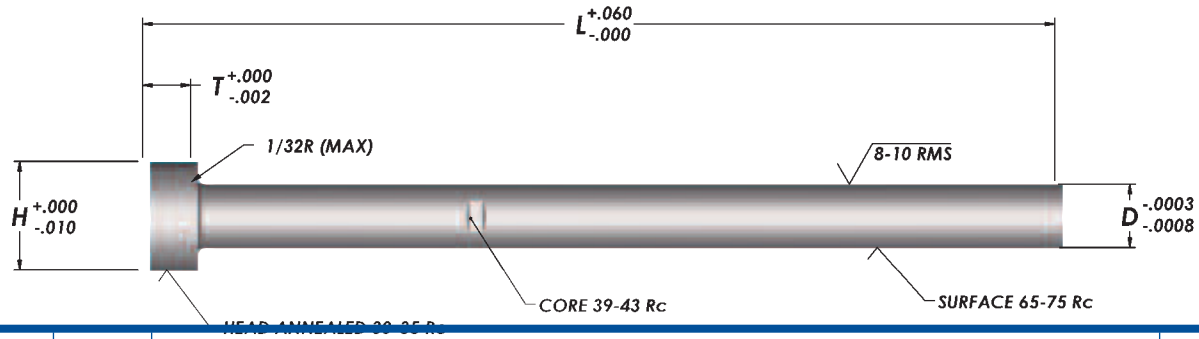


# Ejector Pins

## Nitrided - Parallel Inch



Material • AISI: H13  
• 1.2344



| D     | Cat. No. | L           |             |            |              |             |             |      |        |      |             | H          | T   |            |            |       |      |
|-------|----------|-------------|-------------|------------|--------------|-------------|-------------|------|--------|------|-------------|------------|-----|------------|------------|-------|------|
|       |          | 6"          |             | 10"        |              | 14"         |             | 18"  |        | 25"  |             |            |     | 36"        | 39"        | 45"   | 50"  |
|       |          | STD.        | +0.005      | STD.       | +0.005       | STD.        | +0.005      | STD. | +0.005 | STD. | +0.005      |            |     | STD.       | STD.       |       |      |
| 1/32  | EP03     | <b>L06P</b> | <b>L065</b> |            |              |             |             |      |        |      |             |            |     |            |            | 1/4   | 1/8  |
| 3/64  | EP04     | L06P        | <b>L065</b> |            |              |             |             |      |        |      |             |            |     |            |            | 1/4   | 1/8  |
| 1/16  | EP06     | L06P        |             | L10P       | <b>L10P5</b> |             |             |      |        |      |             |            |     |            |            | 1/4   | 1/8  |
| 5/64  | EP07     | L06P        |             | L10P       | <b>L10P5</b> |             |             |      |        |      |             |            |     |            |            | 1/4   | 1/8  |
| 3/32  | EP09     | L06P        |             | L10P       | <b>L10P5</b> | <b>L14P</b> |             |      |        |      |             |            |     |            |            | 1/4   | 1/8  |
| 7/64  | EP10     | L06P        |             | L10P       | <b>L10P5</b> |             |             |      |        |      |             |            |     |            |            | 1/4   | 1/8  |
| 1/8   | EP12     | L06         |             | L10        | L105         | L14         | L145        | L18  |        | L25  |             |            |     |            |            | 1/4   | 1/8  |
| 9/64  | EP14     |             |             | L10        |              | L14         | <b>L145</b> |      |        |      |             |            |     |            |            | 1/4   | 1/8  |
| 5/32  | EP15     | L06         |             | L10        | L105         | L14         | L145        | L18  |        | L25  |             | <b>L36</b> |     |            |            | 9/32  | 5/32 |
| 11/64 | EP17     |             |             | L10        |              | L14         | <b>L145</b> | L18  |        |      |             |            |     |            |            | 11/32 | 3/16 |
| 3/16  | EP18     | L06         |             | L10        | L105         | L14         | L145        | L18  |        | L25  |             |            | L39 |            |            | 3/8   | 3/16 |
| 13/64 | EP20     |             |             | L10        |              | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 3/8   | 3/16 |
| 7/32  | EP21     | L06         |             | L10        | L105         | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 13/32 | 3/16 |
| 15/64 | EP23     |             |             | L10        |              | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 13/32 | 3/16 |
| 1/4   | EP25     | L06         |             | L10        | L105         | L14         | L145        | L18  | L185   | L25  | <b>L255</b> | L36        | L39 |            |            | 7/16  | 3/16 |
| 17/64 | EP26     |             |             | L10        |              | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 7/16  | 1/4  |
| 9/32  | EP28     | L06         |             | L10        | L105         | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 7/16  | 1/4  |
| 19/64 | EP29     |             |             | L10        |              | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 1/2   | 1/4  |
| 5/16  | EP31     | L06         |             | L10        | L105         | L14         | L145        | L18  | L185   | L25  | L255        | L36        | L39 |            |            | 1/2   | 1/4  |
| 21/64 | EP32     |             |             | L10        |              | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 9/16  | 1/4  |
| 11/32 | EP34     | L06         |             | L10        | L105         | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 9/16  | 1/4  |
| 23/64 | EP35     |             |             | L10        |              | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 5/8   | 1/4  |
| 3/8   | EP37     | L06         |             | L10        | L105         | L14         | L145        | L18  | L185   | L25  | L255        | L36        | L39 |            | <b>L50</b> | 5/8   | 1/4  |
| 25/64 | EP39     |             |             | <b>L10</b> |              | <b>L14</b>  | <b>L145</b> |      |        |      |             |            |     |            |            | 5/8   | 1/4  |
| 13/32 | EP40     | L06         |             | L10        | L105         | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 11/16 | 1/4  |
| 27/64 | EP42     |             |             | <b>L10</b> |              | <b>L14</b>  | <b>L145</b> |      |        |      |             |            |     |            |            | 11/16 | 1/4  |
| 7/16  | EP43     | L06         |             | L10        | L105         | L14         | L145        | L18  |        | L25  |             | L36        | L39 |            |            | 11/16 | 1/4  |
| 29/64 | EP45     |             |             | <b>L10</b> |              | <b>L14</b>  | <b>L145</b> |      |        |      |             |            |     |            |            | 11/16 | 1/4  |
| 15/32 | EP46     | <b>L06</b>  |             | L10        | L105         | L14         | <b>L145</b> | L18  |        | L25  |             |            |     |            |            | 3/4   | 1/4  |
| 31/64 | EP48     |             |             | <b>L10</b> |              | <b>L14</b>  | <b>L145</b> |      |        |      |             |            |     |            |            | 3/4   | 1/4  |
| 1/2   | EP50     | L06         |             | L10        | L105         | L14         | L145        | L18  | L185   | L25  | L255        | L36        | L39 |            | <b>L50</b> | 3/4   | 1/4  |
| 17/32 | EP53     | <b>L06</b>  |             | L10        |              | L14         | <b>L145</b> |      |        |      |             |            |     |            |            | 3/4   | 1/4  |
| 9/16  | EP56     | L06         |             | L10        |              | L14         |             | L18  |        | L25  |             |            |     |            |            | 13/16 | 1/4  |
| 5/8   | EP62     | L06         |             | L10        |              | L14         |             | L18  |        | L25  |             | L36        | L39 |            |            | 7/8   | 1/4  |
| 11/16 | EP68     | <b>L06</b>  |             | L10        |              | L14         |             | L18  |        | L25  |             |            |     |            |            | 15/16 | 1/4  |
| 3/4   | EP75     | L06         |             | L10        |              | L14         |             | L18  |        | L25  |             | L36        | L39 | <b>L45</b> |            | 1     | 1/4  |
| 7/8   | EP87     | <b>L06</b>  |             | L10        |              | L14         |             | L18  |        | L25  |             |            |     |            |            | 1-1/8 | 1/4  |
| 1     | EP100    | L06         |             | L10        |              | L14         |             | L18  |        | L25  |             | L36        | L39 | <b>L45</b> |            | 1-1/4 | 1/4  |

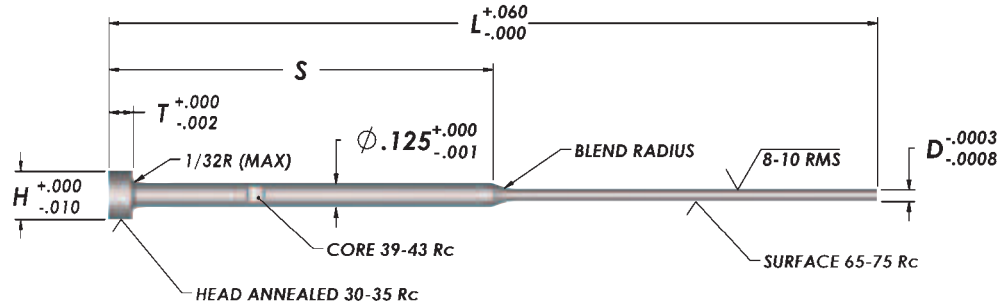
- To order, add overall length "L" to Catalog Number. Example: EP04L06P
- Sizes marked in blue print are available but generally not stocked. Call for price and delivery. Example: EP06L10P
- New Items shown in bold print. Example: EP14L145

# Ejector Pins

## Nitrided - Shoulder Inch



Material • AISI: H13  
• 1.2344



| D    | S    | Cat. No. | L       |                 |               |               |               |               | H   | T   |
|------|------|----------|---------|-----------------|---------------|---------------|---------------|---------------|-----|-----|
|      |      |          | 6"      |                 | 10"           |               | 14"           |               |     |     |
|      |      |          | STD.    | +005            | STD.          | +005          | STD.          | +005          |     |     |
| 1/32 | 1/2  | EP03     | L06-1/2 | <b>L065-1/2</b> |               |               |               |               | 1/4 | 1/8 |
|      | 2    | EP03     | L06-2   |                 | <b>L10-2</b>  | <b>L105-2</b> |               |               |     |     |
| 3/64 | 1/2  | EP04     | L06-1/2 |                 | L10-1/2       | L105-1/2      | L14-1/2       |               | 1/4 | 1/8 |
|      | 2    | EP04     | L06-2   |                 | L10-2         | L105-2        | L14-2         |               |     |     |
|      | 3    | EP04     |         |                 | L10-3         |               |               |               |     |     |
| 1/16 | 4    | EP04     |         |                 | L10-4         | <b>L105-4</b> | <b>L14-4</b>  | <b>L145-4</b> |     |     |
|      | 1/2  | EP06     | L06-1/2 |                 | L10-1/2       | L105-1/2      | L14-1/2       |               | 1/4 | 1/8 |
|      | 2    | EP06     | L06-2   |                 | L10-2         | L105-2        | L14-2         |               |     |     |
|      | 3    | EP06     |         |                 | L10-3         |               |               |               |     |     |
| 4    | EP06 |          |         | L10-4           | <b>L105-4</b> | <b>L14-4</b>  | <b>L145-4</b> |               |     |     |
| 5/64 | 1/2  | EP07     | L06-1/2 |                 | L10-1/2       | L105-1/2      | L14-1/2       |               | 1/4 | 1/8 |
|      | 2    | EP07     | L06-2   |                 | L10-2         | L105-2        | L14-2         |               |     |     |
|      | 3    | EP07     |         |                 | L10-3         |               |               |               |     |     |
|      | 4    | EP07     |         |                 | L10-4         | <b>L105-4</b> | <b>L14-4</b>  | <b>L145-4</b> |     |     |
| 3/32 | 1/2  | EP09     | L06-1/2 |                 | L10-1/2       | L105-1/2      | L14-1/2       |               | 1/4 | 1/8 |
|      | 2    | EP09     | L06-2   |                 | L10-2         | L105-2        | L14-2         |               |     |     |
|      | 3    | EP09     |         |                 | L10-3         |               |               |               |     |     |
|      | 4    | EP09     |         |                 | L10-4         | <b>L105-4</b> | <b>L14-4</b>  | <b>L145-4</b> |     |     |
| 7/64 | 1/2  | EP10     | L06-1/2 |                 | L10-1/2       | L105-1/2      | L14-1/2       |               | 1/4 | 1/8 |
|      | 2    | EP10     | L06-2   |                 | L10-2         | L105-2        | L14-2         |               |     |     |
|      | 4    | EP10     |         |                 | L10-4         | <b>L105-4</b> | <b>L14-4</b>  | <b>L145-4</b> |     |     |

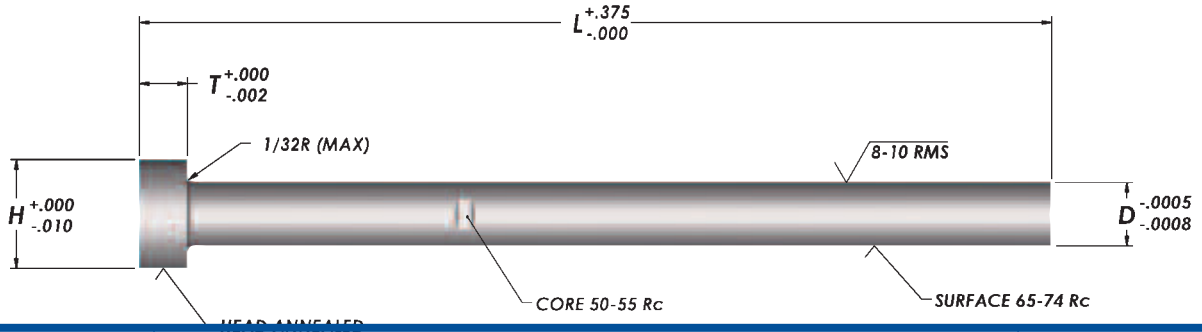
- To order, add overall length "L" to Catalog Number. Example: EP03L06-1/2
- Sizes marked in blue print are available but generally not stocked. Call for price and delivery. Example: EP04L10-3
- New Items shown in bold print. Example: EP03**L065-1/2**

# Ejector Pins

## Through Hard - Parallel Inch



Material • AISI: H13  
• 1.2344



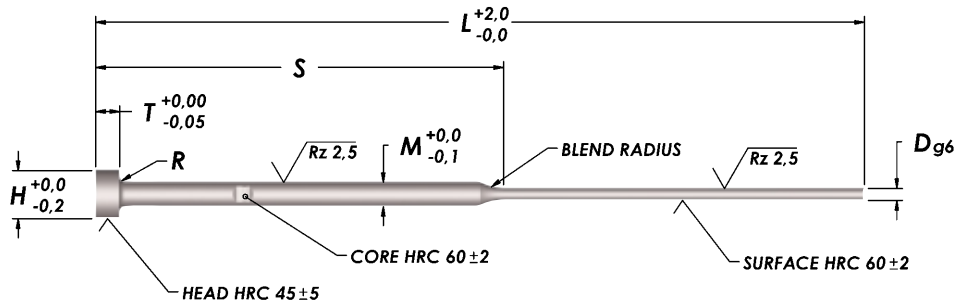
| D     | Cat. No. | L          |             |            |        |            |             |            |       | H    | T |
|-------|----------|------------|-------------|------------|--------|------------|-------------|------------|-------|------|---|
|       |          | 6"         |             | 10"        |        | 14"        |             | 18"        |       |      |   |
|       |          | STD.       | + .005      | STD.       | + .005 | STD.       | + .005      |            |       |      |   |
| 1/32  | RHX-02   | <b>L06</b> | <b>L065</b> |            |        |            |             |            | 1/4   | 1/8  |   |
| 3/64  | RHX-03   | L06        | <b>L065</b> |            |        |            |             |            | 1/4   | 1/8  |   |
| 1/16  | RHX-05   | L06        |             | L10        | L105   |            |             |            | 1/4   | 1/8  |   |
| 5/64  | RHX-06   | L06        |             | L10        | L105   |            |             |            | 1/4   | 1/8  |   |
| 3/32  | RHX-07   | L06        |             | L10        | L105   |            |             |            | 1/4   | 1/8  |   |
| 7/64  | RHX-08   | L06        |             | L10        | L105   |            |             |            | 1/4   | 1/8  |   |
| 1/8   | RHX-09   | L06        |             | L10        | L105   | L14        | L145        |            | 1/4   | 1/8  |   |
| 9/64  | RHX-10   | L06        |             | L10        | L105   | L14        | <b>L145</b> |            | 1/4   | 1/8  |   |
| 5/32  | RHX-11   | L06        |             | L10        | L105   | L14        | L145        |            | 9/32  | 5/32 |   |
| 11/64 | RHX-12   | L06        |             | L10        | L105   | L14        | <b>L145</b> |            | 11/32 | 3/16 |   |
| 3/16  | RHX-13   | L06        |             | L10        | L105   | L14        | L145        |            | 3/8   | 3/16 |   |
| 13/64 | RHX-14   | L06        |             | L10        |        | L14        | <b>L145</b> |            | 3/8   | 3/16 |   |
| 7/32  | RHX-15   | L06        |             | L10        | L105   | L14        | <b>L145</b> |            | 13/32 | 3/16 |   |
| 15/64 | RHX-16   | L06        |             | L10        |        | L14        | <b>L145</b> |            | 13/32 | 3/16 |   |
| 1/4   | RHX-17   | L06        |             | L10        | L105   | L14        | L145        | <b>L18</b> | 7/16  | 3/16 |   |
| 17/64 | RHX-18   | L06        |             | L10        |        | L14        | <b>L145</b> |            | 7/16  | 1/4  |   |
| 9/32  | RHX-19   | L06        |             | L10        | L105   | L14        | <b>L145</b> |            | 7/16  | 1/4  |   |
| 19/64 | RHX-20   | L06        |             | L10        |        | L14        | <b>L145</b> |            | 1/2   | 1/4  |   |
| 5/16  | RHX-21   | L06        |             | L10        | L105   | L14        | L145        | <b>L18</b> | 1/2   | 1/4  |   |
| 21/64 | RHX-22   | L06        |             | L10        |        | L14        | <b>L145</b> |            | 9/16  | 1/4  |   |
| 11/32 | RHX-23   | L06        |             | L10        | L105   | L14        | <b>L145</b> |            | 9/16  | 1/4  |   |
| 23/64 | RHX-24   | L06        |             | L10        |        | L14        | <b>L145</b> |            | 5/8   | 1/4  |   |
| 3/8   | RHX-25   | L06        |             | L10        | L105   | L14        | L145        | <b>L18</b> | 5/8   | 1/4  |   |
| 25/64 | RHX-26   | L06        |             | L10        |        | <b>L14</b> | <b>L145</b> |            | 37/64 | 1/4  |   |
| 13/32 | RHX-27   | L06        |             | L10        | L105   | L14        | <b>L145</b> |            | 11/16 | 1/4  |   |
| 27/64 | RHX-28   | L06        |             | L10        |        | <b>L14</b> | <b>L145</b> |            | 11/16 | 1/4  |   |
| 7/16  | RHX-29   | L06        |             | L10        | L105   | L14        | L145        |            | 11/16 | 1/4  |   |
| 29/64 | RHX-30   | L06        |             | L10        |        | <b>L14</b> | <b>L145</b> |            | 45/64 | 1/4  |   |
| 15/32 | RHX-31   | L06        |             | L10        | L105   | L14        | <b>L145</b> |            | 3/4   | 1/4  |   |
| 31/64 | RHX-32   | L06        |             | L10        |        | <b>L14</b> | <b>L145</b> |            | 3/4   | 1/4  |   |
| 1/2   | RHX-33   | L06        |             | L10        | L105   | L14        | L145        | <b>L18</b> | 3/4   | 1/4  |   |
| 17/32 | RHX-34   | <b>L06</b> |             | <b>L10</b> |        | <b>L14</b> |             |            | 3/4   | 1/4  |   |
| 9/16  | RHX-35   | <b>L06</b> |             | <b>L10</b> |        | <b>L14</b> |             |            | 13/16 | 1/4  |   |
| 5/8   | RHX-37   | <b>L06</b> |             | <b>L10</b> |        | <b>L14</b> |             | <b>L18</b> | 7/8   | 1/4  |   |
| 11/16 | RHX-39   | <b>L06</b> |             | <b>L10</b> |        | <b>L14</b> |             |            | 15/16 | 1/4  |   |
| 3/4   | RHX-41   | <b>L06</b> |             | <b>L10</b> |        | <b>L14</b> |             | <b>L18</b> | 1     | 1/4  |   |
| 7/8   | RHX-45   | <b>L06</b> |             | <b>L10</b> |        | <b>L14</b> |             |            | 1-1/8 | 1/4  |   |
| 1     | RHX-47   | <b>L06</b> |             | <b>L10</b> |        | <b>L14</b> |             | <b>L18</b> | 1-1/4 | 1/4  |   |

- To order, add overall length "L" to Catalog Number. Example: RHX-03L06
- New Items shown in **bold** print. Example: RHX-03**L065**

# Ejector Pins

## Through Hard - Shoulder Metric

Material • AISI: ~01  
• 1.2516



| D   | Cat. No. | L    |      |      |      |      | M | H | T | R   |
|-----|----------|------|------|------|------|------|---|---|---|-----|
|     |          | 80   | 100  | 125  | 160  | 200  |   |   |   |     |
|     |          | S=35 | S=50 | S=50 | S=63 | S=80 |   |   |   |     |
| 0,8 | CH-0,8   | 080  | 100  | 125  | 160  | 200  | 2 | 4 | 2 | 0,2 |
| 0,9 | CH-0,9   |      | 100  | 125  | 160  | 200  | 2 | 4 | 2 | 0,2 |
| 1,0 | CH-1,0   | 080  | 100  | 125  | 160  | 200  | 2 | 4 | 2 | 0,2 |
| 1,1 | CH-1,1   |      | 100  | 125  | 160  | 200  | 2 | 4 | 2 | 0,2 |
| 1,2 | CH-1,2   | 080  | 100  | 125  | 160  | 200  | 2 | 4 | 2 | 0,2 |
| 1,3 | CH-1,3   | 080  | 100  | 125  | 160  | 200  | 2 | 4 | 2 | 0,2 |
| 1,4 | CH-1,4   |      | 100  | 125  | 160  | 200  | 2 | 4 | 2 | 0,2 |
| 1,5 | CH-1,5   | 080  | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 1,6 | CH-1,6   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 1,7 | CH-1,7   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 1,8 | CH-1,8   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 1,9 | CH-1,9   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 2,0 | CH-2,0   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 2,1 | CH-2,1   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 2,2 | CH-2,2   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 2,3 | CH-2,3   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 2,4 | CH-2,4   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |
| 2,5 | CH-2,5   |      | 100  | 125  | 160  | 200  | 3 | 6 | 3 | 0,3 |

• To order, add overall length "L" to Catalog Number. Example: CH-0,8L080

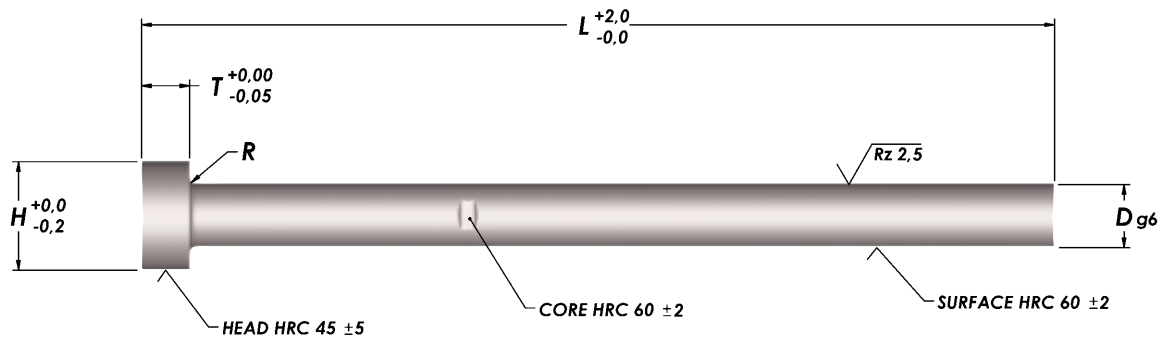
| Nominal Size |      | g6             |       |
|--------------|------|----------------|-------|
| Over         | To   | Tolerance (mm) |       |
| 0mm          | 3mm  | -,002          | -,008 |
| 3mm          | 6mm  | -,004          | -,012 |
| 6mm          | 10mm | -,005          | -,014 |
| 10mm         | 18mm | -,006          | -,017 |
| 18mm         | 30mm | -,007          | -,020 |



# Ejector Pins

## Through Hard - Parallel Metric

- Material • <math>\le 3\text{Ø}</math> : AISI L2 (1.2344)
- >3Ø : AISI ~01 (1.2516)



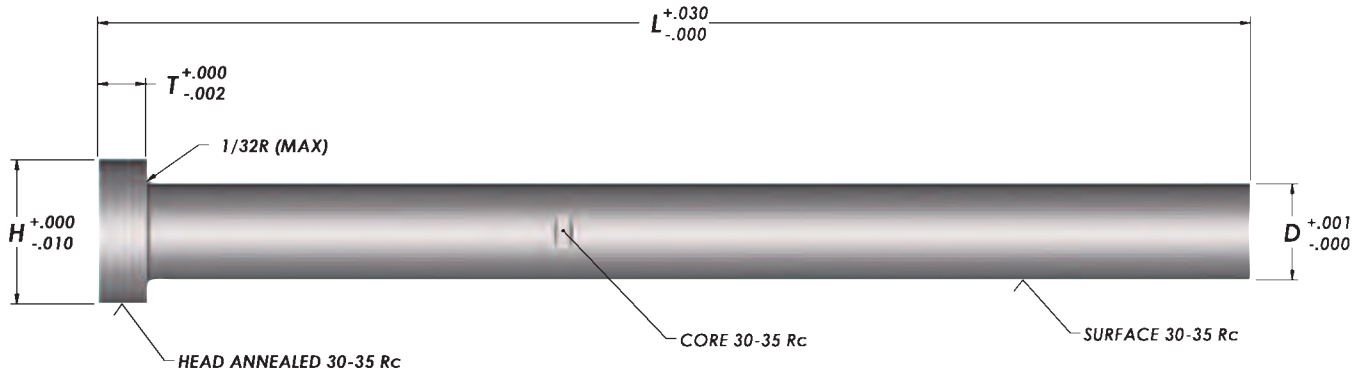
| D    | Cat. No. | L   |     |     |     |     |     |     |     |     |     | H  | T   | R   |
|------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|
|      |          | 40  | 63  | 80  | 100 | 125 | 160 | 200 | 250 | 315 | 400 |    |     |     |
| 1,5  | AH-01,5  |     |     |     | 100 | 125 | 160 | 200 | 250 |     |     | 3  | 1,5 | 0,2 |
| 1,6  | AH-01,6  |     |     |     | 100 | 125 | 160 | 200 |     |     |     | 3  | 1,5 | 0,2 |
| 2,0  | AH-02,0  | 040 | 063 | 080 | 100 | 125 | 160 | 200 | 250 |     |     | 4  | 2,0 | 0,2 |
| 2,2  | AH-02,2  |     |     |     | 100 | 125 | 160 | 200 |     |     |     | 4  | 2,0 | 0,2 |
| 2,5  | AH-02,5  |     |     |     | 100 | 125 | 160 | 200 | 250 |     |     | 5  | 2,0 | 0,3 |
| 2,7  | AH-02,7  |     |     |     | 100 | 125 | 160 | 200 | 250 |     |     | 5  | 2,0 | 0,3 |
| 3,0  | AH-03,0  | 040 | 063 | 080 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 6  | 3,0 | 0,3 |
| 3,2  | AH-03,2  |     |     |     | 100 | 125 | 160 | 200 | 250 |     |     | 6  | 3,0 | 0,3 |
| 3,5  | AH-03,5  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 7  | 3,0 | 0,3 |
| 3,7  | AH-03,7  |     |     |     | 100 | 125 | 160 | 200 | 250 |     |     | 7  | 3,0 | 0,3 |
| 4,0  | AH-04,0  | 040 | 063 | 080 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 8  | 3,0 | 0,3 |
| 4,2  | AH-04,2  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 8  | 3,0 | 0,3 |
| 4,5  | AH-04,5  |     |     |     | 100 | 125 | 160 | 200 | 250 |     |     | 8  | 3,0 | 0,3 |
| 4,7  | AH-04,7  |     |     |     | 100 |     |     | 200 |     |     |     | 8  | 3,0 | 0,3 |
| 5,0  | AH-05,0  | 040 | 063 | 080 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 10 | 3,0 | 0,3 |
| 5,2  | AH-05,2  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 10 | 3,0 | 0,3 |
| 5,5  | AH-05,5  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 |     | 10 | 3,0 | 0,3 |
| 6,0  | AH-06,0  | 040 | 063 | 080 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 12 | 5,0 | 0,5 |
| 6,2  | AH-06,2  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 12 | 5,0 | 0,5 |
| 6,5  | AH-06,5  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 |     | 12 | 5,0 | 0,5 |
| 7,0  | AH-07,0  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 12 | 5,0 | 0,5 |
| 8,0  | AH-08,0  |     | 063 | 080 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 14 | 5,0 | 0,5 |
| 8,2  | AH-08,2  |     |     | 080 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 14 | 5,0 | 0,5 |
| 8,5  | AH-08,5  |     |     |     | 100 |     | 160 | 200 | 250 | 315 |     | 14 | 5,0 | 0,5 |
| 9,0  | AH-09,0  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 |     | 14 | 5,0 | 0,5 |
| 10,0 | AH-10,0  |     |     | 080 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 16 | 5,0 | 0,5 |
| 10,2 | AH-10,2  |     |     |     |     | 125 | 160 | 200 | 250 | 315 | 400 | 16 | 5,0 | 0,5 |
| 10,5 | AH-10,5  |     |     |     | 100 | 125 |     | 200 |     | 315 | 400 | 16 | 5,0 | 0,5 |
| 11,0 | AH-11,0  |     |     |     |     |     | 160 | 200 | 250 | 315 |     | 16 | 5,0 | 0,5 |
| 12,0 | AH-12,0  |     |     | 080 | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 18 | 7,0 | 0,8 |
| 12,2 | AH-12,2  |     |     |     |     |     | 160 | 200 | 250 | 315 |     | 18 | 7,0 | 0,8 |
| 12,5 | AH-12,5  |     |     |     |     |     | 160 | 200 | 250 |     |     | 18 | 7,0 | 0,8 |
| 14,0 | AH-14,0  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 22 | 7,0 | 0,8 |
| 16,0 | AH-16,0  |     |     |     | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 22 | 7,0 | 0,8 |
| 18,0 | AH-18,0  |     |     |     |     |     | 160 | 200 | 250 | 315 | 400 | 24 | 7,0 | 0,8 |
| 20,0 | AH-20,0  |     |     |     |     |     | 160 | 200 | 250 | 315 | 400 | 26 | 8,0 | 1,0 |

• To order, add overall length "L" to Catalog Number. Example: AH-01,5L100

# Core Pins

## Standard Hardness (Soft)

Material • AISI: H13  
• 1.2344



| D     | Cat. No. | L   |     |     |     | H     | T    |
|-------|----------|-----|-----|-----|-----|-------|------|
|       |          | 3"  | 6"  | 10" | 14" |       |      |
| 3/32  | CPS09    | L03 | L06 | L10 |     | 1/4   | 1/8  |
| 7/64  | CPS10    | L03 | L06 | L10 |     | 1/4   | 1/8  |
| 1/8   | CPS12    | L03 | L06 | L10 | L14 | 1/4   | 1/8  |
| 9/64  | CPS14    | L03 | L06 | L10 | L14 | 1/4   | 1/8  |
| 5/32  | CPS15    | L03 | L06 | L10 | L14 | 9/32  | 5/32 |
| 11/64 | CPS17    | L03 | L06 | L10 | L14 | 11/32 | 3/16 |
| 3/16  | CPS18    | L03 | L06 | L10 | L14 | 3/8   | 3/16 |
| 13/64 | CPS20    | L03 | L06 | L10 | L14 | 3/8   | 3/16 |
| 7/32  | CPS21    | L03 | L06 | L10 | L14 | 13/32 | 3/16 |
| 1/4   | CPS25    | L03 | L06 | L10 | L14 | 7/16  | 3/16 |
| 9/32  | CPS28    | L03 | L06 | L10 | L14 | 7/16  | 1/4  |
| 5/16  | CPS31    | L03 | L06 | L10 | L14 | 1/2   | 1/4  |
| 11/32 | CPS34    | L03 | L06 | L10 | L14 | 9/16  | 1/4  |
| 3/8   | CPS37    | L03 | L06 | L10 | L14 | 5/8   | 1/4  |
| 13/32 | CPS40    | L03 | L06 | L10 | L14 | 11/16 | 1/4  |
| 7/16  | CPS43    | L03 | L06 | L10 | L14 | 11/16 | 1/4  |
| 15/32 | CPS46    | L03 | L06 | L10 | L14 | 3/4   | 1/4  |
| 1/2   | CPS50    | L03 | L06 | L10 | L14 | 3/4   | 1/4  |
| 9/16  | CPS56    |     | L06 | L10 | L14 | 13/16 | 1/4  |
| 5/8   | CPS62    |     | L06 | L10 | L14 | 7/8   | 1/4  |
| 3/4   | CPS75    |     | L06 | L10 | L14 | 1     | 1/4  |
| 7/8   | CPS87    |     | L06 | L10 | L14 | 1-1/8 | 1/4  |
| 1"    | CPS100   |     | L06 | L10 | L14 | 1-1/4 | 1/4  |

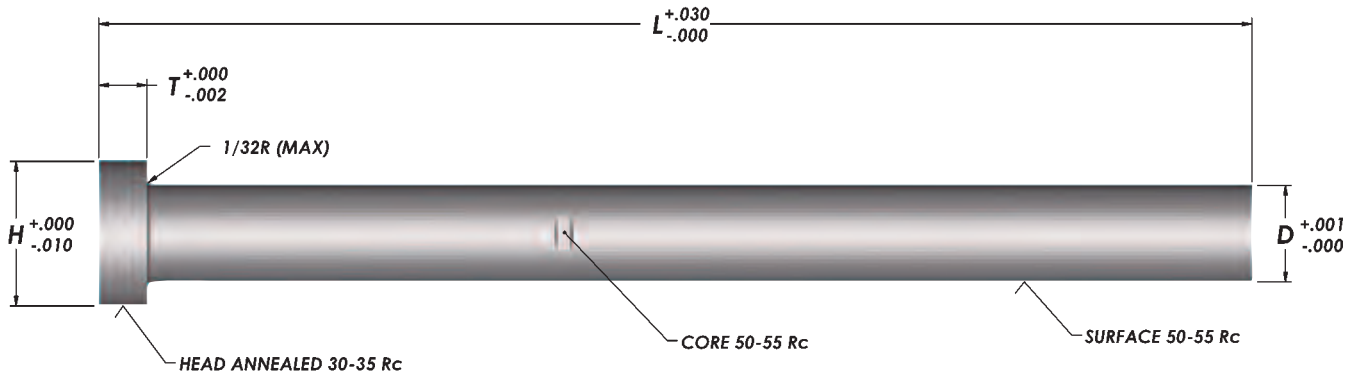
To order, add overall length L to Catalog Number. Example: CPH09L03

