Stems for use with Push-To-Connect/Push-To-Lock Type Hose

- For use with push-to-connect/push-to-lock type hose only
- Saves set-up time by eliminating the need for hose clamps
- Hose stem barbs mate with “Push-to-Lock” style rubber hose
- Popular sizes for interchangeability with existing and SV Sockets
- More compact and consistently sized than competitive sockets
- Leakproof brass and stainless steel construction
- Replaceable seals and valves for long service life
- Socket connector seals are Viton

**Valve Style** – SVPL

**One-Way Valve Style** – VPL

<table>
<thead>
<tr>
<th>Item Number</th>
<th>I.D.</th>
<th>O.D.</th>
<th>Thread</th>
<th>O/D</th>
<th>Channel</th>
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<tr>
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<td>1/8 NS</td>
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<tr>
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<td>1/8 NS</td>
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<tr>
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<td>9/32</td>
<td>1/8 NS</td>
<td>1/8</td>
<td>0</td>
</tr>
</tbody>
</table>

**Replacement Connector Seals**

Sockets are supplied with Viton seals for use with air, water or heat transfer oil applications that do not exceed 400°F and 200 psi. Seals should be replaced periodically as required to ensure leak-free connections.

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**MOLD COOLING**

Bubbler Tubes – Available in brass or 304 stainless steel

DME Bubbler Tubes are for cooling cores in molds or dies. They are supplied threaded at both ends, thus permitting two threaded tubes to be cut from the 18” length supplied. They can be used as replacement tubes in Cascade Water Junctions.

**Brass Bubbler Tubes – BT**

- NS 351 TO 354 (SV)
- NS 553 TO 556 (FB)

**304 Stainless Steel Bubbler Tubes – BSS**

<table>
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<tr>
<th>Item Number</th>
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<th>O/D</th>
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<td>NS332VPL</td>
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**Brass Diverting Plugs – BF**

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<td>1/4 x 1/16</td>
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**Brass Rod – BFS**

(1/8 dia. x 18’’ long)

**FOR USE WITH**

- Seal Material: Viton®, Buna
- Air, Water or Steam Flow

**ITEM NUMBER**

- NV905-12
- NV906-12
- NV910-12
- NV904-12

**ITEM NUMBER**

- NV905-12
- NV906-12
- NV910-12
- NV904-12

**Max Operating Pressure/Temperature/Pressure: 40°F-120°F**

*Pack of 2 (sold in packs of 12 only).*
**MOLD COOLING**

**DME Cascade Water Junctions**

DME Cascade Water Junctions are ideal for cooling plastics molds and die-cast dies where drilled waterlines through the block are not possible due to interference with ejector pins, sprue puller pins, etc.

The brass tube has the rigidity to maintain uniform spacing inside the water channel and is threaded into the body for firm support. Waterlines may be connected to the same side or opposing sides of the brass hexagonal body.

The Nipple Type Water Junction provides low-cost rigid installation. The 2” long pipe nipple can be replaced with a longer pipe nipple to suit the application.

The Jiffy-Tite Socket Type is more easily connected and disconnected when mold is set-up, transported or stored. The Jiffy-Tite Socket Type is more easily connected and disconnected when mold is set-up, transported or stored. The Jiffy-Tite Socket Type is more easily connected and disconnected when mold is set-up, transported or stored. The Jiffy-Tite Socket Type is more easily connected and disconnected when mold is set-up, transported or stored. The Jiffy-Tite Socket Type is more easily connected and disconnected when mold is set-up, transported or stored. The Jiffy-Tite Socket Type is more easily connected and disconnected when mold is set-up, transported or stored. The Jiffy-Tite Socket Type is more easily connected and disconnected when mold is set-up, transported or stored. The Jiffy-Tite Socket Type is more easily connected and disconnected when mold is set-up, transported or stored.

**Typical Applications**

**Note:** Bubbler Tubes may be used as replacements in Water Junctions.

**(item removed)**

**Specifications for DC136A (see drawing above):**

- **1/4-28 UNF**
- **3/8 NPT x 2”**
- **5/16 O.D. - .040 WALL**

**NIPPLE TYPE**

**Jiffy-Tite Socket Type – DC** (Includes pipe nipple and brass bubbler tube)

**NIPPLE TYPE**

**Jiffy-Tite Socket Type – JSC** (Includes brass tube)

**Typical Applications**

**Table: Brass Pressure Plugs**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>MINIMUM SIZE (NPT)</th>
<th>LENGTH</th>
<th>TAP SIZE</th>
<th>THREADS TAP (INCH)</th>
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<td>14</td>
<td>1 1/8</td>
</tr>
</tbody>
</table>

**Brass Pressure Plugs (INCH) – BP**

- For steam, water or oil lines
- Positive tapered seal
- Withstands pressures up to 600 psi

**Brass Pressure Plugs**

**NOMINAL SIZE LENGTH ITEM NUMBER**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>R</th>
<th>L</th>
<th>SW</th>
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</thead>
<tbody>
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<td>5</td>
</tr>
<tr>
<td>AN25</td>
<td>M 10 X 1</td>
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</tr>
</tbody>
</table>

**Brass Pressure Plugs (Metric) – AN**

**NOMINAL SIZE LENGTH ITEM NUMBER**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>R</th>
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<th>SW</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>AN20</td>
<td>M 10 X 1</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>AN25</td>
<td>M 10 X 1</td>
<td>8</td>
<td>10</td>
</tr>
</tbody>
</table>
Ensure good coolant flow rates (Reynolds number of 4000 minimum. See Reference Table below.)

• The golden rule for optimum cooling is to maximize GPM (gallons per minute). DME recommends in-line coolant flow meter usage. In-line coolant flow meters are available from DME Industrial Supplies.

• Coolant feed channels should be the same size or larger than the calculated coolant channel.

• Keep coolant channels clean with filtering and scheduled channel maintenance to de-scale coolant channels.

• Use parallel cooling versus series cooling, as appropriate.

• Minimize restrictions within cooling circuit.

Reynolds Number

The Reynolds number in fluid mechanics is the ratio of inertial forces to viscous forces and quantifies the relative importance of these two types of forces for given flow conditions.

Reynolds number of 4000.

For turbulent flow in drilled water passages based on a Reynolds number of 4000 minimum.

Typical Applications

• Remove the exit hose from a mold-cooling circuit as appropriate.

• Calculate the amount of coolant that flowed through the exit hose into the container.

• For example, filling a 5-gallon container in 8 minutes is a flow rate of .625 gallons per minute (5 over 8 or 5/8 = .625).

• .625 gallons per minute is a very good flow rate for a 1/4 NPT cooling channel. However, this would NOT be turbulent flow for a 3/8 NPT flow channel.

• Additionally, many other factors influence the cooling process, including coolant channel placement, distance the cooling channels are from the cavity or core molding surface, distance between each cooling channel, and the number of cooling channels.

• Furthermore, if water deposits such as lime and other hard water mineral deposits are allowed to accumulate, the walls of the cooling channels will become insulated. Turbulent flow is less beneficial under these conditions.

• Practice filtering the coolant along with regularly scheduled coolant channel maintenance to de-scale coolant channels.

• Mold materials also play a significant role in cooling time. For example, replacing 430 Stainless Steel cores with a Copper Alloy such as Moldstar (as supplied by DME) can significantly reduce cycle time.

• Lastly, remember that regular cooling channel maintenance and turbulent water flow rates for the size of the cooling channels will have an enormous effect on the mold’s cooling capacity.

How to Check Coolant Flow Rate

1. Practice filtering the coolant along with regularly scheduled coolant channel maintenance to de-scale coolant channels.

2. Mold materials also play a significant role in cooling time. For example, replacing 430 Stainless Steel cores with a Copper Alloy such as Moldstar (as supplied by DME) can significantly reduce cycle time.

3. Lastly, remember that regular cooling channel maintenance and turbulent water flow rates for the size of the cooling channels will have an enormous effect on the mold’s cooling capacity.
DME Brass Plug Baffles, available in both straight and spiral styles, are constructed entirely of high-quality brass with blades brazed to the plugs for long, dependable service. They provide a high-pressure seal through a deliberate difference in taper between the plug and the tapped hole.

The function of the baffle is to split the drilled waterline into two equal channels. As the heating or cooling medium enters, the baffle diverts the flow to travel up to and over the end of the baffle and down the other side. Clearance must be provided between the end of the baffle and the end of the drilled channel to provide adequate flow. See Dimension “C” for approximate clearances.

DME Brass Plug Baffles

**Straight Brass Plug Baffles (METRIC) – BB**

**Thread Size**

**BRASS PIPE Baffles (METRIC) – BBS**

**Spiral Brass Plug Baffles**

**Spiral Baffles** improve cooling balance by creating turbulent action in the channel, reducing laminar or straight-layered flow patterns and providing efficient coolant movement.

**Notes:**

- A drilled hole (finish d±1) is adequate. Don’t ream the hole.
- See Dimension “C” for approximate clearances.

**Typical Applications**

**Approx. Clearance “C”**

**Straight Baffles**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>NOMINAL PLUG SIZE</th>
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**Spiral Brass Plug Baffles (METRIC) – BBS**

<table>
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<tr>
<th>ITEM NUMBER</th>
<th>NOMINAL PLUG SIZE</th>
<th>SW</th>
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<th>L</th>
<th>T</th>
<th>C</th>
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<tbody>
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<td>33</td>
<td>2.8</td>
<td>0.4</td>
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<tr>
<td>BB20020</td>
<td>1⁄2” BSPT</td>
<td>22</td>
<td>33</td>
<td>2.8</td>
<td>0.4</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Notes:**

- A drilled hole (finish d±1) is adequate. Don’t ream the hole.

**MOLD COOLING**

**Straight Brass Plug Baffles**

**Spiral Brass Plug Baffles**

**Straight Baffles**

**Spiral Baffles**

**MOLD COOLING**

**Straight Brass Plug Baffles**

**Spiral Brass Plug Baffles**

**Straight Baffles**

**Spiral Baffles**
MOLD COOLING
Heat Pipes - Cooling Pins

How and where heat pipes work
The DME Heat Pipe is a heat transfer device specifically designed for optimal performance in plastic injection molds. It consists of a vacuum-tight copper tube containing a wick and a non-toxic working fluid. One end of the heat pipe is an evaporator, the opposite end is a condenser. Thermal energy is gathered at the evaporator end, vaporizing the working fluid. This vapor then travels through the Heat Pipe to the condenser end. At the condenser end the vapor condenses back into a liquid, giving up its latent heat in the process. To complete the cycle the condensed liquid then travels along the wick, via capillary action, back to the evaporator section. This process repeats itself continuously, transferring heat many times faster than pure copper.

How heat pipes are used
Available in a variety of standard lengths and diameters, DME Heat Pipes are used in cores, core slides, cavities and other areas of a mold or die requiring cooling or controlled temperatures. Commonly used in place of baffles, fountains or blades, Heat Pipes transfer heat rapidly to the heated area, rather than requiring the coolant to flow into the heated area. They are also used to transfer heat to a cooler portion of the mold (which serves as a heat sink) or to open air, thereby permitting cooling of otherwise inaccessible areas and eliminating potential coolant leakage.

Benefits of heat pipes
Cool Molds Faster and Reduce Cycle Time
The Heat Pipe’s ability to cool molds faster and thus reduce cycle time is due to a number of factors. First, waterlines throughout the entire mold can be larger in diameter, permitting a higher coolant velocity, which transfers heat faster. Second, the larger volume of fluid flowing through the waterlines results in a lower overall coolant temperature rise, so that the last Heat Pipe in the system will transfer heat as efficiently as the first. Third, the extension of the Heat Pipe into the waterline promotes turbulent flow, which transfers heat faster than laminar flow. Fourth, the ability to transfer heat away from inaccessible areas improves the overall cooling rate and reduces cycle time, even if extension into a remote waterline is impractical or impossible.

Improve Part Quality
As the Heat Pipe transfers heat to the coolant, air or mold component, it also dissipates heat evenly along its entire length. This thermal action provides faster and more uniform cooling, thus eliminating hot spots, which cause sink marks, pitting and spotting.

Simplify Mold Design and Lower Costs
With Heat Pipes, waterline design is greatly simplified since coolant flow into the heated area of the mold is not required. In addition, the ability to locate heat conductors in areas inaccessible to other cooling devices can further simplify the overall mold design. In most cases, the machining and construction time required for the mold is reduced, lowering moldmaking costs.

Standard injection molding heat pipes
The standard line of Heat Pipes for injection molding includes both a low-temperature (TPL) and a high-temperature (TPH) series. The TPL Series works most efficiently between the temperatures of 40˚ and 200˚F with a coolant temperature of approximately 60˚ to 80˚F, and the TPH Series between 150˚ and 400˚F with a coolant temperature of approximately 60˚ to 80˚F, and is also used to transfer heat to a cooler portion of the mold (which serves as a heat sink) or to open air, thereby permitting cooling of otherwise inaccessible areas and eliminating potential coolant leakage.

MOLD COOLING
Heat Pipes - Cooling Pins

Reduce Maintenance and Operating Costs
The increased waterline diameter, coolant velocity and heat capacity effectively eliminate scale formation, calcium deposits and the plugging up of small waterlines and ports. In addition, Heat Pipes operate in any coolant without corrodng.

Upgrade Existing Molds and Dies
Heat Pipes effectively solve cooling, cycle time or part quality problems in existing molds. They can be retrofit as replacements for bubblers or baffles and to provide heat transfer in previously uncooled areas.

Salvage Damaged Molds and Dies
In certain applications, Heat Pipes can even be used to salvage or repair molds that would otherwise have to be scrapped or extensively reworked.

Silver heat transfer compound* – HTC06S
Contains micronic particles of silver to provide a thermal resistance of 4.75˚C in/watt. The compound is supplied in a 5cc plastic syringe. (DME recommends the Silver Heat Transfer Compound because it has eight times lower thermal resistance than the copper equivalent.)

Copper heat transfer compound* – HTC30C
Contains micronic particles of copper to provide a thermal resistance of 38˚C in/watt. The compound is supplied in a 5cc plastic syringe.

TPL and TPH heat pipes for injection molding
For low-temperature Heat Pipes (40˚-200˚F) use TPL (color-coded BLACK) as a prefix in front of item number in the chart below. For high-temperature Heat Pipes (150˚-400˚F) use TPH (color-coded WHITE) as the prefix. Examples: TPL600D; TPH6500.

Selecting the right size and shape
The standard diameters and lengths of TPL and TPH Series Heat Pipes will satisfy most applications.

<table>
<thead>
<tr>
<th>TPL &amp; TPH SERIES</th>
<th>TOLERANCES</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Length</td>
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</tbody>
</table>

NOTE: Heat Pipes cannot be used as a sparcor pin and parts cannot be melted or cast against them. Also, Heat Pipes cannot be cut, machined, bent or plated. If a specific size is required, contact DME to discuss your application.

TPL & TPH SERIES TOLERANCES

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>LENGTH</th>
<th>ITEM NUMBER</th>
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SELECTING THE RIGHT SIZE AND SHAPE

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NOTE: Heat Pipes cannot be used as a sparcor pin and parts cannot be melted or cast against them. Also, Heat Pipes cannot be cut, machined, bent or plated. If a specific size is required, contact DME to discuss your application.

Silver heat transfer compound* – HTC06S
Contains micronic particles of silver to provide a thermal resistance of 4.75˚C in/watt. The compound is supplied in a 5cc plastic syringe. (DME recommends the Silver Heat Transfer Compound because it has eight times lower thermal resistance than the copper equivalent.)

Copper heat transfer compound* – HTC30C
Contains micronic particles of copper to provide a thermal resistance of 38˚C in/watt. The compound is supplied in a 5cc plastic syringe.

Tamp ring sets – TARS
Each set includes 32 silver alloy tamp rings (enough for installing 16 Heat Pipes) and one hollow tamping tube. Select the required tamp ring set by its I.D. to match the O.D. of the Heat Pipe being used.

DME to discuss your application.
Pre-machining includes:
- High compression strength
- Machinable with high-speed cutting tools
- DME High-Temperature Insulator Sheets are used on molds and dies between the top clamping plate and the stationary plate, and between the bottom of the ejector housing and the movable plate. The thermal insulating properties of this unique asbestos-free, glass-reinforced polymer composite inhibit heat transfer from the mold to the plate, or from the plate to the mold (depending on the application), which helps conserve energy and prolong machine life. These sheets have excellent non-deformation characteristics and a compressive strength,* which is higher than asbestos and mica materials. Compression molded for high impact strength, they are supplied micro-finished top and bottom, parallel within ±.002.
- Custom Insulator Sheets available
- Machinable with high-speed cutting tools
- Can be used on both top and bottom of mold bases
- Assembly screw hole clearance
- 2 thicknesses of Insulator Sheets (1⁄4" or 1⁄2")
- Specifically designed to be 1⁄16" shorter on all sides
- Asbestos-free material

MOLD COOLING
High-Temperature Insulator Sheets and Locating Rings

High-Temperature Insulator Sheets (HTIS) for Plastics Molds and Die-Cast Dies

- Asbestos-free material
- High compression strength
- Machinable with high-speed cutting tools
- DME High-Temperature Insulator Sheets are used on molds and dies between the top clamping plate and the stationary plate, and between the bottom of the ejector housing and the movable plate. The thermal insulating properties of this unique asbestos-free, glass-reinforced polymer composite inhibit heat transfer from the mold to the plate, or from the plate to the mold (depending on the application), which helps conserve energy and prolong machine life. These sheets have excellent non-deformation characteristics and a compressive strength,* which is higher than asbestos and mica materials. Compression molded for high impact strength, they are supplied micro-finished top and bottom, parallel within ±.002.
- Custom Insulator Sheets available
- Machinable with high-speed cutting tools
- Can be used on both top and bottom of mold bases
- Assembly screw hole clearance
- 2 thicknesses of Insulator Sheets (1⁄4" or 1⁄2")
- Specifically designed to be 1⁄16" shorter on all sides
- Asbestos-free material
- High compression strength
- Use with locating rings 6541 and 6544
- Can be used on both top and bottom of mold bases

Pre-Machined Insulator Sheets

Pre-Machined Insulator Sheets for Plastics Molds

These thicker Locating Rings are used with Insulator Sheets ¼ and ½ thick. They extend beyond the Insulator Sheet far enough to ensure more than ¼" pilot engagement with the locating hole in the machine plate.

**Note:**

- Special sizes and machining are available upon request. Send along this form for a quote.

Mold Cooling

DME TruCool™ Conformal Cooling is a Revolutionary Technology

TruCool™ addresses the thermal management of the injection molding process. Through the use of metal 3D printing, we manufacture inserts, slides, lifters and more, that can now contain cooling channels previously unimaginable. This technology has been proven over several years of research and development all while pushing the limits of plastic injection molding. In existing molds, TruCool™ inserts are typically able to reduce overall cycle time by an average of 25%, reduce warpage by nearly 35%, improves part quality through reduced thermal stress which results in material savings with less scrap and less press time while obtaining the same E.A.U. (Estimated Annual Usage) in comparison to conventional means. Typical R.O.I. (return on investment) is less than 3 months.

Should TruCool™ inserts be considered at the lead of a project, additional benefits would include a complete thermal control of the mold, additional part design and engineering flexibility, a reduced cavity count which directly relates to a smaller tool and a smaller press ultimately reducing overall cost while again, still producing the same E.A.U. as well as a superior end user product.

On the design side, DME uses Siemens NX CAD software. With DME’s extensive tooling background, we not only offer design work for our TruCool™ conformal cooling line of products, but we are additionally able to provide full mold design consultation. The Design Team is always available to support our clients starting at the initial stages of development, to supplying the mold base (through our manufacturing department), and everything in between. This sets customers at ease knowing they have over seven decades of engineering behind them. Companies of any size and global location can all benefit from the mold technology knowledge DME has developed. On the heating side of the process with hot runner manifolds and even conformal heating channels for dynamic thermal cycling, all the way to the cooling of the mold, we can help reduce delta on your part an increase the efficiency of your mold from beginning to end.

1. Annual maintenance required.

2. When all necessary information is provided by customer, failure would apply to a discount on future projects, requires DME review of mold in operation prior to and after conformal modification.
DME TruCool™ Printed Inserts

Wide range of materials available for TruCool™ conformal inserts:

- MS-1
- Aluminum
- CX Stainless
- P-20
- H-13
- 420SS

Capability of A-1 polish finish (using P-20, H-13 or 420SS)

Larger volumes:

- Sizes up to 35.4” (900mm) X 23.6” (600mm) X 19.6” (500mm)

Development of standardized “off the shelf” componentry for plug-n-play ease and cost savings

- Hot tip gate insert (2 major hot runner manufactures already on board)
- Cold sprue bushing
- Customizable pre-printed inserts
- Core pins
DME MOLD COMPONENTS – INCH
FEATURING HIGH-QUALITY GUIDE PINS, BUSHINGS, SUPPORT PILLARS, AND MORE
MOLD COMPONENTS – INCH
A comprehensive line of Standard Mold Components

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**MOLD COMPONENTS – INCH**

**Guide Pins – GL**

**Guide Pins – GL**

**Hardened and Precision Ground**

**General Dimensions**

<table>
<thead>
<tr>
<th>NOMINAL DIA</th>
<th>Ø D = 3⁄4 DIA</th>
<th>Ø D = 1⁄2 DIA</th>
<th>Ø D = 1 1⁄4 DIA</th>
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<td>1.031</td>
<td>1.126</td>
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</tbody>
</table>

**NOTE:** Grooved guide pins also available on special order. All items in stock.

---

**MOLD COMPONENTS – INCH**

**Shoulder Guide Pins – A-GL, C-GL, D-GL**

**Shoulder Guide Pins – A-GL, C-GL, D-GL**

**Hardened and Precision Ground**

**DME Standard Shoulder Pins** are precision made of high-quality steel and are hardened and finished ground to close tolerances. This combination enables moldmakers to line-bore the guide pin and bushing hole.