# Core Pins

## High Hardness (Hard)



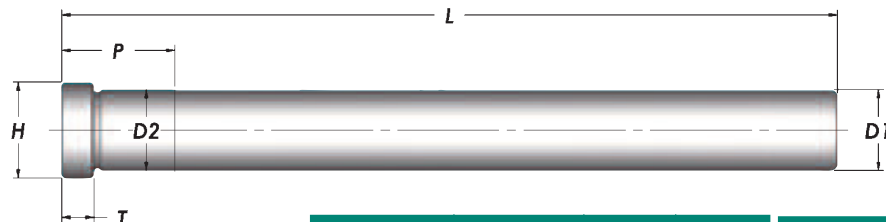
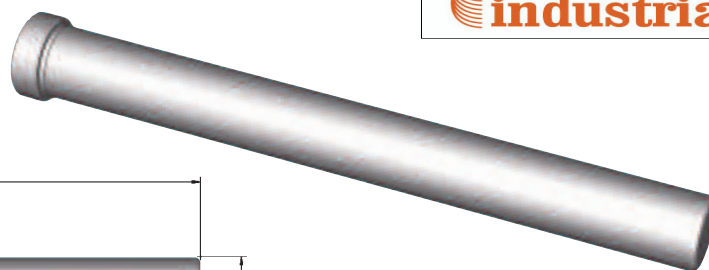
Material • AISI: H13  
• 1.2344



| D     | Cat. No. | L   |     |     |     | H     | T    |
|-------|----------|-----|-----|-----|-----|-------|------|
|       |          | 3"  | 6"  | 10" | 14" |       |      |
| 3/32  | CPH09    | L03 | L06 | L10 |     | 1/4   | 1/8  |
| 7/64  | CPH10    | L03 | L06 | L10 |     | 1/4   | 1/8  |
| 1/8   | CPH12    | L03 | L06 | L10 | L14 | 1/4   | 1/8  |
| 9/64  | CPH14    | L03 | L06 | L10 | L14 | 1/4   | 1/8  |
| 5/32  | CPH15    | L03 | L06 | L10 | L14 | 9/32  | 5/32 |
| 11/64 | CPH17    | L03 | L06 | L10 | L14 | 11/32 | 3/16 |
| 3/16  | CPH18    | L03 | L06 | L10 | L14 | 3/8   | 3/16 |
| 13/64 | CPH20    | L03 | L06 | L10 | L14 | 3/8   | 3/16 |
| 7/32  | CPH21    | L03 | L06 | L10 | L14 | 13/32 | 3/16 |
| 1/4   | CPH25    | L03 | L06 | L10 | L14 | 7/16  | 3/16 |
| 9/32  | CPH28    | L03 | L06 | L10 | L14 | 7/16  | 1/4  |
| 5/16  | CPH31    | L03 | L06 | L10 | L14 | 1/2   | 1/4  |
| 11/32 | CPH34    | L03 | L06 | L10 | L14 | 9/16  | 1/4  |
| 3/8   | CPH37    | L03 | L06 | L10 | L14 | 5/8   | 1/4  |
| 13/32 | CPH40    | L03 | L06 | L10 | L14 | 11/16 | 1/4  |
| 7/16  | CPH43    | L03 | L06 | L10 | L14 | 11/16 | 1/4  |
| 15/32 | CPH46    | L03 | L06 | L10 | L14 | 3/4   | 1/4  |
| 1/2   | CPH50    | L03 | L06 | L10 | L14 | 3/4   | 1/4  |
| 9/16  | CPH56    |     | L06 | L10 | L14 | 13/16 | 1/4  |
| 5/8   | CPH62    |     | L06 | L10 | L14 | 7/8   | 1/4  |
| 3/4   | CPH75    |     | L06 | L10 | L14 | 1     | 1/4  |
| 7/8   | CPH87    |     | L06 | L10 | L14 | 1-1/8 | 1/4  |
| 1"    | CPH100   |     | L06 | L10 | L14 | 1-1/4 | 1/4  |

To order, add overall length L to Catalog Number. Example: CPH09L03

# Angle Pins



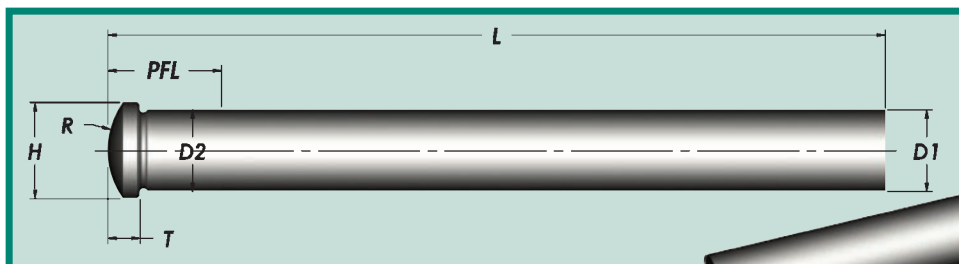
- Manufactured from H-13 steel.
- Surface hardness 65-80 Rc.
- Core hardness 35-40 Rc.
- Ground, nitrided and polished.

| Catalog Number | Diameter | L<br>+.12<br>-.00 | PFL<br>+.000<br>-.062 |
|----------------|----------|-------------------|-----------------------|
| AP37L06        | 3/8      | 6"                | 7/8                   |
| AP37L10        | 3/8      | 10"               | 1-3/8                 |
| AP50L06        | 1/2      | 6"                | 7/8                   |
| AP50L10        | 1/2      | 10"               | 1-3/8                 |
| AP62L06        | 5/8      | 6"                | 7/8                   |
| AP62L10        | 5/8      | 10"               | 1-3/8                 |
| AP75L10        | 3/4      | 10"               | 1-3/8                 |

| Nominal Diameter | D1<br>+.0000<br>-.0005 | D2<br>+.0005<br>-.0000 | H<br>+.000<br>-.010 | T<br>+.000<br>-.005 |
|------------------|------------------------|------------------------|---------------------|---------------------|
| 3/8              | .374                   | .376                   | .49                 | .25                 |
| 1/2              | .499                   | .501                   | .61                 | .25                 |
| 5/8              | .624                   | .626                   | .74                 | .25                 |
| 3/4              | .749                   | .751                   | .86                 | .25                 |

## Angle Pins

### With Radiused Heads



- Manufactured from H-13 steel.
- Surface hardness 65-64 Rc.
- Core hardness 35-40 Rc.
- Ground, nitrided and polished.

| Catalog Number | Diameter<br>+.0000<br>-.0005 | L<br>+.50<br>-.00 | H<br>+.000<br>-.010 | T<br>+.000<br>-.005 | D2<br>+.0000<br>-.0005 | PFL<br>+.00<br>-.06 | R<br>SPH<br>RAD |
|----------------|------------------------------|-------------------|---------------------|---------------------|------------------------|---------------------|-----------------|
| RAP37L06       | .3740                        | 6"                | .500                | .250                | .3765                  | 7/8                 | .375            |
| RAP37L10       | .3740                        | 10"               | .500                | .250                | .3765                  | 1-3/8               | .375            |
| RAP50L06       | .4990                        | 6"                | .625                | .250                | .5015                  | 7/8                 | .500            |
| RAP50L10       | .4990                        | 10"               | .625                | .250                | .5015                  | 1-3/8               | .500            |
| RAP62L06       | .6240                        | 6"                | .750                | .250                | .6265                  | 7/8                 | .625            |
| RAP62L10       | .6240                        | 10"               | .750                | .250                | .6265                  | 1-3/8               | .625            |
| RAP75L10       | .7490                        | 10"               | .875                | .312                | .7515                  | 1-3/8               | .750            |
| RAP75L14       | .7490                        | 14"               | .875                | .312                | .7515                  | 1-3/8               | .750            |
| RAP100L10      | .9990                        | 10"               | 1.125               | .312                | 1.0015                 | 1-3/8               | 1.00            |
| RAP100L14      | .9990                        | 14"               | 1.125               | .312                | 1.0015                 | 1-3/8               | 1.00            |

### Machining Dimensions For Installation

| Pin "A" Diameter | Angle | C'bore Depth "C" | C'bore Dia. "D" |
|------------------|-------|------------------|-----------------|
| .3765            | 10°   | .256             | .562            |
|                  | 15°   | .264             | .562            |
|                  | 20°   | .275             | .562            |
|                  | 25°   | .291             | .562            |
| .5015            | 10°   | .258             | .688            |
|                  | 15°   | .268             | .688            |
|                  | 20°   | .283             | .688            |
|                  | 25°   | .304             | .688            |
| .6265            | 10°   | .260             | .812            |
|                  | 15°   | .273             | .812            |
|                  | 20°   | .291             | .812            |
|                  | 25°   | .316             | .812            |
| .7515            | 10°   | .324             | .938            |
|                  | 15°   | .339             | .938            |
|                  | 20°   | .361             | .938            |
|                  | 25°   | .389             | .938            |
| 1.015            | 10°   | .328             | 1.188           |
|                  | 15°   | .348             | 1.188           |
|                  | 20°   | .377             | 1.188           |
|                  | 25°   | .415             | 1.188           |

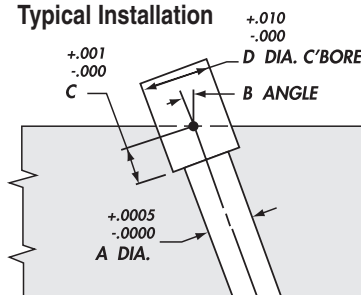
These pins are supplied with a spherical radius premachined on the head, which eliminates angle grinding usually required on the head.

To install on a specific angle, use the chart to determine counterbore depth.

#### Installation Notes:

Cut angle pin to length as required to obtain required travel on the slide. The angle pin works on angle in clearance hole in slide to push the slide and create travel.

#### Typical Installation

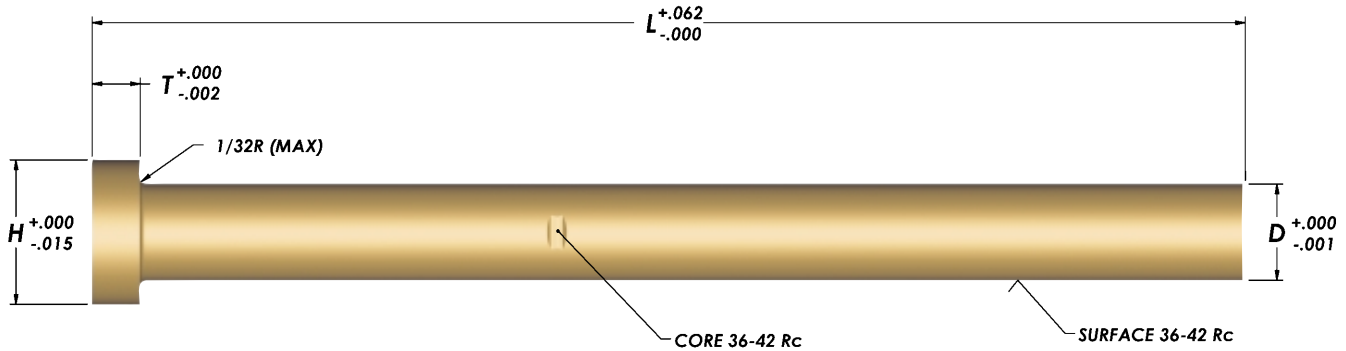


Note: "A" Dimension specified will provide approximately .001" clearance

# Core Pins



**moldMAX<sup>®</sup>**  
Inch



| D    | Cat. No. | L   |     |     |     | H     | T    |
|------|----------|-----|-----|-----|-----|-------|------|
|      |          | 4"  | 8"  | 12" | 18" |       |      |
| 1/8  | MM12     | L04 | L08 | L12 |     | 1/4   | 1/8  |
| 5/32 | MM15     | L04 | L08 | L12 | L18 | 9/32  | 5/32 |
| 3/16 | MM18     | L04 | L08 | L12 | L18 | 3/8   | 3/16 |
| 7/32 | MM21     | L04 | L08 | L12 | L18 | 13/32 | 3/16 |
| 1/4  | MM25     | L04 | L08 | L12 | L18 | 7/16  | 3/16 |
| 9/32 | MM28     | L04 | L08 | L12 | L18 | 7/16  | 1/4  |
| 5/16 | MM31     | L04 | L08 | L12 | L18 | 1/2   | 1/4  |
| 3/8  | MM37     | L04 | L08 | L12 | L18 | 5/8   | 1/4  |
| 7/16 | MM43     | L04 | L08 | L12 | L18 | 11/16 | 1/4  |
| 1/2  | MM50     | L04 | L08 | L12 | L18 | 3/4   | 1/4  |
| 9/16 | MM56     | L04 | L08 | L12 | L18 | 13/16 | 1/4  |
| 5/8  | MM62     | L04 | L08 | L12 | L18 | 7/8   | 1/4  |
| 3/4  | MM75     | L04 | L08 | L12 | L18 | 1     | 1/4  |

Moldmax<sup>®</sup> Pins from DMS offer the highest combination of thermal conductivity and strength available. Made from prehardened Moldmax<sup>®</sup> copper alloy, our pins are 3 times stronger than competing copper alloy pins, and have thermal conductivity 3-5 times greater than steel pins.

The high strength provides longer life, resistance to abrasion and ease of machining.

The high thermal conductivity provides faster heat removal from critical areas, reducing molded part cost and post-mold shrinkage. The high-copper alloy provides excellent corrosion resistance and inherent lubricity and galling resistance.

Custom sizes are available.

• To order, add overall length "L" to Catalog Number. Example: MM12L04

**moldMAX<sup>®</sup>** is a registered trademark of Brush Wellman Inc.

**BRUSHWELLMAN**  
ENGINEERED MATERIALS

#### SAFE HANDLING

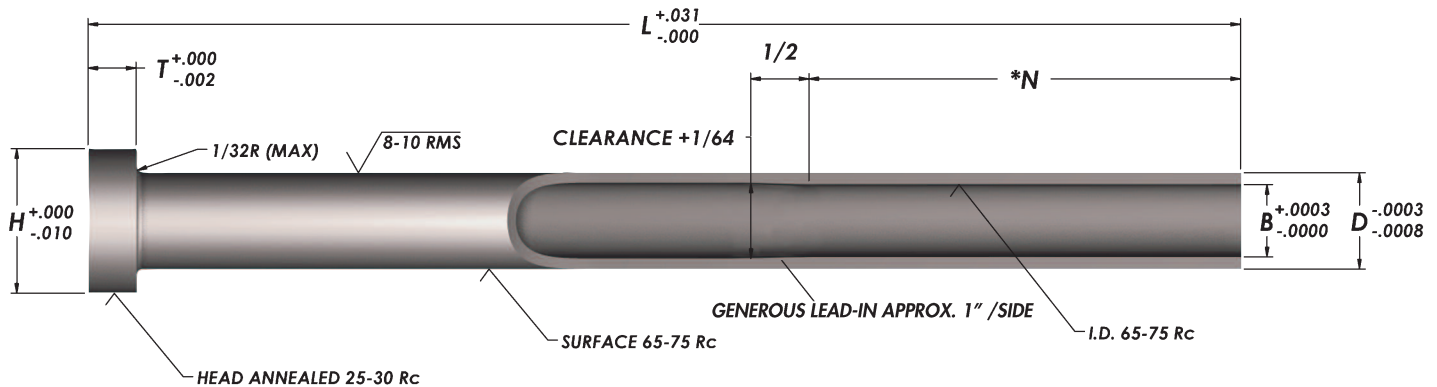
Moldmax<sup>®</sup> in solid form poses no special health risk. Like many industrial materials, beryllium-containing materials may pose a health risk if recommended safe handling practices are not followed. Inhalation of airborne beryllium may cause a serious lung disorder in susceptible individuals. The Occupational Safety and Health Administration (OSHA) has set mandatory limits on occupational respiratory exposures. For additional information on safe handling practices or technical data on Moldmax<sup>®</sup>, contact the Customer Service Department of Brush Wellman Inc. in Cleveland, Ohio at 1-800-862-4118. MSDS sheets are available upon request.

# Ejector Sleeves



## Nitrided - Parallel Inch

Material • AISI: H13  
 • 1.2344  
 Nitrided • I.D. & O.D.



| B<br>I.D. | D<br>O.D. | Cat.<br>No. | L   |     |     |     |     |     |     |     |     |     |     |     | H     | T    |
|-----------|-----------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|------|
|           |           |             | 3"  | 4"  | 5"  | 6"  | 7"  | 8"  | 9"  | 10" | 11" | 12" | 13" | 14" |       |      |
| 3/32      | 3/16      | SE02        | L03 | L04 | L05 | L06 | L07 | L08 |     |     |     |     |     |     | 3/8   | 3/16 |
| 1/8       | 7/32      | SE03        | L03 | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 13/32 | 3/16 |
| 5/32      | 1/4       | SE04        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 7/16  | 3/16 |
| 3/16      | 5/16      | SE05        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 1/2   | 1/4  |
| 7/32      | 11/32     | SE55        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 9/16  | 1/4  |
| 1/4       | 3/8       | SE06        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 5/8   | 1/4  |
| 5/16      | 7/16      | SE07        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 11/16 | 1/4  |
| 3/8       | 1/2       | SE08        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 3/4   | 1/4  |
| 7/16      | 5/8       | SE09        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 7/8   | 1/4  |
| 1/2       | 11/16     | SE10        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 15/16 | 1/4  |
| 9/16      | 3/4       | SE11        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 1     | 1/4  |
| 5/8       | 7/8       | SE12        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 1-1/8 | 1/4  |
| 3/4       | 1         | SE13        |     | L04 | L05 | L06 | L07 | L08 | L09 | L10 | L11 | L12 | L13 | L14 | 1-1/4 | 1/4  |

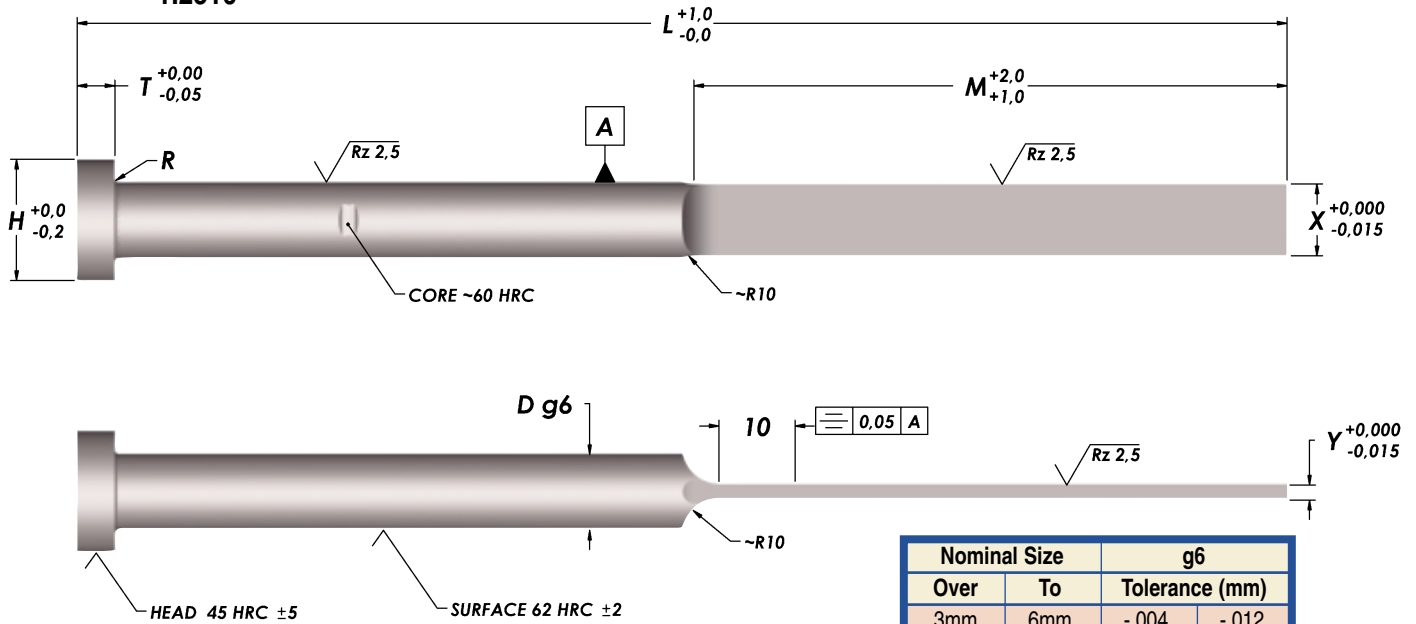
- To order, add overall length "L" to Catalog Number. Example: SE02L03
- Sizes marked in blue print are available but generally not stocked. Call for price and delivery. Example: SE02L08
- \* (N) = 1-3/4 for SE02 and SE03
- \* (N) = 2-1/4 for SE04 and larger

# Ejector Blades

## Through Hard Metric



Material • AISI: ~01  
• 1.2516



| Nominal Size |      | g6             |       |
|--------------|------|----------------|-------|
| Over         | To   | Tolerance (mm) |       |
| 3mm          | 6mm  | -.004          | -.012 |
| 6mm          | 10mm | -.005          | -.014 |
| 10mm         | 18mm | -.006          | -.017 |

|      |     | Cat. No. | L    |      |      |      |      |       |       |       |       |  |  |      |      |     |     |
|------|-----|----------|------|------|------|------|------|-------|-------|-------|-------|--|--|------|------|-----|-----|
|      |     |          | 63   | 80   | 100  | 125  | 160  | 200   | 250   | 315   | 400   |  |  |      |      |     |     |
|      |     |          | M=32 | M=40 | M=50 | M=63 | M=80 | M=100 | M=125 | M=160 | M=200 |  |  |      |      |     |     |
| 3,5  | 0,8 | B03508   | 063  | 080  | 100  | 125  | 160  |       |       |       |       |  |  | 4,0  | 8,0  | 3,0 | 0,3 |
|      | 1,0 | B03510   | 063  | 080  | 100  | 125  | 160  | 200   | 250   |       |       |  |  |      |      |     |     |
|      | 1,2 | B03512   |      | 080  | 100  | 125  | 160  | 200   |       |       |       |  |  |      |      |     |     |
| 3,8  | 0,8 | B03808   | 063  | 080  | 100  | 125  | 160  |       |       |       |       |  |  | 4,2  | 8,0  | 3,0 | 0,3 |
|      | 1,0 | B03810   | 063  | 080  | 100  | 125  | 160  |       |       |       |       |  |  |      |      |     |     |
|      | 1,2 | B03812   |      | 080  | 100  | 125  | 160  | 200   |       |       |       |  |  |      |      |     |     |
| 4,5  | 1,0 | B04510   | 063  | 080  | 100  | 125  | 160  | 200   |       |       |       |  |  | 5,0  | 10,0 | 3,0 | 0,3 |
|      | 1,2 | B04512   |      | 080  | 100  | 125  | 160  | 200   |       |       |       |  |  |      |      |     |     |
|      | 1,5 | B04515   |      | 080  | 100  | 125  | 160  | 200   |       |       |       |  |  |      |      |     |     |
| 5,5  | 1,0 | B05510   |      | 080  | 100  | 125  | 160  | 200   |       |       |       |  |  | 6,0  | 12,0 | 5,0 | 0,5 |
|      | 1,2 | B05512   |      | 080  | 100  | 125  | 160  | 200   | 250   |       |       |  |  |      |      |     |     |
|      | 1,5 | B05515   |      | 080  | 100  | 125  | 160  | 200   | 250   |       |       |  |  |      |      |     |     |
|      | 2,0 | B05520   |      | 080  | 100  | 125  | 160  | 200   | 250   |       |       |  |  |      |      |     |     |
| 7,5  | 1,0 | B07510   |      |      |      | 125  | 160  |       |       |       |       |  |  | 8,0  | 14,0 | 5,0 | 0,5 |
|      | 1,2 | B07512   |      |      | 100  | 125  | 160  | 200   | 250   |       |       |  |  |      |      |     |     |
|      | 1,5 | B07515   |      |      | 100  | 125  | 160  | 200   | 250   | 315   |       |  |  |      |      |     |     |
|      | 2,0 | B07520   |      |      | 100  | 125  | 160  | 200   | 250   | 315   |       |  |  |      |      |     |     |
| 9,5  | 1,2 | B09512   |      |      |      |      | 160  | 200   |       |       |       |  |  | 10,0 | 16,0 | 5,0 | 0,5 |
|      | 1,5 | B09515   |      |      |      |      | 160  | 200   | 250   | 315   | 400   |  |  |      |      |     |     |
|      | 2,0 | B09520   |      |      |      |      | 160  | 200   | 250   | 315   | 400   |  |  |      |      |     |     |
| 11,5 | 2,0 | B11520   |      |      |      |      |      | 200   | 250   | 315   | 400   |  |  | 12,0 | 18,0 | 7,0 | 0,8 |
|      | 2,5 | B11525   |      |      |      |      |      | 200   | 250   | 315   | 400   |  |  |      |      |     |     |
| 15,5 | 2,0 | B15520   |      |      |      |      |      | 200   | 250   | 315   | 400   |  |  | 16,0 | 22,0 | 7,0 | 0,8 |
|      | 2,5 | B15525   |      |      |      |      |      | 200   | 250   | 315   | 400   |  |  |      |      |     |     |

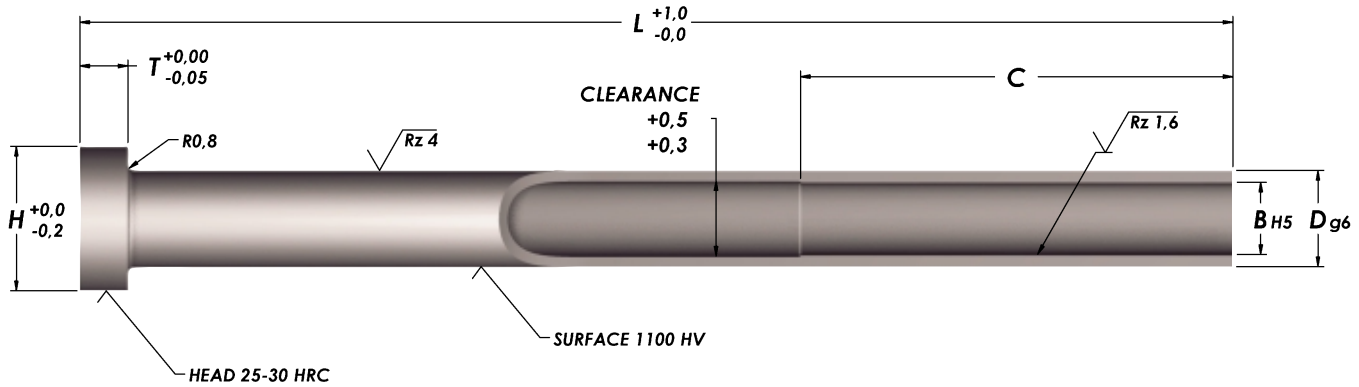
• To order, add overall length "L" to Catalog Number. Example: B03508L063

# Ejector Sleeves

## Nitrided - Parallel Metric



Material • AISI: H13  
 • 1.2344  
 Nitrided • I.D. & O.D.



| D<br>O.D. | B<br>I.D. | Catalog<br>Number | L   |     |     |     |     |     |     |     | C  | H    | T   |
|-----------|-----------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|----|------|-----|
|           |           |                   | 75  | 100 | 125 | 150 | 175 | 200 | 225 | 250 |    |      |     |
| 4,0       | 2,0       | SN-04,0x02,0      | 075 | 100 | 125 | 150 |     |     |     |     | 35 | 8,0  | 3,0 |
|           | 2,2       | SN-04,0x02,2      | 075 | 100 | 125 | 150 |     |     |     |     |    |      |     |
| 5,0       | 2,5       | SN-05,0x02,5      | 075 | 100 | 125 | 150 |     |     |     |     | 35 | 10,0 | 3,0 |
|           | 2,7       | SN-05,0x02,7      | 075 | 100 | 125 | 150 |     |     |     |     |    |      |     |
|           | 3,0       | SN-05,0x03,0      | 075 | 100 | 125 | 150 | 175 |     |     |     | 45 | 10,0 | 3,0 |
|           | 3,2       | SN-05,0x03,2      | 075 | 100 | 125 | 150 | 175 |     |     |     |    |      |     |
| 6,0       | 3,0       | SN-06,0x03,0      | 075 | 100 | 125 |     |     |     |     |     | 45 | 12,0 | 5,0 |
|           | 3,5       | SN-06,0x03,5      | 075 | 100 | 125 | 150 | 175 |     |     |     |    |      |     |
|           | 3,7       | SN-06,0x03,7      | 075 | 100 | 125 | 150 |     |     |     |     |    |      |     |
|           | 4,0       | SN-06,0x04,0      | 075 | 100 | 125 | 150 | 175 | 200 |     |     | 50 | 12,0 | 5,0 |
|           | 4,2       | SN-06,0x04,2      | 075 | 100 | 125 | 150 | 175 |     |     |     |    |      |     |
| 8,0       | 4,0       | SN-08,0x04,0      | 075 | 100 | 125 | 150 |     |     |     |     | 50 | 14,0 | 5,0 |
|           | 4,2       | SN-08,0x04,2      | 075 | 100 | 125 | 150 | 175 | 200 |     |     |    |      |     |
|           | 5,0       | SN-08,0x05,0      | 075 | 100 | 125 | 150 | 175 | 200 | 225 |     |    |      |     |
|           | 5,2       | SN-08,0x05,2      | 075 | 100 | 125 | 150 | 175 | 200 | 225 |     |    |      |     |
| 10,0      | 6,0       | SN-10,0x06,0      | 075 | 100 | 125 | 150 | 175 | 200 | 225 |     | 50 | 16,0 | 5,0 |
|           | 6,2       | SN-10,0x06,2      | 075 | 100 | 125 | 150 | 175 | 200 | 225 |     |    |      |     |
| 12,0      | 8,0       | SN-12,0x08,0      | 075 | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 50 | 20,0 | 7,0 |
|           | 8,2       | SN-12,0x08,2      | 075 | 100 | 125 | 150 | 175 | 200 | 225 | 250 |    |      |     |
| 14,0      | 10,0      | SN-14,0x10,0      |     | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 50 | 22,0 | 7,0 |
|           | 10,2      | SN-14,0x10,2      |     | 100 | 125 | 150 | 175 | 200 |     | 250 |    |      |     |
| 16,0      | 12,0      | SN-16,0x12,0      |     | 100 | 125 | 150 | 175 | 200 | 225 | 250 | 50 | 22,0 | 7,0 |

• To order, add overall length "L" to Catalog Number. Example: SN-04,0x02,0L075

| Nominal Size |      | g6             |       | H5             |   |
|--------------|------|----------------|-------|----------------|---|
| Over         | To   | Tolerance (mm) |       | Tolerance (mm) |   |
| 0mm          | 3mm  | -,002          | -,008 | +,004          | 0 |
| 3mm          | 6mm  | -,004          | -,012 | +,005          | 0 |
| 6mm          | 10mm | -,005          | -,014 | +,006          | 0 |
| 10mm         | 18mm | -,006          | -,017 | +,008          | 0 |

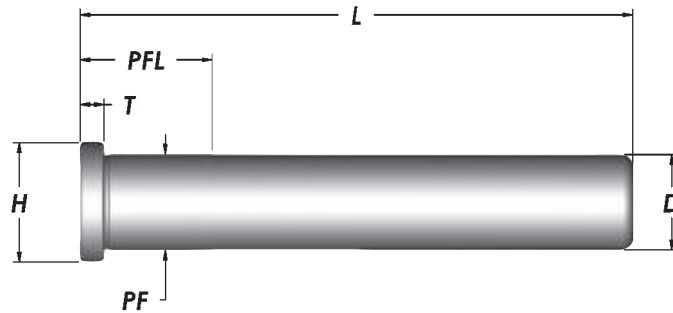


# Leader Pins



## Straight 3/4 - 1-1/4

| General Dimensions and Tolerances |                       |                        |                     |                     |
|-----------------------------------|-----------------------|------------------------|---------------------|---------------------|
| Nominal Diameter                  | D<br>+.0000<br>-.0005 | PF<br>+.0005<br>-.0000 | H<br>+.000<br>-.010 | T<br>+.000<br>-.005 |
| 3/4                               | .749                  | .751                   | .990                | 3/16                |
| 7/8                               | .874                  | .876                   | 1.115               | 1/4                 |
| 1"                                | .999                  | 1.001                  | 1.240               | 1/4                 |
| 1-1/4                             | 1.249                 | 1.251                  | 1.490               | 5/16                |