**General Dimensions**

<table>
<thead>
<tr>
<th>NOMINAL DIA</th>
<th>Ø D = 3⁄4 DIA</th>
<th>Ø D = 1⁄2 DIA</th>
<th>Ø D = 1 1⁄4 DIA</th>
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<td>2 3⁄4</td>
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<td>1.031</td>
<td>1.126</td>
</tr>
</tbody>
</table>

**NOTE:** Grooved guide pins also available on special order. All items in stock.

---

**U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com**
# MOLD COMPONENTS – INCH

## Shoulder Bushings

**General Dimensions**

| Item       | Diameter   | Length  
<table>
<thead>
<tr>
<th></th>
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<td>2.0005</td>
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<tr>
<td>2</td>
<td>2</td>
<td>2.0005</td>
</tr>
</tbody>
</table>

**Surface Treatment:** Case-hardened .030 to .040 deep

## Straight Bushings

**Surface Treatment:** Case-hardened .030 to .040 deep

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<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
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<td>+.0005</td>
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<td>2</td>
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</tr>
</tbody>
</table>

## Guide Pins – GL

**Designed to satisfy the requirements of larger plastics molds and die-cast dies. They are made of the finest quality alloy steels and are hardened and precision ground.**

**General Dimensions**

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1⁄4</td>
<td>.7505</td>
<td>+.0005</td>
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<tr>
<td>3⁄8</td>
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<tr>
<td>1⁄2</td>
<td>1.2505</td>
<td>+.0005</td>
</tr>
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</table>

**Surface Treatment:** Case-hardened .030 to .040 deep

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1⁄4</td>
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<td>+.0000</td>
</tr>
<tr>
<td>2</td>
<td>3.0005</td>
<td>+.0000</td>
</tr>
</tbody>
</table>

**NOTE:** Grooved guide pins also available on special order.

## Shoulder Bushings

Made of the finest quality alloy steel. They are hardened and precision ground to reduce wear and give longer life under severe molding or die casting conditions. The I.D. is ground to close tolerances in order to maintain a smooth, but firm, running fit with DME’s Standard Guide Pins.

**General Dimensions**

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1⁄4</td>
<td>.7505</td>
<td>+.0005</td>
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<tr>
<td>3⁄8</td>
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</tr>
<tr>
<td>1⁄2</td>
<td>1.2505</td>
<td>+.0005</td>
</tr>
</tbody>
</table>

**Surface Treatment:** Case-hardened .030 to .040 deep
MOLD COMPONENTS – INCH
Self-Lubricating Bushings for Guide Pins

DME Self-Lubricating Bushings can save time and money in the design, construction and operation of injection molds. They are ideal for clean-room conditions or any applications where the parts being molded prohibit the use of external lubricants, such as medical, electronic and food-related products. Their built-in lubrication capability also makes them a good choice for fast-cycling, high-production molds.

Self-Lubricating Straight Bushings – GBS
General Dimensions

All items in stock.

Self-Lubricating Shoulder Bushings – GBF

All items in stock.

Bronze-Plated Shoulder Bushings – STB

Precision Ground

MOLD COMPONENTS – INCH
Bronze-Plated Shoulder and Straight Bushings

DME Standard Shoulder and Straight Bushings feature internal oil grooves and bronze-plating for smooth, non-galling operation.

General Dimensions

All items in stock.
Solid Bronze Shoulder Bushings – SBF

Precision Ground

DME Standard Shoulder and Straight Bushings feature internal oil grooves and high-strength bronze for smooth, non-galling operation.

Solid Bronze Shoulder Bushings – SBF

Pins are hardened and precision ground

System 2

Guided Ejection Guide Pins

- Short press fit lengths for use in guided ejection applications
- Pins are hardened and precision ground

System 1

When pins are installed in the support plate, ejector housing can be removed from mold without removing ejector plates, permitting easy access to service the ejector system.

System 2

Pins installed in the ejector housing permit fast, low-cost installation. When ejector housing is removed from mold base, the complete ejector assembly is removed.

It is recommended that a minimum of four pins and bushings be installed. Size of the pins and bushings should be determined by the size of the mold. The Guided Ejection System is an inexpensive method to protect against wear and costly damage to a mold in production.

Properly installed, the DME Guided Ejection System holds the ejector assembly in alignment and supports the weight of the ejector assembly throughout the entire machine cycle. This greatly reduces wear on ejection components and prevents possible cocking of the machine cycle. This greatly reduces wear on ejection components and prevents possible cocking of the machine cycle.

Properly installed, the DME Guided Ejection System holds the ejector assembly in alignment and supports the weight of the ejector assembly throughout the entire machine cycle. This greatly reduces wear on ejection components and prevents possible cocking of the machine cycle.

Guided Ejection Systems are available installed in standard mold bases. For additional information and prices, contact DME.

NOTES:
1. Select corresponding bronze-plated guided ejector bushings or self-lubricating guided ejector bushings in proper diameter for the application.
2. DME Guided Ejection Systems are available installed in standard mold bases. For additional information and prices, contact DME.
MOLD COMPONENTS – INCH
Guided Ejection Bushings

- Holds the ejector assembly in alignment
- Supports the weight of the ejector assembly throughout the entire cycle
- Reduces wear on ejection components
- Prevents cocking of the ejector plates

Bronze-Plated Guided Ejection Bushings – GEB
The Bronze-Plated Guided Ejection Bushings feature the strength of steel plus the nonscoring lubricity of bronze plating. Internal oil grooves and a lubrication hole help to ensure smoother mold operation.

It is recommended that a minimum of four bushings be installed. The size of the bushings should be determined by the size of the mold. The Guided Ejection System is inexpensive protection against wear and possible costly damage to a mold in production.

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>NOMINAL I.D. Ø D</th>
<th>Ø E</th>
<th>Ø A</th>
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<th>L</th>
<th>B</th>
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NOTE: Select corresponding guide pin in proper diameter and length for application.

Self-Lubricating Guided Ejection Bushings – GBE
It is recommended that a minimum of four bushings be installed. Bushing size should be determined by the size of the mold. The Guided Ejection System is inexpensive protection against wear and possible costly damage to a mold in production.

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<th>ITEM NUMBER</th>
<th>NOMINAL I.D. Ø D</th>
<th>Ø E</th>
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<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.62</td>
<td>.62</td>
</tr>
<tr>
<td>GBE 1500</td>
<td>1.501 ±.0005</td>
<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.62</td>
<td>.62</td>
</tr>
<tr>
<td>GBE 2000</td>
<td>2.001 ±.0005</td>
<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.80</td>
<td>.80</td>
</tr>
</tbody>
</table>

NOTE: Select corresponding guide pin in proper diameter and length for application.

DME Guided Ejection Systems are available installed in standard mold bases. For additional information and prices, contact DME.

MOLD COMPONENTS – INCH
Guided Ejection Bushings

Solid Bronze Guided Ejection Bushings – BEB
Solid Bronze Guided Ejection Bushings feature high-strength bronze and natural lubricity. Internal oil grooves and a lubrication hole help to ensure smoother mold operation.

It is recommended that a minimum of four bushings be installed. The size of the bushings should be determined by the size of the mold. The Guided Ejection System is inexpensive protection against wear and possible costly damage to a mold in production.

- Holds the ejector assembly in alignment
- Supports the weight of the ejector assembly throughout the entire cycle
- Reduces wear on ejection components
- Prevents cocking of the ejector plates

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>NOMINAL I.D. Ø D</th>
<th>Ø E</th>
<th>Ø A</th>
<th>Ø H</th>
<th>L</th>
<th>B</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEB 500</td>
<td>.501 ±.0005</td>
<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.56</td>
<td>.56</td>
</tr>
<tr>
<td>BEB 750</td>
<td>.751 ±.0005</td>
<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.56</td>
<td>.56</td>
</tr>
<tr>
<td>BEB 875</td>
<td>.876 ±.0005</td>
<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.56</td>
<td>.56</td>
</tr>
<tr>
<td>BEB 1000</td>
<td>1.001 ±.0005</td>
<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.62</td>
<td>.62</td>
</tr>
<tr>
<td>BEB 1250</td>
<td>1.251 ±.0005</td>
<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.62</td>
<td>.62</td>
</tr>
<tr>
<td>BEB 1500</td>
<td>1.501 ±.0005</td>
<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.62</td>
<td>.62</td>
</tr>
<tr>
<td>BEB 2000</td>
<td>2.001 ±.0005</td>
<td>±.000</td>
<td>±.001</td>
<td>±.010</td>
<td>±.03</td>
<td>.80</td>
<td>.80</td>
</tr>
</tbody>
</table>

All items in stock.

NOTES:
1. Select corresponding guide pin in proper diameter and length for application.
2. These bushings are interchangeable with comparably sized DME bronze-plated and solid bronze guided ejection bushings. BEB bushings are interchangeable only in self-lubricating style.
Guided Ejection Systems hold the ejector assembly in alignment and support the weight of the ejector assembly throughout the molding cycle – greatly reducing wear on ejection components and preventing cocking of the ejector assembly.

SYSTEM 1
When pins are installed in the support plate, the ejector housing can be removed from the mold without removing ejector plates. This permits easy access to service the ejector system.

SYSTEM 2
Pins installed in the ejector housing permit fast installation. When the ejector housing is removed from the mold base, the complete ejector assembly is removed.

Guided Ejection System Type
- System 1
- System 2

Guided Ejection Bushing Type
- Bronze-Plated Steel Bushings
- Self-Lubricating Bushings

Guided Ejection Position:
- STD (Specify)
- Offset (Specify)

Recommended position from table provided standard (see opposite page). If a different position is required, specify below:
- GEx:
- GEy:

Recommended diameter from table provided standard. If a different diameter is required, it will require a positioning change; specify below.

Available diameters:
- 0.750
- 0.875
- 1.000
- 1.250

Guided Ejection Positions

<table>
<thead>
<tr>
<th>Pin Diameter (Recommended)</th>
<th>BASE SIZE</th>
<th>GEx</th>
<th>GEy</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.750</td>
<td>8 9, 18, 32</td>
<td>0.80</td>
<td>1.00</td>
</tr>
<tr>
<td>0.875</td>
<td>10, 24, 40</td>
<td>1.15</td>
<td>1.62</td>
</tr>
<tr>
<td>1.000</td>
<td>12, 27, 48</td>
<td>1.45</td>
<td>2.00</td>
</tr>
<tr>
<td>1.250</td>
<td>16, 37, 50</td>
<td>1.90</td>
<td>2.62</td>
</tr>
</tbody>
</table>

For quoting or ordering, specify:
- PIN DIAMETER (RECOMMENDED)
- BASE SIZE
- GEx
- GEy

5 DAY SHIPPING

For quoting or ordering, specify:
- U.S. 800-626-6653
- Canada 800-387-6600
- dme@milacron.com
- www.dme.net
- store.milacron.com
- U.S. 800-626-6653
- Canada 800-387-6600
- dme@milacron.com
- www.dme.net
- store.milacron.com
MOLD COMPONENTS – INCH
Mold Parts for 34R Mold Assemblies

Locating Rings
The large diameter of the locating ring is ground to close tolerances to mate with the platens of the Arburg C/4b Press.

Guide Pins and Shoulder Bushings
Designed specifically to suit the 34R Series Mold Base. They are made of the finest quality steels and are hardened and precision ground.

Adjustable Knock-Out Rods
Tubular Dowels – for 34R Mold Bases
Hardened and precision ground to close tolerances.

Shoulder Guide Pins
Shoulder diameter is of the same size and tolerance to match with the O.D. of Standard DME Shoulder Bushings listed below.

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø 1/2 DIA</th>
<th>Ø D = 1/2 DIA Ø D = 17/32 DIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>6901</td>
<td>0.500</td>
<td>0.7505 0.853</td>
</tr>
<tr>
<td>6902</td>
<td>0.530</td>
<td>0.7505 0.853</td>
</tr>
<tr>
<td>6903</td>
<td>0.531</td>
<td>0.751 0.853</td>
</tr>
</tbody>
</table>

General Dimensions
Made of the finest quality steel, hardened and precision ground to reduce wear and give longer life.

Straight Bushings

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø 1/2 DIA</th>
<th>Ø D = 1/2 DIA Ø D = 17/32 DIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>7008</td>
<td>0.500</td>
<td>0.7505 0.853</td>
</tr>
<tr>
<td>7009</td>
<td>0.530</td>
<td>0.7505 0.853</td>
</tr>
<tr>
<td>7010</td>
<td>0.531</td>
<td>0.751 0.853</td>
</tr>
</tbody>
</table>

General Dimensions

When ordering, please specify:
1. Quantity
2. Nominal Diameter
3. Length

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø D = 1/2 DIA Ø D = 17/32 DIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>8101</td>
<td>0.499 0.7505 0.853</td>
</tr>
<tr>
<td>8102</td>
<td>0.500 0.751 0.853</td>
</tr>
</tbody>
</table>

Canada 800-387-6600 U.S. 800-626-6653 dme@milacron.com www.dme.net store.milacron.com

270 U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com

271 U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com
Support Pillars

S.A.E. 1040 Steel

Pillar height (C dimension) is finished flat and parallel.

Support pillars should be used liberally since they greatly increase the capacity of the mold to support the projected area of the cavities, runner and sprue. By providing additional support, they prevent deflection of the mold. The absolute necessity of using support pillars is demonstrated by using standard strength of materials formulas. For example, an 11% x 15" mold base without support pillars and with a maximum permissible load on center will quadruple this permissible cavity area to 56 square inches. The use of one row of support pillars on the support plate, will permit 14 square inches of cavity area without deflecting enough to cause flash. The use of one row of support pillars increases the permissible cavity area 4 times.

One row of support pillars increases the permissible cavity area 9 times.

Cap Screw Application

No support pillars

Socket Set Screw Application

Order pillars from chart at left and required "fasteners" as listed below.

Threaded Locating Pin Applications

Locating pins unavailable for 3" and 4" diameter pillars.

Order pillars and screws in package lots only.

Socket Set Screw Applications

Order pins and screws in package lots only.

Support Pillars

Support pillars are universally adaptable for cap screw, threaded locating pin, or socket set screw applications.

Cap Screw (S.H.C.S.) Applications

1/8-16 or 5/8-11 socket head cap screws can be ordered in length required.

Please reference page 364 for Socket Head Cap Screw information.

Threaded Locating Pin Applications

(1) #10-24UN x 1/2 long FHCS

Stop Discs

Dowel-type Stop Pins for special assemblies.

Order pins in package lots only.

U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com
MOLD COMPONENTS – INCH
Reversible Knock-out Extension Pucks

KO Extensions standardize mold ejector systems by unifying press knock out rod lengths. Wide range of thread configurations available for many different press types. The reversible puck can be mounted on either side to accommodate two different sizes of knock out rods.

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>THREAD 1 THRU</th>
<th>THREAD 2 H DEEP</th>
<th>H DIM</th>
<th>L DIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCPE103812</td>
<td>3/8&quot;-16 UNC</td>
<td>1/2&quot;-13 UNC</td>
<td>0.53</td>
<td>1.052</td>
</tr>
<tr>
<td>BCPE101258</td>
<td>1/2&quot;-13 UNC</td>
<td>5/8&quot;-11 UNC</td>
<td>0.78</td>
<td>1.552</td>
</tr>
<tr>
<td>BCPE105834</td>
<td>5/8&quot;-11 UNC</td>
<td>3/4&quot;-10 UNC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCPE103812</td>
<td>3/8&quot;-10 UNC</td>
<td>1/2&quot;-13 UNC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCPE153812</td>
<td>3/8&quot;-16 UNC</td>
<td>1/2&quot;-13 UNC</td>
<td>0.78</td>
<td>1.552</td>
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<tr>
<td>BCPE151258</td>
<td>1/2&quot;-13 UNC</td>
<td>5/8&quot;-11 UNC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCPE155834</td>
<td>5/8&quot;-11 UNC</td>
<td>3/4&quot;-10 UNC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(4) 1/4"-20 SHCS included

Material: Steel - 4140 or P20
Hardness - 28-32 HRc
Surface Treatment - Black Oxide

KO Extension Pucks standardize mold ejector systems by unifying press knock out rod lengths. Wide range of thread configurations available for many different press types.

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>THREAD THRU</th>
<th>L DIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCPE1038</td>
<td>3/8&quot;-16 UNC</td>
<td>1.052</td>
</tr>
<tr>
<td>BCPE1012</td>
<td>1/2&quot;-13 UNC</td>
<td></td>
</tr>
<tr>
<td>BCPE1058</td>
<td>5/8&quot;-11 UNC</td>
<td></td>
</tr>
<tr>
<td>BCPE1034</td>
<td>3/4&quot;-10 UNC</td>
<td></td>
</tr>
<tr>
<td>BCPE10NT</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>BCPE1538</td>
<td>3/8&quot;-16 UNC</td>
<td>1.552</td>
</tr>
<tr>
<td>BCPE1512</td>
<td>1/2&quot;-13 UNC</td>
<td></td>
</tr>
<tr>
<td>BCPE1558</td>
<td>5/8&quot;-11 UNC</td>
<td></td>
</tr>
<tr>
<td>BCPE1534</td>
<td>3/4&quot;-10 UNC</td>
<td></td>
</tr>
<tr>
<td>BCPE15NT</td>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>

(4) 1/4"-20 SHCS included

* NT - No Thread, Mold Maker to Machine

Material: Steel - 4140 or P20
Hardness - 28-32 HRc
Surface Treatment - Black Oxide
MOLD COMPONENTS – INCH

Sprou Bushings

**Sprue Bushings – A, B, LN and AR**
S.A.E. 6145 Steel Hardened, Ground and Polished
(HRC 43-45, except “LN” Series – carburized 900-960 deep to HRC 60-62, drillable with carbide-tipped drill.)

**“A” Series**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR8_1_1</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>AR8_2_1</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>AR8_3_1</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>AR8_4_1</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>AR8_5_1</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>AR8_6_1</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>


**“B” Series**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB8_1_1</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>BB8_2_1</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>BB8_3_1</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>BB8_4_1</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>BB8_5_1</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>BB8_6_1</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Available with Ø 1/8", Ø 1/4", Ø 1/2", Ø 3/4", Ø 1" available on special order.

**“AR” Series**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR8_1_1</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>AR8_2_1</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>AR8_3_1</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>AR8_4_1</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>AR8_5_1</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>AR8_6_1</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Available with Ø 1/8", Ø 1/4", Ø 1/2", Ø 3/4", Ø 1" available on special order.

**“LN” Series**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A</th>
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</tr>
</thead>
<tbody>
<tr>
<td>LN8_1_1</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>LN8_2_1</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>LN8_3_1</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>LN8_4_1</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>LN8_5_1</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>LN8_6_1</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Available with Ø 1/8", Ø 1/4", Ø 1/2", Ø 3/4", Ø 1" available on special order.

**NOTE:** “B” series sprue bushings (Wolfram Steed) are available on special order. Other special sprou bushings will be quoted on request per your specifications.

MOLD COMPONENTS – INCH

Sprou Bushings

**Sprue Bushings – U, UV, UR and L**
S.A.E. 6145 Steel, HRC 60-62 Hardened, Ground and Polished

The wide range of Standard DME Sprue Bushings allows mold to be installed in a variety of injection molding machines. The accuracy and interchangeability permit easy replacement if the mold is being transferred to another machine. It’s wise to standardize … on DME Sprue Bushings.

**“U” Series – Newbury and Standard**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>UR8_1_1</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>UR8_2_1</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>UR8_3_1</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>UR8_4_1</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>UR8_5_1</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>UR8_6_1</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Available with Ø 1/8", Ø 1/4", Ø 1/2", Ø 3/4", Ø 1" available on special order.

**“UV” Series – Van Dorn and Moslo**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV8_1_1</td>
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<td>1%</td>
</tr>
<tr>
<td>UV8_2_1</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>UV8_3_1</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>UV8_4_1</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>UV8_5_1</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>UV8_6_1</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Available with Ø 1/8", Ø 1/4", Ø 1/2", Ø 3/4", Ø 1" available on special order.

**“L” Series**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB8_1_1</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>LB8_2_1</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>LB8_3_1</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>LB8_4_1</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>LB8_5_1</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>LB8_6_1</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Available with Ø 1/8", Ø 1/4", Ø 1/2", Ø 3/4", Ø 1" available on special order.

**“LR” Series – Arburg**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>LR8_1_1</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>LR8_2_1</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>LR8_3_1</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>LR8_4_1</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>LR8_5_1</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>LR8_6_1</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Available with Ø 1/8", Ø 1/4", Ø 1/2", Ø 3/4", Ø 1" available on special order.

HOW to order:
Specify Item Number Prefix with Ø numerator, and R numerator. Include zeros where shown, but omit all denominators, slashes and NA.

<table>
<thead>
<tr>
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Example: LUR1_1
When High Performance is Mandatory, Performance Sprue Bushings® are in the Mold

Consistently recommended by a wide range of resin manufacturers, molders, moldmakers, designers and engineers, Performance Sprue Bushings® have a long-standing reputation as a product that exceeds expectations. Many users are so pleased with the overall performance of this product that Performance Sprue Bushings are now specified in all of the molds they build.

Here are several benefits of the Performance Sprue Bushing that users rave about:

- Reduced sprue cooling and overall cycle time

Mold cycles are often limited or controlled by the length of time needed for solidification of the plastic sprue since it must be cool enough not to break or tear as the mold opens. This cycle limiting condition changes by using the Performance Sprue Bushing – without any other changes to the mold.

- Helps prevent sprue sticking, break-off and corrosion

With conventional steel sprue bushings, many plastic resins, additives, colorants and combinations lead to corrosion and sticking problems. The inherent corrosion resistance and release properties of the copper alloy used in the Performance Sprue Bushing results in a significant increase in performance and product life compared to conventional steel sprue bushings.

- Yields more rigid sprues with reduced sprue cool time for robotic removal of parts

The sprue is often used as the grab point in robotic removal of parts, sprues and runners. This requires that the sprue be rigid enough to resist the pressure of the robot fingers as well as the extraction forces. With conventional steel sprues, this often means added cooling time to the mold cycle. The Performance Sprue Bushing reducing sprue cool time, again without any other changes to the mold.

- Molding problems caused by sprues are eliminated

Molders that use Performance Sprue Bushings in a variety of mold and resin applications say that they are able to control many sprue-related problems. As one molder who uses the product said, “I no longer struggle with sprue problems.” Performance Sprue Bushings are available in a number of popular standard sizes (see table on facing page), and as non-standards in a number of popular standard sizes (see table on facing page), and as non-standards in a number of popular standard sizes (see table on facing page), and as non-standards in a number of popular standard sizes (see table on facing page), and as non-standards in a number of popular standard sizes (see table on facing page), and as non-standards in a number of popular standard sizes (see table on facing page), and as non-standards in a number of popular standard sizes (see table on facing page), and as non-standards in a number of popular standard sizes [image].
Locating Rings 6521 and 6524 are supplied with two 5/16-18 Socket Head Cap Screws. All other Locating Rings supplied with two 5/16-18 Flat Head Screws.

**Locating Ring Options**

### Dimensions as mounted on standard molds

- **5/16-18 TAPPED THRU** (EXCEPT 6535 NO TAPPED HOLES)
- **7/32 DEEP x 4" DIA C'BORE** (EXCEPT 6520 & 6522 5 1/2 DIA C'BORE)
- **DRILLED & C'SUNK FOR 5/16 DIA FLAT HEAD SCREW (2)** (EXCEPT 6521 & 6524 DRILLED & C'BORED FOR 5/16 DIA S.H.C.S. (2)
- **1 21/32 R** (EXCEPT 6520 & 6522 2 5/16 R)

### MOLD COMPONENTS – INCH

**Locating Rings for Plastics Molds**

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* For use with high-temperature insulator sheets.
** For use with 3.5 x 3.75 Arburg Mold Bases. Details on page 228.
platenGUARD Locating Rings protect your mold bases and press platens for their entire life cycles. Available in two styles, platenGUARD Locating Rings are a hybrid innovation that is designed to maximize performance efficiencies by preventing forceful contact with platens that will cause nonparallel parting line faces. Flat platens minimize flash from non-planer mounting of the mold halves, reducing mold sampling and repair costs.

platenGUARD Locating Rings consistently excel at their core function of properly locating the mold in the press. Additionally, they create a hands-free mold setting procedure that reduces risk of technician injury and liability.

- Steel substrate effectively locates the mold in the press
- Resilient surfaces protect platen even when balancing is difficult
- Purgings do not adhere to the resilient surface
- Prevents machine platen damage from impact during mold setting
- Increases productivity through improved setting procedure
- Completely retrofittable with standard locating rings
- Made in the U.S.A.

For use with “T-Series” 3-Plate Mold Bases

These 3-plate extension bushings can save material, reduce cycle time and help prevent runner hang-ups in 3-plate molds.

- Reduces sprue length to save material, reduce cycle time and aid in the ejection of the runner from the mold
- Easier, faster installation than competitive bushings … all grinding for final fit is on flat surfaces with no I.D. or O.D. angles to grind
- More sizes than competitive bushings to suit more applications
- Made from AISI 4140 steel, hardened to 28-32 HRC

ITEM NUMBER | Ø D | DESCRIPTION
--- | --- | ---
TEB0001 | 1.000 | Small Extension Nozzle Bushing
(2) included

ITEM NUMBER | Ø D | DESCRIPTION
--- | --- | ---
TEB0002 thru TEB0005 | 1.000 | Large Extension Nozzle Bushing
5/16-18 x 7/8 long S.H.C.S.
(2) included

Notes:
1. Stripper plate bushing, TEB0001 is used with all small and large extension nozzle bushings.
2. Appropriate S.H.C.S. are included with all bushings (TEB0001 thru TEB0011).
3. Select small or large bushing based on “A” clamping plate thickness, mold nozzle spherical radius and machine nozzle clearance requirements.

ITEM NUMBER | Ø A | Ø B | Ø C | Ø E | Ø F | Ø G | Ø H | Ø J | Ø K | Ø L
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
TEB0001 | 4.000 | 3.200 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000 | 3.000
TEB0002 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800
TEB0003 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800
TEB0004 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800
TEB0005 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800
TEB0006 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800
TEB0007 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800
TEB0008 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800
TEB0009 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800
TEB0010 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800
TEB0011 | 5.000 | 4.000 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800 | 3.800

For use with “T-Series” 3-Plate Mold Bases
These 3-plate extension bushings can save material, reduce cycle time and help prevent runner hang-ups in 3-plate molds.

- Reduces sprue length to save material, reduce cycle time and aid in the ejection of the runner from the mold
- Easier, faster installation than competitive bushings … all grinding for final fit is on flat surfaces with no I.D. or O.D. angles to grind
- More sizes than competitive bushings to suit more applications
- Made from AISI 4140 steel, hardened to 28-32 HRC
MOLD COMPONENTS – INCH
3-Plate Extension Bushings – Machining Dimensions

Suggested Mold Base Machining Dimensions

Typical Installations

For Runner Stripper Plate Bushing

TEB0001 in X-1 Stripper Plate

For Extension Nozzle Bushings in “A” Clamping Plate (A.C.P.)

TEB0002 thru TEB0005 (Small Bushings)

TEB0006 thru TEB0011 (Large Bushings)

MOLD COMPONENTS – INCH
Guide Pins for Special Mold Tooling Needs

DME Special Straight and Shoulder Guide Pins can be custom-ordered in a wide range of diameters and lengths to suit almost any mold tooling requirement. Made with case-hardened steel for dependable performance and long service life, DME Special Guide Pins feature:

- Diameters up to 3”
- Lengths up to 33-1/2”
- Close tolerances of ±.005” on critical diameters

DME operates a state-of-the-art manufacturing facility to ensure that your quality and delivery goals are met. Extensive resources and efficient processes provide rapid order fulfillment. Advanced manufacturing techniques and trained, dedicated personnel ensure quality.

Contact DME for your special guide pin needs. We can quote your application and process your order immediately (see faxable quote form on next page).

Guide Pins feature:

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Contact DME for your special guide pin needs. We can quote your application and process your order immediately (see faxable quote form on next page).
### Mold Components – Inch

#### Special Guide Pins – FAX Quote Form

- **Quote FAX Hotlines or email customer_service@dme.net**
- **United States 888-808-4363 • Canada 800-461-9965 • International 248-388-7394**

- **Company name:** DME
- **Contact name:**
- **P.O. #:**
- **Fax:**
- **Address:**
- **E-mail:**
- **City:**
- **State/Province:**
- **ZIP/Postal Code:**
- **Country:**

#### Shipping method:
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx

### Straight Guide Pins

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#### Requested Dimensions:

#### Inch Tolerances (Standard)

### Shoulder Guide Pins

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#### Standard Dimensions (Circle YES or NO)

#### Requested Dimensions:

#### Inch Tolerances (Standard)

### Molds Components - Inch

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# Mold Components – Metric

A comprehensive line of Euro-Series Mold Components

<table>
<thead>
<tr>
<th>Component</th>
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<tbody>
<tr>
<td>Guide Pins</td>
<td>291 to 294, 296 to 297</td>
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<tr>
<td>Angle Pins</td>
<td>295</td>
</tr>
<tr>
<td>Guide Pin Bushings</td>
<td>298 to 300</td>
</tr>
<tr>
<td>Centering Bushing (Locating Sleeve) &amp; Tubular Dowels</td>
<td>301</td>
</tr>
<tr>
<td>Locating Rings</td>
<td>302</td>
</tr>
<tr>
<td>Sprue Bushings</td>
<td>303</td>
</tr>
<tr>
<td>Support Pillars</td>
<td>304</td>
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<tr>
<td>Dowel Pins</td>
<td>305</td>
</tr>
<tr>
<td>Socket Head Cap Screws &amp; Lock Washers</td>
<td>306</td>
</tr>
<tr>
<td>Stop Disks &amp; Screws</td>
<td>307</td>
</tr>
<tr>
<td>Gate Cutters</td>
<td>308</td>
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</table>
Guide Pins (with Collar) – GDP-EC

**INFORMATION KEY:**
- **D** = Pin Body Diameter
- **E** = Shoulder Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **N** = Pin Body Length
- **S** = Shoulder Length
- **T** = Collar Length

**Standard:** Euro-Series

**Material:** 1.7131 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**HOW TO ORDER:** Specify Item Number with prefix, D diameter, S length, and N length. Include zeros and dashes but omit decimals, as shown.

**KEY TO CHART**
- **Items in stock**
- **2-3 week delivery**
- **Contact DME for quote**

---

**Guide Pins (with Collar) – GDP-EC**

**INFORMATION KEY:**
- **D** = Pin Body Diameter
- **E** = Shoulder Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **N** = Pin Body Length
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- **T** = Collar Length

**Standard:** Euro-Series

**Material:** 1.7131 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**HOW TO ORDER:** Specify Item Number with prefix, D diameter, S length, and N length. Include zeros and dashes but omit decimals, as shown.

**KEY TO CHART**
- **Items in stock**
- **2-3 week delivery**
- **Contact DME for quote**
### Guide Pins (with Collar) – GDP-EC

<table>
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<tr>
<th>ITEM</th>
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<th>H</th>
<th>K</th>
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<tr>
<td>GDP-EC</td>
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#### INFORMATION KEY:
- **D** = Pin Body Diameter
- **E** = Shoulder Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **N** = Pin Body Length
- **S** = Shoulder Length
- **T** = Collar Length

**Standard:** Euro-Series

**Material:** 1.7131 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

### Angle Pins – APD

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<td>50</td>
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<td>15</td>
<td>10</td>
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<td></td>
</tr>
</tbody>
</table>

#### INFORMATION KEY:
- **D** = Pin Body Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **N** = Pin Body Length

**Standard:** DIN Type

**Material:** 1.7131 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

### HOW TO ORDER:
- Specify Item Number with prefix, D diameter, S length, and N length. Include zeros and dashes but omit decimals, as shown.

**Prefix**
- **GDP-EC**
- **APD**

**Example:**
- GDP-EC-30-096-075
- APD-10-40
MOLD COMPONENTS – METRIC
Guide Pins (without Collar)

Guide Pins (without Collar) – GDP-ES

INFORMATION KEY:
D = Pin Body Diameter
E = Shoulder Diameter
H = Head Diameter
K = Head Thickness
N = Pin Body Length
S = Shoulder Length
Standard: Euro-Series
Material: 1.7131 (AISI 5115 Type) Steel
Surface Treatment: Case Hardened
Dimensions: Shown in Millimeters (mm)

GUIDE PINS (without Collar) – GDP-ES

HOW TO ORDER:
Specify Item Number with prefix, D diameter, S length, and N length.
Include zeros and dashes but omit decimals, as shown.

Prefix
D S N
Example:
GDP-ES 18 16 3
GDP-ES-18-046-165

KEY TO CHART
Items in stock
2-3 week delivery
Contact DME for quote

* "(RO1)" is only a cross-reference to current DME Europe Catalog item prefix numbers.

296 U.S. 800-626-6653 • Canada 800-387-6600 • dme@dme.net • www.dme.net • estore.milacron.com

297 U.S. 800-626-6653 • Canada 800-387-6600 • dme@dme.net • www.dme.net • estore.milacron.com
### Mold Components – Metric

#### Guide Pin Bushings (with Collar) – GDB-ECS

- Consistent quality control
- Resists abrasion
- Self lubricating

**Information Key:**
- D = Inside Diameter
- E = Outside Diameter
- H = Head Diameter
- K = Head Thickness
- N = Bushing Length from Head
- T = Collar Length

**Standard:** Euro-Series

**Material:** 1.7311 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>D (mm)</th>
<th>E (mm)</th>
<th>H (mm)</th>
<th>K (mm)</th>
<th>N (mm)</th>
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<tbody>
<tr>
<td>GDB-ECS-018</td>
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<td>86.00</td>
<td>24.00</td>
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</table>

**In-Stock:** Items in stock. 2-3 week delivery.

#### Self-Lube Guide Pin Bushings (with Collar) – GDB-ECL

- Consistent quality control
- Resists abrasion
- Self lubricating

**Information Key:**
- D = Inside Diameter
- E = Outside Diameter
- H = Head Diameter
- K = Head Thickness
- N = Bushing Length from Head
- T = Collar Length

**Standard:** Euro-Series

**Material:** 1.7311 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

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<thead>
<tr>
<th>ITEM NUMBER</th>
<th>D (mm)</th>
<th>E (mm)</th>
<th>H (mm)</th>
<th>K (mm)</th>
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<td>GDB-ECL-046</td>
<td>46.00</td>
<td>86.00</td>
<td>24.00</td>
<td>32.00</td>
<td>56.00</td>
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</table>

**In-Stock:** Items in stock.

#### Mold Components – Metric

#### Bronze-Plated Shoulder Bushings, Ejection Bushings, & Self Lubricating Guided Ejection Bushings – Metric

- Precision-ground steel with exclusive bronze plating, these are the only bushings that have oil grooves and a true bushing surface that extends the full length of the bushing. DME Bronze Bushings perform smoother and longer than plain steel bushings. Selected lubricant is distributed throughout the bearing surface by the figure-8 oil groove system. The bronze surface will not gall.

**Information Key:**
- D = Inside Diameter
- E = Outside Diameter
- H = Head Diameter
- K = Head Thickness
- N = Bushing Length from Head
- T = Collar Length

**Dimensions:** Shown in Millimeters (mm)

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>D (mm)</th>
<th>E (mm)</th>
<th>H (mm)</th>
<th>K (mm)</th>
<th>N (mm)</th>
</tr>
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<tbody>
<tr>
<td>GDB-ECL-018</td>
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<td>86.00</td>
<td>24.00</td>
<td>32.00</td>
<td>56.00</td>
</tr>
</tbody>
</table>

**In-Stock:** Items in stock.

#### How to Order:
- Specify Item Number with prefix, D diameter, and N length. Include zeros and dashes but omit decimals, as shown.

**Example:** GDB-ECS-18-036

**Key to Chart:**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

**Contact:**
- DME 800-387-6600
dme@dme.net

**Notes:**
1. Select corresponding guide pin in proper diameter and length for application.
2. These bushings are interchangeable with comparably sized DME bronze-plated and solid bronze guided ejection bushings.
**Guide Pins Bushings (without Collar) – GDB-ESS**

<table>
<thead>
<tr>
<th>Item Prefix</th>
<th>D</th>
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**Self-Lube Guide Pin Bushings (without Collar) – GDB-ESL**

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<tr>
<td>GDB-ESL-32-136</td>
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**Centering Bushing (Locating Sleeves) – R05**

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<th>F</th>
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**Tubular Doweis – R09**

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**Washer (Disk for Tubular Dowel) – R091**

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** ожидают поставки**

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<td>R0913009</td>
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**INFORMATION**

- **Dimensions:**
  - **Surface Treatment:**
  - **Material:**
  - **Standard:**
  - **K:**
  - **H:**
  - **E:**
  - **D:**

**KEY TO CHART**

- **Hole in stock**
- **2-3 week delivery**
- **Contact DME for quote**

**Contact DME**

- **2-3 week delivery**
- **Items in stock**
- **Contact DME for quote**

---

**Mold Components – Metric**

Guide Pins Bushings (without Collar) – GDB-ESS

- **Bujes guía** | **Casquilhos** | **Douilles de guidage (sans épaulement)** | **Führengsbuchse (ohne Bund)**
- **Bujes guía autolubricados** | **Casquilhos auto-lubrificantes** | **Douilles de Guidage autolubrifiantes sans collerette**

**INFORMATION**

- **Dimensions:**
  - **Surface Treatment:**
  - **Material:**
  - **Standard:**
  - **D:**
  - **H:**
  - **E:**
  - **L:**

**KEY TO CHART**

- **Hole in stock**
- **2-3 week delivery**
- **Contact DME for quote**

**Contact DME**

- **2-3 week delivery**
- **Items in stock**
- **Contact DME for quote**

---

**Mold Components – Metric**

Centering Bushing – Locating Sleeves

- **Buje centrador** | **Casquilho central** | **Fourrure au centre** | **Mittelbuchse**
- **Arandela – Registro tubular** | **Anillos – para cavilha tubular** | **Cachetage cylindrique – Douaires**

**INFORMATION**

- **Dimensions:**
  - **Surface Treatment:**
  - **Material:**
  - **Standard:**
  - **D:**
  - **H:**
  - **E:**
  - **L:**

**KEY TO CHART**

- **Hole in stock**
- **2-3 week delivery**
- **Contact DME for quote**

**Contact DME**

- **2-3 week delivery**
- **Items in stock**
- **Contact DME for quote**

---

**Mold Components – Metric**

Locating Sleeves

- **Registro tubular** | **Cavilha tubular** | **Douaires tubulaires** | **Paßhülsen**
- **Arandela – Registro tubular** | **Anillos – para cavilha tubular** | **Cachetage cylindrique – Douaires**

**INFORMATION**

- **Dimensions:**
  - **Surface Treatment:**
  - **Material:**
  - **Standard:**
  - **D:**
  - **H:**
  - **E:**
  - **L:**

**KEY TO CHART**

- **Hole in stock**
- **2-3 week delivery**
- **Contact DME for quote**

**Contact DME**

- **2-3 week delivery**
- **Items in stock**
- **Contact DME for quote**

---

**Mold Components – Metric**

Guides Pin Bushings (without Collar) Self-Lube Guide Pin Bushings (without Collar)

- **Bujes guía** | **Casquilhos** | **Douilles de guidage (sans épaulement)** | **Führengsbuchse (ohne Bund)**
- **Bujes guía autolubricados** | **Casquilhos auto-lubrificantes** | **Douilles de Guidage autolubrifiantes sans collerette**

**INFORMATION**

- **Dimensions:**
  - **Surface Treatment:**
  - **Material:**
  - **Standard:**
  - **D:**
  - **H:**
  - **E:**
  - **L:**

**KEY TO CHART**

- **Hole in stock**
- **2-3 week delivery**
- **Contact DME for quote**

**Contact DME**

- **2-3 week delivery**
- **Items in stock**
- **Contact DME for quote**

---
**MOLD COMPONENTS – METRIC**

**Locating Rings**

**Locating Ring with Mounting Holes – DHR21**

Anillo centrador | Anéis de centragem | Rondelles de placement | Centrierflansche

INFORMATION KEY:

D = Platen-Side Diameter
F = Inside Diameter
G = Mold-Side Diameter
H = Overall Height
T = Mold-Side Stop Height
Standard: Euro-Series
Material: 1.1730 Steel
Dimension: Shown in Millimeters (mm)

HOW TO ORDER:

Prefix     D   N  O

Example: Prefix D H

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<th>ITEM THREAD</th>
<th>M6</th>
<th>M8</th>
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</thead>
<tbody>
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<td>DHR21</td>
<td>060</td>
<td>019</td>
</tr>
<tr>
<td>DHR21 120 15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Locating Ring (Solid) – R20**

Anillo centrador | Anéis de centragem | Rondelles de placement | Centrierflansche

INFORMATION KEY:

D = Platen-Side Diameter
G = Mold-Side Diameter
H = Overall Height
T = Mold-Side Stop Height
Standard: Euro-Series
Material: 1.1730 Steel
Dimension: Shown in Millimeters (mm)

HOW TO ORDER:

Prefix     D   H

Example: Prefix D H

<table>
<thead>
<tr>
<th>ITEM THREAD</th>
<th>M6</th>
<th>M8</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHR21</td>
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</tr>
<tr>
<td>DHR21 120 19</td>
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</table>

**Sprue Bushings – Hardened**

Boquillas de inyeccion – templadas | Injectores do gito – temperados | Buses d’injection – trempé | Angiebüchsen – gehärtet

INFORMATION KEY:

D = Outside Diameter of Stem
H = Head Diameter
K = Head Thickness
N = Stem Length
O = Sprue Orifice Diameter
Standard: Euro-Series
Material: 1.2826 Steel
Surface Treatment: None (Through Hardened)
Dimension: Shown in Millimeters (mm)

R = No Radius – DHR74

Material: 1.2826 Steel – Hardness ~54 HRC

R = 15.5mm Radius – DHR76

Material: 1.2826 Steel – Hardness ~54 HRC

R = 40.0mm Radius – DHR78

Material: 1.2826 Steel – Hardness ~54 HRC

HOW TO ORDER:

Prefix     D   N   O   R

Example: Prefix D H

<table>
<thead>
<tr>
<th>ITEM THREAD</th>
<th>M6</th>
<th>M8</th>
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<tr>
<td>DHR74</td>
<td>027</td>
<td>027</td>
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<tr>
<td>DHR76 12 027 2,5</td>
<td>3,5</td>
<td>15</td>
</tr>
<tr>
<td>DHR76 12 027 3,5 15</td>
<td>3,5</td>
<td>15</td>
</tr>
<tr>
<td>DHR78 12 027 3,5 40</td>
<td>3,5</td>
<td>15</td>
</tr>
</tbody>
</table>

How to contact:

- U.S. 800-626-6653
- Canada 800-387-6600
- dme@dme.net
- www.dme.net
- estore.milacron.com

**Contact DME**

- Items in stock
- 2-3 week delivery
- Contact DME for quote

**Surface Treatment:**

- None (Through Hardened)
**MOLD COMPONENTS – METRIC**

### Support Pillars

**Support Pillars with Drilled & Counteredbored Hole – FW28**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Ø</th>
<th>D</th>
<th>G</th>
<th>H</th>
<th>Ø</th>
<th>D</th>
<th>G</th>
<th>H</th>
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**Support Pillars with Tapped Hole and for Dowel – FW29**

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<th>G</th>
<th>H</th>
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### Dowel Pins – DP

**Dowel Pins with Internal Thread – Pull Dowels**

**Dowel Pins with Internal Thread (Pull Dowels) – WZ7005**

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<tr>
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### Information Key

- **Prefix D**: Pin Outside Diameter
- **L**: Length
- **N**: Tap Diameter
- **M**: Tap Depth (minimum)
- **G**: Location Hole Depth (minimum)
- **H**: Tap Depth (minimum)

**Material:** Per DIN Specification

**Dimensions:** Shown in Millimeters (mm)

**Per DIN Specification**

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</table>

**Contact DME for quote**

**2-3 week delivery**

**Items in stock**

**640 N/mm² (Ref. only ~91 HRB)**

**INFORMATION KEY:**

- **Prefix D:** Pin Outside Diameter
- **G:** Through Hole Diameter
- **H:** Counterbore Diameter
- **K:** Counterbore Depth
- **L:** Length

**Standard:** DIN 6325, ISO 8734

**Surface Treatment:** None

**Dimensions:** Shown in Millimeters (mm)

**INFORMATION KEY:**

- **Prefix D:** Pin Outside Diameter
- **G:** Through Hole Diameter
- **H:** Counterbore Diameter
- **L:** Length

**Standard:** DIN Type 1.1720 Steel

**Surface Treatment:** None

**Dimensions:** Shown in Millimeters (mm)

**INFORMATION KEY:**

- **Prefix D:** Pin Outside Diameter
- **G:** Through Hole Diameter
- **H:** Counterbore Diameter
- **L:** Length

**Standard:** DIN Type 1.1720 Steel

**Surface Treatment:** None

**Dimensions:** Shown in Millimeters (mm)

**INFORMATION KEY:**

- **Prefix D:** Pin Outside Diameter
- **G:** Through Hole Diameter
- **H:** Counterbore Diameter
- **L:** Length

**Standard:** DIN Type 1.1720 Steel

**Surface Treatment:** None

**Dimensions:** Shown in Millimeters (mm)

**INFORMATION KEY:**

- **Prefix D:** Pin Outside Diameter
- **G:** Through Hole Diameter
- **H:** Counterbore Diameter
- **L:** Length

**Standard:** DIN Type 1.1720 Steel

**Surface Treatment:** None

**Dimensions:** Shown in Millimeters (mm)

**INFORMATION KEY:**

- **Prefix D:** Pin Outside Diameter
- **G:** Through Hole Diameter
- **H:** Counterbore Diameter
- **L:** Length

**Standard:** DIN Type 1.1720 Steel

**Surface Treatment:** None

**Dimensions:** Shown in Millimeters (mm)

**INFORMATION KEY:**

- **Prefix D:** Pin Outside Diameter
- **G:** Through Hole Diameter
- **H:** Counterbore Diameter
- **L:** Length

**Standard:** DIN Type 1.1720 Steel

**Surface Treatment:** None

**Dimensions:** Shown in Millimeters (mm)

**INFORMATION KEY:**

- **Prefix D:** Pin Outside Diameter
- **G:** Through Hole Diameter
- **H:** Counterbore Diameter
- **L:** Length

**Standard:** DIN Type 1.1720 Steel

**Surface Treatment:** None

**Dimensions:** Shown in Millimeters (mm)

**INFORMATION KEY:**

- **Prefix D:** Pin Outside Diameter
- **G:** Through Hole Diameter
- **H:** Counterbore Diameter
- **L:** Length

**Standard:** DIN Type 1.1720 Steel

**Surface Treatment:** None

**Dimensions:** Shown in Millimeters (mm)
**INFORMATION KEY:**

- **D** = Thread Diameter
- **H** = Head Diameter
- **K** = Head Height
- **L** = Length
- **N** = Thread Length
- **T** = Hex Socket Size (Across Flats)

**Standard:** DIN 912-12.9

**Material:** Per DIN Specification

**Dimensions:** Shown in Millimeters (mm)

### INFORMATION KEY:

- **D** = For Screw Diameter
- **F** = Inside Diameter
- **P** = Outside Diameter
- **T** = Thickness

**Standard:** DIN 7980

**Material:** Per DIN Specification

**Dimensions:** Shown in Millimeters (mm)

### INFORMATION KEY:

- **D** = Thread Diameter
- **F** = Inside Diameter
- **P** = Outside Diameter
- **T** = Thickness

**Standard:** DIN 7991-10.9

**Material:** Per DIN Specification

**Dimensions:** Shown in Millimeters (mm)

### INFORMATION KEY:

- **D** = Thread Diameter
- **F** = Inside Diameter
- **P** = Outside Diameter
- **T** = Thickness

**Standard:** Euro-Series

**Material:** 1.1191 (AISI 1045 Type) Steel

**Dimensions:** Shown in Millimeters (mm)

### SOCKET HEAD CAP SCREWS — M

**Tornillos cabeza allen** | **Parafusos de cabeça sextavada** | **Vis 6-panes tête cylindrique** | **Zylinderkopfschrauben**

#### HOW TO ORDER:

Specify **D** diameter and **L** length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

#### Example:

<table>
<thead>
<tr>
<th><strong>Prefix</strong></th>
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<tbody>
<tr>
<td>M6</td>
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</tbody>
</table>

### LOCK WASHERS (SPRING WASHERS) — R54

**Rondanas de Presión** | **Freios** | **Rondelles de retenue** | **Sicherungsscheibe (Federscheibe)**

#### HOW TO ORDER:

Specify **D** diameter and **L** length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

#### Example:

<table>
<thead>
<tr>
<th><strong>D</strong></th>
<th><strong>H</strong></th>
<th><strong>K</strong></th>
<th><strong>T</strong></th>
<th><strong>AVAILABILITY</strong></th>
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</table>

### KEY TO CHART

- **Items in stock**
- **2-3 week delivery**
- **Contact DME for quote**

### STOP DISK FOR EJECTOR PLATES — R18

**Arandela de Tope** | **Anilhas de encontro** | **Rondelles de tope** | **Repos d’épaisseur pour plaques d’éjection** | **Distanzscheibe für Auswerferplatte**

#### HOW TO ORDER:

Specify Item Number with prefix and **L** length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

#### Example:

<table>
<thead>
<tr>
<th><strong>Prefix</strong></th>
<th><strong>L</strong></th>
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</thead>
<tbody>
<tr>
<td>SM3</td>
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</tr>
</tbody>
</table>

### MOLD COMPONENTS — METRIC

**Socket Head Cap Screws** | **Lock Washers** | **Spring Washers** | **Tornillos cabeza plana avellanada** | **Parafusos de cabeça cónica** | **Vis creuses** | **Senkkopfschrauben**

#### HOW TO ORDER:

Specify Item Number. Include zeros and commas but omit decimals and all spaces (spaces are only shown in table above for easier reading).

#### Example:

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### KEY TO CHART

- **Items in stock**
- **2-3 week delivery**
- **Contact DME for quote**

### FLAT HEAD SCREWS — SM

**Tornillo de cabeza plana avellanada** | **Parafusos de cabeça cónica** | **Vis creuses** | **Senkkopfschrauben**

#### HOW TO ORDER:

Specify Item Number with prefix. Omit spaces (spaces are only shown in table above for easier reading).

#### Example:

<table>
<thead>
<tr>
<th><strong>Prefix</strong></th>
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</tr>
</thead>
<tbody>
<tr>
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<td>10</td>
</tr>
</tbody>
</table>

### KEY TO CHART

- **Items in stock**
- **2-3 week delivery**
- **Contact DME for quote**
DME GATE CUTTERS
A Cut Above The Rest

Selecting the Correct Gate Cutter for Your Application:
To ensure a quality finished product, it is important to choose the proper gate cutter. Consider the following when selecting a cutter...

- Contour of the back of the blade
- Blade length
- Blade opening
- Handle length

The blade characteristics should match the part at the area of de-gating.

Blade Contour

Flat Face:
For general purpose cutting where the sprue is fully accessible or proud of the cutting surface.

Nipper Type (slightly rounded):
For sprue cutting where access to the sprue may be slightly recessed.

Angle Heads:
For recessed sprue cutting and access to internal cavities.

Convex/Concave:
For special applications where the sprue is recessed.

Blade Stop
When cutting hard or brittle material it is recommended to use a cutter with a blade stop. Adjusting the stop so the blades stop short of hitting each other will extend the life of the blades.

Handles
How much pressure an operator must exert when cutting a sprue or gate is determined by the length of the cutter handle. A handle that is too long for the operator’s hand is difficult to grip while a handle that is too short causes excessive strain. Match the cutter with the operator’s hand and the sprue being cut. Ergonomic handles are an effective way to reduce operator fatigue and decrease the risk of carpal tunnel syndrome. Have a left handed operator? We have left handed gate cutters.

Quantity Discounts
Standard Gate Cutters -
12-23 pairs - less 3%
24-74 pairs - less 7%
75-99 pairs - less 10%
100+ pairs - less 13%

Premium & Specialized Gate Cutters -
20-39 pairs - less 3%
40-69 pairs - less 6%
70-99 pairs - less 9%
100+ pairs - less 12%

Visit store.milacron.com and search Gate Cutters for additional details and quick, easy online shopping
FEATURING HIGH-QUALITY EJECTOR PINS, SLEEVES, BLADES, CORE PINS, RETURN PINS, AND SPRUE PULLER PINS
INCH PINS, SLEEVES, BLADES
A comprehensive line of INCH Ejector Products

**Ejector Pins**
Nitrided, Through-Hardened, Close Tolerance……… 314-319

**Shoulder Ejector Pins**
Nitrided, Through-Hardened, Close Tolerance……… 315

**Keyed Ejector Pins** 316, 318

**Ejector Sleeves**
Thin Wall Sleeves & Sleeve Extensions 320
Nitrided O.D., Nitrided O.D. & I.D. 321-322

**Ejector Blades M2** 323-324

**Core Pins**
Standard, High-Hardness, Performance 325-329

**Core Pin Retainers** 330

**Return Pins**
DuPont™ Krytox® TM7 Grease 331

**Sprue Puller Pins** 332

Visit store.milacron.com for the latest pricing, product availability and online ordering.
INCH Ejector Pins – H13 Nitrided – Straight

- Precision made of superior quality H13 type thermal shock resisting hotwork die steel.
- Hot-forged heads provide uniform grain flow, higher tensile strength
- Core hardness 40-45 HRC
- Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear.
- Heads annealed for easy machining.
- Centerless ground D diameter.

### INCH Ejector Pins – EX

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### INCH Ejector Pins – Shoulder

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**KEY TO CHART**
- Items in stock
- Contact DME for quote
- Notes:
  - Ø D DATUM +.000
  - Ø D DATUM -.000
  - Ø D DATUM OVER SIZE +.000

**HOW TO ORDER**: Specify item number by combining item number prefix and the length (L dimension) desired. Examples: EX2M6, EX8M10.

**NOTE**: For 2” Shoulder Length, no suffix should be used. Examples: EX3M6, EX7M10.

---

INCH PINS, SLEEVES, BLADES

---
• Precision-machined flat on head keeps pin from rotating
• Made from superior quality thermal shock-resisting hotwork steel
• Hot-forged heads provide uniform grain flow, higher tensile strength
• Core hardness 40-45 HRC
• Outside diameter nitrided to 65-74 HRC (.001-.007 case depth)
• Heads annealed for easy machining
• Centerless ground D diameter
• Annealed and finished heads permit easy machining
• Final finish minimizes wear and prolongs pin life

• Higher core hardness makes the THX pins ideal for use in die cast dies or other high temperature applications
• Core hardness of 50-55 HRC minimizes nicking, dishing and bending
• Non-chipping surface treatment of 65-74 HRC alleviates flashing
• Annealed and finished heads permit easy machining
• Centerless ground D diameter
• Final finish minimizes wear and prolongs pin life

INCH PINS, SLEEVES, BLADES

INCH High-Hardness Ejector Pins – THX

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*MIN to specify from chart. Contact DME for quote.
Items in stock.
INCH PINS, SLEEVES, BLADES

Keyed THXK Ejector Pins

- Exceptional performance at elevated temperatures
- Industry-Leading .0002" Tolerance Band
- Centerless ground D diameter
- Precision made of superior quality M-2 high-speed tool steel
- Superior wear resistance
- Exceptional performance at elevated temperatures
- Hot-forged heads provide uniform grain flow, higher tensile strength

INCH PINS, SLEEVES, BLADES

INCH Close Tolerance M-2 Through-Hardened Ejector Pins

- Industry-Leading .0002" Tolerance Band
- Centerless ground D diameter
- Precision made of superior quality M-2 high-speed tool steel
- Superior wear resistance
- Exceptional performance at elevated temperatures
- Hot-forged heads provide uniform grain flow, higher tensile strength

INFORMATION KEY:

- D = Pin Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length
- S = Shoulder Length
- Tolerance Band:
  - Material: M-2 / 1.3345 / SKD61
  - Heat Treat: Hardened 58-62 HRC
  - Surface Treatment: None (Through-Hard)

Core hardness of 50-55 HRC makes these pins ideal for use in die-cast dies or other high temperature applications.

Annealed hot-forged heads provide uniform grain flow while allowing for easier machining.

All dimensions are specified in inches.

Contact DME for quote

Items in stock

Examples: EJP-IMH-0062-06-200; EJP-IMH-0093-06-200

\*[HOW TO ORDER] Specify Item Number by adding length in inches (06 or 10) after Item Number Prefix.

Examples: EJP-IMH-0062-06; EJP-IMH-0125-10; EJP-IMH-0250-10

\*[HOW TO ORDER] Specify Item Number including zeros and dashes, as shown.

Examples: EJP-IMH-0062-06-200; EJP-IMH-0093-06-200

All dimensions are specified in inches.
**Hot-forged heads provide uniform grain.**

**Inside bearing diameter is 30-35 HRC.**

Centerless ground and polished outer sleeves. **DME Sleeve Extensions.**

**Compatible with all industry-standard standard sleeves.**

**To machine steps in ejector sleeves or expensive custom wall sleeves.**

**DME Standard Thin Wall Sleeves and Sleeve Extensions**

**INCH PINS, SLEEVES, BLADES**

**Ejector sleeve applications**

Fig. A shows a typical Ejector Sleeve application for plastics molding or die casting where the sleeve is used to eject the piece part. Fig. B shows an application where the sleeve serves as a bushing for the ejector pin. This allows replacement without machining if wear occurs. This practice is also desirable where the ejector pin is located between cavity inserts. Using a sleeve as a bushing provides a full bearing diameter for the pin.

**Electroless nickel coated .00003”–.00007” thick A2 58-60 HRC.**

**Black oxide AISI 1215 (170 Brinell).**

To achieve longer lengths, use **Sleeve Extensions.**

**Wall Sleeves reduce thermal shock resisting hotwork die steel**

**1º/Side**

**2º Lead-in**

**Generous lead-in for interference-free entry.**

**Lead-in taper designed to allow interference-free entry of the ejector pin into the sleeve.**

**Precision made of superior quality thermal shock resisting hotwork die steel.**

**Hot forged heads provide uniform grain flow, higher tensile strength.**

**Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear.**

**Centerless ground and polished outer diameter.**

**Inside bearing diameter is 30-35 HRC hardness and finished honed.**

**Available - Fall of 2018**

**SND13 and SND15 have a 1.75 bearing length. All sleeves are for use with DME INCH Ejector Pins.**

**Examples:** S15M6, S39M10

**Dimensions:**

- Diameter: 3.000 ±.015
- Thickness: 0.02 x 45º CHAMFER
- Taper: ±.01
- Diameter: 0.031 R MAXIMUM

**Key to Chart**

- New stocked - Call for lead time
- Non-stocked - Call for lead time
- In stock

**U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com**

---

**Sleeve Extensions**

Compatible with all industry-standard sleeves. **DME Sleeve Extensions.**

**SND13 and SND15 have a 1.75 bearing length. All sleeves are for use with DME INCH Ejector Pins.**

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**INCH Ejector Sleeves – Nitrided O.D.**

**INCH Ejector Sleeves – Nitrided O.D.**

**Ejector sleeve applications**

Fig. A shows a typical Ejector Sleeve application for plastics molding or die casting where the sleeve is used to eject the piece part. Fig. B shows an application where the sleeve serves as a bushing for the ejector pin. This allows replacement without machining if wear occurs. This practice is also desirable where the ejector pin is located between cavity inserts. Using a sleeve as a bushing provides a full bearing diameter for the pin.

**Electroless nickel coated .00003”–.00007” thick A2 58-60 HRC.**

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To achieve longer lengths, use **Sleeve Extensions.**

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**1º/Side**

**2º Lead-in**

**Generous lead-in for interference-free entry.**

**Lead-in taper designed to allow interference-free entry of the ejector pin into the sleeve.**

**Precision made of superior quality thermal shock resisting hotwork die steel.**

**Hot forged heads provide uniform grain flow, higher tensile strength.**

**Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear.**

**Centerless ground and polished outer diameter.**

**Inside bearing diameter is 30-35 HRC hardness and finished honed.**

**Available - Fall of 2018**

**SND13 and SND15 have a 1.75 bearing length. All sleeves are for use with DME INCH Ejector Pins.**

**Examples:** S15M6, S39M10

**Dimensions:**

- Diameter: 3.000 ±.015
- Thickness: 0.02 x 45º CHAMFER
- Taper: ±.01
- Diameter: 0.031 R MAXIMUM

**Key to Chart**

- New stocked - Call for lead time
- Non-stocked - Call for lead time
- In stock

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**INCH PINS, SLEEVES, BLADES**

**INCH Ejector Sleeves – Nitrided O.D.**

**Ejector sleeve applications**

Fig. A shows a typical Ejector Sleeve application for plastics molding or die casting where the sleeve is used to eject the piece part. Fig. B shows an application where the sleeve serves as a bushing for the ejector pin. This allows replacement without machining if wear occurs. This practice is also desirable where the ejector pin is located between cavity inserts. Using a sleeve as a bushing provides a full bearing diameter for the pin.

**Electroless nickel coated .00003”–.00007” thick A2 58-60 HRC.**

**Black oxide AISI 1215 (170 Brinell).**

To achieve longer lengths, use **Sleeve Extensions.**

**Wall Sleeves reduce thermal shock resisting hotwork die steel**

**1º/Side**

**2º Lead-in**

**Generous lead-in for interference-free entry.**

**Lead-in taper designed to allow interference-free entry of the ejector pin into the sleeve.**

**Precision made of superior quality thermal shock resisting hotwork die steel.**

**Hot forged heads provide uniform grain flow, higher tensile strength.**

**Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear.**

**Centerless ground and polished outer diameter.**

**Inside bearing diameter is 30-35 HRC hardness and finished honed.**

**Available - Fall of 2018**

**SND13 and SND15 have a 1.75 bearing length. All sleeves are for use with DME INCH Ejector Pins.**

**Examples:** S15M6, S39M10

**Dimensions:**

- Diameter: 3.000 ±.015
- Thickness: 0.02 x 45º CHAMFER
- Taper: ±.01
- Diameter: 0.031 R MAXIMUM

**Key to Chart**

- New stocked - Call for lead time
- Non-stocked - Call for lead time
- In stock
**INCH PINS, SLEEVES, BLADES**

**INCH Ejector Sleeves – Nitrided O.D. & I.D.**

- Heads annealed for easy machining
- Lead-in taper designed to allow interference-free entry
- One-piece construction for increased strength
- Precision made of superior quality thermal shock resisting hotwork die steel
- CNC centerless ground and polished outer diameter
- Inside bearing diameter is nitrided to 65-74 HRC hardness and finished honed
- Lead-in taper designed to allow interference-free entry of the ejector pin into the sleeve
- SND sleeve I.D. is nitrided for prolonged wear resistance and improved lubricability

**SND Sleeves I.D.**
- SND15: .02 x 45º CHAMFER
- SND13: .031 R MAXIMUM

**NUMBER**

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**INCH PINS, SLEEVES, BLADES**

**INCH Ejector Blades – EJB-IMH**

- Blade thickness and width are held to close tolerance: ±0.0001 - 0.0003
- Precision made of superior quality M5 high-speed tool steel
- Through-hardened to 58-62 HRC for superior wear resistance
- Heads annealed for easy machining
- One-piece construction for increased strength and rigidity

**NUMBER**

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**INFORMATION KEY:**

D = Shoulder Diameter
H = Diameter
K = Head Thickness
L = Overall Length
T = Blade Thickness
W = Blade Width

**Material:** M2 / 1.3343 / SKH51

**Surface Treatment:** None (Through-Hard)

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**U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com**
Heads are hot-forged for uniform grain flow, centerless ground and polished outer diameter. Pin body and head are finish ground. Precision made of superior quality hotwork die steel standard hardness 30-35 HRC. Heads are hot-forged for uniform grain flow, higher tensile strength, then annealed to permit easier machining and stamping. + .0005/- .0003 tolerance on pin diameter ensures a close fit for coring purposes. Pin body and head are finish ground. Centerless ground and polished outer diameter.