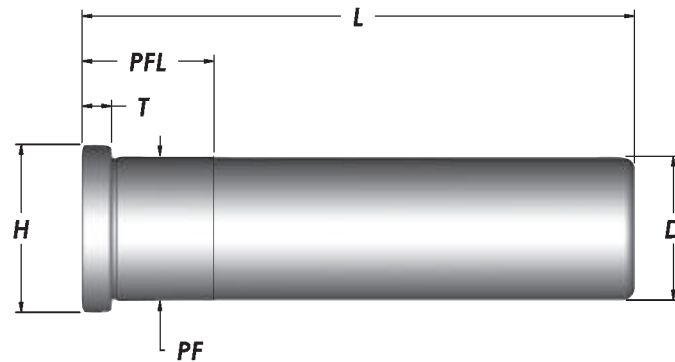
| L      | D=3/4" |          | D=7/8" |          | D=1"  |          | D=1-1/4" |            | L      |
|--------|--------|----------|--------|----------|-------|----------|----------|------------|--------|
|        | PFL    | Cat. No. | PFL    | Cat. No. | PFL   | Cat. No. | PFL      | Cat. No.   |        |
| 1-3/4  | 7/8    | 1000     | 7/8    | 1099     | 7/8   | 1198     |          |            | 1-3/4  |
| 2-1/4  | 7/8    | 1001     | 7/8    | 1100     | 7/8   | 1199     |          |            | 2-1/4  |
| 2-3/4  | 7/8    | 1002     | 7/8    | 1101     | 7/8   | 1200     | 7/8      | 1300       | 2-3/4  |
| 3-1/4  | 7/8    | 1003     | 7/8    | 1102     | 7/8   | 1201     | 7/8      | 1301       | 3-1/4  |
| 3-3/4  | 7/8    | 1004     | 7/8    | 1103     | 7/8   | 1202     | 7/8      | 1302       | 3-3/4  |
| 4-1/4  | 1-3/8  | 1005     | 1-3/8  | 1104     | 1-3/8 | 1203     | 7/8      | 1303       | 4-1/4  |
| 4-3/4  | 1-3/8  | 1006     | 1-3/8  | 1105     | 1-3/8 | 1204     | 1-3/8    | 1304       | 4-3/4  |
| 5-1/4  | 1-3/8  | 1007     | 1-3/8  | 1106     | 1-3/8 | 1205     | 1-3/8    | 1305       | 5-1/4  |
| 5-3/4  | 1-7/8  | 1008     | 1-3/8  | 1107     | 1-3/8 | 1206     | 1-3/8    | 1306       | 5-3/4  |
| 6-1/4  | 1-7/8  | 1009     | 1-7/8  | 1108     | 1-3/8 | 1207     | 1-3/8    | 1307       | 6-1/4  |
| 6-3/4  | 1-7/8  | 1010     | 1-7/8  | 1109     | 1-7/8 | 1208     | 1-7/8    | 1308       | 6-3/4  |
| 7-1/4  | 1-7/8  | 1011     | 1-7/8  | 1110     | 1-7/8 | 1209     | 1-7/8    | 1309       | 7-1/4  |
| 7-3/4  | 1-7/8  | 1012     | 1-7/8  | 1111     | 1-7/8 | 1210     | 1-7/8    | 1310       | 7-3/4  |
| 8-1/4  |        |          | 1-7/8  | 1112     | 1-7/8 | 1211     | 1-7/8    | 1311       | 8-1/4  |
| 8-3/4  |        |          | 1-7/8  | 1113     | 1-7/8 | 1212     | 1-7/8    | 1312       | 8-3/4  |
| 9-1/4  | 1-7/8  | 1015     |        |          | 1-7/8 | 1213     | 1-7/8    | 1313       | 9-1/4  |
| 9-3/4  |        |          |        |          | 1-7/8 | 1214     | 1-7/8    | 1314       | 9-3/4  |
| 10-1/4 |        |          |        |          | 1-7/8 | 1215     | 1-7/8    | 1315       | 10-1/4 |
| 10-3/4 |        |          | 1-7/8  | 1117     | 1-7/8 | 1216     | 1-7/8    | 1316       | 10-3/4 |
| 11-1/4 |        |          |        |          | 1-7/8 | 1217     | 1-7/8    | 1317       | 11-1/4 |
| 11-3/4 |        |          |        |          | 1-7/8 | 1218     | 1-7/8    | 1318       | 11-3/4 |
| 12-1/4 |        |          | 1-7/8  | 1120     | 1-7/8 | 1219     | 1-7/8    | 1319       | 12-1/4 |
| 12-3/4 |        |          |        |          |       |          | 1-7/8    | 1320       | 12-3/4 |
| 13-3/4 |        |          |        |          |       |          | 1-7/8    | 1322       | 13-3/4 |
| 14-3/4 |        |          |        |          |       |          | 1-7/8    | 1324       | 14-3/4 |
| 15-3/4 |        |          |        |          |       |          | 1-7/8    | 1326       | 15-3/4 |
| 24     |        |          |        |          | 1-7/8 | LP1x24   | 1-7/8    | LP1-1/4x24 | 24     |

# Leader Pins

## Straight 1-1/2 - 3"



| General Dimensions and Tolerances |                       |                          |                       |                       |
|-----------------------------------|-----------------------|--------------------------|-----------------------|-----------------------|
| Nominal Diameter                  | D<br>+0.000<br>-0.005 | PF<br>+0.0005<br>-0.0000 | H<br>+0.000<br>-0.010 | T<br>+0.000<br>-0.005 |
| 1-1/2                             | 1.499                 | 1.501                    | 1.740                 | 5/16                  |
| 2"                                | 1.999                 | 2.001                    | 2.240                 | 5/16                  |
| 2-1/2                             | 2.499                 | 2.501                    | 2.740                 | 5/16                  |
| 3"                                | 2.999                 | 3.001                    | 3.365                 | 1/2                   |



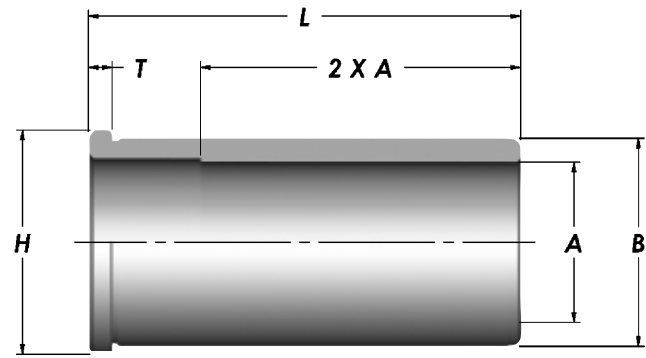
| L      | D=1-1/2" |            | D=2"  |          | D=2-1/2" |            | D=3"  |          | L      |
|--------|----------|------------|-------|----------|----------|------------|-------|----------|--------|
|        | PFL      | Cat. No.   | PFL   | Cat. No. | PFL      | Cat. No.   | PFL   | Cat. No. |        |
| 3-3/4  | 1-3/8    | 1402       |       |          |          |            |       |          | 3-3/4  |
| 4-1/4  | 1-3/8    | 1403       |       |          |          |            |       |          | 4-1/4  |
| 4-3/4  | 1-3/8    | 1404       |       |          |          |            |       |          | 4-3/4  |
| 5-1/4  | 1-3/8    | 1405       |       |          |          |            |       |          | 5-1/4  |
| 5-3/4  | 1-3/8    | 1406       | 1-7/8 | 1606     | 2-3/8    | 1806       |       |          | 5-3/4  |
| 6-1/4  | 1-3/8    | 1407       |       |          |          |            |       |          | 6-1/4  |
| 6-3/4  | 1-3/8    | 1408       | 1-7/8 | 1608     | 2-3/8    | 1808       |       |          | 6-3/4  |
| 7-1/4  |          |            |       |          |          |            |       |          | 7-1/4  |
| 7-3/4  | 1-7/8    | 1410       | 1-7/8 | 1610     | 2-3/8    | 1810       |       |          | 7-3/4  |
| 8-1/4  |          |            |       |          |          |            |       |          | 8-1/4  |
| 8-3/4  | 1-7/8    | 1412       | 1-7/8 | 1612     | 2-3/8    | 1812       |       |          | 8-3/4  |
| 9-1/4  |          |            |       |          |          |            |       |          | 9-1/4  |
| 9-3/4  | 1-7/8    | 1414       | 1-7/8 | 1614     | 2-3/8    | 1814       |       |          | 9-3/4  |
| 10-1/4 |          |            |       |          |          |            |       |          | 10-1/4 |
| 10-3/4 | 1-7/8    | 1416       | 1-7/8 | 1616     | 2-3/8    | 1816       |       |          | 10-3/4 |
| 11-1/4 |          |            |       |          |          |            |       |          | 11-1/4 |
| 11-3/4 | 1-7/8    | 1418       | 1-7/8 | 1618     | 2-3/8    | 1818       |       |          | 11-3/4 |
| 12-1/4 |          |            |       |          |          |            |       |          | 12-1/4 |
| 12-3/4 | 1-7/8    | 1420       | 1-7/8 | 1620     | 2-3/8    | 1820       | 2-7/8 | 3020     | 12-3/4 |
| 13-3/4 | 1-7/8    | 1422       | 1-7/8 | 1622     | 2-3/8    | 1822       |       |          | 13-3/4 |
| 14-3/4 | 1-7/8    | 1424       | 1-7/8 | 1624     | 2-3/8    | 1824       | 2-7/8 | 3024     | 14-3/4 |
| 15-3/4 | 1-7/8    | 1426       | 1-7/8 | 1626     | 2-3/8    | 1826       |       |          | 15-3/4 |
| 16-3/4 |          |            | 2-3/8 | 1628     | 2-3/8    | 1828       | 2-7/8 | 3028     | 16-3/4 |
| 18-3/4 |          |            | 2-3/8 | 1632     | 2-3/8    | 1832       | 2-7/8 | 3032     | 18-3/4 |
| 36     | 2-3/8    | LP1-1/2x36 | 2-3/8 | LP2x36   | 2-3/8    | LP2-1/2x36 | 2-7/8 | LP3x36   | 36     |

# Shoulder Bushings

**Steel**



| General Dimensions and Tolerances |                       |                       |                     |                     |
|-----------------------------------|-----------------------|-----------------------|---------------------|---------------------|
| Nominal I.D.                      | A<br>+.0005<br>-.0000 | B<br>+.0005<br>-.0000 | H<br>+.000<br>-.010 | T<br>+.000<br>-.005 |
| 3/4                               | .7505                 | 1.1255                | 1.250               | 3/16                |
| 7/8                               | .8755                 | 1.2505                | 1.375               | 3/16                |
| 1"                                | 1.0005                | 1.3755                | 1.500               | 3/16                |
| 1-1/4                             | 1.2505                | 1.6255                | 1.750               | 3/16                |
| 1-1/2                             | 1.5005                | 2.0005                | 2.125               | 3/16                |
| 2"                                | 2.0005                | 2.5005                | 2.625               | 3/16                |
| 2-1/2                             | 2.5005                | 3.2505                | 3.375               | 3/16                |
| 3"                                | 3.0005                | 3.7505                | 3.937               | 1/2                 |

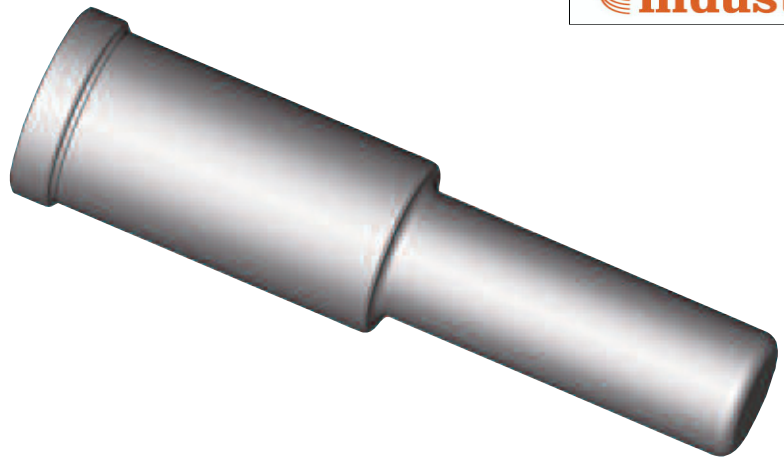


| L     | CATALOG NUMBER |        |      |          | L     |
|-------|----------------|--------|------|----------|-------|
|       | A=3/4"         | A=7/8" | A=1" | A=1-1/4" |       |
| 7/8   | 2700           | 2710   | 2730 | 2750     | 7/8   |
| 1-3/8 | 2701           | 2711   | 2731 | 2751     | 1-3/8 |
| 1-7/8 | 2702           | 2712   | 2732 | 2752     | 1-7/8 |
| 2-3/8 | 2703           | 2713   | 2733 | 2753     | 2-3/8 |
| 2-7/8 | 2704           | 2714   | 2734 | 2754     | 2-7/8 |
| 3-3/8 | 2705           | 2715   | 2735 | 2755     | 3-3/8 |
| 3-7/8 | 2706           | 2716   | 2736 | 2756     | 3-7/8 |
| 4-3/8 | 2707           | 2717   | 2737 | 2757     | 4-3/8 |
| 4-7/8 | 2708           | 2718   | 2738 | 2758     | 4-7/8 |
| 5-7/8 | 2709           | 2720   | 2740 | 2760     | 5-7/8 |
| 7-7/8 |                |        |      |          | 7-7/8 |

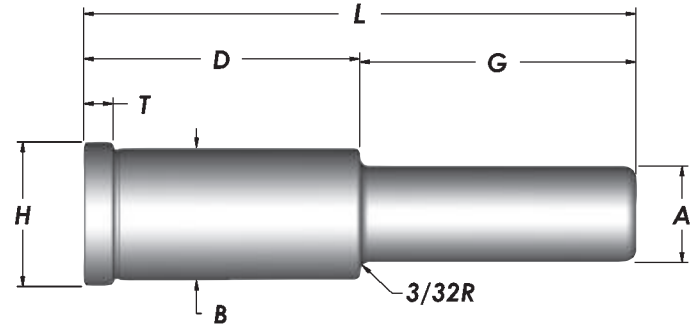
| L     | CATALOG NUMBER |      |          |      | L     |
|-------|----------------|------|----------|------|-------|
|       | A=1-1/2"       | A=2" | A=2-1/2" | A=3" |       |
| 7/8   | 2770           |      |          |      | 7/8   |
| 1-3/8 | 2771           | 2901 | 2951     |      | 1-3/8 |
| 1-7/8 | 2772           | 2902 | 2952     |      | 1-7/8 |
| 2-3/8 | 2773           | 2903 | 2953     |      | 2-3/8 |
| 2-7/8 | 2774           | 2904 | 2954     |      | 2-7/8 |
| 3-3/8 | 2775           | 2905 | 2955     |      | 3-3/8 |
| 3-7/8 | 2776           | 2906 | 2956     | 3976 | 3-7/8 |
| 4-3/8 | 2777           | 2907 | 2957     |      | 4-3/8 |
| 4-7/8 | 2778           | 2908 | 2958     | 3978 | 4-7/8 |
| 5-7/8 | 2780           | 2910 | 2960     | 3980 | 5-7/8 |
| 7-7/8 |                |      |          | 3984 | 7-7/8 |

# Leader Pins

## Shoulder 3/4 - 1-1/4



| General Dimensions and Tolerances |                       |                       |                     |                     |
|-----------------------------------|-----------------------|-----------------------|---------------------|---------------------|
| Nominal Diameter                  | A<br>+.0000<br>-.0005 | B<br>+.0005<br>-.0000 | H<br>+.000<br>-.010 | T<br>+.000<br>-.005 |
| 3/4                               | .749                  | 1.126                 | 1.250               | 5/16                |
| 1"                                | .999                  | 1.376                 | 1.500               | 5/16                |
| 1-1/4                             | 1.249                 | 1.626                 | 1.750               | 5/16                |



| D     | G     | L     | A=3/4  | A=1"   | A=1-1/4 |
|-------|-------|-------|--------|--------|---------|
| 7/8   | 7/8   | 1-3/4 | 70-707 |        |         |
|       | 1-3/8 | 2-1/4 | 70-713 |        |         |
|       | 2-3/8 | 3-1/4 | 70-723 |        |         |
|       | 2-7/8 | 3-3/4 | 70-727 | 10-727 |         |
| 1-3/8 | 7/8   | 2-1/4 | 71-307 |        |         |
|       | 1-3/8 | 2-3/4 | 71-313 | 11-313 |         |
|       | 1-7/8 | 3-1/4 | 71-317 | 11-317 |         |
|       | 2-3/8 | 3-3/4 | 71-323 |        |         |
|       | 2-7/8 | 4-1/4 | 71-327 | 11-327 |         |
| 1-7/8 | 3-3/8 | 4-3/4 | 71-333 | 11-333 | 121-333 |
|       | 7/8   | 2-3/4 | 71-707 |        |         |
|       | 1-3/8 | 3-1/4 | 71-713 | 11-713 |         |
|       | 1-7/8 | 3-3/4 | 71-717 | 11-717 |         |
|       | 2-3/8 | 4-1/4 | 71-723 | 11-723 | 121-723 |
|       | 2-7/8 | 4-3/4 | 71-727 | 11-727 | 121-727 |
|       | 3-3/8 | 5-1/4 | 71-733 | 11-733 |         |
| 2-3/8 | 3-7/8 | 5-3/4 | 71-737 | 11-737 | 121-737 |
|       | 1-3/8 | 3-3/4 | 72-313 | 12-313 |         |
|       | 1-7/8 | 4-1/4 | 72-317 | 12-317 |         |
|       | 2-3/8 | 4-3/4 | 72-323 | 12-323 |         |
|       | 2-7/8 | 5-1/4 | 72-327 | 12-327 | 122-327 |
|       | 3-3/8 | 5-3/4 |        | 12-333 |         |
| 3-7/8 | 3-7/8 | 6-1/4 | 72-337 | 12-337 | 122-337 |

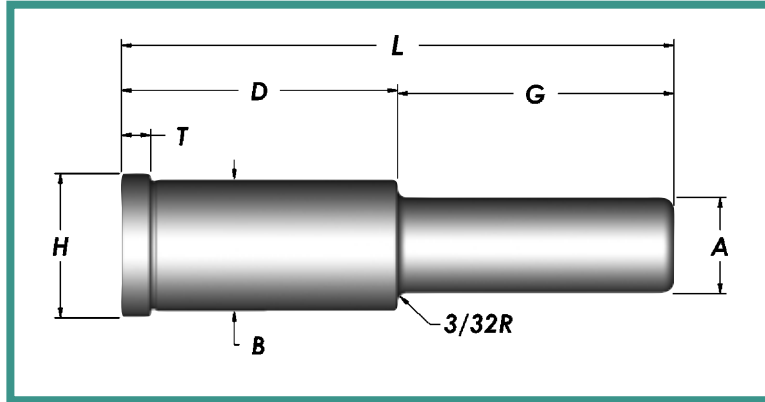
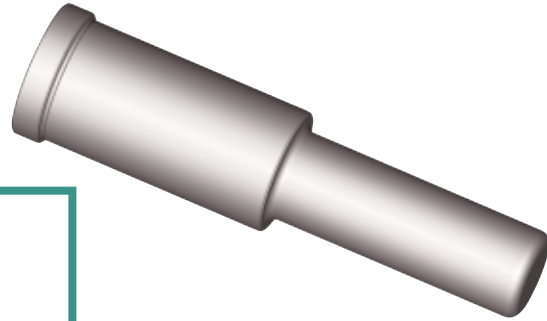
| D     | G     | L      | A=3/4  | A=1"   | A=1-1/4 |
|-------|-------|--------|--------|--------|---------|
| 2-7/8 | 1-3/8 | 4-1/4  | 72-713 |        |         |
|       | 1-7/8 | 4-3/4  | 72-717 | 12-717 | 122-717 |
|       | 2-3/8 | 5-1/4  | 72-723 | 12-723 | 122-723 |
|       | 2-7/8 | 5-3/4  | 72-727 | 12-727 | 122-727 |
|       | 3-3/8 | 6-1/4  |        | 12-733 |         |
|       | 3-7/8 | 6-3/4  | 72-737 | 12-737 |         |
|       | 4-3/8 | 7-1/4  |        | 12-743 | 122-743 |
| 3-3/8 | 1-7/8 | 5-1/4  | 73-317 | 13-317 |         |
|       | 2-3/8 | 5-3/4  | 73-323 | 13-323 | 123-323 |
|       | 2-7/8 | 6-1/4  |        | 13-327 |         |
|       | 3-3/8 | 6-3/4  | 73-333 | 13-333 | 123-333 |
| 3-7/8 | 4-3/8 | 7-3/4  |        | 13-343 | 123-343 |
|       | 2-3/8 | 6-1/4  | 73-723 | 13-723 | 123-723 |
|       | 2-7/8 | 6-3/4  | 73-727 | 13-727 | 123-727 |
|       | 3-3/8 | 7-1/4  |        |        | 123-733 |
|       | 3-7/8 | 7-3/4  |        | 13-737 | 123-737 |
|       | 4-7/8 | 8-3/4  |        | 13-747 | 123-747 |
|       | 2-7/8 | 7-1/4  |        | 14-327 |         |
| 4-3/8 | 3-3/8 | 7-3/4  |        |        | 124-333 |
|       | 3-7/8 | 8-1/4  |        | 14-337 |         |
|       | 4-3/8 | 8-3/4  |        | 14-343 |         |
|       | 4-7/8 | 9-1/4  |        |        | 124-347 |
| 4-7/8 | 3-7/8 | 8-3/4  |        | 14-737 | 124-737 |
|       | 4-3/8 | 9-1/4  |        | 14-743 |         |
|       | 4-7/8 | 9-3/4  |        | 14-747 | 124-747 |
|       | 5-7/8 | 10-3/4 |        |        | 124-757 |
| 5-7/8 | 3-7/8 | 9-3/4  |        | 15-737 | 125-737 |
|       | 4-3/8 | 10-1/4 |        |        | 125-743 |
|       | 5-7/8 | 11-3/4 |        | 15-757 | 125-757 |

\* Items in blue being discontinued. Available while supplies last. May be available as a per order item after depleted.

# Leader Pins



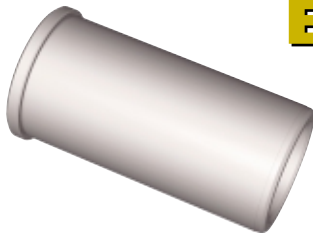
## Shoulder Leader Pins 1/2"



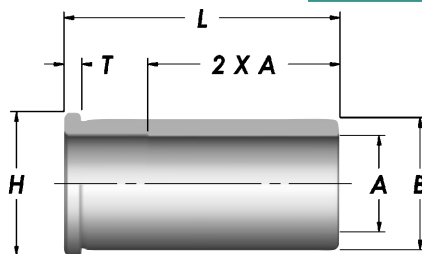
| Leader Pins General Dimensions and Tolerances |                       |                       |                     |                     |
|---|-----------------------|-----------------------|---------------------|---------------------|
| Nominal Diameter                              | A<br>+.0000<br>-.0005 | B<br>+.0005<br>-.0000 | H<br>+.000<br>-.010 | T<br>+.000<br>-.005 |
| 1/2   | .499                  | .751                  | .853                | 3/16                |

| D     | G     | L     | Cat. No. |
|-------|-------|-------|----------|
| 7/8   | 7/8   | 1-3/4 | 500-707  |
|       | 1-3/8 | 2-1/4 | 500-713  |
|       | 1-7/8 | 2-3/4 | 500-717  |
|       | 2-3/8 | 3-1/4 | 500-723  |
| 1-3/8 | 7/8   | 2-1/4 | 501-307  |
|       | 1-3/8 | 2-3/4 | 501-313  |
|       | 1-7/8 | 3-1/4 | 501-317  |
| 1-7/8 | 7/8   | 2-3/4 | 501-707  |
|       | 1-3/8 | 3-1/4 | 501-713  |
|       | 1-7/8 | 3-3/4 | 501-717  |
| 2-3/8 | 7/8   | 3-1/4 | 502-307  |
| 2-7/8 | 1-3/8 | 4-1/4 | 502-713  |

## Shoulder Bushings 1/2"



| L     | Cat. No. |
|-------|----------|
| 7/8   | 505-690  |
| 1-3/8 | 505-691  |
| 1-7/8 | 505-692  |
| 2-3/8 | 505-693  |

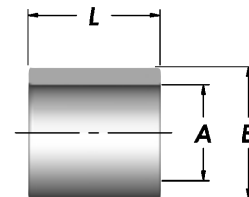


| Shoulder Bushings<br>General Dimensions and Tolerances |                       |                       |                     |                     |
|--|-----------------------|-----------------------|---------------------|---------------------|
| Nominal Diameter                                       | A<br>+.0005<br>-.0000 | B<br>+.0005<br>-.0000 | H<br>+.000<br>-.010 | T<br>+.000<br>-.005 |
| 1/2  | .500                  | .7505                 | .853                | 3/16                |

## Straight Bushings 1/2"



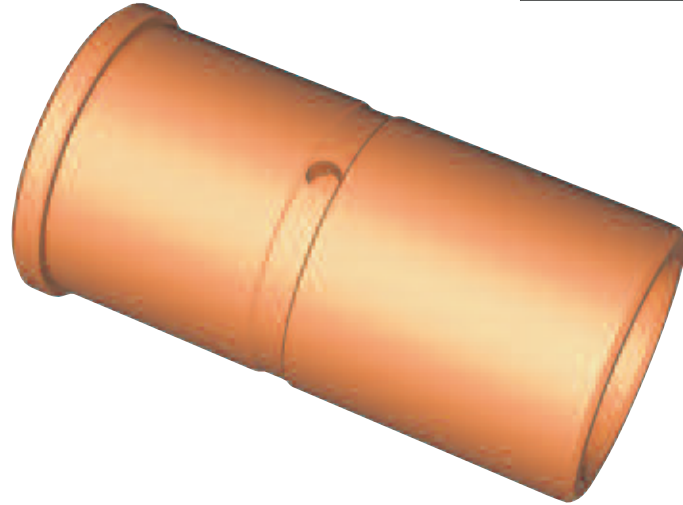
| L     | Cat. No. |
|-------|----------|
| 7/8   | 505-498  |
| 1-3/8 | 505-499  |



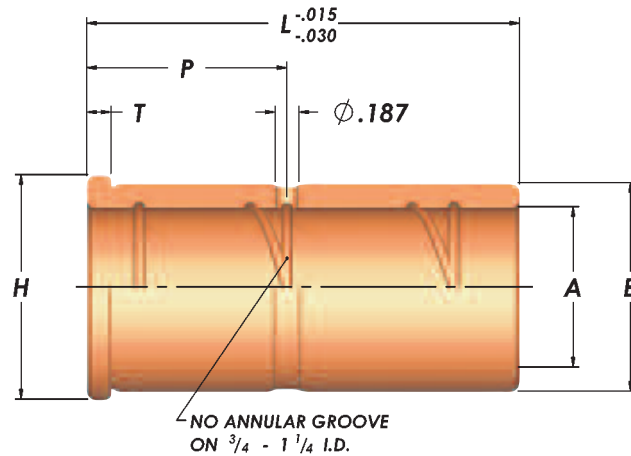
| Straight Bushings<br>General Dimensions and Tolerances |                       |                       |
|--|-----------------------|-----------------------|
| Nominal Diameter                                       | A<br>+.0005<br>-.0000 | B<br>+.0005<br>-.0000 |
| 1/2  | .500                  | .7505                 |

# Shoulder Bushings

## Solid Bronze



| General Dimensions and Tolerances |                       |                       |                     |                     |
|-----------------------------------|-----------------------|-----------------------|---------------------|---------------------|
| Nominal I.D.                      | A<br>+.0005<br>-.0000 | B<br>+.0005<br>-.0000 | H<br>+.000<br>-.010 | T<br>+.000<br>-.005 |
| 3/4                               | .7505                 | 1.1255                | 1.302               | 3/16                |
| 7/8                               | .8755                 | 1.2505                | 1.427               | 3/16                |
| 1"                                | 1.0005                | 1.3755                | 1.552               | 3/16                |
| 1-1/4                             | 1.2505                | 1.6255                | 1.802               | 3/16                |
| 1-1/2                             | 1.5005                | 2.0005                | 2.177               | 3/16                |
| 2"                                | 2.0005                | 2.5005                | 2.677               | 3/16                |



| L     | P    | CATALOG NUMBER |        |        |          |          |        | L     |
|-------|------|----------------|--------|--------|----------|----------|--------|-------|
|       |      | A=3/4"         | A=7/8" | A=1"   | A=1-1/4" | A=1-1/2" | A=2"   |       |
| 7/8   | *    | 2700SB         | 2710SB | 2730SB | 2750SB   | 2770SB   |        | 7/8   |
| 1-3/8 | .56  | 2701SB         | 2711SB | 2731SB | 2751SB   | 2771SB   | 2901SB | 1-3/8 |
| 1-7/8 | .56  | 2702SB         | 2712SB | 2732SB | 2752SB   | 2772SB   | 2902SB | 1-7/8 |
| 2-3/8 | 1.56 | 2703SB         | 2713SB | 2733SB | 2753SB   | 2773SB   | 2903SB | 2-3/8 |
| 2-7/8 | 1.56 | 2704SB         | 2714SB | 2734SB | 2754SB   | 2774SB   | 2904SB | 2-7/8 |
| 3-3/8 | 1.56 | 2705SB         | 2715SB | 2735SB | 2755SB   | 2775SB   | 2905SB | 3-3/8 |
| 3-7/8 | 1.56 | 2706SB         | 2716SB | 2736SB | 2756SB   | 2776SB   | 2906SB | 3-7/8 |
| 4-3/8 | 1.56 | 2707SB         |        | 2737SB | 2757SB   | 2777SB   | 2907SB | 4-3/8 |
| 4-7/8 | 1.56 |                |        | 2738SB | 2758SB   | 2778SB   | 2908SB | 4-7/8 |
| 5-7/8 | 1.56 |                |        | 2740SB | 2760SB   | 2780SB   | 2910SB | 5-7/8 |

\* No grease groove or hole on 7/8 long bushings.

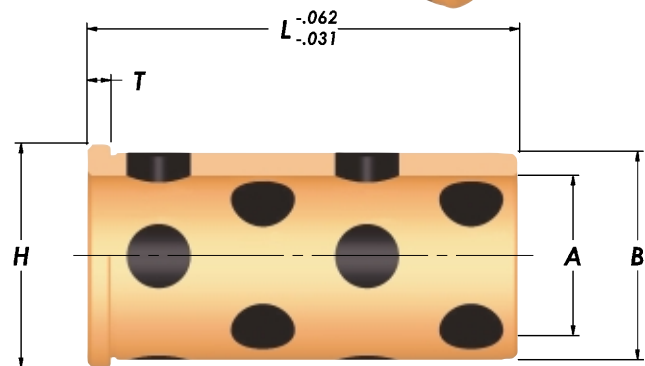
# Shoulder Bushings



## Self Lubricating



| General Dimensions and Tolerances |                       |                       |                     |                     |
|-----------------------------------|-----------------------|-----------------------|---------------------|---------------------|
| Nominal I.D.                      | A<br>+.0005<br>-.0000 | B<br>+.0005<br>-.0000 | H<br>+.000<br>-.005 | T<br>+.000<br>-.005 |
| 3/4                               | .7505                 | 1.1255                | 1.302               | 3/16                |
| 7/8                               | .8755                 | 1.2505                | 1.427               | 3/16                |
| 1"                                | 1.0005                | 1.3755                | 1.552               | 3/16                |
| 1-1/4                             | 1.2505                | 1.6255                | 1.802               | 3/16                |
| 1-1/2                             | 1.5005                | 2.0005                | 2.177               | 3/16                |
| 2"                                | 2.0005                | 2.5005                | 2.677               | 3/16                |
| 2-1/2                             | 2.5005                | 3.2505                | 3.427               | 3/16                |
| 3"                                | 3.0005                | 3.7505                | 3.990               | 1/2                 |

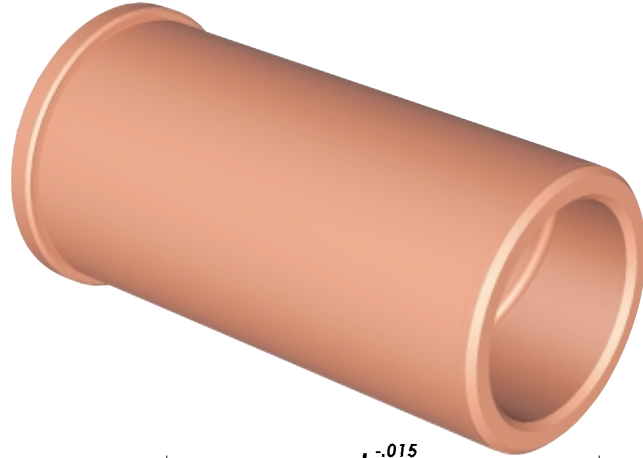


| L     | CATALOG NUMBER |        |        |          | L     |
|-------|----------------|--------|--------|----------|-------|
|       | A=3/4"         | A=7/8" | A=1"   | A=1-1/4" |       |
| 7/8   | 2700SL         | 2710SL | 2730SL | 2750SL   | 7/8   |
| 1-3/8 | 2701SL         | 2711SL | 2731SL | 2751SL   | 1-3/8 |
| 1-7/8 | 2702SL         | 2712SL | 2732SL | 2752SL   | 1-7/8 |
| 2-3/8 | 2703SL         | 2713SL | 2733SL | 2753SL   | 2-3/8 |
| 2-7/8 | 2704SL         | 2714SL | 2734SL | 2754SL   | 2-7/8 |
| 3-3/8 | 2705SL         | 2715SL | 2735SL | 2755SL   | 3-3/8 |
| 3-7/8 | 2706SL         | 2716SL | 2736SL | 2756SL   | 3-7/8 |
| 4-3/8 | 2707SL         | 2717SL | 2737SL | 2757SL   | 4-3/8 |
| 4-7/8 | 2708SL         | 2718SL | 2738SL | 2758SL   | 4-7/8 |
| 5-7/8 | 2709SL         | 2720SL | 2740SL | 2760SL   | 5-7/8 |
| 7-7/8 |                |        |        |          | 7-7/8 |

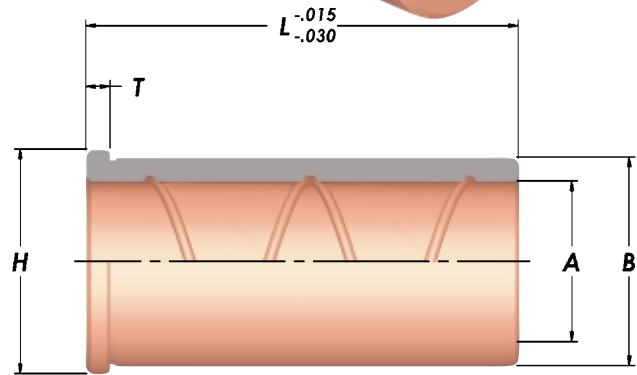
| L     | CATALOG NUMBER |        |          |        | L     |
|-------|----------------|--------|----------|--------|-------|
|       | A=1-1/2"       | A=2"   | A=2-1/2" | A=3"   |       |
| 7/8   | 2770SL         |        |          |        | 7/8   |
| 1-3/8 | 2771SL         | 2901SL | 2951SL   |        | 1-3/8 |
| 1-7/8 | 2772SL         | 2902SL | 2952SL   |        | 1-7/8 |
| 2-3/8 | 2773SL         | 2903SL | 2953SL   |        | 2-3/8 |
| 2-7/8 | 2774SL         | 2904SL | 2954SL   |        | 2-7/8 |
| 3-3/8 | 2775SL         | 2905SL | 2955SL   |        | 3-3/8 |
| 3-7/8 | 2776SL         | 2906SL | 2956SL   | 3976SL | 3-7/8 |
| 4-3/8 | 2777SL         | 2907SL | 2957SL   |        | 4-3/8 |
| 4-7/8 | 2778SL         | 2908SL | 2958SL   | 3978SL | 4-7/8 |
| 5-7/8 | 2780SL         | 2910SL | 2960SL   | 3980SL | 5-7/8 |
| 7-7/8 |                |        |          | 3984SL | 7-7/8 |