### INCH Ejector Blades, INCH Pins, Sleeves, Blades

**INCH Ejector Blades**

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**INCH Pins, Sleeves, Blades**

**INCH Core Pins – H13 – Standard Medium Hardness**

**INCH Core Pins – C**

### Typical application

- Precision made of superior quality hotwork die steel standard hardness 30-35 HRC.
- Heads are hot-forged for uniform grain flow, higher tensile strength, then annealed to permit easier machining and stamping.
- + .0005/- .0003 tolerance on pin diameter ensures a close fit for coring purposes.
- Pin body and head are finish ground.
- Centerless ground and polished outer diameter.

### Hardness checking guidelines

- **Examples:** C33M, C33M10

### Precautions:

- The cut end must be parallel to head end, with stem length of 2” minimum. Use cutting fluid to avoid overheating and localized annealing. Position indentation in middle of pin diameter.

### Contact DME for quote

**Contact DME for quote**

**Items in stock**

**150 Kg. C scale load. NO**

**60 Kg. A scale load. YES**

**If checking hardness of core pins, do not use method “NO” above, since it will provide an inaccurately low reading. The preferred method is to stand the pin on its head and check the cut end using the A scale, 80 Kg. load as shown above.**

**PRECAUTIONS:**

- The cut end must be parallel to head end, with stem length of 2” minimum. Use cutting fluid to avoid overheating and localized annealing. Position indentation in middle of pin diameter.

**How to order:** Combine Item Number Prefix and the length (L dimension) desired. Examples: C33M,* 3/4 (.7500) 1.000 .250

**Notes:**

- Heats of 3”-length pins are not annealed. If annealed heads on 3”-length pins are required, they must be special ordered. (Alternately, you may purchase 6” pins and cut to required length.)

**Examples:** C33M,* 3/4 (.7500) 1.000 .250

**KEY TO CHART**

- DME in stock
- Contact DME for quote

**Examples:** C33M,* 3/4 (.7500) 1.000 .250
Porcerax II™

Vortex Core Pins and Plugs are made from Porcerax II. Porcerax II is a porous, sintered metal with a porosity of 20 to 30% by volume. With a series of interconnected pores averaging a diameter of 7 (.0003") or 20 (.0008") microns throughout, the primary function is the elimination of gas.

Vortex Core Pins and Plugs provide a location-specific method of venting gas. Due to its porosity volume, one fourth of the surface becomes a vent.

**Vortex Core Pins**
- Pins are 3” long and are available in diameters of .250", .375" and .500"
- Heat treated to 30–40 HRC [Hardness: HMV 300–400]
- Tensile strength: 74,000 lbs./sq.in.
- Thermal Linear Expansion Coefficient: (at 68˚F - 302˚F) 6.67-6.94 E-06 in./in./F˚
- Porosity: 20 to 30% air by volume
- Heat transfer co-efficient (at room temperature): 16.93–19.35 BTU/ft. hr. F˚

**Vortex Plug**
- Plugs are offered in .250", .500" and 1.00" lengths in diameters of .250" and .375"
- +.0008”/+.0003” - tolerance on pin diameter ensures a close fit for coring purposes
- Pin body and head are finish ground
- Centerless ground and liquid polished

**Vortex Core Pin**
- Precision made of superior quality hotwork die steel in high hardness 50-55 HRC
- Heads are hot-forged for uniform grain flow, higher tensile strength, then annealed to permit easier machining and stamping
- +.0006”+.0003” - tolerance on pin diameter ensures a close fit for coring purposes
- Pin body and head are finish ground
- Centerless ground and liquid polished

**Specials available. See “Special Pins and Sleeves.”**

**ITEM NUMBER** | **PIN DIA** | **HEAD DIA** | **HEAD THICK** | **LENGTH** | **PORE SIZE** | **MICRONS**
--- | --- | --- | --- | --- | --- | ---
PC17M320 | .250 | .437 | .187 | 3 | 20
PC17M307 | .250 | .437 | .187 | 3 | 7
PC25M320 | .375 | .625 | .250 | 3 | 20
PC25M307 | .375 | .625 | .250 | 3 | 7
PC33M320 | .500 | .750 | .250 | 3 | 20
PC33M307 | .500 | .750 | .250 | 3 | 7
PP141420 PP141420 | .25 0.25 | 20
PP141220 PP141220 | .25 0.25 | 20
PP141207 PP141207 | .35 0.25 | 7
PP381220 PP381220 | .35 0.25 | 7
PP381207 PP381207 | .35 0.25 | 7
PP38112 PP38112 | .35 0.15 | 20

**Pore Size & Microns**

| **ITEM NUMBER** | **PIN DIA** | **LENGTH** | **PORE SIZE** | **MICRONS**
--- | --- | --- | --- | ---
PC02M307 | .25 | 3 | 20
PC02M307 | .25 | 7
PC04M307 | .375 | 3 | 20
PC04M307 | .375 | 7
PC06M307 | .500 | 3 | 20
PC06M307 | .500 | 7

**Specials available. See “Special Pins and Sleeves.”**

**Key to Chart**
- “In stock”
- Contact DME for quote

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**Items in stock**

**Contact DME for quote**

---

**Vortex Core Pins**

**Vortex Plugs**

---
DME's Performance Core Pins® are precision made using a high-strength, beryllium-free copper alloy, rather than traditional steels used in core pins. This alloy provides several advantages, including better conductivity, increased strength, reduced wear and resistance to rusting. Performance Core Pins are ideal for use in high-volume applications where part quality, fit and finish are critical.

Reduced cycle time
It is often difficult or expensive to adequately cool the area surrounding the core pin in a mold, especially when molding thick-walled parts. Depending on the design of the mold, it may even be impossible to run water lines near the pin, thus greatly increasing cycle times.

The copper-based alloy used in Performance Core Pins can significantly reduce mold cycle times by increasing the rate of heat transfer. The Performance Core Pin, when used in place of traditional C- or CX-type pins, will provide up to 10 times the rate of heat transfer. Heat is transferred at twice the rate of pins made of a beryllium-copper alloy.

In addition, the low-adhesion characteristics of the pins make part ejection faster and easier. All of these advantages combine to reduce the overall cycle time and increase productivity.

Improved part quality
The excellent thermal diffusivity of the pins provide a homogeneous temperature profile throughout the core surface. Uniform temperatures result in reduced post-mold shrinkage and warpage, improving the quality of the part. Also, because of the low-adhesion characteristics of the pin, parts are not damaged by adhesion to the pin during part ejection.

Lower machining costs
The high thermal conductivity of Performance Core Pins reduces the need for complex cooling designs that can require hours of additional machining. Plus, the pins require no additional heat treatment and can be machined using conventional methods or EDM.

Longer service life
Performance Core Pins have a high resistance to thermal stress, wear and abrasion. This assures long life under virtually any molding conditions. With appropriate alteration to pin diameter, they can be used in conjunction with standard ejector sleeves. The dissimilar metals and compatible coefficient of friction will reduce metal-to-metal pick up and wear.

Wide range of sizes
Performance Core Pins are available in 18 pin diameters from 3/32- to 3/4- and 3-, 6-, 14- or 20-inch lengths.

Typical Mold
As shown in the pie chart, mold cooling comprises the largest part of the mold cycle. Performance Core Pins can significantly reduce this mold cooling portion to reduce overall cycle time!

PCL Performance Core Pins – PCL

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DME® Performance Alloys & Services, Inc.
U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com

Reduced cycle time
Ten times better conductivity than steel
Beryllium-free copper-based alloy
Hardness of 90-98 Rockwell B
Available in 18 diameters and four lengths

Performance Core Pins® are Beryllium-free copper-based alloy
Ten times better conductivity than steel
Reduces cycle times
Hardness of 90-98 Rockwell B
Specials are also available upon request

INCH PINS, SLEEVES, BLADES
Performance Core Pins® – High Conductivity Pins

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Performance Core Pins® are made by Performance Alloys & Services, Inc. under U.S. Patent Numbers 4,552,370 and foreign patents pending.


Examples: PCL2514, PCL0703, PCL2520

*HOW TO ORDER: Combine Item Number Prefix and the length (L dimension) desired. 
• Proceed single digit lengths with a zero. Example: PCL214, PCL400, PCL350

*Prior to ordering combined length of 1.000 or longer, contact DME for quote.

KEY TO CHART
- Items in stock
- Contact DME for quote

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As shown in the pie chart, mold cooling comprises the largest part of the mold cycle. Performance Core Pins can significantly reduce this mold cooling portion to reduce overall cycle time!
INCH PINS, SLEEVES, BLADES
Core Pin Retainers

DME Standard Core Pin Retainers offer better performance than a set screw and allow the core pin to float within the counter-bore. Conveniently machined in the same setup and location as the corresponding pin hole, Core Pin Retainers eliminate labor costs to make individual backup plates.

INCH Standard

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Core Pin retainers

- Precision made of superior quality
- Outside diameter nitrided to 65-74
- Centerless ground and polished
- Hot-forged heads provide uniform

Black oxide
AISI 12L14 (165 Brinell)

INCH PIN, SLEEVES, BLADES
INCH Return Pins

- Precision made of superior quality thermal shock resisting hotwork die steel
- Hot-forged heads provide uniform grain flow, higher tensile strength
- Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear
- Centerless ground and polished outer diameter

DuPont™ Performance Lubricants Extreme conditions. Extreme performance. For use with all DME Pins, Sleeves & Blades

DuPont™ Krytox® TMT grease is specifically designed for the lubrication of segmented molds, both electrically and steam-heated. This lubricant eliminates carbon residue buildup on the molds associated with hydrocarbon and hydrocarbon-based synthetic greases. It exhibits excellent adhesion, allowing the operator to significantly increase production by extending lubrication intervals. The TMT will not bleed out to the parting line due to high heat tolerance and will last in excess of 5000 cycles, based on average curing times, without relubrication.

Krytox® TMT is a fluorinated grease with polytetrafluorethylene (PTFE) thickeners and selected additives. It has excellent thermal stability and load-carrying abilities. TMT has a high degree of chemical inertness and extremely high hydrolytic stability. Contact with boiling water or steam has no effect on this product, but it will stay in the location it was applied, providing the best lubrication possibility.

Krytox® TMT greases are specifically designed to withstand high temperatures and corrosive environments. Their high levels of chemical inertness provide exceptional resistance to a variety of chemicals, including strong acids and bases, while maintaining superior performance in extreme conditions.

TYPICAL PROPERTIES OF DuPont™ Krytox® TMT

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>PART NUMBER</th>
</tr>
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<tbody>
<tr>
<td>TMT9000X2</td>
<td>TMT KRYTOX GREASE 2OZ TUBE</td>
</tr>
<tr>
<td>TMT9000X2</td>
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</tr>
</tbody>
</table>

DuPont™ Krytox® TMT greases are available in a variety of package sizes, each designed to provide efficient handling and ease-of-use.

For longer lengths, use EX37 Ejector Pins.

For longer lengths, use EX41 Ejector Pins.

For longer lengths, use EX51 Ejector Pins.

For longer lengths, use EX53 Ejector Pins.

Use Item Number in charts above for ordering. All items in stock.

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For longer lengths, use EX53 Ejector Pins.

Use Item Number in charts above for ordering. All items in stock.
### INCH PINS, SLEEVES, BLADES

**INCH Sprue Puller Pins**

- Precision made of superior quality thermal shock resisting hotwork die steel
- Hot-forged heads provide uniform grain flow, higher tensile strength
- Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear
- Heads annealed for easy machining
- Centerless ground and polished outer diameter

#### .250 (1/4") Diameter Series

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<th>R P</th>
<th>HEAD DIA</th>
<th>K HEAD THICK</th>
<th>L PIN LENGTH</th>
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For longer lengths, use EX17 Ejector Pins.

#### .375 (3/8") Diameter Series

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<th>HEAD DIA</th>
<th>K HEAD THICK</th>
<th>L PIN LENGTH</th>
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</thead>
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</table>

For longer lengths, use EX25 Ejector Pins.

---

### INCH PINS, SLEEVES, BLADES

**Custom Pins and Sleeves – Faxable Quote Form**

**QUOTE FAX HOTLINES AVAILABLE or visit www.dme.net**

**United States:** 888-808-4363 • **Canada:** 800-461-9965 • **International:** 248-398-7394

#### Custom Pins

- **Quantity:**
- **Choose a pin type:**
  - ☐ **EX**
    - (35 - 43 HRC core hardness with 65 - 70 HRC case hardness)
  - ☐ **THX**
    - (50 HRC - 55 HRC core hardness with 65 - 70 HRC case hardness)
  - ☐ **CX**
    - (50 - 55 HRC through hard)
  - ☐ **C**
    - (30 - 35 HRC through hard)

**Material H-13**

**Other**

- **Hardness** __________ RC
- **Nitried** Yes ☐ No ☐
- **Comments,** ___________

#### Custom Sleeves

- **Quantity:**
- **Choose a pin type:**
  - ☐ **Nitride on OD (S)**
  - ☐ **Nitride on OD + ID (SND)**

**Material H-13**

**Other**

- **Hardness** __________ RC
- **Nitried** Yes ☐ No ☐
- **Comments,** ___________

---

**Company name:** __________________________
**Contact name:** __________________________
**Phone:** __________________________
**E-mail:** __________________________
**Address:** __________________________
**City:** __________________________
**State/Province:** __________________________
**ZIP/Postal Code:** __________________________
**P.O.#:** __________________________
**Comments:** __________________________

**DME account #:** __________________________
**Shipping method:**
- ☐ UPS Ground
- ☐ UPS 2nd Day Air
- ☐ UPS Next Day
- ☐ FedEx
- ☐ Other

**Hardness** __________ RC
**Other**

**Nitried** Yes ☐ No ☐
**Comments,** ___________

**Country:** __________________________
**E-mail:** __________________________
**FAX:** __________________________
**P.O.#:** __________________________
**Comments:** __________________________

**Tapered Lead-In**

**E-mail per Side**

**Wall Thickness Recommended**

**DI Places**

---

**City:** ______________________________________
**State/Province:** __________________________
**ZIP/Postal Code:** __________________________
**Country:** __________________________
**P.O.#:** __________________________
**Remarks:** __________________________
## INCH PINS, SLEEVES, BLADES Comparison Chart

### INCH PINS, SLEEVES, BLADES HARDNESS CONVERSION TABLE AND DME HARDNESS DATA

<table>
<thead>
<tr>
<th>EX Ejектор Pins</th>
<th>THX Ejector Pins</th>
<th>Ejector Blades</th>
<th>S Ejector Sleeves</th>
<th>Moldstar 150®</th>
<th>H13 O.D.</th>
<th>H13 I.D.</th>
<th>Condition</th>
<th>Surface</th>
<th>Keyed</th>
<th>EJP-IMH Ejector Pins</th>
<th>EX Ejector Blades</th>
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</thead>
<tbody>
<tr>
<td>EX150 through EX210</td>
<td>THX33 (1/2) through THX34 (1”)</td>
<td>M2</td>
<td>C18000</td>
<td>90-98 HRB</td>
<td>—</td>
<td>—</td>
<td>Annealed</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
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<td>Annealed</td>
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<td>Annealed</td>
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<td>—</td>
<td>Annealed</td>
<td>—</td>
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</tr>
</tbody>
</table>
DIN Pins, Sleeves, Blades

A Comprehensive Line of DIN Ejector Products

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HOW TO ORDER
Specify Item Number with prefix, D diameter, and L length. Include zeros and dashes but omit decimals, as shown.

Example:
Prefix
D
L
EJP-EHN-030-0160

KEY TO CHART
- Shelves in stock
- Contact DME for quote

U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com

INFORMATION KEY:
D = Pin Body Diameter
H = Head Diameter
K = Head Thickness
L = Length
Material: 1.2344 (AISI H13 Type) Steel
Surface Treatment: Nitrided
Max. Temp.: 500˚-550˚C (932˚-1022˚F)
Dimensions: Shown in Millimeters (mm)
DIN PINS, SLEEVES, BLADES

DIN Ejector Pins – EJP-EHN

Expulsores | Extractores | Ejecteurs Epingles | Auswerferstifte

INFORMATION KEY:
- D = Pin Body Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length
- Standard: DIN/ISO Type
- Material: 1.2210 (AISI L2 Type) Steel
- Surface Treatment: None (Through-Hardened)
- Max. Temp.: 250˚C (482˚F)
- Dimensions: Shown in Millimeters (mm)

<table>
<thead>
<tr>
<th>ITEM PREFIX</th>
<th>D</th>
<th>H</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJP-EHN (AH)*</td>
<td>0.5</td>
<td>1.5</td>
<td>1.5</td>
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</tr>
<tr>
<td>EJP-EHN (CH)*</td>
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<td>1.5</td>
<td>1.5</td>
<td>1</td>
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</tbody>
</table>

HOW TO ORDER: Specify Item Number with prefix, D diameter, and L length. Include zeros and dashes but omit decimals, as shown.

Example:
Prefix | D | L | EJP-EHN-0080-0125

Items in stock

KEY TO CHART
- Items in stock
- Contact DME for quote

DIN Shoulder Ejector Pins – EJP-EHN

Expulsores con hombro | Extractores con hombro | Ejecteurs epingles con hombro | Auswerferstifte con hombro

INFORMATION KEY:
- D = Pin Body Diameter
- E = Shoulder Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length
- S = Shoulder Length
- Standard: DIN/ISO Type
- Material: 1.2344 (AISI H13 Type) Steel
- Surface Treatment: Nitrided
- Max. Temp.: 500°-550°C (932°-1022°F)
- Dimensions: Shown in Millimeters (mm)

<table>
<thead>
<tr>
<th>ITEM PREFIX</th>
<th>D</th>
<th>H</th>
<th>K</th>
<th>L</th>
<th>S</th>
</tr>
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<tbody>
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HOW TO ORDER: Specify Item Number with prefix, D diameter, L length, and S length. Include zeros and dashes but omit decimals, as shown.

Example:
Prefix | D | L | S | EJP-EHN-025-0200-0075

Items in stock

KEY TO CHART
- Items in stock
- Contact DME for quote

[338] U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com

[339] U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com
DIN PINS, SLEEVES, BLADES

**DIN Shoulder Ejector Pins – Hardened**

![Diagram of DIN Shoulder Ejector Pins]

**DIN Ejector Sleeves – Nitrided**

![Diagram of DIN Ejector Sleeves]

---

**INFORMATION KEY:**
- **D**: Pin Body Diameter
- **E**: Shoulder Diameter
- **H**: Head Diameter
- **K**: Head Thickness
- **L**: Length
- **S**: Shoulder Length
- **Standard**: DIN/ISO Type
- **Material**: 1.2210 (AISI L2 Type) Steel
- **Surface Treatment**: None (Through-Hardened)
- **Max. Temp.**: 250˚C (482˚F)
- **Dimensions**: Shown in Millimeters (mm)

**EJP-ELH**

<table>
<thead>
<tr>
<th>Prefix</th>
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<th>K</th>
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**EJS-EHN**

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</tbody>
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**HOW TO ORDER**

Specify Item Number with prefix, D diameter, L length and S length. Include zeros and dashes but omit decimals, as shown.

**Example:**
- **Prefix**: EJP-ELH
- **D**: 01.0
- **L**: 0125
- **S**: 0050

**KEY TO CHART**
- Items in stock
- Contact DME for quote

---

**INFORMATION KEY:**
- **D**: Inside Diameter
- **E**: Outside Diameter
- **H**: Head Diameter
- **K**: Head Thickness
- **L**: Length
- **N**: Bearing Length
- **Standard**: DIN/ISO Type
- **Material**: 1.2344 (AISI H13 Type) Steel
- **Surface Treatment**: Nitrided
- **Max. Temp.**: 500°-550°C (932°-1022°F)
- **Dimensions**: Shown in Millimeters (mm)

**EJS-EHN**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>D</th>
<th>E</th>
<th>H</th>
<th>K</th>
<th>N</th>
</tr>
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<td>6</td>
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<td></td>
</tr>
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</table>

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Specify Item Number with prefix, D diameter, and L length. Include zeros and dashes but omit decimals, as shown.

**Example:**
- **Prefix**: EJS-EHN
- **D**: 01.0
- **L**: 0125

**KEY TO CHART**
- Items in stock
- Contact DME for quote
### DIN Pins, Sleeves, Blades

**DIN Ejector Sleeves – EJS-ELH**

Mangas expulsoras | Extractores tubulares | Ejecteurs tubulaires | Auswerferhülsen

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**INFORMATION KEY:**

- **D** = Inside Diameter
- **E** = Outside Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length
- **N** = Bearing Length

**Standard:** DIN/ISO Type

**Material:** 1.2210 (AISI L2 Type) Steel

**Surface Treatment:** None (Through-Hardened)

**Max. Temp.:** 250°C (482°F)

**Dimensions:** Shown in Millimeters (mm)

*(KS)* is only a cross-reference to current DME Europe Catalog item prefix numbers.