# Shoulder Bushings

## Bronze Plated



| General Dimensions and Tolerances |                       |                       |                     |                     |
|-----------------------------------|-----------------------|-----------------------|---------------------|---------------------|
| Nominal I.D.                      | A<br>+.0005<br>-.0000 | B<br>+.0005<br>-.0000 | H<br>+.000<br>-.015 | T<br>+.000<br>-.005 |
| 3/4                               | .7505                 | 1.1255                | 1.302               | 3/16                |
| 7/8                               | .8755                 | 1.2505                | 1.427               | 3/16                |
| 1"                                | 1.0005                | 1.3755                | 1.552               | 3/16                |
| 1-1/4                             | 1.2505                | 1.6255                | 1.802               | 3/16                |
| 1-1/2                             | 1.5005                | 2.0005                | 2.177               | 3/16                |
| 2"                                | 2.0005                | 2.5005                | 2.677               | 3/16                |
| 2-1/2                             | 2.5005                | 3.2505                | 3.427               | 3/16                |
| 3"                                | 3.0005                | 3.7505                | 3.990               | 1/2                 |



| L     | CATALOG NUMBER |           |           |           | L     |
|-------|----------------|-----------|-----------|-----------|-------|
|       | A=3/4"         | A=7/8"    | A=1"      | A=1-1/4"  |       |
| 7/8   | LBB-06-07      | LBB-07-07 | LBB-08-07 | LBB-10-07 | 7/8   |
| 1-3/8 | LBB-06-13      | LBB-07-13 | LBB-08-13 | LBB-10-13 | 1-3/8 |
| 1-7/8 | LBB-06-17      | LBB-07-17 | LBB-08-17 | LBB-10-17 | 1-7/8 |
| 2-3/8 | LBB-06-23      | LBB-07-23 | LBB-08-23 | LBB-10-23 | 2-3/8 |
| 2-7/8 | LBB-06-27      | LBB-07-27 | LBB-08-27 | LBB-10-27 | 2-7/8 |
| 3-3/8 | LBB-06-33      | LBB-07-33 | LBB-08-33 | LBB-10-33 | 3-3/8 |
| 3-7/8 | LBB-06-37      | LBB-07-37 | LBB-08-37 | LBB-10-37 | 3-7/8 |
| 4-3/8 | LBB-06-43      | LBB-07-43 | LBB-08-43 | LBB-10-43 | 4-3/8 |
| 4-7/8 | LBB-06-47      | LBB-07-47 | LBB-08-47 | LBB-10-47 | 4-7/8 |
| 5-7/8 | LBB-06-57      | LBB-07-57 | LBB-08-57 | LBB-10-57 | 5-7/8 |
| 7-7/8 |                |           |           |           | 7-7/8 |

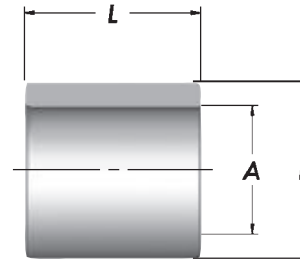
| L     | CATALOG NUMBER |           |           |           | L     |
|-------|----------------|-----------|-----------|-----------|-------|
|       | A=1-1/2"       | A=2"      | A=2-1/2"  | A=3"      |       |
| 7/8   | LBB-12-07      |           |           |           | 7/8   |
| 1-3/8 | LBB-12-13      | LBB-16-13 | LBB-20-13 |           | 1-3/8 |
| 1-7/8 | LBB-12-17      | LBB-16-17 | LBB-20-17 |           | 1-7/8 |
| 2-3/8 | LBB-12-23      | LBB-16-23 | LBB-20-23 |           | 2-3/8 |
| 2-7/8 | LBB-12-27      | LBB-16-27 | LBB-20-27 |           | 2-7/8 |
| 3-3/8 | LBB-12-33      | LBB-16-33 | LBB-20-33 |           | 3-3/8 |
| 3-7/8 | LBB-12-37      | LBB-16-37 | LBB-20-37 | LBB-24-37 | 3-7/8 |
| 4-3/8 | LBB-12-43      | LBB-16-43 | LBB-20-43 |           | 4-3/8 |
| 4-7/8 | LBB-12-47      | LBB-16-47 | LBB-20-47 | LBB-24-47 | 4-7/8 |
| 5-7/8 | LBB-12-57      | LBB-16-57 | LBB-20-57 | LBB-24-57 | 5-7/8 |
| 7-7/8 |                |           |           | LBB-24-77 | 7-7/8 |



# Straight Bushings

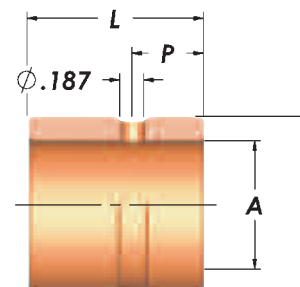
## Steel

| Catalog Number | Nominal I.D. | A I.D.<br>+.0005<br>-.0000 | B O.D.<br>+.0005<br>-.0000 | L     |
|----------------|--------------|----------------------------|----------------------------|-------|
| 2500           | 3/4          | .7505                      | 1.1255                     | 7/8   |
| 2501           | 3/4          | .7505                      | 1.1255                     | 1-3/8 |
| 2502           | 7/8          | .8755                      | 1.2505                     | 1-3/8 |
| 2503           | 1"           | 1.0005                     | 1.3755                     | 1-3/8 |
| 2504           | 1-1/4        | 1.2505                     | 1.6255                     | 1-3/8 |
| 2505           | 1-1/4        | 1.2505                     | 1.6255                     | 1-7/8 |
| 2506           | 1-1/2        | 1.5005                     | 2.0005                     | 1-3/8 |
| 2507           | 1-1/2        | 1.5005                     | 2.0005                     | 1-7/8 |
| 2508           | 2"           | 2.0005                     | 2.5005                     | 3-7/8 |
| 2509           | 2-1/2        | 2.5005                     | 3.2505                     | 4-7/8 |



## Straight Bushings Solid Bronze

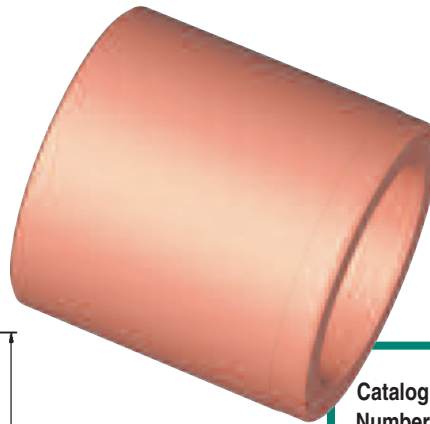
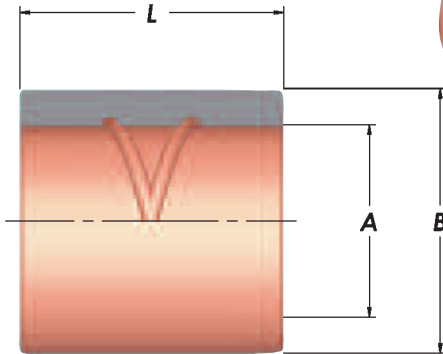
| Catalog Number | Nominal I.D. | A I.D.<br>+.0005<br>-.0000 | B O.D.<br>+.0005<br>-.0000 | P    | L     |
|----------------|--------------|----------------------------|----------------------------|------|-------|
| 2500SB         | 3/4          | .7505                      | 1.1255                     | *    | 7/8   |
| 2501SB         | 3/4          | .7505                      | 1.1255                     | .56  | 1-3/8 |
| 2502SB         | 7/8          | .8755                      | 1.2505                     | .56  | 1-3/8 |
| 2503SB         | 1"           | 1.0005                     | 1.3755                     | .56  | 1-3/8 |
| 2504SB         | 1-1/4        | 1.2505                     | 1.6255                     | .56  | 1-3/8 |
| 2505SB         | 1-1/4        | 1.2505                     | 1.6255                     | .56  | 1-7/8 |
| 2506SB         | 1-1/2        | 1.5005                     | 2.0005                     | .56  | 1-3/8 |
| 2507SB         | 1-1/2        | 1.5005                     | 2.0005                     | .56  | 1-7/8 |
| 2508SB         | 2"           | 2.0005                     | 2.5005                     | 1.56 | 3-7/8 |



\* No grease groove or hole on 7/8 long bushings.

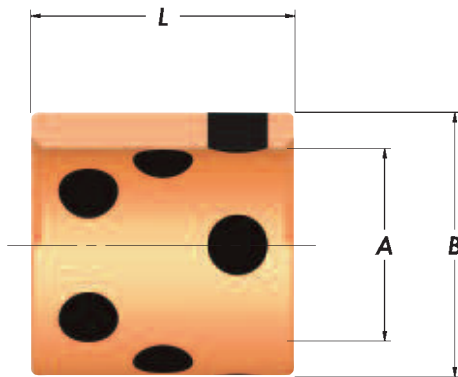
# Straight Bushings

## Bronze Plated



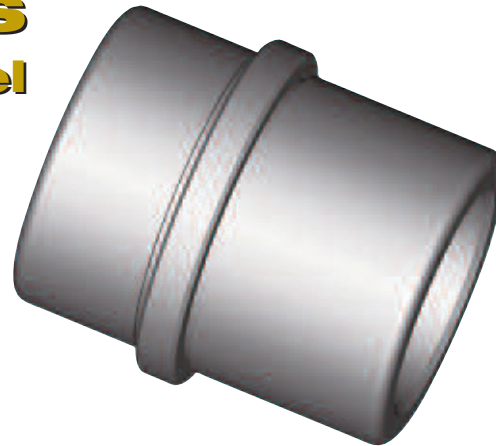
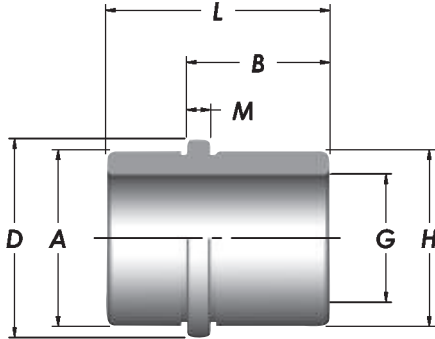
| Catalog Number | Nominal I.D. | A I.D.<br>+.0005<br>-.0000 | B O.D.<br>+.0005<br>-.0000 | L<br>-.031<br>-.062 |
|----------------|--------------|----------------------------|----------------------------|---------------------|
| STB-06-07      | 3/4          | .7505                      | 1.1255                     | 7/8                 |
| STB-06-13      | 3/4          | .7505                      | 1.1255                     | 1-3/8               |
| STB-07-13      | 7/8          | .8755                      | 1.2505                     | 1-3/8               |
| STB-08-13      | 1"           | 1.0005                     | 1.3755                     | 1-3/8               |
| STB-10-13      | 1-1/4        | 1.2505                     | 1.6255                     | 1-3/8               |
| STB-10-17      | 1-1/4        | 1.2505                     | 1.6255                     | 1-7/8               |
| STB-12-13      | 1-1/2        | 1.5005                     | 2.0005                     | 1-3/8               |
| STB-12-17      | 1-1/2        | 1.5005                     | 2.0005                     | 1-7/8               |
| STB-16-37      | 2"           | 2.0005                     | 2.5005                     | 3-7/8               |
| STB-20-47      | 2-1/2        | 2.5005                     | 3.2505                     | 4-7/8               |
| STB-24-47      | 3"           | 3.0005                     | 3.7505                     | 4-7/8               |

## Straight Bushings Self-Lubricating



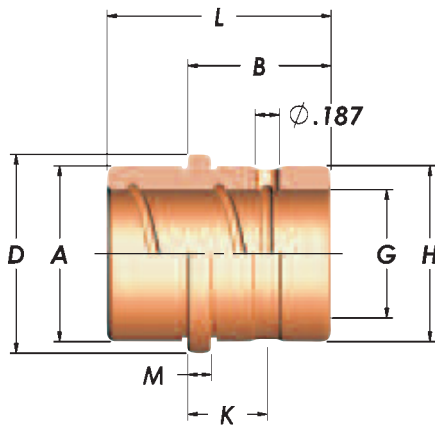
| L     | CATALOG NUMBER |          |          |          |          |          |          |          | L     |
|-------|----------------|----------|----------|----------|----------|----------|----------|----------|-------|
|       | A=3/4"         | A=7/8"   | A=1"     | A=1-1/4" | A=1-1/2" | A=2"     | A=2-1/2" | A=3"     |       |
| 7/8   | SB0607SL       |          |          |          |          |          |          |          | 7/8   |
| 1-1/4 |                | SB0710SL | SB0810SL | SB1010SL | SB1210SL | SB1610SL |          |          | 1-1/4 |
| 1-3/8 | SB0611SL       | SB0711SL | SB0811SL | SB1011SL | SB1211SL |          |          |          | 1-3/8 |
| 1-1/2 | SB0612SL       | SB0712SL | SB0812SL | SB1012SL | SB1212SL | SB1612SL | SB2012SL |          | 1-1/2 |
| 1-3/4 |                |          | SB0814SL | SB1014SL | SB1214SL |          |          |          | 1-3/4 |
| 1-7/8 |                |          |          | SB1015SL | SB1215SL |          |          |          | 1-7/8 |
| 2"    |                |          | SB0816SL | SB1016SL | SB1216SL | SB1616SL | SB2016SL | SB2416SL | 2"    |
| 2-1/2 |                |          |          |          |          | SB1620SL |          | SB2420SL | 2-1/2 |
| 3"    |                |          | SB0824SL | SB1024SL | SB1224SL | SB1624SL | SB2024SL | SB2424SL | 3"    |
| 3-1/2 |                |          |          |          |          |          |          | SB2428SL | 3-1/2 |
| 3-7/8 |                |          |          |          |          | SB1631SL |          |          | 3-7/8 |
| 4-7/8 |                |          |          |          |          | SB1639SL | SB2039SL | SB2439SL | 4-7/8 |

## Guided Ejector Bushings Steel



| Nominal I.D. | G<br>+.0005<br>-.0000 | H<br>+.0005<br>-.0000 | A<br>+.000<br>-.001 | D<br>+.000<br>-.010 | L<br>+.000<br>-.030 | B<br>+.000<br>-.015 | M<br>+.000<br>-.005 | Catalog Number |
|--------------|-----------------------|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------|
| 3/4          | .751                  | 1.1255                | 1.1240              | 1.302               | 1.50                | 1.00                | .187                | GEB-06         |
| 7/8          | .876                  | 1.2505                | 1.2490              | 1.427               | 1.50                | 1.00                | .187                | GEB-07         |
| 1"           | 1.001                 | 1.3755                | 1.3740              | 1.552               | 1.75                | 1.12                | .187                | GEB-08         |
| 1-1/4        | 1.251                 | 1.6255                | 1.6240              | 1.802               | 1.75                | 1.12                | .187                | GEB-10         |
| 1-1/2        | 1.501                 | 2.0005                | 1.9990              | 2.177               | 1.75                | 1.12                | .187                | GEB-12         |

## Guided Ejector Bushings Solid Bronze

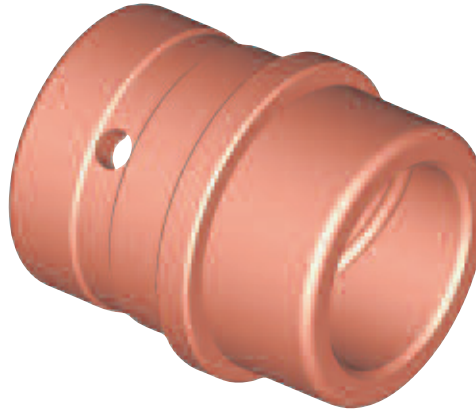
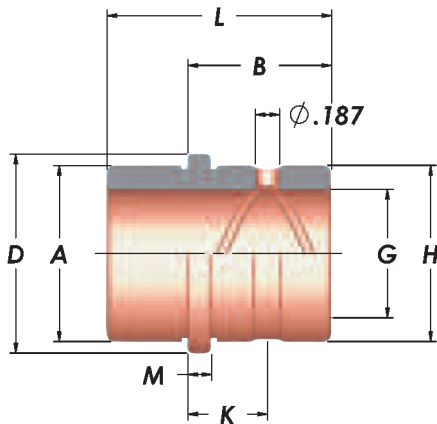


| Nominal I.D. | G<br>+.0005<br>-.0000 | H<br>+.0005<br>-.0000 | A<br>+.000<br>-.001 | D<br>+.000<br>-.010 | L<br>+.000<br>-.030 | B<br>+.000<br>-.015 | M<br>+.000<br>-.005 | K    | Catalog Number |
|--------------|-----------------------|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------|----------------|
| 3/4          | .751                  | 1.1255                | 1.1240              | 1.302               | 1.50                | 1.00                | .187                | .560 | GEB-06SB       |
| 7/8          | .876                  | 1.2505                | 1.2490              | 1.427               | 1.50                | 1.00                | .187                | .560 | GEB-07SB       |
| 1"           | 1.001                 | 1.3755                | 1.3740              | 1.552               | 1.75                | 1.12                | .187                | .620 | GEB-08SB       |
| 1-1/4        | 1.251                 | 1.6255                | 1.6240              | 1.802               | 1.75                | 1.12                | .187                | .620 | GEB-10SB       |
| 1-1/2        | 1.501                 | 2.0005                | 1.9990              | 2.177               | 1.75                | 1.12                | .187                | .620 | GEB-12SB       |
| 2"           | 2.001                 | 2.5005                | 2.4990              | 2.687               | 2.25                | 1.62                | .187                | .800 | GEB-20SB       |

# Straight Bushings

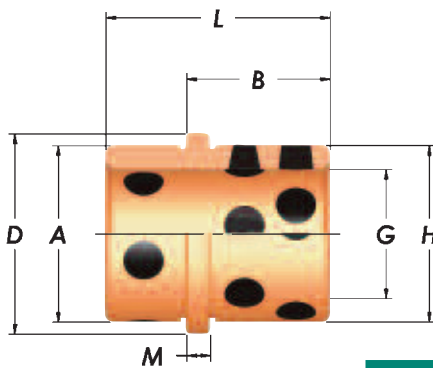


## Guided Ejector Bushings Bronze Plated



| Nominal I.D. | G<br>+.0005<br>-.0000 | H<br>+.0005<br>-.0000 | A<br>+.000<br>-.001 | D<br>+.000<br>-.010 | L<br>+.000<br>-.030 | B<br>+.000<br>-.015 | M<br>+.000<br>-.005 | K    | Catalog Number |
|--------------|-----------------------|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------|----------------|
| 3/4          | .751                  | 1.1255                | 1.1240              | 1.302               | 1.50                | 1.00                | .187                | .560 | ELB-750        |
| 7/8          | .876                  | 1.2505                | 1.2490              | 1.427               | 1.50                | 1.00                | .187                | .560 | ELB-875        |
| 1"           | 1.001                 | 1.3755                | 1.3740              | 1.552               | 1.75                | 1.12                | .187                | .620 | ELB-100        |
| 1-1/4        | 1.251                 | 1.6255                | 1.6240              | 1.802               | 1.75                | 1.12                | .187                | .620 | ELB-125        |
| 1-1/2        | 1.501                 | 2.0005                | 1.9990              | 2.177               | 1.75                | 1.12                | .187                | .620 | ELB-150        |
| 2"           | 2.001                 | 2.5005                | 2.4990              | 2.687               | 2.25                | 1.62                | .187                | .800 | ELB-200        |

## Guided Ejector Bushings Self-Lubricating

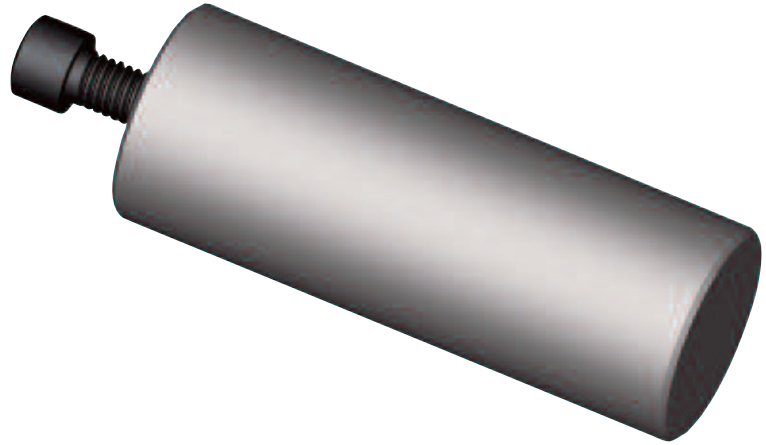
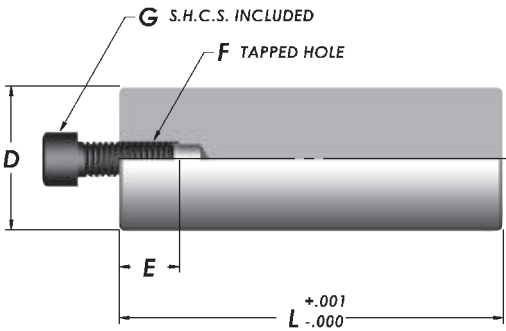


| Nominal I.D. | G<br>+.0005<br>-.0000 | H<br>+.0005<br>-.0000 | A<br>+.000<br>-.001 | D<br>+.000<br>-.010 | L<br>+.000<br>-.030 | B<br>+.000<br>-.015 | M<br>+.000<br>-.005 | Catalog Number |
|--------------|-----------------------|-----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------|
| 3/4          | .751                  | 1.1255                | 1.1240              | 1.302               | 1.500               | 1.000               | .187                | GEB-06SL       |
| 7/8          | .876                  | 1.2505                | 1.2490              | 1.427               | 1.500               | 1.000               | .187                | GEB-07SL       |
| 1"           | 1.001                 | 1.3755                | 1.3740              | 1.552               | 1.750               | 1.125               | .187                | GEB-08SL       |
| 1"           | 1.001                 | 1.3755                | 1.3740              | 1.552               | 2.000               | 1.625               | .187                | GEB-08SLX      |
| 1-1/4        | 1.251                 | 1.6255                | 1.6240              | 1.802               | 1.750               | 1.125               | .187                | GEB-10SL       |
| 1-1/4        | 1.251                 | 1.6255                | 1.6240              | 1.802               | 2.500               | 1.875               | .187                | GEB-10SLX      |
| 1-1/2        | 1.501                 | 2.0005                | 1.9990              | 2.177               | 1.750               | 1.125               | .187                | GEB-12SL       |
| 1-1/2        | 1.501                 | 2.0005                | 1.9990              | 2.177               | 2.500               | 1.875               | .187                | GEB-12SLX      |
| 2"           | 2.001                 | 2.5005                | 2.4990              | 2.687               | 2.250               | 1.625               | .187                | GEB-20SL       |

# Support Pillars

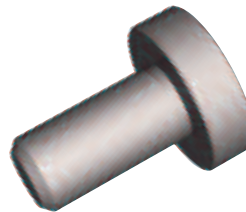
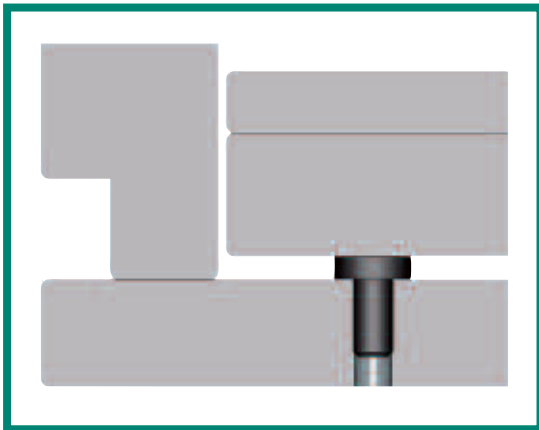


## Tapped



| D     | E     | F      | G         | CATALOG NUMBER |        |          |        |          |        |        |        |  |
|-------|-------|--------|-----------|----------------|--------|----------|--------|----------|--------|--------|--------|--|
|       |       |        |           | L=2-1/2"       | L=3"   | L=3-1/2" | L=4"   | L=4-1/2" | L=5"   | L=6"   | L=8"   |  |
| 1"    | 5/8   | 3/8-16 | 3/8-16x1" | SP1090         | SP1091 | SP1092   | SP1093 | SP1094   |        |        |        |  |
| 1-1/4 | 5/8   | 3/8-16 | 3/8-16x1" | SP1130         | SP1131 | SP1132   | SP1133 | SP1134   | SP1135 | SP1136 |        |  |
| 1-1/2 | 5/8   | 3/8-16 | 3/8-16x1" | SP1140         | SP1141 | SP1142   | SP1143 | SP1144   | SP1145 | SP1146 |        |  |
| 2"    | 5/8   | 3/8-16 | 3/8-16x1" | SP1150         | SP1151 | SP1152   | SP1153 | SP1154   | SP1155 | SP1156 |        |  |
| 3"    | 1-1/4 | 5/8-11 | none      |                |        |          |        |          | SP1235 | SP1236 | SP1238 |  |

## Stop Pins



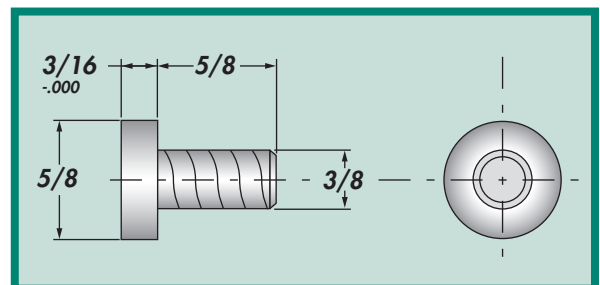
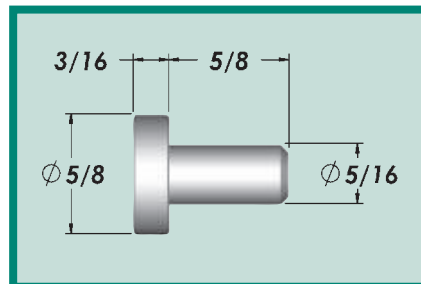
### Standard

- Head thickness is .020 oversize to provide grinding stock.
- Catalog Number SB-001



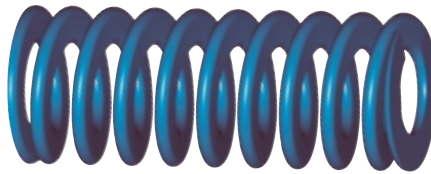
### Hardened and Self Tapping

- Head thickness has grind stock.
- Use with 11/32 drilled hole.
- Catalog Number SB-001ST



# Springs

## Medium Duty (Blue)



**Raymond**  
Die Springs

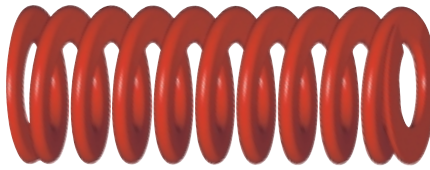
| Hole Dia.<br>OD | Rod Dia.<br>ID | Free Length | Catalog Number | Load at 1/10"     |   |                  |
|-----------------|----------------|-------------|----------------|-------------------|---|------------------|
|                 |                |             |                | Deflec.<br>(lbs.) | Max. Operating Deflection<br>40% of free length |                  |
|                 |                |             |                |                   | Load<br>(lbs.)                                  | Deflec.<br>(in.) |
| 3/8             | 3/16           | 1"          | 037M0100       | 6.0               | 24.0  | 0.40             |
|                 |                | 1-1/4"      | 037M0125       | 5.4               | 27.0  | 0.50             |
|                 |                | 1-1/2"      | 037M0150       | 4.0               | 24.0  | 0.60             |
|                 |                | 1-3/4"      | 037M0175       | 3.4               | 23.8  | 0.70             |
|                 |                | 2"          | 037M0200       | 2.8               | 22.4  | 0.80             |
|                 |                | 2-1/2"      | 037M0250       | 2.4               | 24.0  | 1.00             |
|                 |                | 3"          | 037M0300       | 2.1               | 25.2  | 1.20             |
|                 |                | 12"         | 037M1200       | 0.6               | 28.8  | 4.80             |
| 1/2             | 9/32           | 1"          | 050M0100       | 11.0              | 44.0  | 0.40             |
|                 |                | 1-1/4"      | 050M0125       | 8.2               | 41.0  | 0.50             |
|                 |                | 1-1/2"      | 050M0150       | 6.8               | 40.8  | 0.60             |
|                 |                | 1-3/4"      | 050M0175       | 6.0               | 42.0  | 0.70             |
|                 |                | 2"          | 050M0200       | 5.5               | 44.0  | 0.80             |
|                 |                | 2-1/2"      | 050M0250       | 4.5               | 45.0  | 1.00             |
|                 |                | 3"          | 050M0300       | 3.5               | 42.0  | 1.20             |
|                 |                | 3-1/2"      | 050M0350       | 3.0               | 42.0  | 1.40             |
|                 |                | 4-1/2"      | 050M0450       | 2.5               | 45.0  | 1.80             |
|                 |                | 5-1/2"      | 050M0550       | 2.1               | 46.2  | 2.20             |
|                 |                | 6-1/2"      | 050M0650       | 1.4               | 36.4  | 2.60             |
|                 |                | 7-1/2"      | 050M0750       | 1.2               | 36.0  | 3.00             |
|                 |                | 12"         | 050M1200       | 0.7               | 33.6  | 4.80             |
| 5/8             | 11/32          | 1"          | 062M0100       | 16.4              | 65.6  | 0.40             |
|                 |                | 1-1/4"      | 062M0125       | 12.8              | 64.0  | 0.50             |
|                 |                | 1-1/2"      | 062M0150       | 10.8              | 64.8  | 0.60             |
|                 |                | 1-3/4"      | 062M0175       | 9.6               | 67.2  | 0.70             |
|                 |                | 2"          | 062M0200       | 8.8               | 70.4  | 0.80             |
|                 |                | 2-1/2"      | 062M0250       | 6.0               | 60.0  | 1.00             |
|                 |                | 3"          | 062M0300       | 5.6               | 67.2  | 1.20             |
|                 |                | 3-1/2"      | 062M0350       | 4.8               | 67.2  | 1.40             |
|                 |                | 4"          | 062M0400       | 4.4               | 70.4  | 1.60             |
|                 |                | 12"         | 062M1200       | 1.6               | 76.8  | 4.80             |
| 3/4             | 3/8            | 1"          | 075M0100       | 31.2              | 124.8   | 0.40             |
|                 |                | 1-1/4"      | 075M0125       | 25.6              | 128.0   | 0.50             |
|                 |                | 1-1/2"      | 075M0150       | 20.0              | 120.0   | 0.60             |
|                 |                | 1-3/4"      | 075M0175       | 17.6              | 123.2   | 0.70             |
|                 |                | 2"          | 075M0200       | 14.4              | 115.2   | 0.80             |
|                 |                | 2-1/2"      | 075M0250       | 12.0              | 120.0   | 1.00             |
|                 |                | 3"          | 075M0300       | 9.6               | 115.2   | 1.20             |
|                 |                | 3-1/2"      | 075M0350       | 8.0               | 112.0   | 1.40             |
|                 |                | 4"          | 075M0400       | 7.2               | 115.2   | 1.60             |
|                 |                | 4-1/2"      | 075M0450       | 6.4               | 115.2   | 1.80             |
|                 |                | 5"          | 075M0500       | 6.0               | 120.0   | 2.00             |
|                 |                | 5-1/2"      | 075M0550       | 5.5               | 121.0   | 2.20             |
|                 |                | 6"          | 075M0600       | 5.0               | 120.0   | 2.40             |
|                 |                | 6-1/2"      | 075M0650       | 4.5               | 117.0   | 2.60             |
|                 |                | 7-1/2"      | 075M0750       | 3.8               | 114.0   | 3.00             |
| 12"             | 075M1200       | 2.4         | 115.2          | 4.80              |   |                  |
| 1"              | 1/2            | 1"          | 100M0100       | 55.0              | 220.0   | 0.40             |
|                 |                | 1-1/4"      | 100M0125       | 45.0              | 225.0   | 0.50             |
|                 |                | 1-1/2"      | 100M0150       | 35.0              | 210.0   | 0.60             |
|                 |                | 1-3/4"      | 100M0175       | 30.0              | 210.0   | 0.70             |
|                 |                | 2"          | 100M0200       | 26.0              | 208.0   | 0.80             |

| Hole Dia.<br>OD | Rod Dia.<br>ID | Free Length | Catalog Number | Load at 1/10"     |   |                  |
|-----------------|----------------|-------------|----------------|-------------------|---|------------------|
|                 |                |             |                | Deflec.<br>(lbs.) | Max. Operating Deflection<br>40% of free length |                  |
|                 |                |             |                |                   | Load<br>(lbs.)                                  | Deflec.<br>(in.) |
| 1"              | 1/2            | 2-1/2"      | 100M0250       | 20.0              | 200.0   | 1.00             |
|                 |                | 3"          | 100M0300       | 16.5              | 198.0   | 1.20             |
|                 |                | 3-1/2"      | 100M0350       | 15.0              | 210.0   | 1.40             |
|                 |                | 4"          | 100M0400       | 12.0              | 192.0   | 1.60             |
|                 |                | 4-1/2"      | 100M0450       | 10.4              | 187.2   | 1.80             |
|                 |                | 5"          | 100M0500       | 9.6               | 192.0   | 2.00             |
|                 |                | 5-1/2"      | 100M0550       | 8.8               | 193.6   | 2.20             |
|                 |                | 6"          | 100M0600       | 8.0               | 192.0   | 2.40             |
|                 |                | 7"          | 100M0700       | 7.2               | 201.6   | 2.80             |
|                 |                | 8"          | 100M0800       | 6.0               | 192.0   | 3.20             |
|                 |                | 12"         | 100M1200       | 4.0               | 192.0   | 4.80             |
|                 |                | 1-1/4       | 5/8            | 1-1/2"            | 125M0150  | 49.6             |
| 1-3/4"          | 125M0175       |             |                | 42.4              | 296.8   | 0.70             |
| 2"              | 125M0200       |             |                | 35.2              | 281.6   | 0.80             |
| 2-1/2"          | 125M0250       |             |                | 28.8              | 288.0   | 1.00             |
| 3"              | 125M0300       |             |                | 24.0              | 288.0   | 1.20             |
| 3-1/2"          | 125M0350       |             |                | 20.0              | 280.0   | 1.40             |
| 4"              | 125M0400       |             |                | 17.6              | 281.6   | 1.60             |
| 4-1/2"          | 125M0450       |             |                | 16.0              | 288.0   | 1.80             |
| 5"              | 125M0500       |             |                | 13.6              | 272.0   | 2.00             |
| 5-1/2"          | 125M0550       |             |                | 12.8              | 281.6   | 2.20             |
| 6"              | 125M0600       |             |                | 12.0              | 288.0   | 2.40             |
| 7"              | 125M0700       |             |                | 10.4              | 291.2   | 2.80             |
| 8"              | 125M0800       |             |                | 8.8               | 281.6   | 3.20             |
| 10"             | 125M1000       | 7.2         | 288.0          | 4.00              |   |                  |
| 12"             | 125M1200       | 6.0         | 288.0          | 4.80              |   |                  |
| 1-1/2           | 3/4            | 2"          | 150M0200       | 53.0              | 424.0   | 0.80             |
|                 |                | 2-1/2"      | 150M0250       | 45.0              | 450.0   | 1.00             |
|                 |                | 3"          | 150M0300       | 36.0              | 432.0   | 1.20             |
|                 |                | 3-1/2"      | 150M0350       | 30.0              | 420.0   | 1.40             |
|                 |                | 4"          | 150M0400       | 27.0              | 432.0   | 1.60             |
|                 |                | 4-1/2"      | 150M0450       | 23.0              | 414.0   | 1.80             |
|                 |                | 5"          | 150M0500       | 21.0              | 420.0   | 2.00             |
|                 |                | 5-1/2"      | 150M0550       | 18.5              | 407.0   | 2.20             |
|                 |                | 6"          | 150M0600       | 17.0              | 408.0   | 2.40             |
|                 |                | 7"          | 150M0700       | 14.5              | 406.0   | 2.80             |
|                 |                | 8"          | 150M0800       | 12.8              | 409.6   | 3.20             |
|                 |                | 10"         | 150M1000       | 10.0              | 400.0   | 4.00             |
| 12"             | 150M1200       | 8.0         | 384.0          | 4.80              |   |                  |
| 2"              | 1"             | 2-1/2"      | 200M0250       | 100.0             | 1000.0  | 1.00             |
|                 |                | 3"          | 200M0300       | 83.0              | 996.0   | 1.20             |
|                 |                | 3-1/2"      | 200M0350       | 64.8              | 907.2   | 1.40             |
|                 |                | 4"          | 200M0400       | 60.0              | 960.0   | 1.60             |
|                 |                | 4-1/2"      | 200M0450       | 53.0              | 954.0   | 1.80             |
|                 |                | 5"          | 200M0500       | 47.0              | 940.0   | 2.00             |
|                 |                | 5-1/2"      | 200M0550       | 39.2              | 862.4   | 2.20             |
|                 |                | 6"          | 200M0600       | 39.0              | 936.0   | 2.40             |
|                 |                | 7"          | 200M0700       | 31.2              | 873.6   | 2.80             |
|                 |                | 8"          | 200M0800       | 28.5              | 912.0   | 3.20             |
|                 |                | 10"         | 200M1000       | 20.8              | 832.0   | 4.00             |
|                 |                | 12"         | 200M1200       | 17.5              | 840.0   | 4.80             |



# Springs

## Medium Heavy Duty (Red)



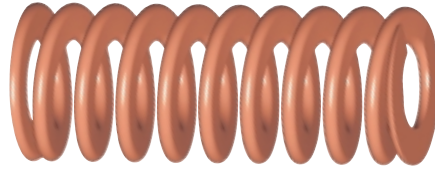
| Hole Dia.<br>OD | Rod Dia.<br>ID | Free Length | Catalog Number | Load at 1/10"     | Max. Operating Deflection<br>30% of free length |         |
|-----------------|----------------|-------------|----------------|-------------------|---|---------|
|                 |                |             |                | Deflec.<br>(lbs.) | Load  | Deflec. |
|                 |                |             |                |                   | (lbs.)  | (in.)   |
| 3/8             | 3/16           | 1"          | 037MH0100      | 9.0               | 27.0  | 0.30    |
|                 |                | 1-1/4"      | 037MH0125      | 7.3               | 27.4  | 0.38    |
|                 |                | 1-1/2"      | 037MH0150      | 6.7               | 30.2  | 0.45    |
|                 |                | 1-3/4"      | 037MH0175      | 5.8               | 30.5  | 0.53    |
|                 |                | 2"          | 037MH0200      | 5.0               | 30.0  | 0.60    |
|                 |                | 2-1/2"      | 037MH0250      | 4.2               | 31.5  | 0.75    |
|                 |                | 3"          | 037MH0300      | 3.0               | 27.0  | 0.90    |
| 1/2             | 9/32           | 12"         | 037MH1200      | 0.9               | 32.4  | 3.60    |
|                 |                | 1"          | 050MH0100      | 16.8              | 50.4  | 0.30    |
|                 |                | 1-1/4"      | 050MH0125      | 13.0              | 48.8  | 0.38    |
|                 |                | 1-1/2"      | 050MH0150      | 9.5               | 42.8  | 0.45    |
|                 |                | 1-3/4"      | 050MH0175      | 8.5               | 44.6  | 0.53    |
|                 |                | 2"          | 050MH0200      | 7.5               | 45.0  | 0.60    |
|                 |                | 2-1/2"      | 050MH0250      | 6.0               | 45.0  | 0.75    |
| 5/8             | 11/32          | 3"          | 050MH0300      | 5.7               | 51.3  | 0.90    |
|                 |                | 3-1/2"      | 050MH0350      | 4.0               | 42.0  | 1.05    |
|                 |                | 12"         | 050MH1200      | 1.2               | 43.2  | 3.60    |
|                 |                | 1"          | 062MH0100      | 30.0              | 90.0  | 0.30    |
|                 |                | 1-1/4"      | 062MH0125      | 21.5              | 80.6  | 0.38    |
|                 |                | 1-1/2"      | 062MH0150      | 19.0              | 85.5  | 0.45    |
|                 |                | 1-3/4"      | 062MH0175      | 16.8              | 88.2  | 0.53    |
| 3/4             | 3/8            | 2"          | 062MH0200      | 14.8              | 88.8  | 0.60    |
|                 |                | 2-1/2"      | 062MH0250      | 11.5              | 86.3  | 0.75    |
|                 |                | 3"          | 062MH0300      | 10.0              | 90.0  | 0.90    |
|                 |                | 3-1/2"      | 062MH0350      | 8.5               | 89.3  | 1.05    |
|                 |                | 4"          | 062MH0400      | 7.6               | 91.2  | 1.20    |
|                 |                | 12"         | 062MH1200      | 2.7               | 97.2  | 3.60    |
|                 |                | 1"          | 1/2            | 1"                | 075MH0100                                       | 50.0    |
| 1-1/4"          | 075MH0125      |             |                | 38.0              | 142.5   | 0.38    |
| 1-1/2"          | 075MH0150      |             |                | 32.0              | 144.0   | 0.45    |
| 1-3/4"          | 075MH0175      |             |                | 28.8              | 151.2   | 0.53    |
| 2"              | 075MH0200      |             |                | 24.8              | 148.8   | 0.60    |
| 2-1/2"          | 075MH0250      |             |                | 19.2              | 144.0   | 0.75    |
| 3"              | 075MH0300      |             |                | 14.4              | 129.6   | 0.90    |
| 3-1/2"          | 075MH0350      |             |                | 12.8              | 134.4   | 1.05    |
| 4"              | 075MH0400      |             |                | 12.0              | 144.0   | 1.20    |
| 4-1/2"          | 075MH0450      |             |                | 11.2              | 151.2   | 1.35    |
| 5"              | 075MH0500      |             |                | 9.0               | 135.0   | 1.50    |
| 5-1/2"          | 075MH0550      |             |                | 8.0               | 132.0   | 1.65    |
| 1"              | 1/2            | 6"          | 075MH0600      | 7.5               | 135.0   | 1.80    |
|                 |                | 12"         | 075MH1200      | 3.6               | 129.6   | 3.60    |
|                 |                | 1"          | 100MH0100      | 76.0              | 228.0   | 0.30    |
|                 |                | 1-1/4"      | 100MH0125      | 62.4              | 234.0   | 0.38    |
|                 |                | 1-1/2"      | 100MH0150      | 49.6              | 223.2   | 0.45    |
|                 |                | 1-3/4"      | 100MH0175      | 44.0              | 231.0   | 0.53    |
|                 |                | 2"          | 100MH0200      | 40.0              | 240.0   | 0.60    |
|                 |                | 2-1/2"      | 100MH0250      | 31.0              | 232.5   | 0.75    |
|                 |                | 3"          | 100MH0300      | 25.0              | 225.0   | 0.90    |
|                 |                | 3-1/2"      | 100MH0350      | 21.6              | 226.8   | 1.05    |
|                 |                | 4"          | 100MH0400      | 18.4              | 220.8   | 1.20    |
|                 |                | 4-1/2"      | 100MH0450      | 17.0              | 229.5   | 1.35    |
| 5"              | 100MH0500      | 14.4        | 216.0          | 1.50              |   |         |

| Hole Dia.<br>OD | Rod Dia.<br>ID | Free Length | Catalog Number | Load at 1/10"     | Max. Operating Deflection<br>30% of free length |         |
|-----------------|----------------|-------------|----------------|-------------------|---|---------|
|                 |                |             |                | Deflec.<br>(lbs.) | Load  | Deflec. |
|                 |                |             |                |                   | (lbs.)  | (in.)   |
| 1"              | 1/2            | 5-1/2"      | 100MH0550      | 12.8              | 211.2   | 1.65    |
|                 |                | 6"          | 100MH0600      | 12.0              | 216.0   | 1.80    |
|                 |                | 7"          | 100MH0700      | 10.0              | 210.0   | 2.10    |
|                 |                | 8"          | 100MH0800      | 8.8               | 211.2   | 2.40    |
|                 |                | 12"         | 100MH1200      | 6.2               | 223.2   | 3.60    |
| 1-1/4           | 5/8            | 1-1/2"      | 125MH0150      | 114.4             | 514.8   | 0.45    |
|                 |                | 1-3/4"      | 125MH0175      | 100.8             | 529.2   | 0.53    |
|                 |                | 2"          | 125MH0200      | 86.4              | 518.4   | 0.60    |
|                 |                | 2-1/2"      | 125MH0250      | 62.4              | 468.0   | 0.75    |
|                 |                | 3"          | 125MH0300      | 51.2              | 460.8   | 0.90    |
|                 |                | 3-1/2"      | 125MH0350      | 44.0              | 462.0   | 1.05    |
|                 |                | 4"          | 125MH0400      | 36.8              | 441.6   | 1.20    |
|                 |                | 4-1/2"      | 125MH0450      | 32.0              | 432.0   | 1.35    |
|                 |                | 5"          | 125MH0500      | 29.0              | 435.0   | 1.50    |
|                 |                | 5-1/2"      | 125MH0550      | 26.4              | 435.6   | 1.65    |
|                 |                | 6"          | 125MH0600      | 25.0              | 450.0   | 1.80    |
|                 |                | 7"          | 125MH0700      | 20.0              | 420.0   | 2.10    |
| 1-1/2           | 3/4            | 8"          | 125MH0800      | 18.4              | 441.6   | 2.40    |
|                 |                | 10"         | 125MH1000      | 14.5              | 435.0   | 3.00    |
|                 |                | 12"         | 125MH1200      | 12.4              | 446.4   | 3.60    |
|                 |                | 2"          | 150MH0200      | 108.0             | 648.0   | 0.60    |
|                 |                | 2-1/2"      | 150MH0250      | 85.6              | 642.0   | 0.75    |
|                 |                | 3"          | 150MH0300      | 62.4              | 561.6   | 0.90    |
|                 |                | 3-1/2"      | 150MH0350      | 52.8              | 554.4   | 1.05    |
|                 |                | 4"          | 150MH0400      | 48.0              | 576.0   | 1.20    |
|                 |                | 4-1/2"      | 150MH0450      | 43.2              | 583.2   | 1.35    |
|                 |                | 5"          | 150MH0500      | 36.8              | 552.0   | 1.50    |
|                 |                | 5-1/2"      | 150MH0550      | 34.4              | 567.6   | 1.65    |
|                 |                | 6"          | 150MH0600      | 30.4              | 547.2   | 1.80    |
| 2"              | 1"             | 7"          | 150MH0700      | 26.4              | 554.4   | 2.10    |
|                 |                | 8"          | 150MH0800      | 22.0              | 528.0   | 2.40    |
|                 |                | 10"         | 150MH1000      | 17.6              | 528.0   | 3.00    |
|                 |                | 12"         | 150MH1200      | 14.4              | 518.4   | 3.60    |
|                 |                | 2-1/2"      | 200MH0250      | 118.4             | 888.0   | 0.75    |
|                 |                | 3"          | 200MH0300      | 96.0              | 864.0   | 0.90    |
|                 |                | 3-1/2"      | 200MH0350      | 80.0              | 840.0   | 1.05    |
|                 |                | 4"          | 200MH0400      | 66.4              | 796.8   | 1.20    |
|                 |                | 4-1/2"      | 200MH0450      | 60.0              | 810.0   | 1.35    |
|                 |                | 5"          | 200MH0500      | 56.0              | 840.0   | 1.50    |
|                 |                | 5-1/2"      | 200MH0550      | 50.4              | 831.6   | 1.65    |
|                 |                | 6"          | 200MH0600      | 47.2              | 849.6   | 1.80    |
| 7"              | 200MH0700      | 40.0        | 840.0          | 2.10              |   |         |
| 8"              | 200MH0800      | 35.2        | 844.8          | 2.40              |   |         |
| 10"             | 200MH1000      | 26.0        | 780.0          | 3.00              |   |         |
| 12"             | 200MH1200      | 22.4        | 806.4          | 3.60              |   |         |

**Raymond**  
Die Springs

# Springs

## Heavy Duty (Gold)



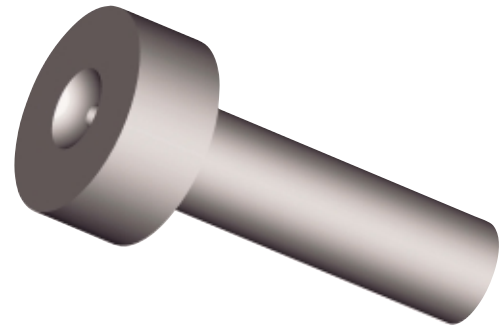
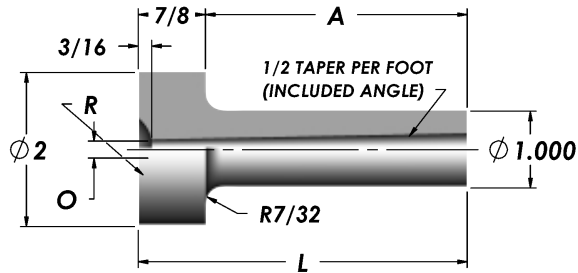
| Hole Dia.<br>OD | Rod Dia.<br>ID | Free Length | Catalog Number | Load at 1/10"<br>Deflec.<br>(lbs.) | Max. Operating Deflection<br>25% of free length |                  |
|-----------------|----------------|-------------|----------------|------------------------------------|---|------------------|
|                 |                |             |                |                                    | Load<br>(lbs.)                                  | Deflec.<br>(in.) |
|                 |                |             |                |                                    |   |                  |
| 3/8             | 3/16           | 1"          | 037H0100       | 11.0                               | 27.5  | 0.25             |
|                 |                | 1-1/4"      | 037H0125       | 9.8                                | 30.6  | 0.31             |
|                 |                | 1-1/2"      | 037H0150       | 8.0                                | 30.0  | 0.38             |
|                 |                | 1-3/4"      | 037H0175       | 8.4                                | 36.8  | 0.44             |
|                 |                | 2"          | 037H0200       | 7.2                                | 36.0  | 0.50             |
|                 |                | 2-1/2"      | 037H0250       | 5.5                                | 34.4  | 0.63             |
|                 |                | 3"          | 037H0300       | 4.2                                | 31.5  | 0.75             |
|                 |                | 12"         | 037H1200       | 1.2                                | 36.0  | 3.00             |
| 1/2             | 9/32           | 1"          | 050H0100       | 23.6                               | 59.0  | 0.25             |
|                 |                | 1-1/4"      | 050H0125       | 18.6                               | 58.1  | 0.31             |
|                 |                | 1-1/2"      | 050H0150       | 15.5                               | 58.1  | 0.38             |
|                 |                | 1-3/4"      | 050H0175       | 13.8                               | 60.4  | 0.44             |
|                 |                | 2"          | 050H0200       | 11.0                               | 55.0  | 0.50             |
|                 |                | 2-1/2"      | 050H0250       | 8.4                                | 52.5  | 0.63             |
|                 |                | 3"          | 050H0300       | 7.4                                | 55.5  | 0.75             |
|                 |                | 3-1/2"      | 050H0350       | 6.0                                | 52.5  | 0.88             |
|                 |                | 12"         | 050H1200       | 1.6                                | 48.0  | 3.00             |
|                 |                | 5/8         | 11/32          | 1"                                 | 062H0100  | 42.4             |
| 1-1/4"          | 062H0125       |             |                | 29.6                               | 92.5  | 0.31             |
| 1-1/2"          | 062H0150       |             |                | 27.2                               | 102.0   | 0.38             |
| 1-3/4"          | 062H0175       |             |                | 24.0                               | 105.0   | 0.44             |
| 2"              | 062H0200       |             |                | 20.8                               | 104.0   | 0.50             |
| 2-1/2"          | 062H0250       |             |                | 17.0                               | 106.3   | 0.63             |
| 3"              | 062H0300       |             |                | 14.4                               | 108.0   | 0.75             |
| 3-1/2"          | 062H0350       |             |                | 12.2                               | 106.8   | 0.88             |
| 4"              | 062H0400       |             |                | 10.8                               | 108.0   | 1.00             |
| 12"             | 062H1200       |             |                | 3.0                                | 90.0  | 3.00             |
| 3/4             | 3/8            | 1"          | 075H0100       | 108.0                              | 270.0   | 0.25             |
|                 |                | 1-1/4"      | 075H0125       | 88.0                               | 275.0   | 0.31             |
|                 |                | 1-1/2"      | 075H0150       | 65.6                               | 246.0   | 0.38             |
|                 |                | 1-3/4"      | 075H0175       | 60.0                               | 262.5   | 0.44             |
|                 |                | 2"          | 075H0200       | 49.6                               | 248.0   | 0.50             |
|                 |                | 2-1/2"      | 075H0250       | 40.0                               | 250.0   | 0.63             |
|                 |                | 3"          | 075H0300       | 34.0                               | 255.0   | 0.75             |
|                 |                | 3-1/2"      | 075H0350       | 28.0                               | 245.0   | 0.88             |
|                 |                | 4"          | 075H0400       | 25.0                               | 250.0   | 1.00             |
|                 |                | 4-1/2"      | 075H0450       | 22.0                               | 247.5   | 1.13             |
|                 |                | 5"          | 075H0500       | 19.5                               | 243.8   | 1.25             |
|                 |                | 5-1/2"      | 075H0550       | 17.0                               | 233.8   | 1.38             |
|                 |                | 6"          | 075H0600       | 16.0                               | 240.0   | 1.50             |
|                 |                | 12"         | 075H1200       | 8.0                                | 240.0   | 3.00             |
| 1"              | 1/2            | 1"          | 100H0100       | 208.0                              | 520.0   | 0.25             |
|                 |                | 1-1/4"      | 100H0125       | 171.2                              | 535.0   | 0.31             |
|                 |                | 1-1/2"      | 100H0150       | 118.4                              | 444.0   | 0.38             |
|                 |                | 1-3/4"      | 100H0175       | 104.0                              | 455.0   | 0.44             |
|                 |                | 2"          | 100H0200       | 90.0                               | 450.0   | 0.50             |
|                 |                | 2-1/2"      | 100H0250       | 68.0                               | 425.0   | 0.63             |
|                 |                | 3"          | 100H0300       | 54.4                               | 408.0   | 0.75             |
|                 |                | 3-1/2"      | 100H0350       | 45.6                               | 399.0   | 0.88             |
|                 |                | 4"          | 100H0400       | 40.0                               | 400.0   | 1.00             |
|                 |                | 4-1/2"      | 100H0450       | 35.2                               | 396.0   | 1.13             |
|                 |                | 5"          | 100H0500       | 31.2                               | 390.0   | 1.25             |

| Hole Dia.<br>OD | Rod Dia.<br>ID | Free Length | Catalog Number | Load at 1/10"<br>Deflec.<br>(lbs.) | Max. Operating Deflection<br>25% of free length |                  |
|-----------------|----------------|-------------|----------------|------------------------------------|---|------------------|
|                 |                |             |                |                                    | Load<br>(lbs.)                                  | Deflec.<br>(in.) |
|                 |                |             |                |                                    |   |                  |
| 1"              | 1/2            | 5-1/2"      | 100H0550       | 28.8                               | 396.0   | 1.38             |
|                 |                | 6"          | 100H0600       | 25.6                               | 384.0   | 1.50             |
|                 |                | 7"          | 100H0700       | 22.4                               | 392.0   | 1.75             |
|                 |                | 8"          | 100H0800       | 19.2                               | 384.0   | 2.00             |
|                 |                | 12"         | 100H1200       | 12.0                               | 360.0   | 3.00             |
|                 |                | 1-1/4       | 5/8            | 1-1/2"                             | 125H0150  | 212.0            |
| 1-3/4"          | 125H0175       |             |                | 181.6                              | 794.5   | 0.44             |
| 2"              | 125H0200       |             |                | 149.6                              | 748.0   | 0.50             |
| 2-1/2"          | 125H0250       |             |                | 117.6                              | 735.0   | 0.63             |
| 3"              | 125H0300       |             |                | 95.2                               | 714.0   | 0.75             |
| 3-1/2"          | 125H0350       |             |                | 75.2                               | 658.0   | 0.88             |
| 4"              | 125H0400       |             |                | 66.4                               | 664.0   | 1.00             |
| 4-1/2"          | 125H0450       |             |                | 58.4                               | 657.0   | 1.13             |
| 5"              | 125H0500       |             |                | 53.0                               | 662.5   | 1.25             |
| 5-1/2"          | 125H0550       |             |                | 47.2                               | 649.0   | 1.38             |
| 6"              | 125H0600       |             |                | 42.4                               | 636.0   | 1.50             |
| 7"              | 125H0700       |             |                | 36.8                               | 644.0   | 1.75             |
| 8"              | 125H0800       |             |                | 32.8                               | 656.0   | 2.00             |
| 10"             | 125H1000       |             |                | 25.6                               | 640.0   | 2.50             |
| 12"             | 125H1200       | 20.8        | 624.0          | 3.00                               |   |                  |
| 1-1/2           | 3/4            | 2"          | 150H0200       | 190.4                              | 952.0   | 0.50             |
|                 |                | 2-1/2"      | 150H0250       | 155.0                              | 968.8   | 0.63             |
|                 |                | 3"          | 150H0300       | 130.0                              | 975.0   | 0.75             |
|                 |                | 3-1/2"      | 150H0350       | 106.4                              | 931.0   | 0.88             |
|                 |                | 4"          | 150H0400       | 91.2                               | 912.0   | 1.00             |
|                 |                | 4-1/2"      | 150H0450       | 78.4                               | 882.0   | 1.13             |
|                 |                | 5"          | 150H0500       | 71.2                               | 890.0   | 1.25             |
|                 |                | 5-1/2"      | 150H0550       | 64.0                               | 880.0   | 1.38             |
|                 |                | 6"          | 150H0600       | 58.4                               | 876.0   | 1.50             |
|                 |                | 7"          | 150H0700       | 49.6                               | 868.0   | 1.75             |
|                 |                | 8"          | 150H0800       | 43.2                               | 864.0   | 2.00             |
|                 |                | 10"         | 150H1000       | 34.4                               | 860.0   | 2.50             |
|                 |                | 12"         | 150H1200       | 28.8                               | 864.0   | 3.00             |
|                 |                | 2"          | 1"             | 2-1/2"                             | 200H0250  | 260.0            |
| 3"              | 200H0300       |             |                | 200.0                              | 1500.0  | 0.75             |
| 3-1/2"          | 200H0350       |             |                | 170.0                              | 1487.5  | 0.88             |
| 4"              | 200H0400       |             |                | 150.0                              | 1500.0  | 1.00             |
| 4-1/2"          | 200H0450       |             |                | 120.0                              | 1350.0  | 1.13             |
| 5"              | 200H0500       |             |                | 110.0                              | 1375.0  | 1.25             |
| 5-1/2"          | 200H0550       |             |                | 100.0                              | 1375.0  | 1.38             |
| 6"              | 200H0600       |             |                | 94.0                               | 1410.0  | 1.50             |
| 7"              | 200H0700       |             |                | 82.0                               | 1435.0  | 1.75             |
| 8"              | 200H0800       |             |                | 73.0                               | 1460.0  | 2.00             |
| 10"             | 200H1000       |             |                | 55.0                               | 1375.0  | 2.50             |
| 12"             | 200H1200       |             |                | 42.0                               | 1260.0  | 3.00             |

**Raymond**  
Die Springs

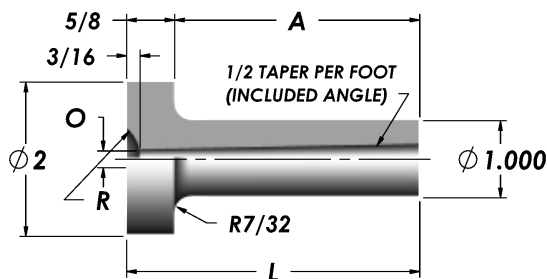


# Sprue Bushings



**B-Series**

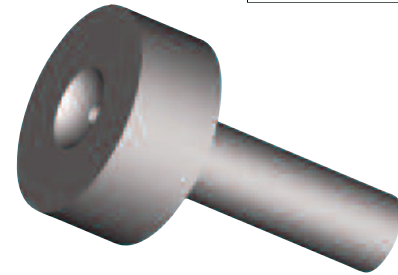
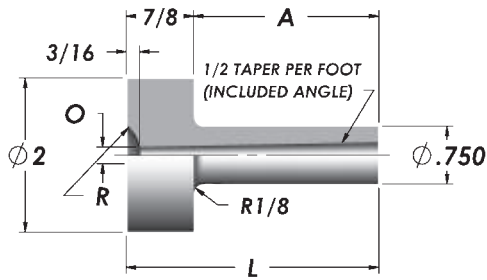
| A       | L       | O=5/32  |         | O=7/32  |         | O=9/32  |         | O=11/32 |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|         |         | R=1/2   | R=3/4   | R=1/2   | R=3/4   | R=1/2   | R=3/4   | R=1/2   | R=3/4   |
| 29/32   | 1-25/32 | B129512 | B129534 | B129712 | B129734 | B129912 | B129934 | B129112 | B129134 |
| 1-13/32 | 2-9/32  | B221512 | B221534 | B221712 | B221734 | B221912 | B221934 | B221112 | B221134 |
| 1-29/32 | 2-25/32 | B229512 | B229534 | B229712 | B229734 | B229912 | B229934 | B229112 | B229134 |
| 2-13/32 | 3-9/32  | B321512 | B321534 | B321712 | B321734 | B321912 | B321934 | B321112 | B321134 |
| 2-29/32 | 3-25/32 | B329512 | B329534 | B329712 | B329734 | B329912 | B329934 | B329112 | B329134 |
| 3-13/32 | 4-9/32  | B421512 | B421534 | B421712 | B421734 | B421912 | B421934 | B421112 | B421134 |
| 3-29/32 | 4-25/32 | B429512 | B429534 | B429712 | B429734 | B429912 | B429934 | B429112 | B429134 |
| 4-13/32 | 5-9/32  | B521512 | B521534 | B521712 | B521734 | B521912 | B521934 | B521112 | B521134 |
| 4-29/32 | 5-25/32 | B529512 | B529534 | B529712 | B529734 | B529912 | B529934 | B529112 | B529134 |
| 5-29/32 | 6-25/32 |         |         | B629712 | B629734 | B629912 | B629934 | B629112 | B629134 |
| 6-29/32 | 7-25/32 |         |         | B729712 | B729734 | B729912 | B729934 | B729112 | B729134 |



**A-Series**

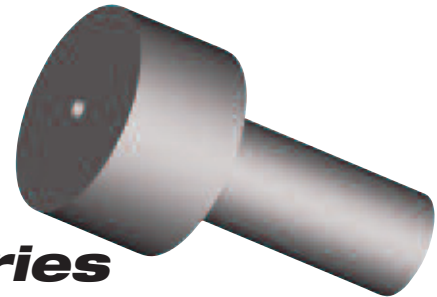
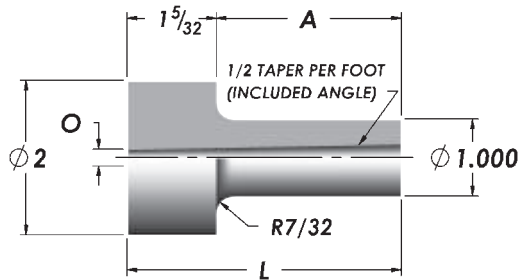
| A       | L       | O=5/32  |         | O=7/32  |         | O=9/32  |         | O=11/32 |         |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|         |         | R=1/2   | R=3/4   | R=1/2   | R=3/4   | R=1/2   | R=3/4   | R=1/2   | R=3/4   |
| 1-3/16  | 1-13/16 | A129512 | A129534 | A129712 | A129734 | A129912 | A129934 | A129112 | A129134 |
| 1-11/16 | 2-5/16  | A221512 | A221534 | A221712 | A221734 | A221912 | A221934 | A221112 | A221134 |
| 2-3/16  | 2-13/16 | A229512 | A229534 | A229712 | A229734 | A229912 | A229934 | A229112 | A229134 |
| 2-11/16 | 3-5/16  | A321512 | A321534 | A321712 | A321734 | A321912 | A321934 | A321112 | A321134 |
| 3-3/16  | 3-13/16 | A329512 | A329534 | A329712 | A329734 | A329912 | A329934 | A329112 | A329134 |
| 3-11/16 | 4-5/16  | A421512 | A421534 | A421712 | A421734 | A421912 | A421934 | A421112 | A421134 |
| 4-3/16  | 4-13/16 | A429512 | A429534 | A429712 | A429734 | A429912 | A429934 | A429112 | A429134 |

# Sprue Bushings



## U-Series

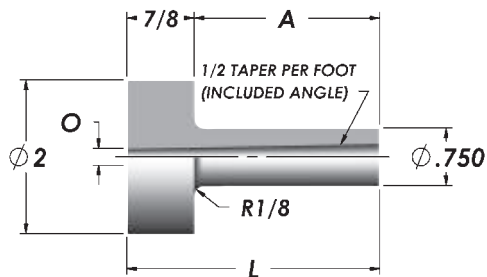
| A       | L       | O=5/32  |         | O=7/32  |         | O=9/32  |         |
|---------|---------|---------|---------|---------|---------|---------|---------|
|         |         | R=1/2   | R=3/4   | R=1/2   | R=3/4   | R=1/2   | R=3/4   |
| 29/32   | 1-25/32 | U157512 | U157534 | U157712 | U157734 | U157912 | U157934 |
| 1-13/32 | 2-9/32  | U241512 | U241534 | U241712 | U241734 | U241912 | U241934 |
| 1-29/32 | 2-25/32 | U257512 | U257534 | U257712 | U257734 | U257912 | U257934 |
| 2-13/32 | 3-9/32  | U341512 | U341534 | U341712 | U341734 | U341912 | U341934 |
| 2-29/32 | 3-25/32 | U357512 | U357534 | U357712 | U357734 | U357912 | U357934 |



## \* LN-Series

\* NOTE: Discontinued. Available while supplies last. May be available as a per order item after depleted.

| A       | L      | O=5/32   | O=7/32   | O=9/32   |
|---------|--------|----------|----------|----------|
| 29/32   | 2-1/16 | LN217532 | LN217732 | LN217932 |
| 1-13/32 | 2-9/16 | LN225532 | LN225732 | LN225932 |
| 1-29/32 | 3-1/16 | LN317532 | LN317732 | LN317932 |
| 2-13/32 | 3-9/16 | LN325532 | LN325732 | LN325932 |
| 2-29/32 | 4-1/16 | LN417532 | LN417732 | LN417932 |
| 3-13/32 | 4-9/16 | LN425532 | LN425732 | LN425932 |

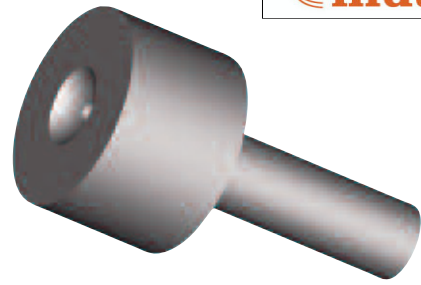
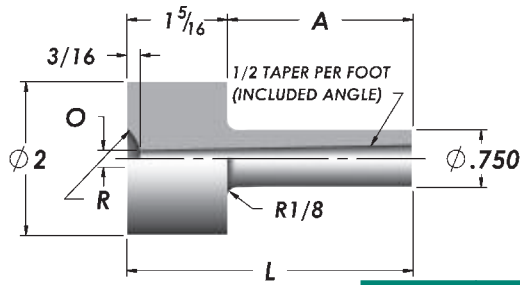


## \* UR-Series

\* NOTE: Discontinued. Available while supplies last. May be available as a per order item after depleted.

| A       | L       | O=5/32   | O=7/32   | O=9/32   |
|---------|---------|----------|----------|----------|
| 29/32   | 1-25/32 | UR157532 | UR157732 | UR157932 |
| 1-13/32 | 2-9/32  | UR241532 | UR241732 | UR241932 |
| 1-29/32 | 2-25/32 | UR257532 | UR257732 | UR257932 |
| 2-13/32 | 3-9/32  | UR341532 | UR341732 | UR341932 |
| 2-29/32 | 3-25/32 | UR357532 | UR357732 | UR357932 |