**DIN Ejector Blades – EJB-EHN**

Expulsores planos | Extractores laminares | Ejecteurs lames | Auswerferklingen

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**INFORMATION KEY:**

- **T** = Shoulder Diameter
- **W** = Blade Width
- **D** = Blisk Diameter
- **H** = Blisk Thickness
- **K** = Blade Thickness
- **L** = Length

**Standard:** DIN/ISO Type

**Material:** 1.2344 (AISI H13 Type) Steel

**Surface Treatment:** Nitrided

**Max. Temp.:** 500°-550°C (932°-1022°F)

**Dimensions:** Shown in Millimeters (mm)

*(FW)* is only a cross-reference to current DME Europe Catalog item prefix numbers.

**HOW TO ORDER:** Specify Item Number with prefix, **T** thickness, **W** width, and **L** length. Include zeros and dashes but omit decimals, as shown.

**Example:**

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**Contact DME for quote**
DIN Ejector Blades – EJB-ELH

Expulsores planos | Extractores laminares | Ejecteurs lames | Auswerferklingen

INFORMATION KEY:

- **D** = Shoulder Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length
- **S** = Shoulder Length
- **T** = Blade Thickness
- **W** = Blade Width

**Standard:** DIN/ISO Type

**Material:** 1.2210 (AISI L2 Type) Steel

**Surface Treatment:** None (Through-Hardened)

**Max. Temp.:** 250°C (482°F)

**Dimensions:** Shown in Millimeters (mm)

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**Ra0.4 L**

**Ra0.4**

**60 ± 2 HRC**

**Ra0.8**

**Ra0.8**

**45 ± 5 HRC  (Heads Annealed)**

* "FK" is only a cross-reference to current DME Europe Catalog item prefix numbers.

How to Order: Specify Item Number with prefix, T thickness, W width, and L length. Include zeros and dashes but omit decimals, as shown.

Example:

Prefix | Item Number
--------|--------------
EJB-ELH | EJB-ELH-010-035-0060

Hey to Chart: Contact DME for quote

---

DIN Ejector Blades – CRP-EHH

Pernos moldeadores | Pernos moldantes | Épingles au centre | Kernstifte

INFORMATION KEY:

- **D** = Pin Body Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length

**Standard:** DIN/ISO Type

**Material:** 1.2344 (AISI H13 Type) Steel

**Surface Treatment:** None (Through-Hardened)

**Max. Temp.:** 500°-550°C (932°-1022°F)

**Dimensions:** Shown in Millimeters (mm)

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**MIN 1400 MPa (Ref. Only ~44 HRC)**

**MIN 1400 MPa (Ref. Only ~44 HRC)**

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| CRP-EHH | CRP-EHH-

**g6**

* "AHX" is only a cross-reference to current DME Europe Catalog item prefix numbers.

Items in stock

2-3 week delivery

Contact DME for quote

---
**DIN Pins, Sleeves, Blades**

**DIN Core Pins – CRP-ECS**

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* "PCM" is only a cross-reference to current DME Europe Catalog item prefix numbers.

**INFORMATION KEY:**
- **D** = Pin Body Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length

**Standard:** DIN/ISO Type

**Material:** Beryllium-free Copper based alloy

**Surface Treatment:** None

**Max. Temp.:** 350°C (662°F)

**Dimensions:** Shown in Millimeters (mm)

**Advantages:**
- Reduced cycle time
- 5 times better conductivity than steel
- Improved part quality
- Lower machining costs
- Longer service life

**High Thermal Conductivity Pins**

**How to Order:** Specify item number with prefix, D diameter, and L length. Include zeros and dashes but omit decimals, as shown.

<table>
<thead>
<tr>
<th>Prefix</th>
<th>D</th>
<th>L</th>
<th>Example</th>
<th>Prefix</th>
<th>D</th>
<th>L</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td>CRP-ECS</td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

**KEY TO CHART**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

**DIN PINS, SLEEVES, BLADES**

**DIN Core Pins – Performance**

**DIN PINS, SLEEVES, BLADES**

**DIN Core Pins – CRP-ECS**

* "PCM" is only a cross-reference to current DME Europe Catalog item prefix numbers.

**HO**

**CRP-ECS**

**W TO ORDER**

**(PCM)*

**PREFIX D H K**

**ITEM**

**K**: Specify item number with prefix, D diameter, and L length. Include zeros and dashes but omit decimals, as shown.**

**Example:**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>D</th>
<th>H</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRP-ECS</td>
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<td>0160</td>
<td>0200</td>
<td>0250</td>
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**Example:**

<table>
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<tr>
<th>Prefix</th>
<th>CRP-ECS-030-0160</th>
</tr>
</thead>
</table>

**Ra0.8**

**L +9.5mm**

**Canada 800-387-6600**

**94 ± 4 HRB**

**0100 0160 0200 0250 0315**

**Example:**

<table>
<thead>
<tr>
<th>Prefix</th>
<th>CRP-ECS-120-0315</th>
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</thead>
</table>

**■**

**KEY TO CHART**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

**DME account #:**

**Shipping method:**
- [ ] UPS Ground
- [ ] UPS 2nd Day Air
- [ ] UPS Next Day
- [ ] FedEx
- [ ] Other

**Company name:**

**DME account #:**

**Contact name:**

**P.O. #:**

**Phone:**

**Fax:**

**E-mail:**

**Address:**

**City:**

**State/Province:**

**ZIP/Postal Code:**

**Country:**

**QUOTE FAX HOTLINES AVAILABLE or visit www.dme.net**

**United States:** 888-808-4363 • **Canada:** 800-461-9365 • **International:** 248-398-7394
JIS Ejector Pins – JFX

Table of Contents

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STRAIGHT EJECTOR PINS ........................................... 349
JIS EJECTOR BLADES
EJECTOR BLADES ...................................................... 350
JIS EJECTOR SLEEVES
EJECTOR SLEEVES ..................................................... 351-353

INFORMATION KEY:
D = Pin Body Diameter
H = Head Diameter
K = Head Thickness
L = Length
Standard: JIS
Material: SKD61 (H-13)
Surface Treatment: Nitrided
Surface Hardness: 70-72 Rc (HV 1000 ± 100)
Core Hardness: 40 HRC±2

DME JIS PINS, SLEEVES, BLADES
A COMPREHENSIVE LINE OF JIS EJECTOR PRODUCTS

JIS Ejector Pins – Straight

JIS Ejector Pins – JFX

JIS Ejector Pins – Straight

INFORMATION KEY:
D = Pin Body Diameter
H = Head Diameter
K = Head Thickness
L = Length
Standard: JIS
Material: SKD61 (H-13)
Surface Treatment: Nitrided
Surface Hardness: 70-72 Rc (HV 1000 ± 100)
Core Hardness: 40 HRC±2

NOTE: All dimensions are in mm.

How to Order: Use Item Number in charts above for ordering.

U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com

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JIS Pins, Sleeves, Blades
JIS Ejector Pins

DME

DME JIS PINS,
SLEEVES, BLADES

A COMPREHENSIVE LINE
OF JIS EJECTOR PRODUCTS

Table of Contents

JIS EJECTOR PINS
STRAIGHT EJECTOR PINS ........................................... 349
JIS EJECTOR BLADES
EJECTOR BLADES ...................................................... 350
JIS EJECTOR SLEEVES
EJECTOR SLEEVES ..................................................... 351-353

INFORMATION KEY:
D = Pin Body Diameter
H = Head Diameter
K = Head Thickness
L = Length
Standard: JIS
Material: SKD61 (H-13)
Surface Treatment: Nitrided
Surface Hardness: 70-72 Rc (HV 1000 ± 100)
Core Hardness: 40 HRC±2

NOTE: All dimensions are in mm.

How to Order: Use Item Number in charts above for ordering.

U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com

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**JIS PINS, SLEEVES, BLADES**

### JIS Ejector Blades – JEB

<table>
<thead>
<tr>
<th>K</th>
<th>D</th>
<th>T</th>
<th>Ø D</th>
<th>Ø H</th>
<th>L</th>
<th>N</th>
<th>W</th>
<th>PINS</th>
<th>O.D.</th>
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</tr>
</tbody>
</table>

**INFORMATION KEY:**

- D = Pin Body Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length
- N = ID Bearing Length
- W = Blade Width

**Material:** SKS21

**Surface Treatment:** Nitrided

**Surface Hardness:** 58 HRC ±2

All items standard 2 week delivery. Expedited delivery available.

### JIS Ejector Sleeves – JES

<table>
<thead>
<tr>
<th>K</th>
<th>D</th>
<th>T</th>
<th>Ø D</th>
<th>Ø H</th>
<th>L</th>
<th>N</th>
<th>W</th>
<th>PINS</th>
<th>O.D.</th>
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</tbody>
</table>

**INFORMATION KEY:**

- D = Pin Body Diameter
- E = Pin Body Diameter
- T = Blade Thickness
- W = Blade Width
- N = ID Bearing Length

**Material:** SKS21

**Surface Treatment:** Nitrided

**Surface Hardness:** 900 HV

**Notes:** All dimensions are in mm.
## JIS Pins, Sleeves, Blades

### JIS Ejector Sleeves – JES

#### Table: Item Number (Length L)

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<td>JES-35-6-500</td>
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### Information Key:

- **D**: Pin Inner Diameter
- **E**: Pin Body Diameter
- **H**: Head Diameter
- **N**: Bearing Length
- **L**: Length
- **E Tolerance**: ±0.018
- **DH7 Tolerance**: ±0.003

#### How to order:

Use Item Number in table for ordering. JIS Sleeves availability ranges from same-day shipment to 3-week lead time.

---

### JIS Ejector Sleeves – JES

#### Table: Item Number (Length L)

<table>
<thead>
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<th>Item Number</th>
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### Information Key:

- **D**: Pin Inner Diameter
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- **E Tolerance**: ±0.018
- **DH7 Tolerance**: ±0.003

#### How to order:

Use Item Number in table for ordering. JIS Sleeves availability ranges from same-day shipment to 3-week lead time.
SPECIAL PINS AND SLEEVES
Pins and Sleeves for Special Applications

Every day, challenging new applications and materials are forcing moldmakers to develop creative new tooling solutions. DME is here to help, with comprehensive capabilities for manufacturing special pins and sleeves – quickly and cost-effectively. We offer a wide range of special features, including:

- Special diameters (up to 3”) and lengths (up to 72”)
- Steps
- Profiles
- Special shoulders
- O-ring grooves
- Non-standard core hardness
- Flats
- Threaded I.D. or O.D.
- Non-standard materials (non H-13)
- Surface coatings – more than 100 available, including titanium nitriding, chromium, etc.
- And many other options

If your needs are more complex, contact DME for a quote. Even when you select special pins or sleeves, you still get the industry’s fastest pricing and delivery at a competitive price.

Industry-leading delivery lead times
You can count on DME delivery for your special pin and sleeve needs. Your DME representative can provide you with a precise completion date for your project.
SPECIAL PINS AND SLEEVES
Special Pins and Sleeves – Faxable Quote Form

QUOTE FAX HOTLINES AVAILABLE or visit www.dme.net
United States: 888-808-4363 • Canada: 800-461-9965 • International: 248-398-7394

Special PINS

<table>
<thead>
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<th>Item</th>
<th>Description</th>
<th>Material</th>
<th>Hardness</th>
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<th>Lengths (mm)</th>
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<tbody>
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<td>1/16</td>
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Special Sleeves

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Step Sleeve

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<td>200</td>
<td>50.8</td>
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</tbody>
</table>

Shipping method:
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

Contact information:
- Company name:
- P.O. #: 
- Phone:
- Address:
- Email:
- City:
- State/Province:
- ZIP/Postal Code:
- Country:
- DME account #: 
- E-mail:
- Shipping method:
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

Company name: DME account #: 
Contact name: P.O. #: 
Phone: 
Address: 
City: 
ZIP/Postal Code:
Country:

DME Ejector and Core Pin Diameters Table

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<tr>
<th>Item</th>
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<th>Hardness</th>
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<th>Lengths (mm)</th>
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Shipping method:
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

Contact information:
- Company name:
- P.O. #: 
- Phone:
- Address:
- Email:
- City:
- State/Province:
- ZIP/Postal Code:
- Country:
- DME account #: 
- E-mail:
- Shipping method:
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

Company name: DME account #: 
Contact name: P.O. #: 
Phone: 
Address: 
City: 
ZIP/Postal Code:
Country:

DME Ejector and Core Pin Diameters Table

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Material</th>
<th>Hardness</th>
<th>Lengths (inch)</th>
<th>Lengths (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/16</td>
<td>EX2-0.019</td>
<td>80</td>
<td>3.16</td>
<td>200</td>
<td>50.8</td>
</tr>
<tr>
<td>1/16</td>
<td>EX2-0.020</td>
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<td>3.16</td>
<td>200</td>
<td>50.8</td>
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</table>

Shipping method:
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

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- Shipping method:
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- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

Company name: DME account #: 
Contact name: P.O. #: 
Phone: 
Address: 
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ZIP/Postal Code:
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<td>3.16</td>
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<td>50.8</td>
</tr>
</tbody>
</table>

Shipping method:
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

Contact information:
- Company name:
- P.O. #: 
- Phone:
- Address:
- Email:
- City:
- State/Province:
- ZIP/Postal Code:
- Country:
- DME account #: 
- E-mail:
- Shipping method:
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

Company name: DME account #: 
Contact name: P.O. #: 
Phone: 
Address: 
City: 
ZIP/Postal Code:
Country:
<table>
<thead>
<tr>
<th>FRACTION</th>
<th>ELECTOR</th>
<th>CORE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN</td>
<td>ITEM NUMBER</td>
<td>STANDARD LENGTHS (inch or mm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FRACTION</th>
<th>ELECTOR</th>
<th>CORE</th>
</tr>
</thead>
<tbody>
<tr>
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<td>ITEM NUMBER</td>
<td>STANDARD LENGTHS (inch or mm)</td>
</tr>
</tbody>
</table>

<table>
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<th>FRACTION</th>
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</thead>
<tbody>
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<td>IN</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th>FRACTION</th>
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</tr>
</thead>
<tbody>
<tr>
<td>IN</td>
<td>ITEM NUMBER</td>
<td>STANDARD LENGTHS (inch or mm)</td>
</tr>
</tbody>
</table>
This new generation of Mold Service Table is specifically designed to:

- Quickly and safely open molds
- Providing access to all parts of the mold for assembly and fitting of components, repair, maintenance, cleaning and production preparation
- Allows the mold to be opened and rotated without the use of cranes
- Rotates 360° for easy access to each mold half with indexing every 90°

**Features:**

- 1.5, 2, 3 and 6 ton weight capacity
- Provides a working height of 850mm (33.46”)
- Tables include: Pivot Plates, Platform & Tool Plate
- Optional accessories- Mechanical Brackets, Magnetic Brackets and Drawer Units
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MOLD ASSEMBLY
Socket Head Cap Screws – INCH

Up to 12” Long
High-grade alloy steel, heat treated to 38-45 HRC. Tensile strength: 180,000 psi minimum.

D = DIAMETER OF SCREWS
L = LENGTH UNDER THE HEAD

<table>
<thead>
<tr>
<th>NO. 6</th>
<th>NO. 8</th>
<th>NO. 10</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>%</th>
<th>T</th>
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</thead>
<tbody>
<tr>
<td>DECIMAL EQUIVALENT</td>
<td>.350</td>
<td>.375</td>
<td>.400</td>
<td>.4375</td>
<td>.480</td>
<td>.500</td>
<td>.550</td>
<td>.625</td>
<td>.750</td>
</tr>
<tr>
<td>THREADS PER INCH</td>
<td>22</td>
<td>22</td>
<td>24</td>
<td>20</td>
<td>16</td>
<td>12</td>
<td>11</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>NATIONAL COARSE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How To Order: Specify D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

D = DIAMETER OF SCREWS
L = LENGTH UNDER THE HEAD

HOW TO ORDER: Specify Item Number. Include zeros and commas but omit decimals and all spaces (spaces are only shown here for easier reading).

Information Key:
D = Thread Diameter
H = Head Diameter
K = Head Height
L = Length
N = Thread Length
T = Hex Socket Size (Across Flats)
Standard: DIN 912-12.9
Material: Per DIN Specification
Dimensions: Shown in Millimeters (mm)

Items in stock
2-3 week delivery
Contact DME for quote

Lock Washers/Spring Washers – R54

Rondanas de Presion | Freios | Rondelles de retenue | Sicherungsscheibe (Federscheibe)

Information Key:
D = Full Screw Diameter
F = Inside Diameter
P = Outside Diameter
T = Thickness
Standard: DIN 7990
Material: Per DIN Specification
Dimensions: Shown in Millimeters (mm)

Items in stock
2-3 week delivery
Contact DME for quote

Socket Head Cap Screws – METRIC

Tornillos cabeza Allen | Parafuso de cabeza sextavada | Vis 6-pans tête cylindrique | Zylinderkopfschrauben

Information Key:
D = Thread Diameter
H = Head Diameter
L = Length
N = Thread Length
T = Head Diameter
Standard: DIN 7980
Material: Per DIN Specification
Dimensions: Shown in Millimeters (mm)

Items in stock
2-3 week delivery
Contact DME for quote

HOW TO ORDER: Specify Item Number. Include zeros and commas but omit decimals and all spaces (spaces are only shown here for easier reading).

Information Key:
D = Diameter
L = Length
N = Head Diameter
H = Head Height
K = Thread Diameter
T = Thickness
Standard: DIN 7980
Material: Per DIN Specification
Dimensions: Shown in Millimeters (mm)

Items in stock
2-3 week delivery
Contact DME for quote

HOW TO ORDER: Specify Item Number. Include zeros and commas but omit decimals and all spaces (spaces are only shown here for easier reading).

Information Key:
D = Diameter
L = Length
N = Head Diameter
H = Head Height
K = Thread Diameter
T = Thickness
Standard: DIN 7980
Material: Per DIN Specification
Dimensions: Shown in Millimeters (mm)

Items in stock
2-3 week delivery
Contact DME for quote

HOW TO ORDER: Specify Item Number. Include zeros and commas but omit decimals and all spaces (spaces are only shown here for easier reading).
MOLD ASSEMBLY
Socket Head Stripper Bolts – INCH Keys and Key Kits – INCH

Socket Head Stripper Bolts

These Socket Head Stripper Bolts (Shoulder Screws) are made from high-grade alloy steel, heat treated to 36 HRC minimum. Tensile strength: 160,000 psi.

Keys and Key Kits – KK, LAK

The .050 to 3/8 keys are sold individually as detailed at right.

The .050 to 3/8 keys are sold in a 13-piece kit; Keys and Key Kits – INCH

These Socket Head Stripper Bolts (Shoulder Screws) are made from high-grade alloy steel, heat treated to 36 HRC minimum. Tensile strength: 160,000 psi.

Material: 50 CrV4 – DIN 911

Shoulder Bolts/Stripper Bolts – PM

Tornillos de hombro | Parafusos limitador | Vis épaulées | Paßschrauben

INFORMATION KEY:

- D = Shoulder Diameter
- F = Thread Diameter
- H = Head Diameter
- J = Socket Depth
- K = Head Thickness
- N = Thread Length
- S = Shoulder Length
- T = Socket Hex Size (Across Flats)

PREFIX: H K N D T J F S

Ref. Only ~36±2 HRC

Items in stock

Contact DME for quote

2-3 week delivery

21⁄2 week delivery

Contact DME for quote

HOW TO ORDER: Specify Item Number with prefix and S length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

KEY TO CHART

- Items in stock

- Contact DME for quote

- 2-3 week delivery

- 21⁄2 week delivery

Dimensions: Shown in Millimeters (mm)

AFNOR

E 27-192 Class 12.9

Items in stock

Contact DME for quote

2-3 week delivery
**MOLD ASSEMBLY**

**Flat Head Screws – METRIC**

Set Screws with Spring Loaded Plunger – METRIC

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Availability</th>
<th>D</th>
<th>L</th>
<th>E</th>
<th>F1</th>
<th>F2</th>
</tr>
</thead>
<tbody>
<tr>
<td>FM 04 09</td>
<td>4</td>
<td>2.5</td>
<td>1.8</td>
<td>1.5</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>FM 05 12</td>
<td>5</td>
<td>3</td>
<td>2.4</td>
<td>2</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>FM 06 14</td>
<td>6</td>
<td>4</td>
<td>2.7</td>
<td>2</td>
<td>7</td>
<td>18</td>
</tr>
<tr>
<td>FM 08 16</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>FM 10 19</td>
<td>10</td>
<td>8</td>
<td>6.5</td>
<td>2.5</td>
<td>20</td>
<td>45</td>
</tr>
<tr>
<td>FM 12 22</td>
<td>12</td>
<td>10</td>
<td>7</td>
<td>2</td>
<td>25</td>
<td>60</td>
</tr>
<tr>
<td>FM 16 24</td>
<td>16</td>
<td>12</td>
<td>8</td>
<td>2</td>
<td>35</td>
<td>95</td>
</tr>
<tr>
<td>FM 20 30</td>
<td>20</td>
<td>14</td>
<td>10</td>
<td>3</td>
<td>40</td>
<td>140</td>
</tr>
<tr>
<td>FM 24 34</td>
<td>24</td>
<td>16</td>
<td>12</td>
<td>3</td>
<td>50</td>
<td>180</td>
</tr>
</tbody>
</table>

**HOW TO ORDER:** Specify Item Number. Omit spaces (spaces are only shown here for easier reading).

**KEY TO CHART:**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

**INFORMATION KEY:**
- D = Thread Diameter
- E = Plunger End Diameter
- L = Body Length
- N = Plunger Maximum Travel
- F1 = Initial End Force (Force in Newtons)
- F2 = Final End Force (Force in Newtons)
- Material: 1.0716 Steel
- Max. Temp.: 250°C (482°F)
- Dimensions: Other metric units of measure

**Stop Disk for Ejector Plates – R18**

Arandela de Tope | Anilhas de encosto | Repos d’épaisseur pour plaques d’éjection | Distanzscheibe für Auswerferplatte

**INFORMATION KEY:**
- Standard: Euro-Series
- Material: 1.1191 (AISI 1045 Type) Steel
- Dimensions: Shown in Millimeters (mm)

**HOW TO ORDER:** Specify Item Number. Use with SM4 Flat Head Screw (M4 thread x 8mm long) which must be purchased separately. See Flat Head Screws above.