# Sprue Bushings

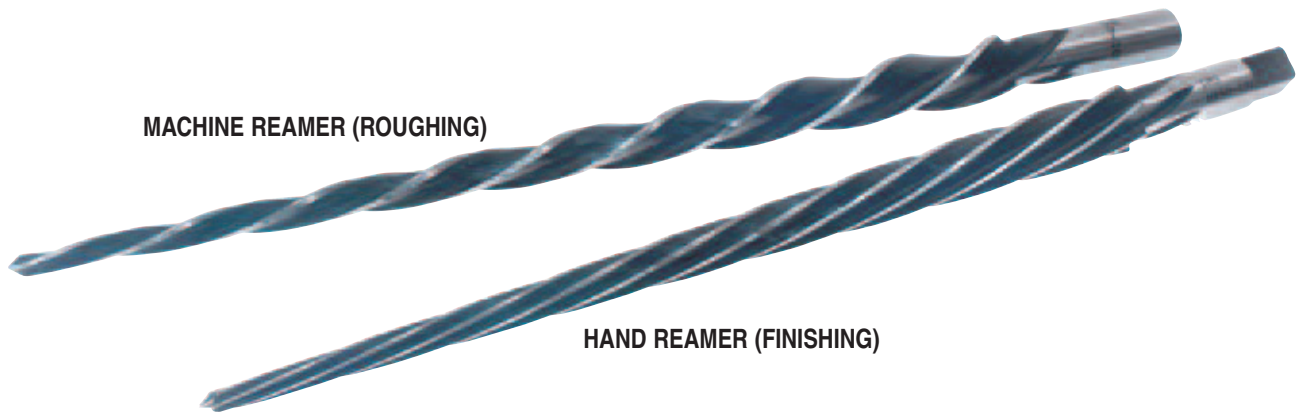


## \* UV-Series

\* NOTE: Discontinued. Available while supplies last. May be available as a per order item after depleted.

| A       | L       | O=5/32   | O=7/32   | O=9/32   |
|---------|---------|----------|----------|----------|
|         |         | R=1/2    | R=1/2    | R=1/2    |
| 29/32   | 2-7/32  | UV239512 | UV239712 | UV239912 |
| 1-13/32 | 2-23/32 | UV255512 | UV255712 | UV255912 |
| 1-29/32 | 3-7/32  | UV339512 | UV339712 | UV339912 |
| 2-13/32 | 3-23/32 | UV355512 | UV355712 | UV355912 |
| 2-29/32 | 4-7/32  | UV439512 | UV439712 | UV439912 |

# Sprue Reamers



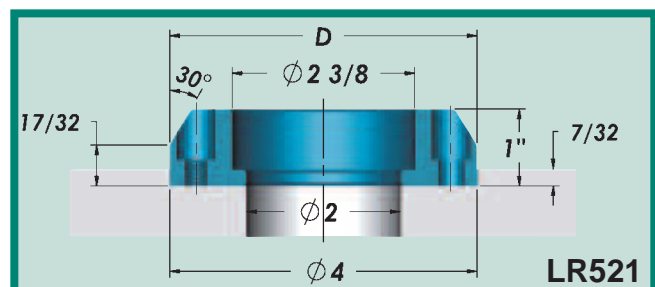
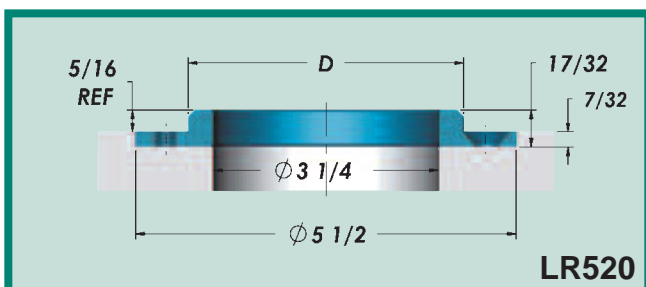
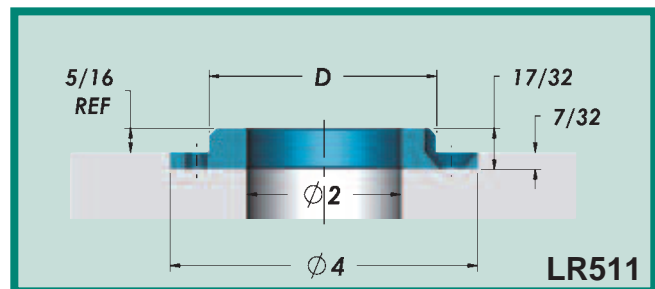
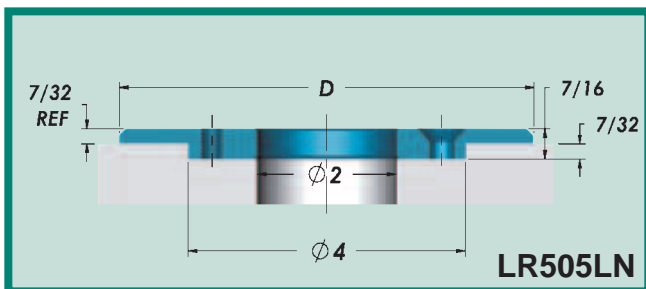
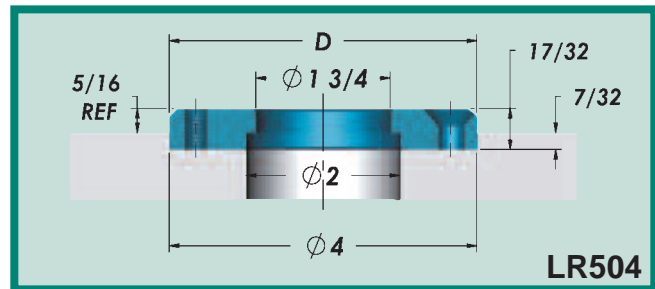
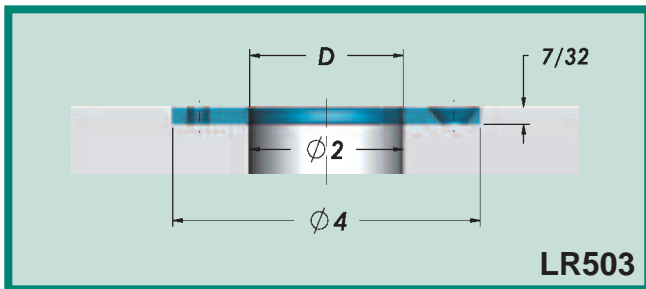
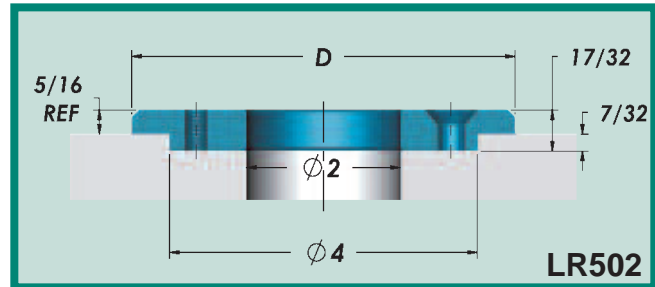
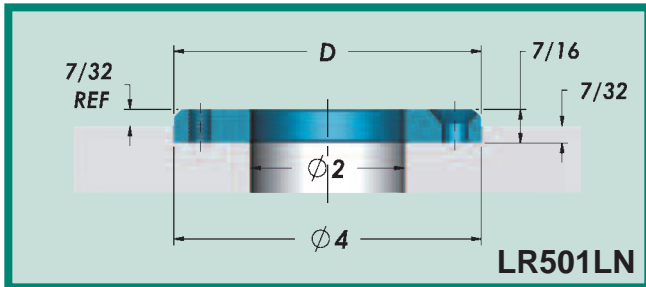
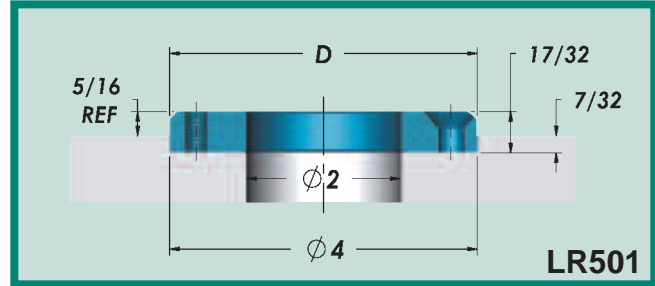
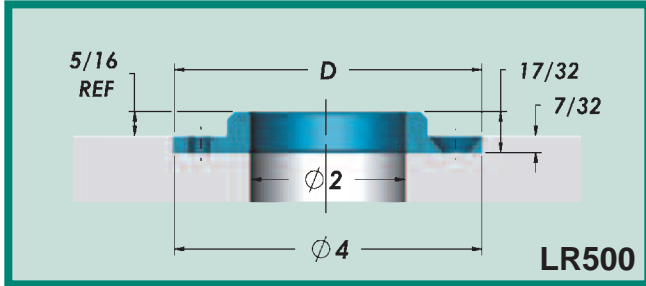
| HAND REAMERS   |        |                |                    |                    |                |              |
|----------------|--------|----------------|--------------------|--------------------|----------------|--------------|
| Catalog Number | Flutes | Taper per foot | Diameter Small End | Diameter Large End | Shank Diameter | Flute Length |
| HR-50-06S      | 4      | 1/2            | 7/64               | 3/8                | 5/16           | 6"           |
| HR-50-10L      | 6      | 1/2            | 13/64              | 5/8                | 1/2            | 10-1/2"      |

| MACHINE REAMERS |        |                |                    |                    |                |              |
|-----------------|--------|----------------|--------------------|--------------------|----------------|--------------|
| Catalog Number  | Flutes | Taper per foot | Diameter Small End | Diameter Large End | Shank Diameter | Flute Length |
| MR-50-06S       | 3      | 1/2            | 7/64               | 3/8                | 5/16           | 6"           |
| MR-50-10L       | 3      | 1/2            | 13/64              | 5/8                | 1/2            | 10-1/2"      |

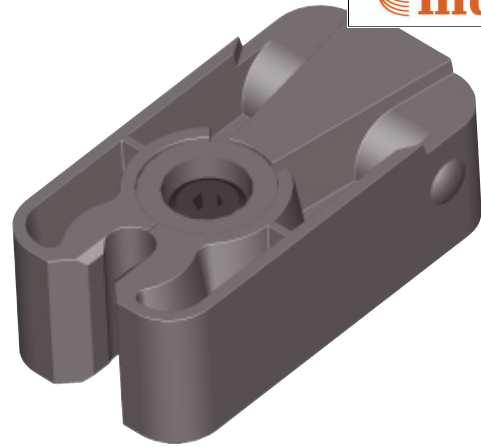
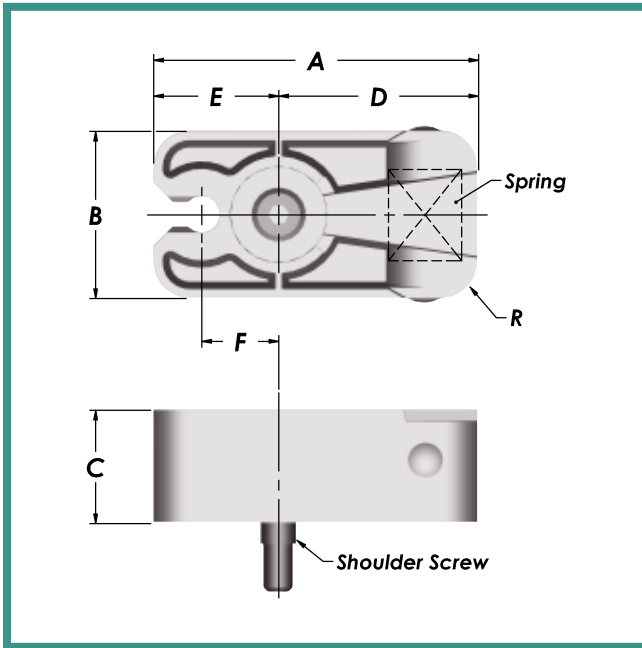
# Locating Rings

- LR521 and LR524 are supplied with two 5/16-18 Socket Head Cap Screws.

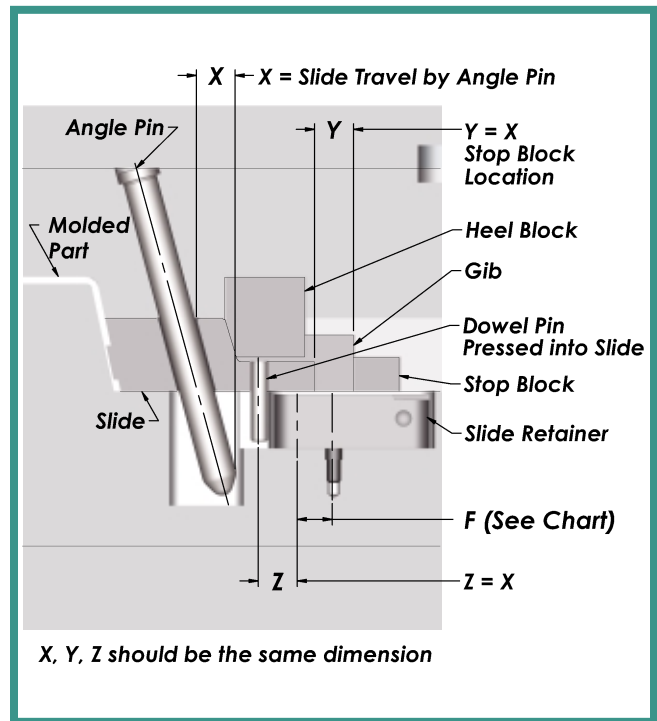
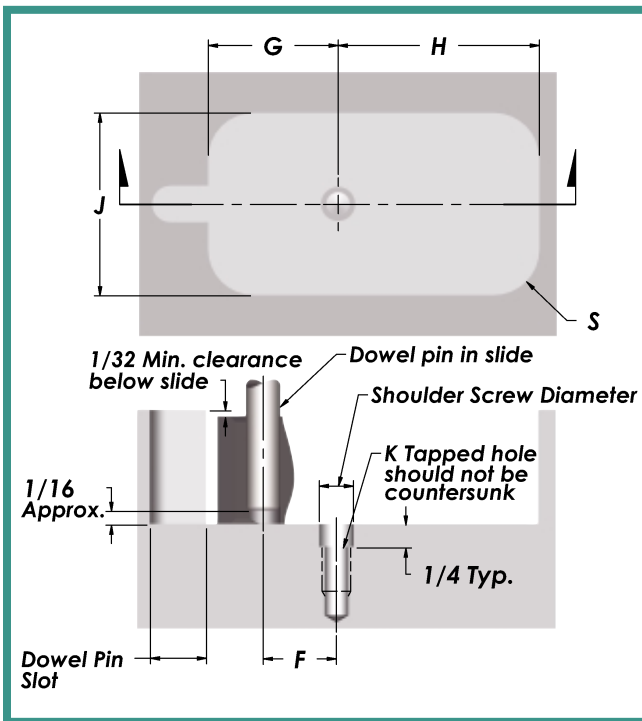
- All other Locating Rings are supplied with two 5/16-18 Flat Head Screws.



# Slide Retainers



- A compact method of slide retention that eliminates the use of springs or costly hydraulic systems.
- Interference with machine tie bars or safety gates is eliminated because the slide retainer can be installed behind or below the slide.
- They can be used in multiples for larger or heavier slides.



| Catalog Number | A     | B     | C    | D    | E    | F    | R   | Dowel Pin    | Maximum Slide Weight | G    | H    | J    | Tapped Hole K | Shoulder Screw | S   |
|----------------|-------|-------|------|------|------|------|-----|--------------|----------------------|------|------|------|---------------|----------------|-----|
| SRP-22         | 1-1/2 | 3/4   | .63  | .89  | .61  | .360 | .19 | 1/4 X 1-1/4  | 22 Pounds            | .73  | 1.01 | 1.00 | 10-24 X 1/2   | 1/4 X 5/8      | .31 |
| SRP-44         | 2-1/8 | 1-1/4 | .79  | 1.31 | .81  | .500 | .25 | 5/16 X 1-1/2 | 44 Pounds            | .93  | 1.43 | 1.50 | 1/4-20 X 1/2  | 5/16 X 3/4     | .37 |
| SRP-88         | 3-3/8 | 1-3/4 | 1.18 | 2.08 | 1.30 | .800 | .38 | 3/8 X 2-1/4  | 88 Pounds            | 1.42 | 2.20 | 2.20 | 5/16-18 X 5/8 | 3/8 X 1"       | .50 |

# Slide Latch

## HIGH HARDNESS



### SLK-8-HH

Rated to carry a weight up to 8 pounds. 100% interchangeable with SLK-8A



**BODY**

**LOCK**

SKD 11 HRC 56-58

.075 OFF CENTER

Ø .498

.150

.050

.295

TAPPED 4-40 THRU C'BORE FOR 2-56

.150

.145

.075 OFF CENTER

#### INSTALLATION - LOCK

**OPTION A**  
MACHINED INTO SLIDE

MIN .375

R .020

.054

90°

R .030

**OPTION B**  
LOCK INSERT

Ø .502

.150

.400

TAP 2-56 x .250 DEEP

.110

.152

.150

BOTTOM MOUNTING C'BORE FOR 4-40

Ø .502

Ø .500

.302

.300

.150

TAP 2-56 .250 DEEP

#### DESIGN GUIDELINES

FULL STROKE MINUS .020

SEE VIEW A

VIEW A

.020

**NOTE:** Set angle pin to release .020 from full stroke. Striker will snap to full stroke to assure re-entry clearance of angle pin

### SLK-25-HH

Rated to carry a weight up to 25 pounds. 100% interchangeable with SLK-25A

**BODY**

**LOCK**

SKD 11 HRC 56-58

TAPPED 10-32 FOR BOTTOM MOUNTING C'BORE 6-32 SHCS FOR TOP MOUNTING

1.490

1.100

1.490

.620

.620

.310

.498

.100

.249

LARGE LEAD IN TAPER & RADIUS

#### INSTALLATION - LOCK

**OPTION A**  
MACHINED INTO SLIDE

MIN .750

R .047

45°

90°

R .083

**OPTION B**  
LOCK INSERT

.025-.027

.313

1.500

.875

1.100

.135

.252

.125

.250

.313R

TAP 8-32 .300 DEEP

#### DESIGN GUIDELINES

FULL STROKE MINUS .030

SEE VIEW A

VIEW A

.030

**NOTE:** Set angle pin to release .030 from full stroke. Striker will snap to full stroke to assure re-entry clearance of angle pin

#### INSTALLATION - BODY

1.500

.313

.502

.500

BOTTOM MOUNTING C'BORE for 10-32

1.100

.027

.025

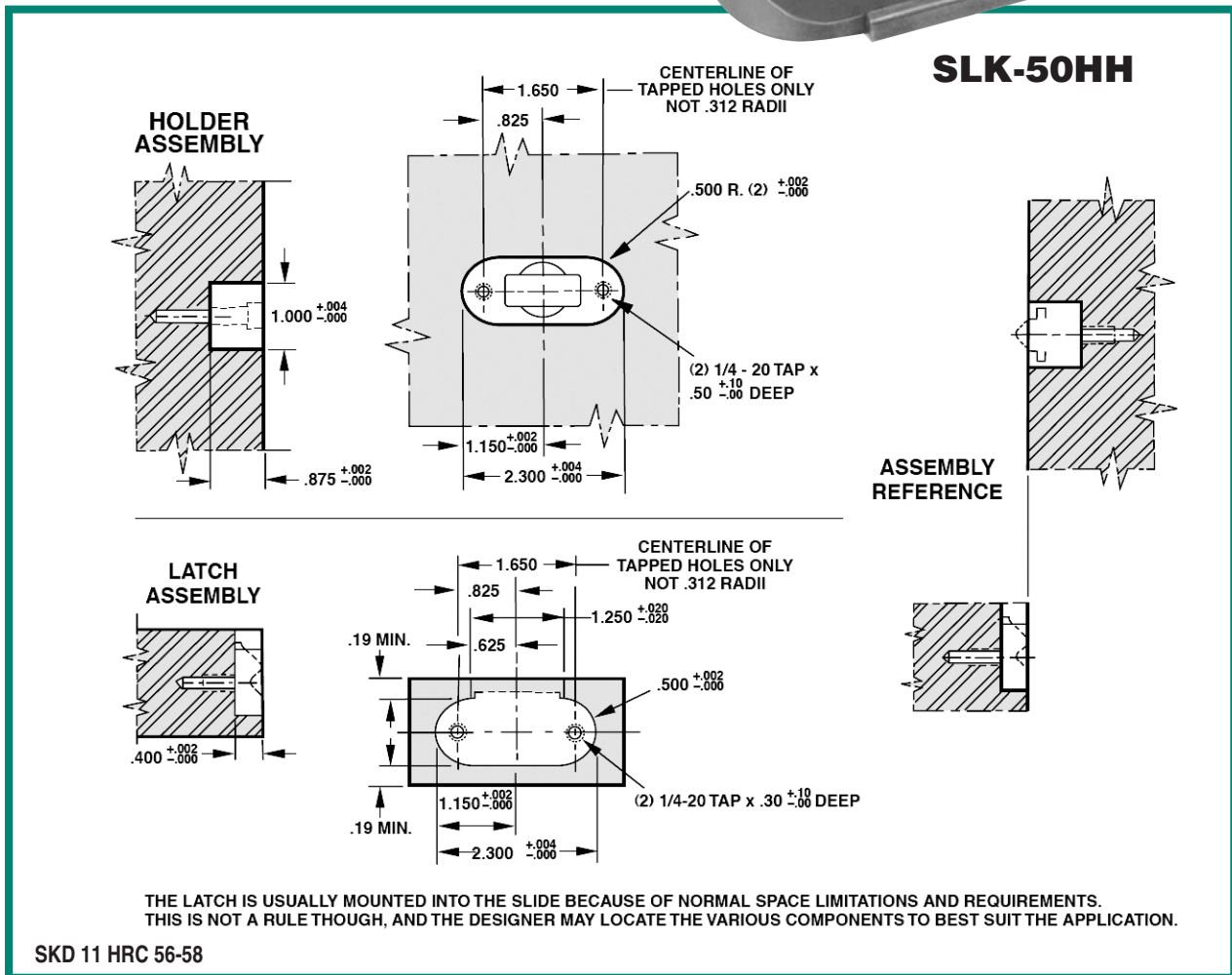
TAP 6-32 .300 DEEP

# Slide Latch



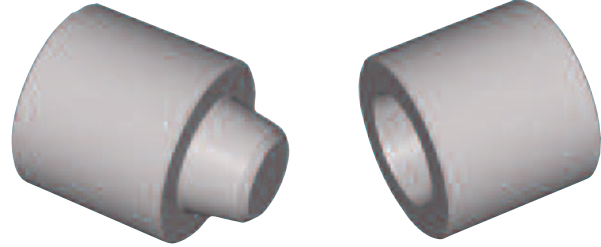
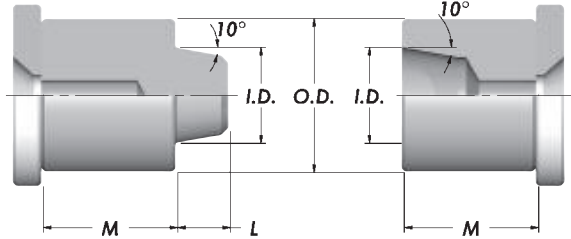
## MACHINING DATA

Slide-Latch model SLK-50HH is rated to carry a weight of up to 50 pounds. Ideal for die cast mold slide applications. Multiple Slide-Latches can be easily machined and mounted in mold slides for higher load retentions.





# Tapered Interlocks

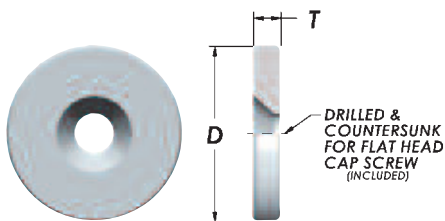


- DMS round tapered interlocks provide positive alignment of cavities and cores.
- Extra grind stock is provided at the back of both male and female for positive fitting.

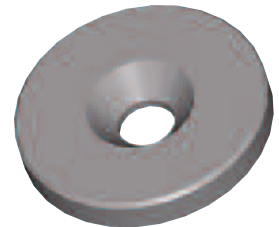
| FEMALE                   |       |             |                     |                   |
|--------------------------|-------|-------------|---------------------|-------------------|
| O.D.<br>+.0000<br>-.0005 | I.D.  | TAP<br>SIZE | M<br>+.010<br>+.015 | Catalog<br>Number |
| 1/2                      | 5/16  | 10-24       | 11/16               | FTL050-11         |
|                          |       |             | 7/8                 | FTL050-14         |
|                          |       |             | 1-3/16              | FTL050-19         |
|                          |       |             | 1-3/8               | FTL050-22         |
| 3/4                      | 1/2   | 1/4-20      | 11/16               | FTL075-11         |
|                          |       |             | 7/8                 | FTL075-14         |
|                          |       |             | 1-3/16              | FTL075-19         |
|                          |       |             | 1-3/8               | FTL075-22         |
| 1"                       | 5/8   | 1/4-20      | 11/16               | FTL100-11         |
|                          |       |             | 7/8                 | FTL100-14         |
|                          |       |             | 1-3/16              | FTL100-19         |
|                          |       |             | 1-3/8               | FTL100-22         |
| 1-1/2                    | 1"    | 5/16-18     | 1-1/8               | FTL150-18         |
|                          |       |             | 1-3/8               | FTL150-22         |
|                          |       |             | 1-5/8               | FTL150-26         |
| 2"                       | 1-1/2 | 5/16-18     | 1-1/8               | FTL200-18         |
|                          |       |             | 1-3/8               | FTL200-22         |
|                          |       |             | 1-5/8               | FTL200-26         |

| MALE                     |       |       |             |                     |                   |
|--------------------------|-------|-------|-------------|---------------------|-------------------|
| O.D.<br>+.0000<br>-.0005 | I.D.  | L     | TAP<br>SIZE | M<br>+.010<br>+.015 | Catalog<br>Number |
| 1/2                      | 5/16  | 1/4   | 10-24       | 11/16               | MTL050-11         |
|                          |       |       |             | 7/8                 | MTL050-14         |
|                          |       |       |             | 1-3/16              | MTL050-19         |
|                          |       |       |             | 1-3/8               | MTL050-22         |
| 3/4                      | 1/2   | 9/32  | 1/4-20      | 11/16               | MTL075-11         |
|                          |       |       |             | 7/8                 | MTL075-14         |
|                          |       |       |             | 1-3/16              | MTL075-19         |
|                          |       |       |             | 1-3/8               | MTL075-22         |
| 1"                       | 5/8   | 11/32 | 1/4-20      | 11/16               | MTL100-11         |
|                          |       |       |             | 7/8                 | MTL100-14         |
|                          |       |       |             | 1-3/16              | MTL100-19         |
|                          |       |       |             | 1-3/8               | MTL100-22         |
| 1-1/2                    | 1"    | 1/2   | 5/16-18     | 1-1/8               | MTL150-18         |
|                          |       |       |             | 1-3/8               | MTL150-22         |
|                          |       |       |             | 1-5/8               | MTL150-26         |
| 2"                       | 1-1/2 | 1/2   | 5/16-18     | 1-1/8               | MTL200-18         |
|                          |       |       |             | 1-3/8               | MTL200-22         |
|                          |       |       |             | 1-5/8               | MTL200-26         |

## Spacer Plates

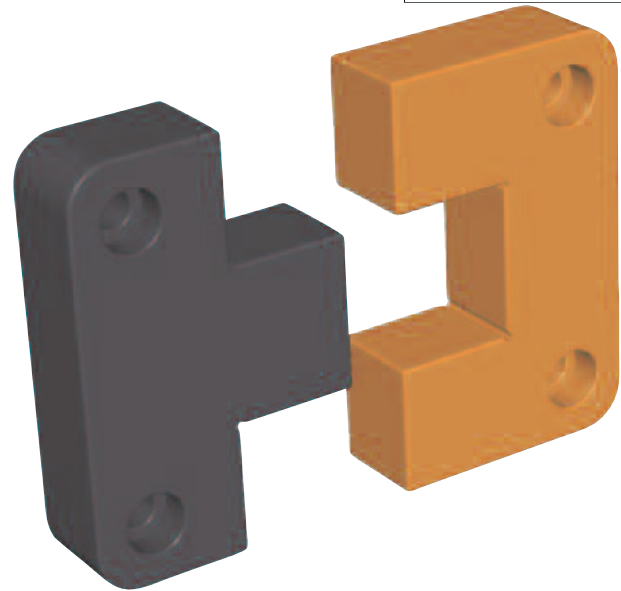


| O.D.  | D       | T    | Screw<br>Size | Catalog<br>Number |
|-------|---------|------|---------------|-------------------|
| 1/2   | 11/16   | 3/16 | 10-24         | SP050             |
| 3/4   | 1"      | 3/16 | 1/4-20        | SP075             |
| 1"    | 1-3/16  | 3/16 | 1/4-20        | SP100             |
| 1-1/2 | 1-11/16 | 1/4  | 5/16-18       | SP150             |
| 2"    | 2-3/16  | 1/4  | 5/16-18       | SP200             |





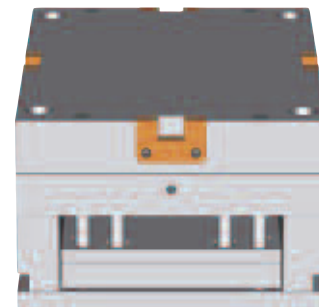
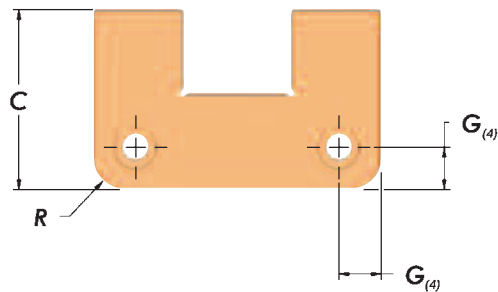
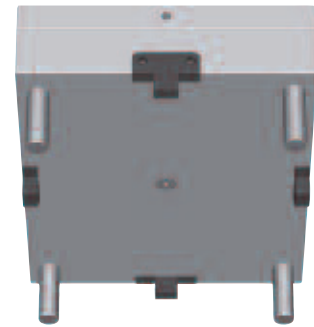
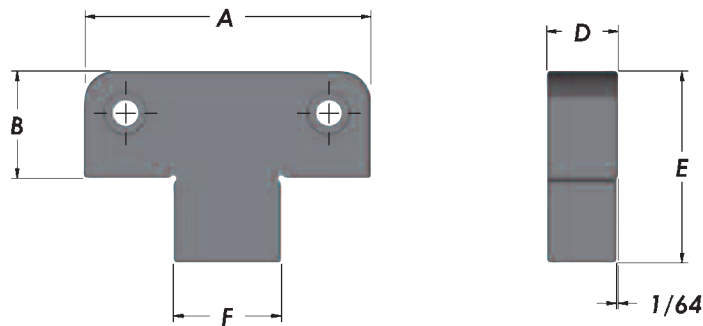
# Side Locks



Male half: O-6 steel (58-60 Rc)  
Black Oxide Finish

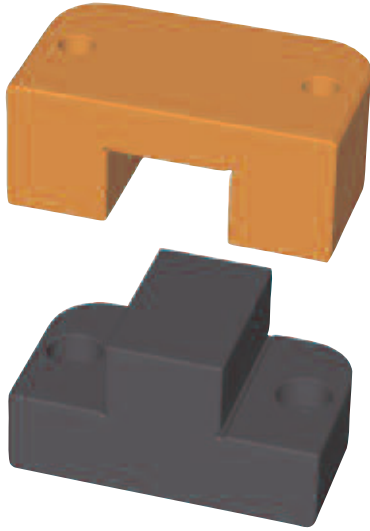
Female half: S-7 steel (54-56 Rc)  
Titanium Nitrided (80 Rc)

- Supplied with socket head cap screws.
- Sold in sets only.



| Catalog Number | A<br>+.0000<br>-.0004 | B<br>+.000<br>-.002 | C<br>+.000<br>-.002 | D<br>+.000<br>-.002 | E     | F<br>.0001/.0002<br>Clearance<br>per side | G<br>+.010<br>-.010 | R    | SHCS           |
|----------------|-----------------------|---------------------|---------------------|---------------------|-------|---|---------------------|------|----------------|
| PLS-100        | 1.000                 | .870                | 1.125               | .375                | 1.310 | .440                                      | .250                | 3/16 | 10-32 X 1/2    |
| PLS-125        | 1.250                 | .870                | .875                | .437                | 1.230 | .500                                      | .250                | 1/4  | 10-32 X 1/2    |
| PLS-150        | 1.500                 | .870                | 1.000               | .500                | 1.250 | .625                                      | .281                | 1/4  | 10-32 X 5/8    |
| PLS-200        | 2.000                 | .870                | 1.375               | .620                | 1.375 | .680                                      | .375                | 1/4  | 1/4-20 X 3/4   |
| PLS-300        | 3.000                 | 1.120               | 1.875               | .745                | 2.000 | 1.125                                     | .440                | 5/16 | 1/4-20 X 7/8   |
| PLS-400        | 4.000                 | 1.370               | 1.875               | .875                | 2.312 | 1.375                                     | .625                | 3/8  | 3/8-16 X 1     |
| PLS-500        | 5.000                 | 1.370               | 2.375               | 1.120               | 2.625 | 1.750                                     | .625                | 3/8  | 3/8-16 X 1-1/4 |

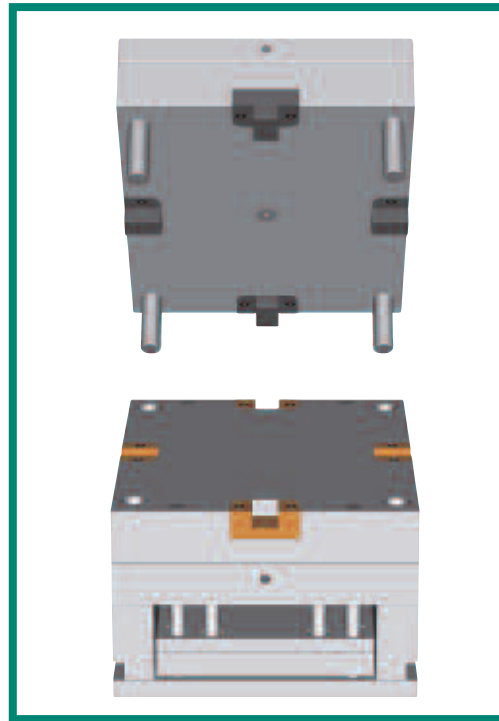
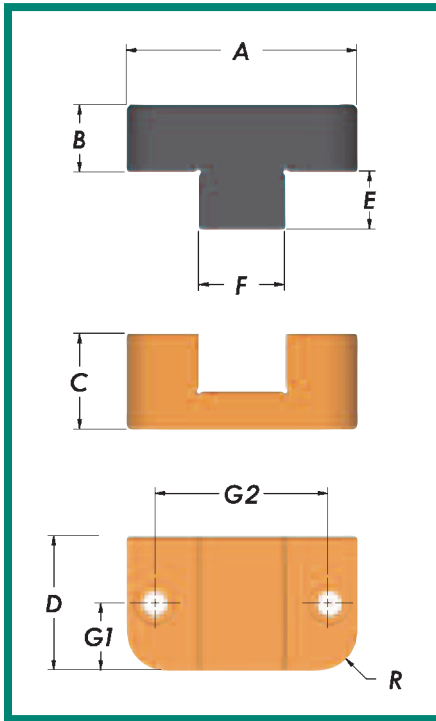
# Top Locks



Male half: O-6 steel (58-60 Rc)  
Black Oxide Finish

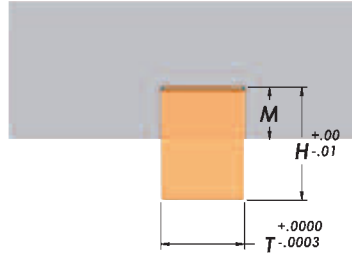
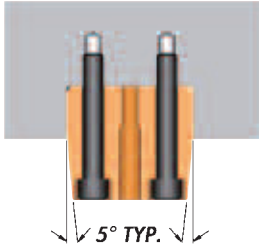
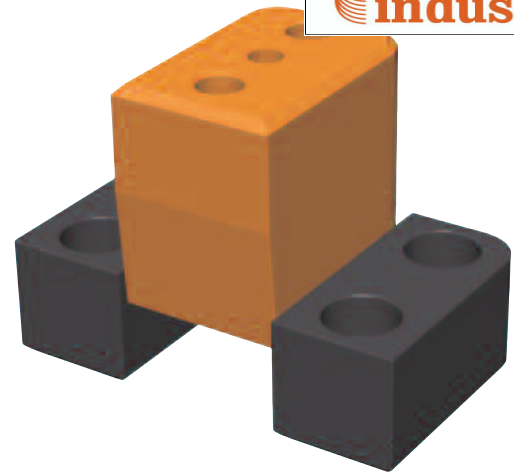
Female half: S-7 steel (54-56 Rc)  
Titanium Nitrided (80 Rc)

- Supplied with socket head cap screws.
- Sold in sets only.