**KEY TO CHART:**
- Items in stock

---

**MOLD ASSEMBLY**

**Set Screws with Spring Loaded Plunger – FM**

Set Screws with Spring Loaded Plunger – FM

**INFORMATION KEY:**
- D = Thread Diameter
- E = Plunger End Diameter
- L = Body Length
- N = Plunger Maximum Travel
- F1 = Initial End Force (Force in Newtons)
- F2 = Final End Force (Force in Newtons)
- Material: 1.0716 Steel
- Max. Temp.: 250°C (482°F)
- Dimensions: Other metric units of measure

**HOW TO ORDER:** Specify Item Number. Omit spaces (spaces are only shown here for easier reading).

**INFORMATION KEY:**
- D = Thread Diameter
- E = Plunger End Diameter
- L = Body Length
- N = Plunger Maximum Travel
- F1 = Initial End Force (Force in Newtons)
- F2 = Final End Force (Force in Newtons)
- Material: 1.0716 Steel
- Max. Temp.: 250°C (482°F)
- Dimensions: Other metric units of measure

**HOW TO ORDER:** Specify Item Number. Omit spaces (spaces are only shown here for easier reading).

**KEY TO CHART:**
- Items in stock
- 2-3 week delivery
- Contact DME for quote
### MOLD ASSEMBLY

**Set Screws with Spring Loaded Ball Plunger (Regular and High Temperature)** — **METRIC**

**Set Screws with Spring Loaded Ball Plunger** — **FD**

**Dimensions:** Shown in Millimeters (mm)

**Information Key:**
- **D** = Thread Diameter
- **E** = Ball Diameter
- **N** = Ball Plunger Maximum Travel
- **F1** = Initial End Force (Force in Newtons)
- **F2** = Final End Force (Force in Newtons)

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Availability</th>
<th>D</th>
<th>L</th>
<th>E</th>
<th>N</th>
<th>F1 (Initial)</th>
<th>F2 (Final)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDV 12-16</td>
<td>M6</td>
<td>6</td>
<td>10</td>
<td>2</td>
<td>0.4</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>FDV 8-16</td>
<td>M6</td>
<td>6</td>
<td>9</td>
<td>1.5</td>
<td>0.9</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>FDV 6-12</td>
<td>M6</td>
<td>6</td>
<td>7</td>
<td>1</td>
<td>0.5</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>FDV 4-8</td>
<td>M6</td>
<td>5</td>
<td>6</td>
<td>0.5</td>
<td>0.2</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

**Max. Temp.:** 100°C (212°F)

**Material:** 1.0716 Steel

**How to Order:** Specify Item Number. Omit spaces (spaces are only shown here for easier reading).

Contact DME for quote

2-3 week delivery

### MOLD ASSEMBLY

**Set Screws with Flat Point Grub Screws (Allen Head)** — **METRIC**

**Set Screws with Flat Point Grub Screws** — **GS913**

**Dimensions:** Shown in Millimeters (mm)

**Information Key:**
- **D** = Thread Diameter
- **M** = Dog Point Diameter
- **L** = Length
- **N** = Hex Socket Depth
- **T** = Hex Socket Size (Across Flat)

<table>
<thead>
<tr>
<th>Item Prefix</th>
<th>T</th>
<th>D</th>
<th>M</th>
<th>L</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS913</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>20</td>
<td>Prefix D L GS913 M08 016</td>
</tr>
<tr>
<td>GS915</td>
<td>4</td>
<td>6</td>
<td>3.5</td>
<td>20</td>
<td>Prefix D L GS915 M08 016</td>
</tr>
</tbody>
</table>

**Max. Temp.:** 250°C (482°F)

**Material:** DIN 913-45H

**DIN Specification:**
- M08 016
- M12 050

**How to Order:** Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Contact DME for quote

2-3 week delivery

### MOLD ASSEMBLY

**Set Screws with Dog Point (Allen Head)** — **GS915**

**Dimensions:** Shown in Millimeters (mm)

**Information Key:**
- **D** = Thread Diameter
- **M** = Dog Point Diameter
- **L** = Length
- **N** = Dog Point Length
- **T** = Hex Socket Size (Across Flat)

<table>
<thead>
<tr>
<th>Item Prefix</th>
<th>T</th>
<th>D</th>
<th>M</th>
<th>L</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS915</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>20</td>
<td>Prefix D L GS915 M08 016</td>
</tr>
<tr>
<td>GS915</td>
<td>4</td>
<td>6</td>
<td>3.5</td>
<td>20</td>
<td>Prefix D L GS915 M08 016</td>
</tr>
</tbody>
</table>

**Max. Temp.:** 250°C (482°F)

**Material:** DIN 915-45H

**DIN Specification:**
- M08 016
- M12 050

**How to Order:** Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Contact DME for quote

2-3 week delivery
MOLD ASSEMBLY
Dowel Pins and Tubular Dowels – INCH

Dowel Pins

DME Dowel Pins are made from high-grade alloy steel, hardened and precision ground.

Tubular Dowels

DME Tubular Dowels are hardened and precision ground. They are used in DME mold base assemblies to accurately align the “B” plate, support plate and the ejector housing.

The use of DME Tubular Dowels allows more room for waterlines by superimposing the dowel pin and cap screw as shown at the right.

HOW TO BUILD AN ITEM NUMBER: Diameter + Length + TD (Tubular Dowel)

Examples:
- 3⁄8” diameter x 7⁄8” long Dowel Pin = 3878TD
- 5⁄8” diameter x 1-3⁄8” long Dowel Pin = 58138TD
- 1⁄2” diameter x 2” long Dowel Pin = 12DP

HOW TO ORDER: Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Prefix | D | L | Example
--- | --- | --- | ---
DP | 3⁄8 | 7⁄8 | DP 3878
DP | 5⁄8 | 1-3⁄8 | DP 58138
DP | 1⁄2 | 2 | DP 12DP

Contact DME for quote 2-3 week delivery Items in stock

Dowel Pins with Internal Thread/Pull Dowels – WZ7005
Clavija | Cavilhas | Goupilles cylindriques | Zylinderstifte

INFORMATION KEY:
- D = Pin Outside Diameter
- L = Length
- N = Tap Diameter
- S.H.C.S. = Superimposed Hardened & Case Hardened Surface

Dimensions: Shown in Millimeters (mm)

KEY TO CHART: Items in stock 2-3 week delivery Contact DME for quote

AS USED IN MOLD BASE ASSEMBLIES

"B" PLATE

SUPPORT PLATE

TUBULAR DOWEL

EJECTOR HOUSING

S.H.C.S.

INFORMATION KEY:
- D = Pin Outside Diameter
- F = Tap Diameter
- L = Length
- N = Tap Depth
- Specification

Items in stock 2-3 week delivery Contact DME for quote

HOW TO ORDER: Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Prefix | D | L | Example
--- | --- | --- | ---
WZ7005 | 1⁄8 | 3⁄16 | Example: Prefix D L WZ7005 12060
WZ7005 | 1⁄4 | 1⁄2 | Example: Prefix D L WZ7005 12060

Dowel Pins – METRIC

Clavija | Cavilhas | Goupilles cylindriques | Zylinderstifte

INFORMATION KEY:
- D = Pin Outside Diameter
- L = Length

Dimensions: Shown in Millimeters (mm)

KEY TO CHART: Items in stock 2-3 week delivery Contact DME for quote

HOW TO ORDER: Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Prefix | D | L | Example
--- | --- | --- | ---
WZ7005 | 04 | 06 | Example: Prefix D L WZ7005 06020
WZ7005 | 04 | 12 | Example: Prefix D L WZ7005 12040

Dowel Pins – INCH

Clavija | Cavilhas | Goupilles cylindriques | Zylinderstifte

INFORMATION KEY:
- D = Pin Outside Diameter
- L = Length

Dimensions: Shown in Millimeters (mm)

KEY TO CHART: Items in stock 2-3 week delivery Contact DME for quote

HOW TO ORDER: Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Prefix | D | L | Example
--- | --- | --- | ---
DP | 3⁄8 | 7⁄8 | DP 3878
DP | 5⁄8 | 1-3⁄8 | DP 58138
DP | 1⁄2 | 2 | DP 12DP

Contact DME for quote 2-3 week delivery Items in stock
**MOLD ASSEMBLY**

**Tubular Dowels; Washer/Tubular Dowel (Disk for Tubular Dowels) – METRIC**

**Tubular Dowels – R09**

**Registo tubular | Cavihla tubular | Douaures tubulares | Paßhülsen**

**INFORMATION KEY:**

- **D** = Outside Diameter
- **G** = Inside Diameter
- **L** = Length
- **Standard:** Euro-Series
- **Material:** 1.7131 (AISI S115) Type Steel
- **Surface Treatment:** Case Hardened
- **Dimensions:** Shown in Millimeters (mm)

<table>
<thead>
<tr>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ITEM NUMBER</strong></td>
</tr>
<tr>
<td><strong>D</strong></td>
</tr>
<tr>
<td><strong>G</strong></td>
</tr>
<tr>
<td><strong>K</strong></td>
</tr>
<tr>
<td><strong>AVAILABILITY</strong></td>
</tr>
<tr>
<td>R091 6 6 0.050</td>
</tr>
<tr>
<td>R091 6 6 0.060</td>
</tr>
<tr>
<td>R091 8 8 0.050</td>
</tr>
<tr>
<td>R091 8 8 0.060</td>
</tr>
<tr>
<td>R091 10 10 0.050</td>
</tr>
<tr>
<td>R091 10 10 0.060</td>
</tr>
<tr>
<td>R091 12 12 0.050</td>
</tr>
<tr>
<td>R091 12 12 0.060</td>
</tr>
</tbody>
</table>

**HOW TO ORDER:** Specify Item Number, Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

- **Prefix:** D K
- **Example:** Prefix D K

<table>
<thead>
<tr>
<th>ITEM</th>
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<tbody>
<tr>
<td><strong>PREFIX</strong></td>
</tr>
<tr>
<td><strong>D</strong></td>
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<tr>
<td><strong>K</strong></td>
</tr>
<tr>
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<tr>
<td>D01 0 0.050</td>
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<tr>
<td>D01 0 0.060</td>
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<tr>
<td>D02 0 0.050</td>
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<tr>
<td>D02 0 0.060</td>
</tr>
<tr>
<td>D03 0 0.050</td>
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<tr>
<td>D03 0 0.060</td>
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<tr>
<td>D04 0 0.050</td>
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<tr>
<td>D04 0 0.060</td>
</tr>
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</table>

**Washer/Tubular Dowel (Disk for Tubular Dowels) – R091**

**Arandelá – Registro tubular | Anilhas – para cavilha tubular**

**Cachetage cylindrique – Douaures tubulaires | Scheibe – Paßhülsen**

**INFORMATION KEY:**

- **D** = Outside Diameter
- **G** = Inside Diameter
- **K** = Thickness
- **Standard:** Euro-Series
- **Material:** 1.7131 (AISI S115) Type Steel
- **Surface Treatment:** Case Hardened
- **Dimensions:** Shown in Millimeters (mm)

<table>
<thead>
<tr>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ITEM NUMBER</strong></td>
</tr>
<tr>
<td><strong>D</strong></td>
</tr>
<tr>
<td><strong>G</strong></td>
</tr>
<tr>
<td><strong>K</strong></td>
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<tr>
<td><strong>AVAILABILITY</strong></td>
</tr>
<tr>
<td>R091 9 9 0.050</td>
</tr>
<tr>
<td>R091 9 9 0.060</td>
</tr>
<tr>
<td>R091 11 11 0.050</td>
</tr>
<tr>
<td>R091 11 11 0.060</td>
</tr>
<tr>
<td>R091 13 13 0.050</td>
</tr>
<tr>
<td>R091 13 13 0.060</td>
</tr>
</tbody>
</table>

**HOW TO ORDER:** Specify Item Number, Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

- **Prefix:** D K
- **Example:** Prefix D K

<table>
<thead>
<tr>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREFIX</strong></td>
</tr>
<tr>
<td><strong>D</strong></td>
</tr>
<tr>
<td><strong>K</strong></td>
</tr>
<tr>
<td><strong>EXAMPLE</strong></td>
</tr>
<tr>
<td>D03 0 0.050</td>
</tr>
<tr>
<td>D03 0 0.060</td>
</tr>
<tr>
<td>D04 0 0.050</td>
</tr>
<tr>
<td>D04 0 0.060</td>
</tr>
<tr>
<td>D05 0 0.050</td>
</tr>
<tr>
<td>D05 0 0.060</td>
</tr>
</tbody>
</table>

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**HOW TO ORDER:** Specify Item Number, Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

- **Prefix:** D K
- **Example:** Prefix D K

<table>
<thead>
<tr>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PREFIX</strong></td>
</tr>
<tr>
<td><strong>D</strong></td>
</tr>
<tr>
<td><strong>K</strong></td>
</tr>
<tr>
<td><strong>EXAMPLE</strong></td>
</tr>
<tr>
<td>D09 0 0.050</td>
</tr>
<tr>
<td>D09 0 0.060</td>
</tr>
</tbody>
</table>

---

**KEY TO CHART**

- Items in stock
- 2-3 week delivery
- Contact DME for quote

**MOLD ASSEMBLY**

**Mold and Die Springs Medium Duty (Color-Coded Blue)**

**Medium Duty Mold and Die Springs (Blue) – SMD**

**Maximum Deflection:** 50% of Free Length Efficient Operating Range: 25% to 35% of Free Length

Manufactured by Raymond® from a special rectangular-shaped, round-cornered chromium alloy. Provides high resistance to shock loads, increased deflection, wider operating temperatures and longer life. Color-coded by work range to simplify selection and specification.

**INFORMATION KEY:**

- **Ø** = Outside Diameter
- **D** = Diameter
- **L** = Length
- **APPROX** = Approximate Load (LBS x .454 = kg)
- **FREE DEFLEC.** = Free Deflection (LBS x .454 = kg)
- **GOOD FOR** = Good For

**KEY TO CHART**

- Items in stock

---

**Mold Assembly**

**Tubular Dowel**

---

**DME**

**U.S. 800-626-6553 | Canada 800-387-6600 | dme@milacron.com | www.dme.net | store.milacron.com**

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374

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375
MOLD ASSEMBLY

Mold and Die Springs Medium Heavy Duty (Color-Coded Red)

Maximum Deflection: 37% of Free Length

Efficient Operating Range: 20% to 25% of Free Length

Manufactured by Raymond® from a special rectangular-shaped, round-cornered chromium alloy. Provides high resistance to shock loads, increased deflection, wider operating temperatures and longer life. Color-coded by work range to simplify selection and specification.

**Die Springs (Red) – SMH**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DIA</th>
<th>LENGTH (mm)</th>
<th>LOAD AT 30% DEFLEC. (lbf)</th>
<th>LOAD AT 30% DEFLEC. (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMH5012A</td>
<td>1.25</td>
<td>31.75</td>
<td>52.3</td>
<td>236.4</td>
</tr>
<tr>
<td>SMH5016A</td>
<td>1.50</td>
<td>38.10</td>
<td>65.6</td>
<td>292.5</td>
</tr>
<tr>
<td>SMH5020A</td>
<td>1.75</td>
<td>44.45</td>
<td>78.8</td>
<td>343.4</td>
</tr>
<tr>
<td>SMH7012A</td>
<td>2.00</td>
<td>50.80</td>
<td>94.7</td>
<td>425.5</td>
</tr>
<tr>
<td>SMH7016A</td>
<td>2.50</td>
<td>76.20</td>
<td>126.8</td>
<td>567.0</td>
</tr>
<tr>
<td>SMH8012A</td>
<td>3.00</td>
<td>76.20</td>
<td>158.9</td>
<td>708.0</td>
</tr>
<tr>
<td>SMH8016A</td>
<td>3.50</td>
<td>101.60</td>
<td>191.0</td>
<td>849.0</td>
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<tr>
<td>SMH1012A</td>
<td>4.00</td>
<td>127.00</td>
<td>242.5</td>
<td>1106.6</td>
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</tbody>
</table>

**Die Springs (Gold) – SHD**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DIA</th>
<th>LENGTH (mm)</th>
<th>LOAD AT 30% DEFLEC. (lbf)</th>
<th>LOAD AT 30% DEFLEC. (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHD5012A</td>
<td>1.25</td>
<td>31.75</td>
<td>36.8</td>
<td>165.6</td>
</tr>
<tr>
<td>SHD5016A</td>
<td>1.50</td>
<td>38.10</td>
<td>55.5</td>
<td>249.5</td>
</tr>
<tr>
<td>SHD5020A</td>
<td>1.75</td>
<td>44.45</td>
<td>74.2</td>
<td>333.5</td>
</tr>
<tr>
<td>SHD7012A</td>
<td>2.00</td>
<td>50.80</td>
<td>90.0</td>
<td>404.0</td>
</tr>
<tr>
<td>SHD7016A</td>
<td>2.50</td>
<td>76.20</td>
<td>115.8</td>
<td>523.0</td>
</tr>
<tr>
<td>SHD8012A</td>
<td>3.00</td>
<td>76.20</td>
<td>131.5</td>
<td>598.0</td>
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<tr>
<td>SHD8016A</td>
<td>3.50</td>
<td>101.60</td>
<td>167.2</td>
<td>753.0</td>
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<tr>
<td>SHD1012A</td>
<td>4.00</td>
<td>127.00</td>
<td>223.0</td>
<td>1005.6</td>
</tr>
</tbody>
</table>

The word “RAYMOND” and the gold, red, green and blue color coding of mold and die springs in the heavy duty, medium heavy duty, extra heavy duty and medium duty load ranges, respectively, are registered trademarks of the Barnes Group, Inc.
## Mold Assembly

**Mold and Die Springs Extra Heavy Duty**

(Green) – SEH

Maximum Deflection: 25% of Free Length

Efficient Operating Range: 15% of Free Length

Manufactured by Raymond® from a special rectangular-shaped, round-cornered chromium alloy. Provides higher resistance to shock loads, increased deflection, wider operating temperatures and longer life. Color-coded by work range to simplify selection and specification.