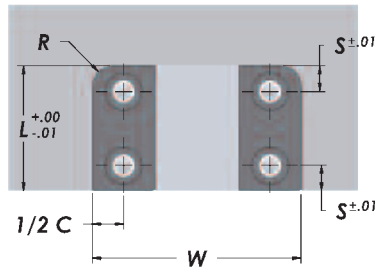
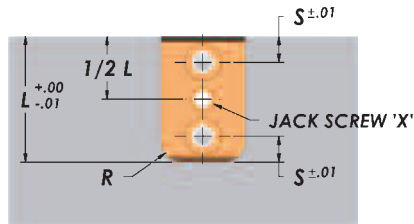


| Catalog Number | A                | D                | C                | B                | E                | F                                 | G1               | G2               | R   | SHCS         |                 |
|----------------|------------------|------------------|------------------|------------------|------------------|-----------------------------------|------------------|------------------|-----|--------------|-----------------|
|                | +0.000<br>-0.004 | +0.000<br>-0.002 | +0.000<br>-0.002 | +0.000<br>-0.002 | +0.010<br>-0.010 | .0001/.0003<br>Clearance per side | +0.010<br>-0.010 | +0.010<br>-0.010 |     | MALE         | FEMALE          |
| TL62X125       | 1.250            | .625             | .625             | .500             | .410             | .438                              | .312             | .875             | 1/4 | #6-32 X 5/8  | #6-32 X 3/4     |
| TOPL125        | 1.250            | .750             | .625             | .500             | .380             | .438                              | .375             | .875             | 1/4 | #8-32 X 5/8  | #8-32 X 3/4     |
| TL100X150      | 1.500            | 1.000            | .875             | .375             | .500             | .500                              | .500             | 1.00             | 1/4 | #10-32 X 1/2 | #10-32 X 1      |
| TOPL200        | 2.000            | 1.125            | .875             | .625             | .500             | .750                              | .563             | 1.375            | 3/8 | 1/4-20 X 3/4 | 1/4-20 X 1      |
| TL150X250      | 2.500            | 1.500            | 1.375            | .625             | .750             | 1.000                             | .750             | 1.750            | 3/8 | 1/4-20 X 3/4 | 1/4-20 X 1-1/2  |
| TOPL300        | 3.000            | 1.750            | 1.250            | .875             | .750             | 1.125                             | .875             | 2.250            | 1/2 | 5/16-18 X 1  | 5/16-18 X 1-1/4 |
| TL200X350      | 3.500            | 2.000            | 1.750            | .750             | 1.00             | 1.500                             | 1.00             | 2.500            | 1/2 | 3/8-16 X 7/8 | 3/8-16 X 2      |

# Guide Locks

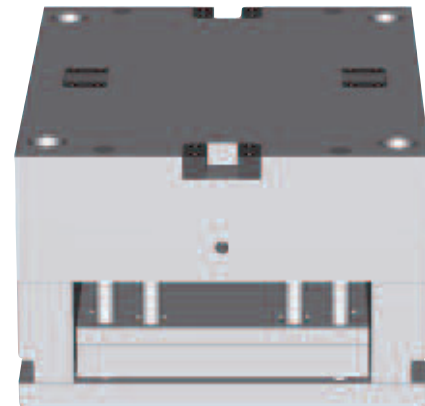
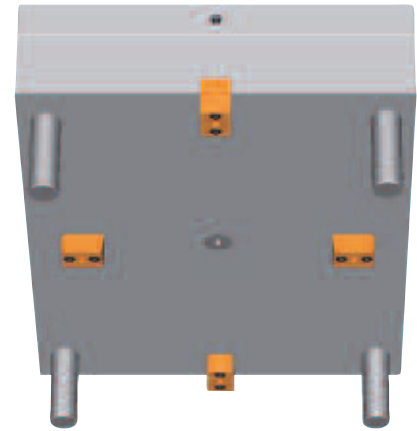
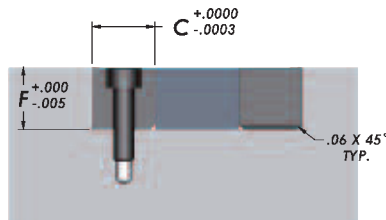


Because Guide Locks can be used inside the mold as well as at the parting line, DMS has added a jack screw hole to the male interlock. This allows removal without damage to the mold. Also added is a 5° angle on each end of the male.



**Male:**  
 AISI D2 (58-60 Rc)  
 Titanium Nitride Coated  
 78-80 Rc

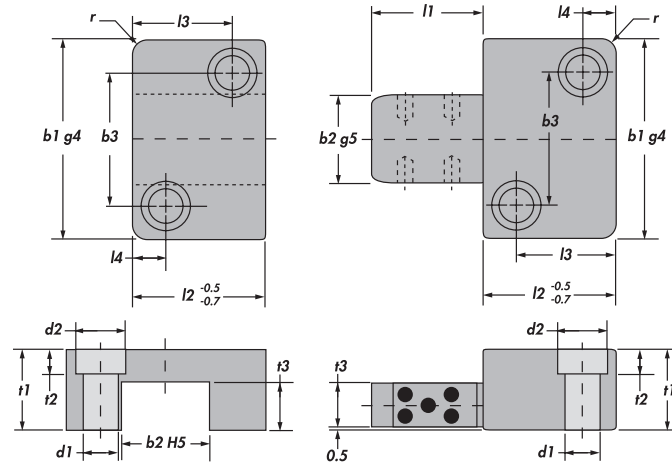
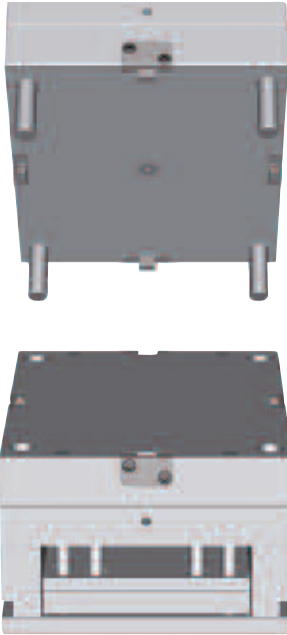
**Female:**  
 AISI 1045 (60-62 Rc)  
 Black Oxide Finish



| Catalog Number | W<br>+.000<br>-.010 | L<br>+.000<br>-.010 | T<br>+.0000<br>-.0003 | H<br>+.000<br>-.010 | M    | C<br>+.0000<br>-.0003 | F<br>+.000<br>-.005 | S<br>+.010<br>-.010 | R    | X<br>Jack<br>Screw | SHCS           |                |
|----------------|---------------------|---------------------|-----------------------|---------------------|------|-----------------------|---------------------|---------------------|------|--------------------|----------------|----------------|
|                |                     |                     |                       |                     |      |                       |                     |                     |      |                    | MALE (2)       | FEMALE (4)     |
| GL-1.5         | 1.500               | 1.000               | .500                  | .850                | .375 | .500                  | .500                | .250                | .187 | #6-32              | #10-32 X 1"    | #10-32 X 5/8   |
| GL-2.5         | 2.500               | 1.500               | 1.000                 | 1.350               | .625 | .750                  | .750                | .310                | .250 | 1/4-20             | 1/4-20 X 1-1/2 | 1/4-20 X 7/8   |
| GL-3.5         | 3.500               | 2.000               | 1.500                 | 1.730               | .750 | 1.000                 | 1.000               | .440                | .375 | 3/8-16             | 3/8-16 X 2"    | 3/8-16 X 1-1/4 |
| GL-4.5         | 4.500               | 2.500               | 2.000                 | 2.100               | .875 | 1.250                 | 1.250               | .560                | .500 | 3/8-16             | 1/2-13 X 2-1/4 | 1/2-13 X 1-1/2 |

# E Side Locks

(Graphite Impregnated)

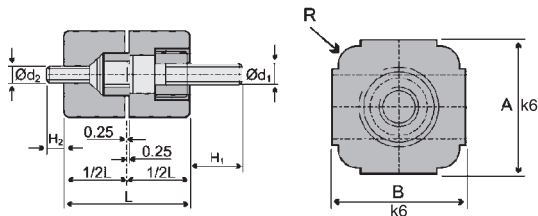


Material: YK30 56-60 Hrc

- Supplied with socket head cap screws.
- Sold in sets only.

| Catalog Number | b1  | b2 | l1  | l2 | t1 | t3 | d1  | d2 | t2  | b3 | l3 | l4 | r  |
|----------------|-----|----|-----|----|----|----|-----|----|-----|----|----|----|----|
| OSL16x20       | 40  | 16 | 20  | 22 | 20 | 11 | 6.6 | 11 | 6.8 | 26 | 15 | 7  | 6  |
| OSL16x40       | 40  | 16 | 40  | 22 | 20 | 11 | 6.6 | 11 | 6.8 | 26 | 15 | 7  | 6  |
| OSL20x25       | 45  | 20 | 25  | 27 | 22 | 13 | 6.6 | 11 | 6.8 | 31 | 19 | 7  | 6  |
| OSL20x50       | 45  | 20 | 50  | 27 | 22 | 13 | 6.6 | 11 | 6.8 | 31 | 19 | 7  | 6  |
| OSL25x32       | 50  | 25 | 32  | 36 | 25 | 14 | 6.6 | 11 | 6.8 | 35 | 27 | 9  | 8  |
| OSL25x63       | 50  | 25 | 63  | 36 | 25 | 14 | 6.6 | 11 | 6.8 | 35 | 27 | 9  | 8  |
| OSL32x40       | 63  | 32 | 40  | 46 | 32 | 19 | 9   | 15 | 9   | 45 | 35 | 11 | 8  |
| OSL32x80       | 63  | 32 | 80  | 46 | 32 | 19 | 9   | 15 | 9   | 45 | 35 | 11 | 8  |
| OSL40x50       | 85  | 40 | 50  | 56 | 36 | 22 | 11  | 18 | 11  | 60 | 40 | 15 | 10 |
| OSL40x100      | 85  | 40 | 100 | 56 | 36 | 22 | 11  | 18 | 11  | 60 | 40 | 15 | 10 |
| OSL50x56       | 100 | 50 | 56  | 66 | 40 | 24 | 14  | 20 | 13  | 74 | 48 | 18 | 10 |
| OSL50x112      | 100 | 50 | 112 | 66 | 40 | 24 | 14  | 20 | 13  | 74 | 48 | 18 | 10 |

Note: All dimensions & tolerances are in millimeters



## Square Interlocks

Material: YK30 56-60 Hrc

- Easily installed and removed from the parting line.
- Supplied with socket head cap screws.
- Sold in sets only.

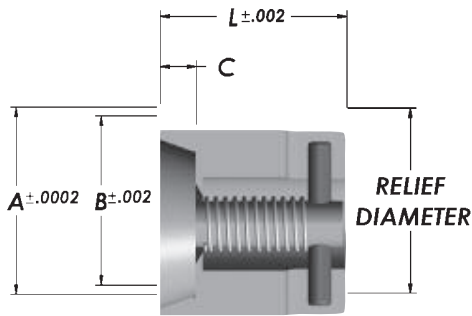
| Catalog Number | A  | B  | L  | d1  | d2 | H1 | H2 | R |
|----------------|----|----|----|-----|----|----|----|---|
| SIL-20         | 20 | 20 | 28 | M5  | M4 | 12 | 4  | 4 |
| SIL-25         | 25 | 25 | 32 | M6  | M5 | 13 | 8  | 5 |
| SIL-32         | 32 | 32 | 36 | M8  | M6 | 15 | 12 | 6 |
| SIL-40         | 40 | 40 | 45 | M10 | M8 | 17 | 10 | 6 |

Note: All dimensions & tolerances are in millimeters

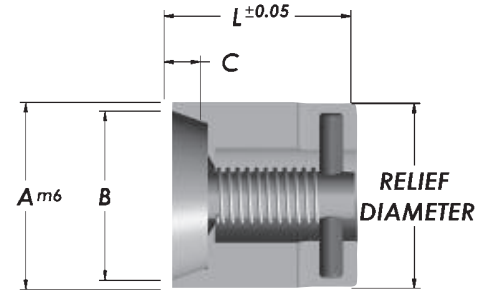
# Air Ejectors



## Standard



- Designed to assist in breaking the vacuum created when molding deep molded parts or thin walled parts such as flower pots, garbage cans and containers.
- The valve and body are made from hardened Stainless Steel 45-50 HRC.

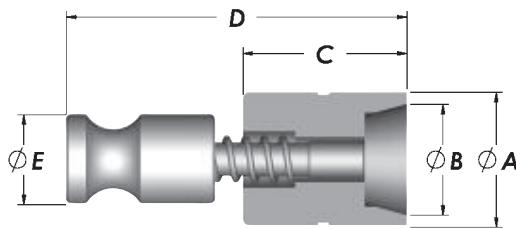


### INCH

| Catalog Number | Nominal I.D. | A      | B     | L     | C   |
|----------------|--------------|--------|-------|-------|-----|
| AE025          | 1/4          | .2505  | .225  | .252  | .05 |
| AE037          | 3/8          | .3755  | .325  | .377  | .07 |
| AE050          | 1/2          | .5005  | .437  | .502  | .10 |
| AE062          | 5/8          | .6255  | .562  | .627  | .13 |
| AE075          | 3/4          | .7505  | .656  | .752  | .15 |
| AE100          | 1"           | 1.0005 | .875  | 1.002 | .20 |
| AE150          | 1-1/2"       | 1.5005 | 1.312 | 1.502 | .30 |

### METRIC

| Catalog Number | Nominal I.D. | A     | B   | L  | C   |
|----------------|--------------|-------|-----|----|-----|
| AE08MM         | 8            | .3149 | 6.5 | 12 | 1.5 |
| AE10MM         | 10           | .3937 | 8   | 12 | 2.0 |
| AE12MM         | 12           | .4724 | 10  | 12 | 2.5 |
| AE16MM         | 16           | .6299 | 13  | 20 | 3   |
| AE20MM         | 20           | .7874 | 17  | 20 | 3.5 |



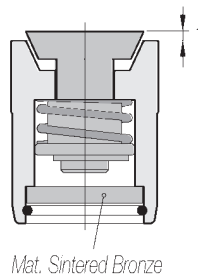
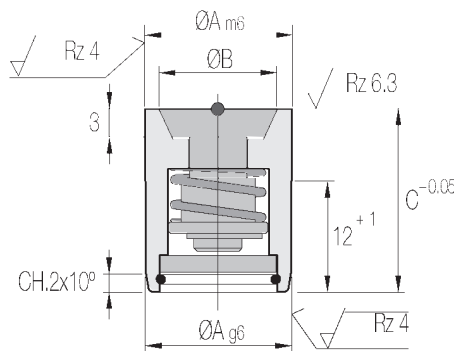
## Plunger Style Metric



- 420 Stainless steel 50-55 Rc

| Catalog Number | A   | B    | C  | D    | E  |
|----------------|---|------|----|------|----|
| AEP-01         | 8 $\begin{smallmatrix} +0.018 \\ +0.007 \end{smallmatrix}$  | 6,6  | 11 | 24   | 6  |
| AEP-02         | 12 $\begin{smallmatrix} +0.018 \\ +0.007 \end{smallmatrix}$ | 9,7  | 18 | 34   | 8  |
| AEP-03         | 18 $\begin{smallmatrix} +0.018 \\ +0.007 \end{smallmatrix}$ | 14,8 | 22 | 45,5 | 12 |

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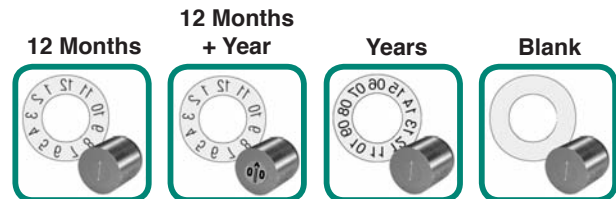
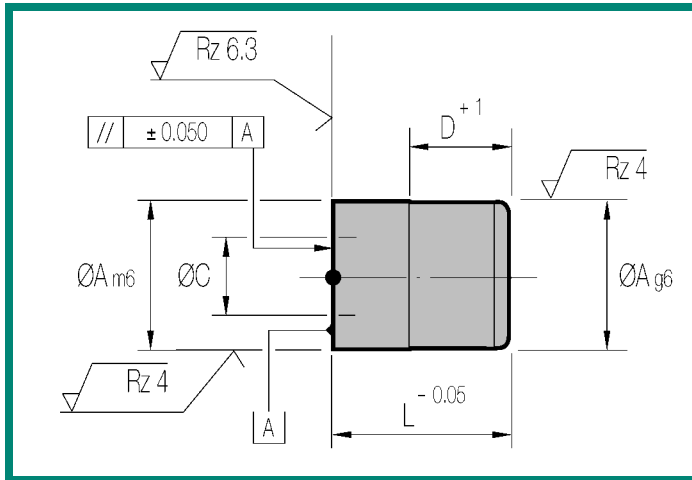
## Filtered Metric



- Incorporating a sintered bronze filter ensuring that debris cannot affect the valve's proper function.
- The material is INOX. 1.4304 HRC 48-54.

| Catalog Number | A  | B  | C  | E  |
|----------------|----|----|----|----|
| FV.161320      | 16 | 13 | 20 | 14 |
| FV.201720      | 20 | 17 | 20 | 18 |

# Date Stamps



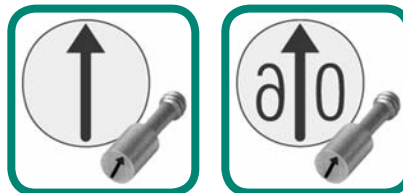
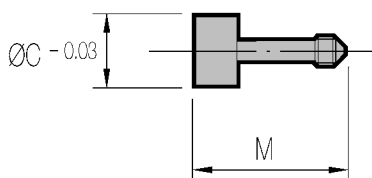
| 12 Months | 12 Mon. + Yr. <sup>1</sup> | Years <sup>1</sup> | Blank     | 31 Days    | Shifts    | A  | C    | D  | E   | L  | N <sup>2</sup> |
|-----------|----------------------------|--------------------|-----------|------------|-----------|----|------|----|-----|----|----------------|
| FA.0422SF | FA.042212-__               | FA.042204-__       | FA.042200 |            | FA.0422SP | 4  | 2.2  | 6  | 3.5 | 12 | 4              |
| FA.0530SF | FA.053012-__               | FA.053004-__       | FA.053000 |            | FA.0530SP | 5  | 3    | 6  | 3.5 | 12 | 4              |
| FA.0632SF | FA.063212-__               | FA.063205-__       | FA.063200 | FA.0632-31 | FA.0632SP | 6  | 3.2  | 12 | 4   | 20 | 5              |
| FA.0847SF | FA.084712-__               | FA.084705-__       | FA.084700 | FA.0847-31 | FA.0847SP | 8  | 4.7  | 12 | 6   | 20 | 5              |
| FA.1057SF | FA.105712-__               | FA.105706-__       | FA.105700 | FA.1057-31 | FA.1057SP | 10 | 5.7  | 12 | 8   | 20 | 6              |
| FA.1267SF | FA.126712-__               | FA.126708-__       | FA.126700 | FA.1267-31 | FA.1267SP | 12 | 6.7  | 12 | 10  | 20 | 8              |
| FA.1687SF | FA.168712-__               | FA.168710-__       | FA.168700 | FA.1687-31 | FA.1687SP | 16 | 8.7  | 12 | 12  | 20 | 10             |
| FA.2007SF | FA.200712-__               | FA.200710-__       | FA.200700 | FA.2007-31 | FA.2007SP | 20 | 10.7 | 12 | 14  | 20 | 10             |

\*Assemblies supplied complete with outer ring and arrow insert.

(1) When ordering, add the year required to the part number (FA.04221211)

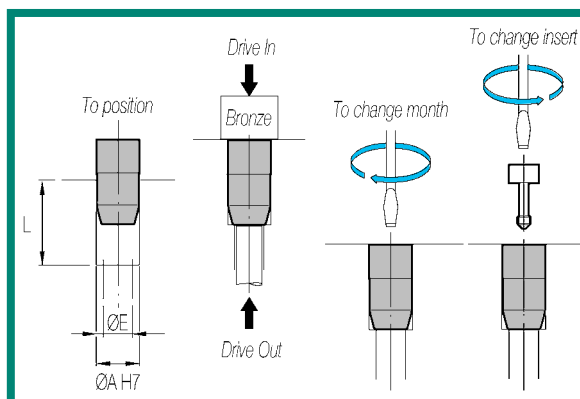
(2) The number of years that fit on the 'Year' outer ring.

## Inserts



- Material is INOX. 1.4034 48-54HRC
- Insert changes can be done while the tool is still in the press.
- To replace inserts, simply turn clockwise until the unit clicks (about 8 revolutions) mating the insert flush with the outer ring.

| Arrow only | Arrow & Year | C    | M   |
|------------|--------------|------|-----|
| IA.2275SF  | IA.2275__    | 2.2  | 7.7 |
| IA.3075SF  | IA.3075__    | 3    | 7.7 |
| IA.3217SF  | IA.3217__    | 3.2  | 17  |
| IA.4717SF  | IA.4717__    | 4.7  | 17  |
| IA.5717SF  | IA.5717__    | 5.7  | 17  |
| IA.6717SF  | IA.6717__    | 6.7  | 17  |
| IA.8717SF  | IA.8717__    | 8.7  | 17  |
| IA.1007SF  | IA.1007__    | 10.7 | 17  |

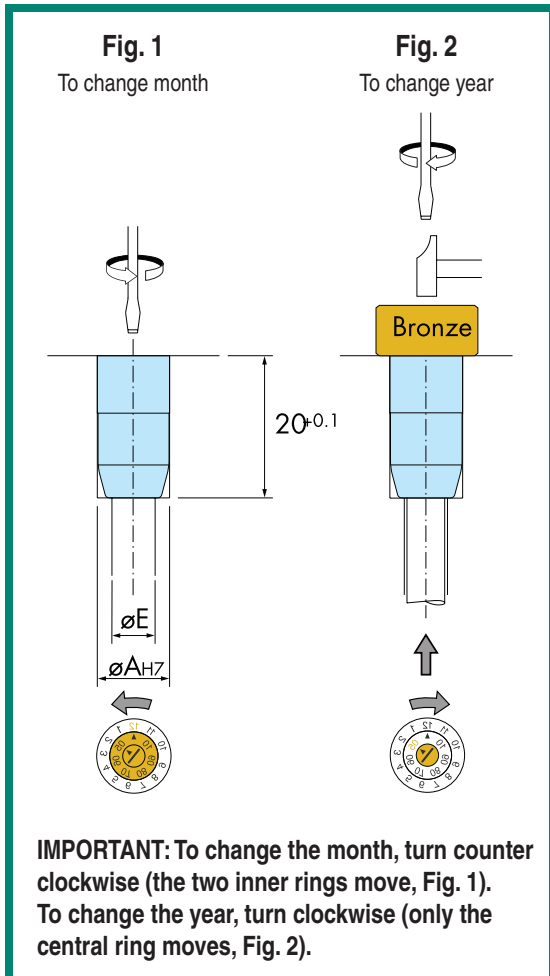
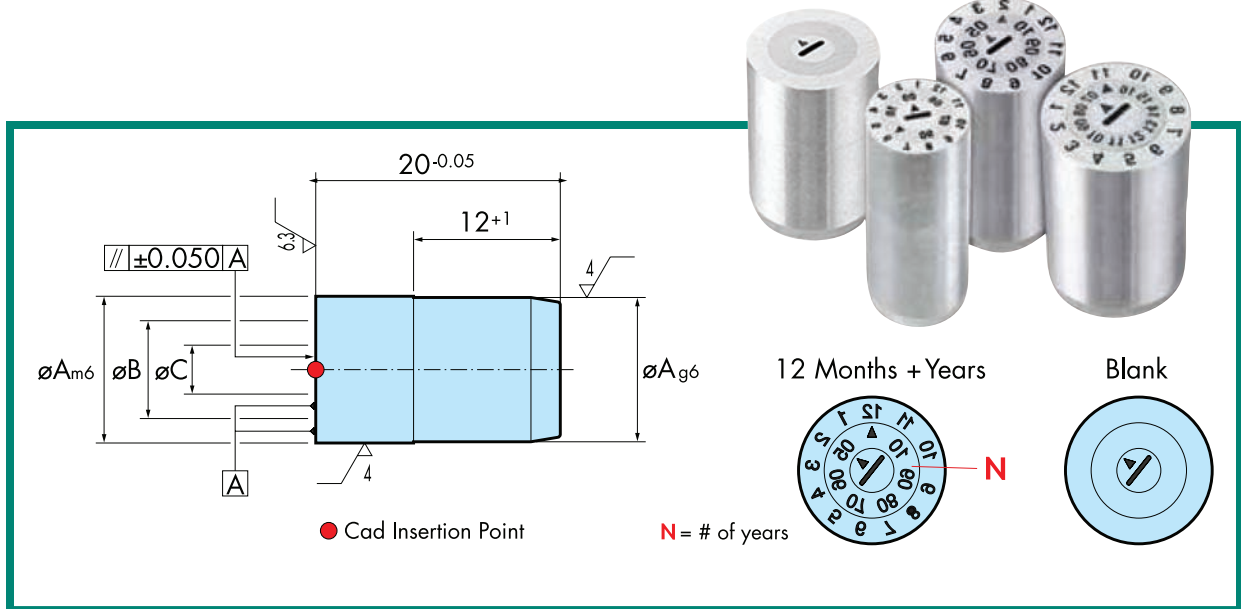


CAD files and flash demo at:  
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(1) When ordering, add the year required to the part number (IA.227511)

# Date Stamps

## Double Date Stamp



| 12 Months + Year | Blank     | A  | B    | C   | E  | N  |
|------------------|-----------|----|------|-----|----|----|
| FD.080512 __     | FD.080500 | 8  | 5.5  | 3   | 6  | 5  |
| FD.120812 __     | FD.120800 | 12 | 8    | 4   | 10 | 6  |
| FD.161012 __     | FD.161000 | 16 | 10.5 | 5.3 | 12 | 10 |

To order — Add the last two digits of the start or base year to catalog number.  
 Example for start or base year of 2011: FD-080512**11**

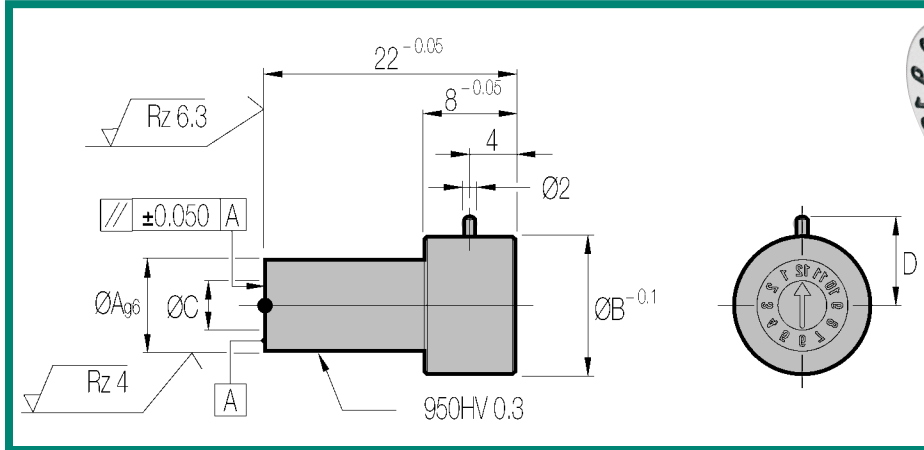
- Replaces the need for 2 separate date stamps
- No need to machine 2 separate holes
- Minimum space required for installation
- Special engraving available upon request.
- Material: INOX. 1.4034  
Hardened 51 ± 3 HRC
- Maximum working temperature 100° C
- This is a CUMSA patented system

CAD files and flash demo at:  
**CUMSA**  
[www.cumsa.com](http://www.cumsa.com)



# Date Stamps

## High Temperature Date Stamp



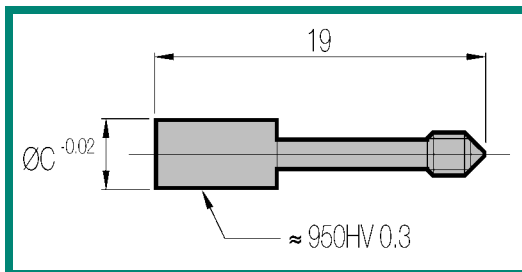
- Material is 1.2344 Nitrided (insert) and Inconel 2.4669 (body)
- Maximum working temperature is  $450^{\circ}C$
- Designed for tools which operate at high temperatures
- Ideal for Zinc, Polyester, Bakelite and similar materials

| 12 Months | 12 Months + Year <sup>1</sup> | Years <sup>2</sup> | A  | B  | C   | D  | No. of Years |
|-----------|-------------------------------|--------------------|----|----|-----|----|--------------|
| FT.0847SF | FT.084712-__                  | FT.084705-__       | 8  | 12 | 4.7 | 11 | 5            |
| FT.1267SF | FT.126712-__                  | FT.126708-__       | 12 | 16 | 6.7 | 12 | 8            |

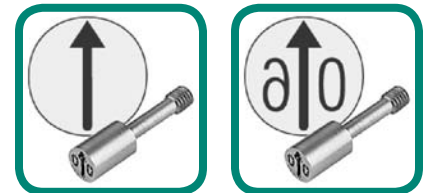
- (1) When ordering, add the year required to the part number (FT.084712-11)
- (2) When ordering, add the start year to the part number (FT.084705-11)



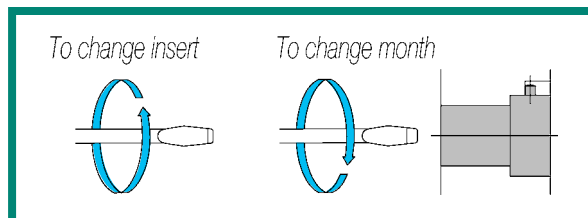
## High Temperature Inserts



- Material is 1.2344 Nitrided
- Insert changes can be done while the tool is still in the press



| Arrow only | Arrow & Year <sup>1</sup> | C   |
|------------|---------------------------|-----|
| IT.4719SF  | IT.4719 __                | 4.7 |
| IT.6719SF  | IT.6719 __                | 6.7 |



- (1) When ordering, add the year required to the part number (IT.479111)

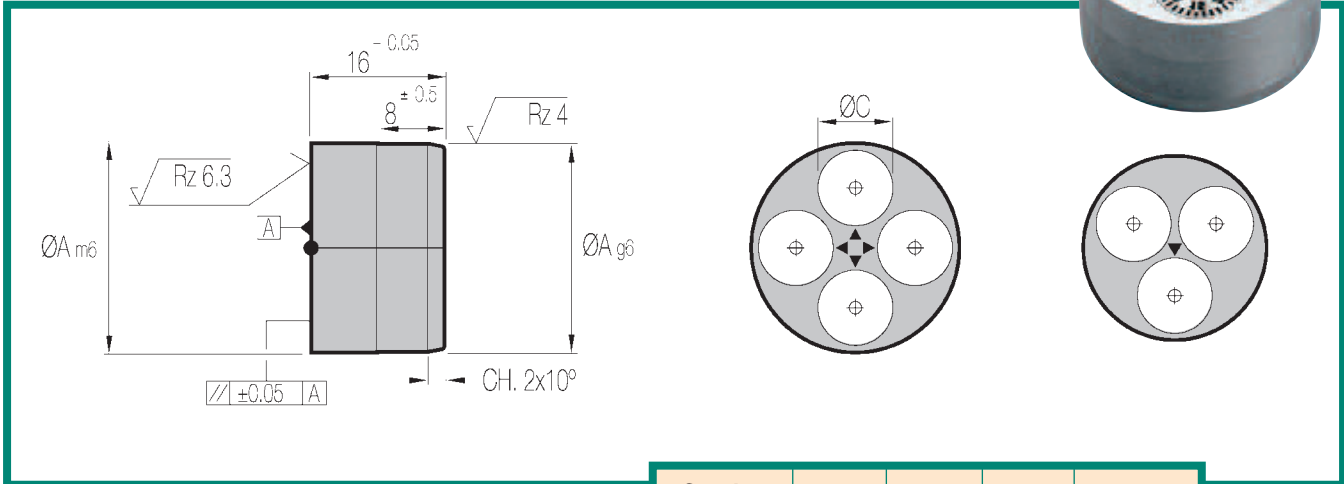
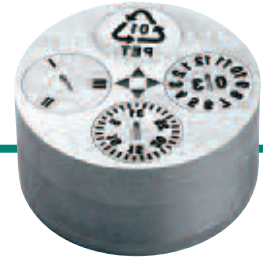
CAD files and flash demo at:  
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[www.cumsa.com](http://www.cumsa.com)



# Date Stamps

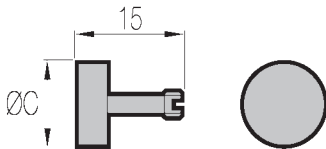
## Block Base 3 & 4 Zone

The Block Base is the most versatile engraving unit on the market. With 3 and 4 zone configurations you can view any sort of standardized information about your part.