<table>
<thead>
<tr>
<th>Color</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Extra Heavy Duty</td>
<td>Provides high resistance to shock loads, increased deflection, wider operating temperatures and longer life.</td>
</tr>
</tbody>
</table>

### Mold Assembly - Belleville Washers (Disc Springs) – WZ8050

**Rondanas Bellevle | Rondelles Bellevle | Andhas Belvilee | Tellerfedern**

**INFORMATION KEY:**

- D = Outside Diameter
- F = Load Force in Newtons (at specified % Deflections)
- G = Inside Diameter
- H = Overall Height (of one unloaded washer)
- J = Maximum Theoretical Deflection to flat
- S = Deflection (shown for % of Maximum Theoretical Deflection J)
- T = Thickness

**Standard:** DIN 2093

**Material:** DIN 50 CrV 4 (AISI 6150 Type) Steel

**Max. Temp.:** 300°C (572°F)

**DIN 2093**

**Standard:**

- J = Thickness
- H = Overall Height (of one unloaded washer)
- G = Inside Diameter
- D = Outside Diameter

### Belleville Washers (Disc Springs) – METRIC

**Spring Load versus Deflection Data**

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Ø D</th>
<th>Ø G</th>
<th>Ø T</th>
<th>H</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>WZ8050 180</td>
<td>18.0</td>
<td>9.2</td>
<td>1.00</td>
<td>1.40</td>
<td>0.7</td>
</tr>
<tr>
<td>WZ8050 200</td>
<td>20.0</td>
<td>10.2</td>
<td>1.10</td>
<td>1.55</td>
<td>0.9</td>
</tr>
<tr>
<td>WZ8050 250</td>
<td>25.0</td>
<td>12.5</td>
<td>1.25</td>
<td>2.10</td>
<td>1.1</td>
</tr>
<tr>
<td>WZ8050 315</td>
<td>31.5</td>
<td>16.3</td>
<td>1.50</td>
<td>2.90</td>
<td>1.3</td>
</tr>
<tr>
<td>WZ8050 400</td>
<td>40.0</td>
<td>20.4</td>
<td>2.25</td>
<td>4.70</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Load Force in Newtons (at specified % Deflections)**

- F2 = 2 x F1
- F2 = 3 x F1
- F3 = 4 x F1

**Applications**

- Progression Type Application

- Length of deflection
- Federweg
- Veerweg
- Flèche

**Toepassingen**

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Ø D</th>
<th>Ø G</th>
<th>Ø T</th>
<th>H</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>WZ8050 180</td>
<td>18.0</td>
<td>9.2</td>
<td>1.00</td>
<td>1.40</td>
<td>0.7</td>
</tr>
<tr>
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<td>10.2</td>
<td>1.10</td>
<td>1.55</td>
<td>0.9</td>
</tr>
<tr>
<td>WZ8050 250</td>
<td>25.0</td>
<td>12.5</td>
<td>1.25</td>
<td>2.10</td>
<td>1.1</td>
</tr>
<tr>
<td>WZ8050 315</td>
<td>31.5</td>
<td>16.3</td>
<td>1.50</td>
<td>2.90</td>
<td>1.3</td>
</tr>
<tr>
<td>WZ8050 400</td>
<td>40.0</td>
<td>20.4</td>
<td>2.25</td>
<td>4.70</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**How to Order:** Specify Item Number. Omit spaces (spaces are only shown here for easier reading).
**MOLD ASSEMBLY**

**Codipro SEB Swivel Eyebolts**

- Swivels under the load
- Equipped with an automatic position recovery system
- High WLL in all directions
- Optimizes orientation in the direction of the sling
- Standard in Metric and Inch
- Adaptor, centering feature and special thread options available as special order

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>THREAD DIAMETER</th>
<th>DIA (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEBM244T2UP</td>
<td>M24 (x3)</td>
<td>3.40</td>
</tr>
<tr>
<td>SEBM243T8UP</td>
<td>M24 (x3)</td>
<td>3.20</td>
</tr>
<tr>
<td>SEBM20UP</td>
<td>M20 (x2.5)</td>
<td>2.00</td>
</tr>
<tr>
<td>SEBM16UP</td>
<td>M16 (x2)</td>
<td>1.40</td>
</tr>
<tr>
<td>SEBM12UP</td>
<td>M12 (x1.5)</td>
<td>1.00</td>
</tr>
<tr>
<td>SEBM8UP</td>
<td>M8 (x2)</td>
<td>0.40</td>
</tr>
<tr>
<td>SEB48UP</td>
<td>M48 (x5)</td>
<td>15.00</td>
</tr>
<tr>
<td>SEB42UP</td>
<td>M42 (x4.5)</td>
<td>12.00</td>
</tr>
<tr>
<td>SEB36UP</td>
<td>M36 (x4)</td>
<td>9.00</td>
</tr>
<tr>
<td>SEB30UP</td>
<td>M30 (x3.5)</td>
<td>6.00</td>
</tr>
<tr>
<td>SEB27UP</td>
<td>M27 (x3)</td>
<td>4.50</td>
</tr>
<tr>
<td>SEB24UP</td>
<td>M24 (x3)</td>
<td>3.00</td>
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<tr>
<td>SEB22UP</td>
<td>M22 (x2.5)</td>
<td>2.90</td>
</tr>
<tr>
<td>SEB20UP</td>
<td>M20 (x2.5)</td>
<td>2.50</td>
</tr>
<tr>
<td>SEB18UP</td>
<td>M18 (x2.5)</td>
<td>2.30</td>
</tr>
<tr>
<td>SEB14UP</td>
<td>M14 (x2)</td>
<td>1.40</td>
</tr>
<tr>
<td>SEB12UP</td>
<td>M12 (x1.5)</td>
<td>1.00</td>
</tr>
<tr>
<td>SEB8UP</td>
<td>M8 (x2)</td>
<td>0.40</td>
</tr>
<tr>
<td>SEB4UP</td>
<td>M4 (x1.25)</td>
<td>0.20</td>
</tr>
<tr>
<td>SEB1UP</td>
<td>UNC 1/4-20</td>
<td>0.07</td>
</tr>
<tr>
<td>SEB7/8UP</td>
<td>UNC 7/8-11</td>
<td>0.50</td>
</tr>
<tr>
<td>SEB5/8UP</td>
<td>UNC 5/8-11</td>
<td>0.20</td>
</tr>
<tr>
<td>SEB5/16UP</td>
<td>UNC 5/16-11</td>
<td>0.09</td>
</tr>
<tr>
<td>SEB3/8UP</td>
<td>UNC 3/8-16</td>
<td>0.06</td>
</tr>
<tr>
<td>SEB1/2UP</td>
<td>UNC 1/2-13</td>
<td>0.05</td>
</tr>
<tr>
<td>SEB3/4UP</td>
<td>UNC 3/4-10</td>
<td>0.05</td>
</tr>
<tr>
<td>SEB1/4UP</td>
<td>UNC 1/4-7</td>
<td>0.05</td>
</tr>
</tbody>
</table>

**MOLD ASSEMBLY**

**Codipro DSR Double Swivel Rings**

- Swivels under the load
- Designed for loads in rotation with Axial Shackle
- Two ways of tightening: open-ended spanner or allen key
- Axial shackle position
- Standard in Metric and Inch
- Stainless steel, adaptor, centering feature and special thread options available as special order

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>THREAD DIAMETER</th>
<th>DIA (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSRM42UP</td>
<td>M42 (x4.5)</td>
<td>8.50</td>
</tr>
<tr>
<td>DSRM308tUP</td>
<td>M30 (x3.5)</td>
<td>6.70</td>
</tr>
<tr>
<td>DSRM306t3UP</td>
<td>M30 (x3.5)</td>
<td>6.00</td>
</tr>
<tr>
<td>DSRM22UP</td>
<td>M22 (x2.5)</td>
<td>3.50</td>
</tr>
<tr>
<td>DSRM203t2UP</td>
<td>M20 (x2.5)</td>
<td>2.90</td>
</tr>
<tr>
<td>DSRM202t5UP</td>
<td>M20 (x2.5)</td>
<td>2.50</td>
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<tr>
<td>DSRM18UP</td>
<td>M18 (x2.5)</td>
<td>2.30</td>
</tr>
<tr>
<td>DSRM14UP</td>
<td>M14 (x2)</td>
<td>1.40</td>
</tr>
<tr>
<td>DSRM12UP</td>
<td>M12 (x1.75)</td>
<td>1.05</td>
</tr>
<tr>
<td>DSRM10UP</td>
<td>M10 (x1.50)</td>
<td>0.70</td>
</tr>
<tr>
<td>DSRM8UP</td>
<td>M8 (x1.25)</td>
<td>0.40</td>
</tr>
<tr>
<td>DSRM6UP</td>
<td>M6 (x1)</td>
<td>0.15</td>
</tr>
<tr>
<td>DSRM5UP</td>
<td>M5 (x0.8)</td>
<td>0.07</td>
</tr>
<tr>
<td>DSRM4UP</td>
<td>UNC 1/4-20</td>
<td>0.07</td>
</tr>
<tr>
<td>DSRM3UP</td>
<td>UNC 1/2-13</td>
<td>0.05</td>
</tr>
<tr>
<td>DSRM2UP</td>
<td>UNC 3/8-16</td>
<td>0.06</td>
</tr>
<tr>
<td>DSRM1UP</td>
<td>UNC 1/2-13</td>
<td>0.05</td>
</tr>
</tbody>
</table>
**Specially Designed for Lifting and Turning Under Heavy Load**

- Large shackle for easy secure connection directly to crane hook
- Compact and Ergonomic; requires less clearance
- Tightens with allen wrench
- Double articulation allows perfect alignment with the sling
- Standard in Metric and Inch
- Stainless Steel, adaptor and special thread options available as special order

### Double Swivel Shackle

**MOLD ASSEMBLY**

Codipro DSS Double Swivel Shackle

Specially Designed for Lifting and Turning Under Heavy Load

- Stainless Steel, adaptor and special thread options available as special order
- Double articulation allows perfect alignment with the sling
- Standard in Metric and Inch
- Stainless Steel, adaptor and special thread options available as special order

### MOLD ASSEMBLY

Codipro MEGADSS Double Swivel Shackle

Specially Designed for Lifting and Turning Under Heavy Load

- Stainless Steel, adaptor and special thread options available as special order

### PART NUMBER | THREAD (DIAMETER) | SF 5.1 (Wt./lb) | SF 4.1 (Wt./lb) | STANDARD (Lb/in) | TORQUE (in/ft) | S (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | WEIGHT (Kg)
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
DSSM10UP | M10 (6x) | 22.00 | 25.00 | 76 | 600 | 19 | 79 | 38 | 90 | 125 | 91 | 182 | 45 | 11.6
DSSM12UP | M12 (6x) | 22.00 | 25.00 | 76 | 600 | 19 | 79 | 38 | 90 | 125 | 91 | 182 | 45 | 12.0
DSSM13UP | M13 (6x) | 20.00 | 23.00 | 76 | 600 | 19 | 79 | 38 | 90 | 125 | 91 | 182 | 45 | 11.5
DSSM16UP | M16 (6x) | 22.00 | 25.00 | 76 | 600 | 19 | 79 | 38 | 90 | 125 | 91 | 182 | 45 | 11.0
DSSM18UP | M18 (6x) | 22.00 | 25.00 | 76 | 600 | 19 | 79 | 38 | 90 | 125 | 91 | 182 | 45 | 10.8
DSSM20UP | M20 (6x) | 22.00 | 25.00 | 76 | 600 | 19 | 79 | 38 | 90 | 125 | 91 | 182 | 45 | 10.6

### PART NUMBER | THREAD (DIAMETER) | SF 5.1 (Wt./lb) | SF 4.1 (Wt./lb) | STANDARD (Lb/in) | TORQUE (in/ft) | S (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | WEIGHT (Kg)
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
MEGADSS3M8UP | M38 (6x) | 36.00 | 45.00 | 135 | 900 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 46.5
MEGADSS3M9UP | M39 (6x) | 32.00 | 40.00 | 120 | 800 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 44.5
MEGADSS4M8UP | M48 (6x) | 25.00 | 30.10 | 90 | 700 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 43.4
MEGADSS5M7UP | M57 (6x) | 22.00 | 27.00 | 90 | 570 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 42.6
MEGADSS6M7UP | M67 (6x) | 22.00 | 27.00 | 90 | 570 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 41.3
MEGADSS7M6UP | M76 (6x) | 22.00 | 27.00 | 90 | 570 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 40.0
MEGADSS8M6UP | M86 (6x) | 22.00 | 27.00 | 90 | 570 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 38.8

### PART NUMBER | DIAMETER | SF 5.1 (Wt./lb) | SF 4.1 (Wt./lb) | STANDARD (Lb/in) | TORQUE (in/ft) | S (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | WEIGHT (Kg)
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
MEGADSS3M8UP | M38 (6x) | 36.00 | 45.00 | 135 | 900 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 46.5
MEGADSS3M9UP | M39 (6x) | 32.00 | 40.00 | 120 | 800 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 44.5
MEGADSS4M8UP | M48 (6x) | 25.00 | 30.10 | 90 | 700 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 43.4
MEGADSS5M7UP | M57 (6x) | 22.00 | 27.00 | 90 | 570 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 42.6
MEGADSS6M7UP | M67 (6x) | 22.00 | 27.00 | 90 | 570 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 41.3
MEGADSS7M6UP | M76 (6x) | 22.00 | 27.00 | 90 | 570 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 40.0
MEGADSS8M6UP | M86 (6x) | 22.00 | 27.00 | 90 | 570 | 36 | 127 | 64 | 140 | 195 | 143 | 278 | 69 | 38.8
MOLD ASSEMBLY
Codipro DSS Double Swivel Shackle

Specially Designed for Lifting and Turning Loads up to metric 55 tons

- Large eye on the shackle for easy connections
- Compact and Ergonomic base; requires less clearance
- Easy to attach and use
- Individual engraving
- Delivered with a certificate of conformity for each shackle

Drilling and screw specifications
DIN912-12.9

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>QL</th>
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<th>N</th>
<th>USEFUL MM THREAD DEPTH</th>
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<th>THREAD</th>
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MOLD ASSEMBLY
Hoist Rings – INCH

Whether you’re hoisting an 800-pound mold base or a 15,000-pound piece of molding room equipment, DME Hoist Rings can add a margin of performance and convenience to the job at hand. The inherent danger posed by conventional static eyebolts (side-load breakage and hook disengagement) combined with stricter safety regulations make DME Hoist Rings an important addition to any mold shop or molding plant. Unlike eyebolts, these Hoist Rings will not yield to heavy side loads within their rated capacity and can pivot 180° and swivel 360° to compensate for pitch, roll and sway when lifting heavy, unbalanced loads. As with all mechanical devices, regular inspection for wear, and strict adherence to installation and operating guidelines is necessary to prevent failure due to misuse.

- Safer and stronger than conventional eyebolts
- Pivots and swivels to compensate for pitch, roll and sway when lifting heavy or unbalanced loads
- Prevents accidents caused by eyebolt breakage or lifting hook disengagement
- Will not yield to heavy side loads when used in accordance with manufacturer’s instructions
- Manufactured from high-quality alloy steel (certified heat treatment)
- Meets or exceeds MIL-STD-1365 (OR-11) and MIL-STD-209C
- Seven sizes to handle loads from 800 to 15,000 pounds
- Safety factor is 5 times the rated load capacity in any direction

![Diagram showing the application of heavy side loads on conventional eyebolts and Hoist Rings.](image-url)
### Mold Assembly

**Hoist Rings – SHR** (includes bolt and retaining ring)

#### Installation Data

Tap workpiece for hoist ring bolt with axis vertical to mounting surface. Work surface should be flat and smooth to provide full 360° flush seating for the bushing flange. For installation in ferrous materials, the screw should be tightened to the full torque loading recommended in column TL below, ±25% – 0.

(SAFETY NOTE: Some loosening may develop after prolonged service in a permanent installation. It is advisable to periodically retighten the mounting bolt to maintain the specified torque value.) For maximum safety, it is advisable to periodically retighten the mounting bolt to prevent thread engagement to 2 times thread diameter. The use of free fit spacers between the bushing flange and mounting surface is not recommended, as this will reduce the safe load rating on angularly applied loads. Hoist ring must be free to swivel 360° and pivot 180° at all times.

**Material:** Alloy steel (certified heat treatment), black oxide

**Safety Factor:** 5 times rated load in any direction

**Range of Movement:** 5 times rated load in any direction

**Maximum operating temperature:** 200°C (392°F).

---

### Mold Assembly

**Hoist Rings – SHM, SHMR**

Anillos elevadores | Olhais de suspensão articulados | Anneaux de levage articulés | Sicherheitsringschrauben

---

**Features**

- Pounds and swivels to compensate for pitch, roll and sway when lifting heavy or unbalanced loads.
- High-strength alloy steel with minimum tensile strength of 1,250 MPa (125 kg/mm²).
- Certified heat treatment with 100% Magnaflux inspection. Beglaubigte Wärmebehandlung mit 100%iger Magnaflux-Versuch.
- Maximum operating temperature 200°C (392°F).
- Extension factor is 5 times the rated load in any direction.
- Tolerances ± 0.8 mm.
- All bushing flanges are only shown here for easier reading.

**Specifications**

- Number Used with Size E

**Replacement Bolt Kits – SHK**

- **ITEM NUMBER**
- **RAPID LAND CODE**
- **RATED LAND CODE**
- **BUSHING FLANGE**
- **FLANGE THREAD**
- **DIAMETER**
- **BOLT**
- **LENGTH**
- **WEIGHT**

---

**Hoist Ring Assembly Replacement Kit**

**ITEM NUMBER**

**RATED LAND CODE**

**BUSHING FLANGE**

**FLANGE THREAD**

**DIAMETER**

**BOLT**

**LENGTH**

**WEIGHT**

**TL**

**tl**

**NOTES:**

- E = Effective Thread Projection
- * = Recommended torque load + 25% – 0.

---

**Notes**

- TL: couple de serrage + 25% – 0.
- Pl: charge maximale.

**Characteristics**

- E = Effective Thread Projection
- * = Recommended torque load + 25% – 0.

---

**Technical Data**

- Pounds and swivels to compensate for pitch, roll and sway when lifting heavy or unbalanced loads.
- High-strength alloy steel with minimum tensile strength of 1,250 MPa (125 kg/mm²).
- Certified heat treatment with 100% Magnaflux inspection. Beglaubigte Wärmebehandlung mit 100%iger Magnaflux-Versuch.
- Maximum operating temperature 200°C (392°F).
- Extension factor is 5 times the rated load in any direction.

---

**Notes**

- TL: couple de serrage + 25% – 0.
- Pl: charge maximale.
MOLD ASSEMBLY

Forged Eyebolts

- High-quality U.S. forged eye bolts
- Shoulder design
- Shows full engagement
- Huge savings, always in stock!

Material: C1030 steel, forged, heat-treated, quenched and drawn

Tensile strength: 65,000 PSI min.

Yield strength: 50,000 PSI min.

Elongation: 30% min.

Reduction of area: 60% min.

Warning: Rated capacity is substantially reduced when loading at any angle greater than 45° from bolt centerline. At an angle of 45°, rated capacity is reduced to 1/4 of shown rating.

Bunting® MagLift Permanent Magnetic Lifters are powered by blocks of high-energy neodymium magnetic material. Switching is achieved by making one of these blocks reversible. In the “on” position, the reversible block is in parallel with the static blocks so that a concentrated magnetic field is produced at the pole feet for lifting. In the “off” position, the reversible block is rotated through 180° to provide a total magnetic short circuit within the lifter body.
MOLD ASSEMBLY

- **Chain Slings**
  - Sling Hooks & Self Locking Hooks available
  - Grade 100 chain slings tagged with sling type, grade, size and working load limit
  - Tested and CE certified before shipment

**Grade 100 chain slings tagged with sling type,**

**Sling Hooks & Self Locking Hooks available**

**Tested and CE certified before shipment**

---

**DOUBLE Leg Chain Sling with Adjuster & Hooks***

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>SIZE</th>
<th>WLL 60°</th>
<th>WLL 45°</th>
<th>WLL 30°</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>ASOS3X5</td>
<td>3/8&quot;</td>
<td>15,000</td>
<td>12,200</td>
<td>9,100</td>
<td>DOUBLE 3/8&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<tr>
<td>ASOS3X5</td>
<td>1/2&quot;</td>
<td>33,000</td>
<td>27,200</td>
<td>21,000</td>
<td>DOUBLE 1/2&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<tr>
<td>ASOS5X5</td>
<td>3/4&quot;</td>
<td>61,000</td>
<td>49,900</td>
<td>35,300</td>
<td>DOUBLE 3/4&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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**Other lengths and hook types available upon request.**

---

**Triple Leg Chain Sling with Adjuster & Hooks***

<table>
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<tr>
<th>ITEM NUMBER</th>
<th>SIZE</th>
<th>WLL 60°</th>
<th>WLL 45°</th>
<th>WLL 30°</th>
<th>DESCRIPTION</th>
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<tr>
<td>ATOS3X5</td>
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<td>15,000</td>
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<td>TRIPLE 3/8&quot; W/ ADJ &amp; SLING HOOKS</td>
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<td>35,300</td>
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**Other lengths and hook types available upon request.**

---

**Quad Leg Chain Sling with Adjuster & Hooks***

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<th>ITEM NUMBER</th>
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<td>QUAD 3/4&quot; W/ ADJ &amp; SLING HOOKS</td>
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</tbody>
</table>

**Other lengths and hook types available upon request.**

---

**Mold Assembly**

**Lifting Holes**

Lifting Holes can be used to install hoist rings for ease of handling. Mold base can be configured only with Lifting Holes which are appropriate for the specific mold base size. Refer to the preceding pages for a comprehensive selection of hoist rings.

**Lifting Hole Diameters**

<table>
<thead>
<tr>
<th>BASE SIZE</th>
<th>PLATE THICKNESS</th>
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<tr>
<td>0.875</td>
<td>0.800</td>
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**Lifting Holes**

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<th>THREAD SIZE</th>
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<td>1/16&quot;</td>
<td>1.25</td>
<td>1.75</td>
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<tr>
<td>1/8&quot;</td>
<td>1.60</td>
<td>2.88</td>
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</tbody>
</table>

**Plates with lift holes**

- Plates with lift holes
- Quantity in each plate

**Offsets**

<table>
<thead>
<tr>
<th>LH1</th>
<th>LH2</th>
<th>LH3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>X</td>
<td>Z</td>
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</table>

**Note:**

- Only the recommended hole diameters (or larger) shown in the table are offered.
- Safety reasons, only the recommended hole diameters (or larger) shown in the table are offered.
- Plates with lift holes
- Quantity in each plate

*Other lengths and hook types available upon request.*
### MOLD ASSEMBLY

#### Minimum Recommended Additional Assembly SHCS

<table>
<thead>
<tr>
<th>MOLD SIZE</th>
<th>6 PLATE (TONS)</th>
<th>10 PLATE (TONS)</th>
<th>12 PLATE (TONS)</th>
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**NOTES:**

1. Blue color configurations require additional assembly screws.
2. Numbers of additional assembly screws suggested are minimum required.
3. No safety factor considered. The moldmaker is entirely responsible for the chosen configuration.

---

### MOLD ASSEMBLY

#### Minimum Recommended Additional Assembly SHCS

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**NOTES:**

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### MOLD ASSEMBLY

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MOLD ASSEMBLY
MUD Quick-Change™ Components

Customize MUD frames and insert molds with a full range of components

MUD® Quick-Change frames and companion insert mold series are available with a full range of components. These components permit tailoring MUD frames and insert molds to every injection molding machine up to 500 tons. This makes the cost-saving benefits and time-saving advantages of the Master Unit Die Concept available to virtually every mold maker and plastic molder in the industry.

See the MUD Quick-Change Systems catalog for all of the standard parts installed in the MUD basic Quick-Change frames and companion insert molds. U, H and Double H frame components include sprue bushings, locating rings and guide posts. Components for T style and standard style insert molds include leader pins and bushings, ejector plates and ear plates.
DME MOLD COMPONENTS

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Madison Heights, MI 48071
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888.308.4363 (toll-free fax)
dme@milacron.com

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