- Material is INOX. 1.4034 48-54HRC.
- This is a CUMSA patented system.

| Catalog Number | A  | C    | E  | Number of Zones |
|----------------|----|------|----|-----------------|
| BM.160603      | 16 | 6.5  | 8  | 3               |
| BM.180604      | 18 | 6.5  | 8  | 4               |
| BM.220903      | 22 | 8.7  | 10 | 3               |
| BM.250904      | 25 | 8.7  | 10 | 4               |
| BM.281103      | 28 | 11.5 | 12 | 3               |
| BM.321104      | 32 | 11.5 | 12 | 4               |



## Block Inserts

### Blank

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-00      |
| 8,7  | PM0915-00      |
| 11,5 | PM1115-00      |

### Recycle

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-07      |
| 8,7  | PM0915-07      |
| 11,5 | PM1115-07      |

### Food

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-09      |
| 8,7  | PM0915-09      |
| 11,5 | PM1115-09      |

### Shift

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-101     |
| 8,7  | PM0915-101     |
| 11,5 | PM1115-101     |

### 31 Days

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-102     |
| 8,7  | PM0915-102     |
| 11,5 | PM1115-102     |

### Months

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-103     |
| 8,7  | PM0915-103     |
| 11,5 | PM1115-103     |

### Months & Year

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-104-__  |
| 8,7  | PM0915-104-__  |
| 11,5 | PM1115-104-__  |

### Years

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-105-__  |
| 8,7  | PM0915-105-__  |
| 11,5 | PM1115-105-__  |

### 0-30

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-106     |
| 8,7  | PM0915-106     |
| 11,5 | PM1115-106     |

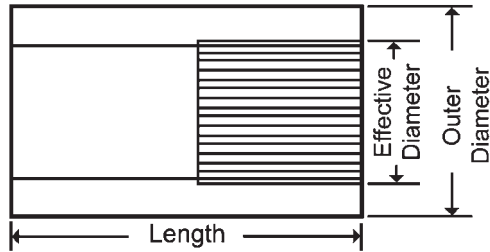
### 0-50

| C    | Catalog Number |
|------|----------------|
| 6,5  | PM0615-107     |
| 8,7  | PM0915-107     |
| 11,5 | PM1115-107     |

1 Add starting year after the dash  
(PM0615-104-06)

CAD files and flash demo at:  
**CUMSA**  
[www.cumsa.com](http://www.cumsa.com)

# Sintered Vents



## KIC

### PLASTIC INJECTION MOLDING

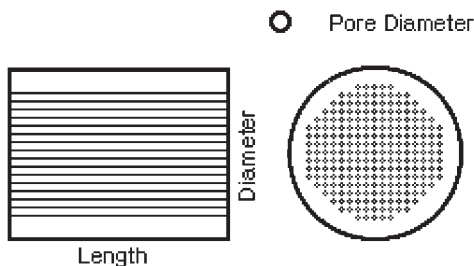
(Pore Diameter: 0.03-0.10mm)

| CAT. NO. | O.D. | EFF. D. | PORES | L  |
|----------|------|---------|-------|----|
| 003-0610 | 6    | 2.5     | 880   | 10 |
| 003-0810 | 8    | 2.5     | 880   | 10 |
| 003-1010 | 10   | 2.5     | 880   | 10 |
| 005-0610 | 6    | 3.5     | 880   | 10 |
| 005-0810 | 8    | 3.5     | 880   | 10 |
| 005-1010 | 10   | 3.5     | 880   | 10 |
| 01-0810  | 8    | 5.5     | 880   | 10 |
| 01-1010  | 10   | 5.5     | 880   | 10 |

KIC Sintered Vents are composed of several straight and uniform pores made through a unique process to allow air or gas that gets trapped inside the mold cavity during the injection or die casting process to escape freely. To optimize mold design and reduce the possibility of manufacturing defective parts, specify strategically placed insertion points to hold the vents.

KIC Sintered Vents with ultra fine pores (diameters of 0.03mm) have been used successfully in venting systems for plastic injection mold applications. The passage of trapped air and gases can be properly released while blocking the escape of molten plastic. With KIC Sintered Vents, you get shorter shot-cycles while dramatically increasing productivity.

KIC Sintered Vents with a pore diameter of 0.4mm are suitable for larger, gravity die-cast parts, while 0.5mm diameter vents are more suited for smaller parts. Low pressure die-cast, or vacuum casting parts require pore diameters between 0.2 and 0.3mm.



### LOW PRESSURE DIE-CASTING AND VACUUM CASTING

(Pore Diameter: 0.3± mm)

| CAT. NO. | DIA. | PORES | L  |
|----------|------|-------|----|
| 03-0510  | 5    | 90    | 10 |
| 03-0610  | 6    | 90    | 10 |
| 03-0615  | 6    | 90    | 15 |
| 03-0810  | 8    | 200   | 10 |
| 03-0815  | 8    | 200   | 15 |
| 03-1010  | 10   | 340   | 10 |
| 03-1015  | 10   | 340   | 15 |
| 03-1210  | 12   | 340   | 10 |
| 03-1215  | 12   | 340   | 15 |
| 03-1415  | 14   | 550   | 15 |

### GRAVITY DIE-CASTING

(Pore Diameter: 0.5± mm)

| CAT.NO. | DIA. | PORES | L  |
|---------|------|-------|----|
| 05-0310 | 3    | 40    | 10 |
| 05-0410 | 4    | 40    | 10 |
| 05-0510 | 5    | 60    | 10 |
| 05-0610 | 6    | 60    | 10 |
| 05-0615 | 6    | 60    | 15 |
| 05-0810 | 8    | 100   | 10 |
| 05-0815 | 8    | 100   | 15 |
| 05-1010 | 10   | 200   | 10 |
| 05-1015 | 10   | 200   | 15 |
| 05-1210 | 12   | 200   | 10 |
| 05-1215 | 12   | 200   | 15 |
| 05-1415 | 14   | 340   | 15 |
| 05-1615 | 16   | 240   | 15 |
| 05-1815 | 18   | 550   | 15 |
| 05-2015 | 20   | 550   | 15 |
| 05-2815 | 28   | 970   | 15 |

**PRODUCTIVITY:** Fast and easy exchange of venting plugs; easy cleaning of molding dies.

**EFFICIENCY:** Perforation volumes are 5-30 times higher than ordinary venting plugs.

**DURABILITY:** Decrease replacement frequency of venting plugs.

**QUALITY:** Drastically decreases defects such as pin holes, mis-run, and short-shots.

**SELECTION:** Pore sizes range from 0.03 to 0.5mm; length and diameter of vents to meet your needs.

#### PLEASE NOTE

- We can supply custom vents made to your specification.
- During installation, do not strike the vent pores.
- Keep insertion tolerances between 0.025 and 0.05mm.
- Actual pore diameters and specifications may vary slightly and are subject to change without notice.

**CODING SYSTEM EXAMPLE: 005-0610**  
 0.05 Pore Dia. (mm) 06 Vent Dia. (mm) 10 Vent L. (mm)

## AM-8

AM-8 is designed for removing EDM scale on all types of mold & die steel. Additionally, it is an excellent tool for polishing sharp corners and small details either by hand or with the use of polishing machines.



| AM-8            | 100    | 120    | 150    | 180    | 220    | 280    | 320    | 400    | 600    |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1/16 x 1/4 x 6  |        | 020120 | 020230 | 020340 | 020450 | 020560 | 020670 | 020780 | 021000 |
| 1/16 x 1/2 x 6  | 020020 | 020130 | 020240 | 020350 | 020460 | 020570 | 020680 | 020790 | 021010 |
| 1/8 x 1/8 x 6   | 020030 |        |        | 020360 | 020470 |        | 020690 | 020800 | 021020 |
| 1/8 x 1/4 x 6   | 020040 | 020150 | 020260 | 020370 | 020480 | 020590 | 020700 | 020810 | 021030 |
| 1/8 x 1/2 x 6   | 020050 | 020160 | 020270 | 020380 | 020490 | 020600 | 020710 | 020820 | 021040 |
| 1/8 x 1 x 6     | 020060 | 020170 | 020280 | 020390 | 020500 | 020610 | 020720 | 020830 | 021050 |
| 5/32 x 5/32 x 6 | 020070 | 020180 |        | 020400 | 020510 |        | 020730 | 020840 | 021060 |
| 1/4 x 1/4 x 6   | 020090 | 020200 | 020310 | 020420 | 020530 | 020640 | 020750 | 020860 | 021080 |
| 1/4 x 1/2 x 6   | 020100 | 020210 | 020320 | 020430 | 020540 | 020650 | 020760 | 020870 | 021090 |
| 1/4 x 1 x 6     | 020110 | 020220 | 020330 | 020440 | 020550 | 020660 | 020770 | 020880 | 021100 |
| 3/8 x 3/8 x 6   | 020112 | 020222 | 020332 | 020442 | 020552 |        | 020772 |        |        |
| 1/4 TRI x 6     |        | 020224 |        | 020444 | 020554 |        | 020774 |        | 021104 |
| 3/8 TRI x 6     |        | 020225 |        | 020445 | 020555 |        | 020775 |        | 021105 |
| 1/4 RND x 5.5   |        | 020227 |        | 020447 | 020557 |        | 020777 | 020887 | 021107 |
| 3/8 RND x 5.5   |        | 020228 |        | 020448 | 020558 |        | 020778 |        | 021108 |

## AS-9

AS-9 is engineered for hand stoning EDM scales surfaces. It can be used with polishing machines, but the special formulation provides a fast, smooth cutting action during hand stoning. Use either with a lubricant or dry.



| AS-9            | 100    | 120    | 150    | 180    | 220    | 280    | 320    | 400    | 600    |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1/16 x 1/4 x 6  |        | 021260 | 021370 | 021480 | 021590 | 021700 | 021810 | 021920 | 022140 |
| 1/16 x 1/2 x 6  | 021160 | 021270 | 021380 | 021490 | 021600 | 021710 | 021820 | 021930 | 022150 |
| 1/8 x 1/8 x 6   |        |        |        | 021500 | 021610 | 021720 | 021830 | 021940 | 022160 |
| 1/8 x 1/4 x 6   | 021180 | 021290 | 021400 | 021510 | 021620 | 021730 | 021840 | 021950 | 022170 |
| 1/8 x 1/2 x 6   | 021190 | 021300 | 021410 | 021520 | 021630 | 021740 | 021850 | 021960 | 022180 |
| 1/8 x 1 x 6     | 021200 | 021310 | 021420 | 021530 | 021640 | 021750 | 021860 | 021970 |        |
| 5/32 x 5/32 x 6 |        | 021320 |        | 021540 | 021650 |        | 021870 | 021980 | 022200 |
| 1/4 x 1/4 x 6   | 021230 | 021340 | 021450 | 021560 | 021670 | 021780 | 021890 | 022000 | 022220 |
| 1/4 x 1/2 x 6   | 021240 | 021350 | 021460 | 021570 | 021680 | 021790 | 021900 | 022010 | 022230 |
| 1/4 x 1 x 6     | 021250 | 021360 | 021470 | 021580 | 021690 | 021800 | 021910 | 022020 | 022240 |

## Orange EDM

Orange EDM can be used by hand, with a profiler or ultrasonic units. Designed as an excellent tool for fast EDM scale removal. Orange EDM holds its shape and provides consistent cutting.



| Orange EDM      | 120    | 180    | 220    | 320    | 400    | 600    |
|-----------------|--------|--------|--------|--------|--------|--------|
| 1/16 x 1/4 x 6  | 082005 |        | 082203 | 082307 | 082405 | 082604 |
| 1/16 x 1/2 x 6  | 082011 |        | 082215 | 082311 | 082412 | 082606 |
| 1/8 x 1/8 x 6   | 082015 | 082101 | 082219 | 082319 | 082417 | 082615 |
| 1/8 x 1/4 x 6   | 082019 | 082115 | 082225 | 082322 | 082419 | 082619 |
| 1/8 x 1/2 x 6   | 082021 | 082120 | 082230 | 082325 | 082421 | 082623 |
| 1/8 x 1 x 6     | 082023 | 082126 | 082232 | 082330 | 082425 | 082627 |
| 5/32 x 5/32 x 6 | 082029 | 082129 | 082236 | 082335 | 082430 | 082633 |
| 1/4 x 1/4 x 6   | 082035 | 082137 | 082239 | 082340 | 082439 | 082637 |
| 1/4 x 1/2 x 6   | 082042 | 082142 | 082242 | 082342 | 082442 | 082642 |
| 1/4 x 1 x 6     | 082045 | 082149 | 082252 | 082346 | 082455 | 082659 |
| 3/8 x 3/8 x 6   | 082055 |        | 082254 | 082355 | 082457 | 082661 |
| 1/4 TRI x 6     | 082066 |        | 082270 | 082362 | 082465 |        |
| 3/8 TRI x 6     | 082070 |        | 082275 | 082365 | 082467 |        |
| 1/4 RND x 5.5   | 082083 |        | 082283 | 082367 | 082471 | 082695 |

## Gold

The new GOLD stone is the perfect all around aluminum oxide stone. It has excellent breakdown characteristics and retains its shape well. The GOLD is filled with a special lubricant, however, it is recommended to use polishing lubricants with all grits; pre-soaking is not required. This stone works well on EDM machined surfaces and on all tool steels. The GOLD stone can be used by hand or in a reciprocating profiler. Also available in metric sizes.



| GOLD            | 150    | 220    | 320    | 400    | 600    | 800    |
|-----------------|--------|--------|--------|--------|--------|--------|
| 1/8 x 1/4 x 6   | 057240 | 057440 | 057540 | 057640 | 057740 | 057840 |
| 1/8 x 1/2 x 6   | 057250 | 057450 | 057550 | 057650 | 057750 | 057850 |
| 5/32 x 5/32 x 6 | 057230 | 057430 | 057530 | 057630 | 057728 | 057830 |
| 1/4 x 1/4 x 6   | 057260 | 057460 | 057560 | 057660 | 057760 | 057860 |
| 1/4 x 1/2 x 6   | 057270 | 057470 | 057570 | 057670 | 057770 | 057870 |
| 1/4 x 1 x 6     | 057271 | 057472 | 057572 | 057671 | 057772 | 057872 |



## AM-2

## Aluminum Oxide

An excellent all around finishing stone. AM-2 is engineered for hand polishing of all types of mold & die steels, including SAE1030 pre heat treated P20, H13, S-7 and T-420. Soft action combined with the perfect breakdown permits pre-finishing on non-ferrous metals.



| AM-2            | 100    | 150    | 180    | 220    | 280    | 320    | 400    | 600    | 900    |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1/16 x 1/4 x 6  | 023210 | 023340 |        | 023600 | 023730 | 023860 | 023990 | 024250 | 024510 |
| 1/16 x 1/2 x 6  | 023220 | 023350 |        | 023610 |        | 023870 | 024000 | 024260 | 024250 |
| 1/8 x 1/8 x 6   | 023220 | 023360 | 023490 | 023620 |        | 023880 | 024010 | 024270 | 024530 |
| 1/8 x 1/4 x 6   | 023240 | 023370 | 023500 | 023630 | 023760 | 023890 | 024020 | 024280 | 024540 |
| 1/8 x 1/2 x 6   | 023250 | 023380 | 023510 | 023640 | 023770 | 023900 | 024030 | 024290 | 024550 |
| 1/8 x 1 x 6     | 023260 | 023390 | 023520 | 023560 | 023780 | 023910 | 024040 | 024300 |        |
| 5/32 x 5/32 x 6 | 023720 | 023400 | 023530 | 023660 |        | 023920 | 024050 | 024310 | 024570 |
| 1/4 x 1/4 x 6   | 023290 | 023420 | 023550 | 023680 | 023810 | 023940 | 024070 | 024330 | 024590 |
| 1/4 x 1/2 x 6   | 023300 | 023430 | 023560 | 023690 | 023820 | 023950 | 024080 | 024340 | 024600 |
| 1/4 x 1 x 6     | 023310 | 023440 | 023570 | 023700 | 023830 | 023960 | 024090 | 024350 | 024610 |
| 3/8 x 3/8 x 6   | 023315 | 023445 |        | 023705 | 023835 | 023965 | 024095 | 024355 |        |
| 1/2 x 1/2 x 6   | 023320 | 023450 | 023580 | 023710 | 023840 | 023970 | 024100 | 024360 | 024620 |
| 1/2 x 1 x 6     | 023330 | 023460 | 023590 | 023720 | 023850 | 023980 | 024110 | 024370 | 024630 |
| 1 x 1 x 6       | 023331 | 023461 | 023591 | 023721 |        | 023981 | 024111 | 024371 |        |
| 1/4 TRI x 6     |        | 023463 |        | 023723 |        | 023983 | 024113 |        |        |
| 3/8 TRI x 6     |        | 023464 |        | 023724 |        | 023984 | 024114 |        |        |
| 1/4 RND x 5.5   |        | 023466 |        | 023726 |        | 023986 | 024116 | 024376 |        |
| 3/8 RND x 5.5   |        | 023467 |        | 023727 |        | 023987 | 024117 | 024377 |        |
| 1/2 RND x 5.5   |        | 023468 |        | 023728 |        | 023988 | 024118 |        |        |

## Die Stone



The Die Stone is engineered for use on all tool steels. It provides consistent breakdown and fast cutting action. Slightly harder than the AM-2.

| Die Stone       | 150    | 180    | 220    | 320    | 400    | 600    |
|-----------------|--------|--------|--------|--------|--------|--------|
| 1/16 x 1/4 x 6  | 081017 |        | 081203 | 081323 | 081405 | 081611 |
| 1/16 x 1/2 x 6  | 081012 |        | 081210 | 081324 | 081409 | 081620 |
| 1/8 x 1/8 x 6   | 081015 | 081112 | 081215 | 081329 | 081412 | 081625 |
| 1/8 x 1/4 x 6   | 081019 | 081117 | 081223 | 081333 | 081419 | 081629 |
| 1/8 x 1/2 x 6   | 081022 | 081123 | 081225 | 081335 | 081421 | 081631 |
| 1/8 x 1 x 6     | 081025 | 081128 | 081231 | 081336 | 081422 | 081633 |
| 5/32 x 5/32 x 6 | 081030 | 081135 | 081235 | 081339 | 081425 | 081639 |
| 1/4 x 1/4 x 6   | 081037 | 081139 | 081236 | 081340 | 081436 | 081640 |
| 1/4 x 1/2 x 6   | 081042 | 081142 | 081242 | 081342 | 081442 | 081642 |
| 1/4 x 1 x 6     | 081045 | 081149 | 081273 | 081349 | 081449 | 081646 |
| 3/8 x 3/8 x 6   | 081048 |        | 081278 | 081353 | 081452 | 081655 |
| 1/2 x 1/2 x 6   | 081053 | 081154 | 081283 | 081354 | 081455 | 081662 |
| 1/2 x 1 x 6     | 081057 | 081157 | 081286 | 081355 | 081460 | 081664 |
| 1 x 1 x 6       | 081062 | 081163 | 081289 | 081359 | 081465 | 081669 |
| 1/4 TRI x 6     | 081065 |        | 081290 | 081361 | 081469 |        |
| 3/8 TRI x 6     | 081069 |        | 081291 | 081364 | 081470 |        |
| 1/4 RND x 5.5   | 081073 |        | 081295 | 081367 | 081488 | 081670 |
| 3/8 RND x 5.5   | 081078 |        | 081297 | 081371 | 081489 | 081675 |
| 1/2 RND x 5.5   | 081099 |        | 081299 | 081374 | 081495 |        |

## AM-K

## Aluminum Oxide

AM-K is a white aluminum oxide stone of medium hardness. It performs well on all types of mold steels. Generally, AM-K is used dry for rough forming and removal of machine marks. Lubricants should be used for finer grits.



| AM-K            | 100    | 150    | 180    | 220    | 320    | 400    | 600    |
|-----------------|--------|--------|--------|--------|--------|--------|--------|
| 1/16 x 1/4 x 6  | 025980 | 026120 | 026260 | 026400 | 026680 | 026820 |        |
| 1/16 x 1/2 x 6  | 025990 | 026130 | 026270 | 026410 | 026690 | 026830 | 027110 |
| 1/8 x 1/8 x 6   |        | 026140 | 026280 | 026420 | 026700 | 026840 | 027120 |
| 1/8 x 1/4 x 6   | 026010 | 026150 | 026290 | 026430 | 026710 | 026850 | 027130 |
| 1/8 x 1/2 x 6   | 026020 | 026160 | 026300 | 026440 | 026720 | 026860 | 027140 |
| 1/8 x 1 x 6     | 026030 | 026170 | 026310 | 026450 | 026730 | 026870 |        |
| 5/32 x 5/32 x 6 |        | 026180 | 026320 | 026460 | 026740 | 026880 | 027160 |
| 1/4 x 1/4 x 6   | 026060 | 026200 | 026340 | 026480 | 026760 | 026900 | 027180 |
| 1/4 x 1/2 x 6   | 026070 | 026210 | 026350 | 026490 | 026770 | 026910 | 027190 |
| 1/4 x 1 x 6     | 026080 | 026220 | 026360 | 026500 | 026780 | 026920 | 027200 |
| 1/2 X 1/2 X 6   | 026090 | 026230 | 026370 | 026510 | 026790 | 026930 | 027210 |
| 1/2 X 1 X 6     | 026100 | 026240 | 026380 | 026520 | 026800 | 026940 | 027220 |
| 1 X 1 X 6       | 026110 | 026250 |        | 026530 | 026810 |        | 027230 |

## AS-H

AS-H is similar to AM-K but slightly softer. It conforms quickly to pre-shaped surfaces. AS-H are more suitable for hand stoning and should always be used with lubricant.



| AS-H          | 100    | 150    | 180    | 220    | 320    | 400    | 600    |
|---------------|--------|--------|--------|--------|--------|--------|--------|
| 1/8 x 1/4 x 6 |        |        | 027590 | 027730 | 028010 | 028150 |        |
| 1/8 x 1/2 x 6 | 027320 | 027460 | 027600 | 027740 | 028020 |        | 028440 |
| 1/4 x 1/4 x 6 | 027360 |        | 027640 | 027780 | 028060 | 028200 | 028480 |
| 1/4 x 1/2 x 6 | 027370 | 027510 | 027650 | 027790 | 028070 | 028210 | 028490 |

### Polishing Tips

- Start your polishing with a finer grit stone rather than a coarse stone. You will save time in the long run.
- Hold the stone firmly for directional control, but press only hard enough to make the stone cut. Let the abrasive do the work.
- After each grit change, clean the work area thoroughly to remove all larger abrasive grain particles.
- When using a machine (such as a profiler or ultrasonic unit, or lapping tool) use moderate speed and pressure only. Excessive speed and pressure can cause minute stresses of metal resulting in “orange peel” or “dimpling.”

# General Purpose Stones



## CS

This fast cutting black silicon carbide is a soft stone designed to conform rapidly to a variety of details and is mostly used for hand polishing. It breaks down rapidly. CS stones are used on all tool steels as well as for roughing on some non-ferrous materials.

| CS            | 150    | 180    | 220    | 320    | 400    | 600    |
|---------------|--------|--------|--------|--------|--------|--------|
| 1/8 x 1/4 x 6 | 024850 |        |        | 025410 | 025550 | 025830 |
| 1/8 x 1/2 x 6 | 024860 | 025000 | 025130 | 025420 | 025560 | 025840 |
| 1/4 x 1/4 x 6 | 024900 |        | 025140 | 025460 | 025600 | 025880 |
| 1/4 x 1/2 x 6 | 024910 | 025050 | 025180 | 025470 | 025610 | 025890 |
| 1/4 x 1 x 6   | 024920 |        | 025190 | 025480 | 025620 | 025900 |
| 1/2 X 1/2 X 6 | 024930 |        | 025200 | 025490 | 025630 | 025910 |
| 1/2 X 1 X 6   | 024940 |        | 025210 | 025500 | 025640 | 025920 |



## CS-M

This premium green silicon carbide stone has superb cutting ability. CS-M has a special bond which makes it non-loading with a medium soft hardness. The sharp silicon carbide allows use of the CS-M for finishing low tensile strength materials such as aluminum, bronze, cast iron. Lubricant should be used.

| CS-M              | 120    | 150    | 220    | 320    | 400    | 600    |
|-------------------|--------|--------|--------|--------|--------|--------|
| 1/16 x 1/2 x 6    |        | 035205 | 035305 | 035505 | 035605 | 035805 |
| 1/8 x 1/4 x 6     | 035113 | 035213 | 035313 | 035513 | 035613 | 035813 |
| 1/8 x 1/2 x 6     | 035117 | 035217 | 035317 | 035517 | 035617 | 035817 |
| 5/32 x 5/32 x 6   |        |        |        | 035525 | 035625 | 035825 |
| 1/4 x 1/4 x 6     | 035129 | 035229 | 035329 | 035529 | 035629 | 035829 |
| 1/4 x 1/2 x 6     | 035133 | 035233 | 035333 | 035533 | 035633 | 035833 |
| 1/4 x 1 x 6       |        | 035237 | 035337 | 035537 | 035637 | 035837 |
| 3/8 x 3/8 x 6     |        | 035241 | 035341 | 035541 | 035641 |        |
| 1/2 x 1/2 x 6     |        | 035245 | 035345 | 035545 | 035645 | 035845 |
| 1/2 x 1 x 6       |        | 035249 | 035349 | 035549 | 035649 | 035849 |
| 1 x 1 x 6         |        | 035253 | 035353 | 035553 | 035653 | 035853 |
| "1/4 rnd x 5-1/2" |        |        | 035373 | 035573 | 035673 |        |



## CS-HD

Hard premium green silicon carbide stone has superb cutting ability. Excellent for hardened steels 47-63Hrc. Harder acting and slower to break down than CS or CS-M. This polishing stone can be used to polish even the hardest die & mold steels.



| CS-HD           | 120    | 150    | 220    | 320    | 400    | 600    |
|-----------------|--------|--------|--------|--------|--------|--------|
| 1/16 x 1/2 x 6  |        | 036205 | 036305 | 036505 | 036605 | 036805 |
| 1/8 x 1/4 x 6   | 036113 | 036213 | 036313 | 036513 | 036613 | 036813 |
| 1/8 x 1/2 x 6   | 036117 | 036217 | 036317 | 036517 | 036617 | 036817 |
| 5/32 x 5/32 x 6 |        |        | 036325 | 036525 | 036625 | 036825 |
| 1/4 x 1/4 x 6   | 036129 | 036229 | 036329 | 036529 | 036629 | 036829 |
| 1/4 x 1/2 x 6   | 036133 | 036233 | 036333 | 036533 | 036633 | 036833 |
| 1/4 x 1 x 6     |        | 036237 | 036337 | 036537 | 036637 |        |
| 3/8 x 3/8 x 6   |        |        | 036341 | 036541 | 036641 |        |
| 1/2 x 1/2 x 6   |        | 036245 | 036345 | 036545 | 036645 | 036845 |
| 1/2 x 1 x 6     |        | 036249 | 036349 | 036549 | 036649 |        |
| 1 x 1 x 6       |        | 036253 | 036353 | 036553 | 036653 | 036853 |

### PC

“Polisher’s Choice” is made from premium select grain & bond and a proprietary process. The “PC” is a quick contouring finishing stone designed for rapid stock removal and is an outstanding choice for metal finishes requiring a final diamond finish. This stone requires lubricant and is suited for use by hand or profiler.

| PC              | 150    | 220    | 320    | 400    | 600    |
|-----------------|--------|--------|--------|--------|--------|
| 1/8 x 1/4 x 6   | 059230 | 059330 | 059530 | 059630 | 059730 |
| 1/8 x 1/2 x 6   | 059240 | 059340 | 059540 | 059640 | 059740 |
| 5/32 x 5/32 x 6 | 059215 | 059315 | 059515 | 059615 | 059715 |
| 1/4 x 1/4 x 6   | 059250 | 059350 | 059550 | 059650 | 059750 |
| 1/4 x 1/2 x 6   | 059260 | 059360 | 059560 | 059660 | 059760 |
| 1/4 x 1 x 6     | 059265 | 059365 | 059565 | 059665 | 059765 |



### T2

Specially treated medium-hard stone cuts very fast and yet provides a silky, smooth finish. Use T-2 for high quality mold steels such as P20, H13 and 420 stainless. EXCELLENT stone for stainless steels.

| T-2             | 150    | 220    | 320    | 400    | 600    |
|-----------------|--------|--------|--------|--------|--------|
| 1/16 x 1/4 x 6  | 036900 | 037096 | 037292 | 037492 | 037688 |
| 1/8 x 1/4 x 6   | 036912 | 037108 | 037304 | 037504 | 037700 |
| 1/8 x 1/2 x 6   | 036916 | 037112 | 037316 | 037508 | 037704 |
| 1/8 x 1 x 6     | 036918 | 037114 | 037318 | 037510 | 037706 |
| 5/32 x 5/32 x 6 | 036924 | 037120 | 037320 | 037516 | 037712 |
| 1/4 x 1/4 x 6   | 036928 | 037124 | 037324 | 037520 | 037716 |
| 1/4 x 1/2 x 6   | 036932 | 037128 | 037328 | 037524 | 037736 |
| 1/4 x 1 x 6     | 036936 | 037132 | 037332 | 037528 |        |
| 1/2 x 1 x 6     | 036952 | 037148 | 037348 | 037544 | 037740 |
| 1 x 1 x 6       | 036956 | 037152 | 037352 | 037548 | 037744 |



### T4

Specially treated medium aluminum oxide that cuts fast and leaves an excellent finish. Similar to the T-2 but breaks down faster. Engineered for use on aluminum and soft metals without scratching or tearing the surface. Use of a lubricant is recommended.

| T-4           | 150    | 220    | 320    | 400    | 600    |
|---------------|--------|--------|--------|--------|--------|
| 1/8 x 1/4 x 6 | 038192 | 038352 | 038432 | 038512 | 038592 |
| 1/8 x 1/2 x 6 | 038196 | 038356 | 038436 | 038516 | 038596 |
| 1/4 x 1/4 x 6 | 038208 | 038368 | 038448 | 038528 | 038608 |
| 1/4 x 1/2 x 6 | 038212 | 038372 | 038452 | 038532 | 038612 |
| 1/4 x 1 x 6   | 038216 | 038376 | 038456 | 038536 | 038616 |





# Specialty Stones



## Aluminum Oxide



### TH

Made from premium aluminum oxide, then specially treated to provide a load resistant, smooth cutting action. The special formulation of the "TH" allows it to hold its shape and makes it an excellent choice for EDM surfaces. Performs well on all types of tool steels.

| TH            | 150    | 220    | 320    | 400    | 600    |
|---------------|--------|--------|--------|--------|--------|
| 1/8 x 1/4 x 6 | 034912 | 034108 | 034304 | 034504 | 034700 |
| 1/8 x 1/2 x 6 | 034916 | 034112 | 034316 | 034508 | 034704 |
| 1/4 x 1/4 x 6 | 034928 | 034124 | 034324 | 034520 | 034716 |
| 1/4 x 1/2 x 6 | 034932 | 034128 | 034328 | 034524 | 034736 |
| 1/4 x 1 x 6   | 034936 | 034132 | 034332 | 034528 | 034738 |
| 1/2 x 1 x 6   | 034933 | 034125 | 034333 | 034536 | 034737 |
| 1 x 1 x 6     | 034937 | 034126 | 034334 | 034537 | 034740 |



### AO

AO is a perfect all around aluminum oxide stone with excellent breakdown characteristics yet, it retains its shape well, especially when polishing mold cavity details. The AO is filled with a lubricant during the manufacturing process so it does not require pre-lubrication although the use of a lubricant is recommended.

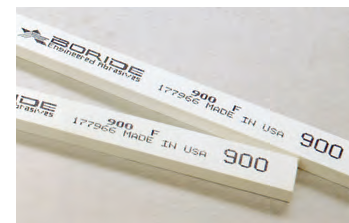


| AO              | 120    | 150    | 220    | 320    | 400    | 600    |
|-----------------|--------|--------|--------|--------|--------|--------|
| 1/16 x 1/4 x 6  | 033101 | 033201 | 033401 | 033601 | 033701 | 033901 |
| 1/16 x 1/2 x 6  | 033105 | 033205 | 033405 | 033605 | 033705 | 033905 |
| 1/8 x 1/8 x 6   | 033109 | 033209 | 033409 | 033609 | 033709 | 033909 |
| 1/8 x 1/4 x 6   | 033113 | 033213 | 033413 | 033613 | 033713 | 033913 |
| 1/8 x 1/2 x 6   | 033117 | 033217 | 033417 | 033617 | 033717 | 033917 |
| 1/8 x 1 x 6     | 033121 | 033221 | 033421 | 033621 | 033721 |        |
| 5/32 x 5/32 x 6 | 033125 | 033225 | 033425 | 033625 | 033725 | 033925 |
| 1/4 x 1/4 x 6   | 033129 | 033229 | 033429 | 033629 | 033729 | 033929 |
| 1/4 x 1/2 x 6   | 033133 | 033233 | 033433 | 033633 | 033733 | 033933 |
| 1/4 x 1 x 6     | 033137 | 033237 | 033437 | 033637 | 033737 | 033937 |
| 3/8 x 3/8 x 6   | 033141 | 033241 | 033441 | 033641 | 033741 |        |
| 1/2 x 1/2 x 6   | 033145 | 033245 | 033445 | 033645 | 033745 | 033945 |
| 1/2 x 1 x 6     | 033149 | 033249 | 033449 | 033649 | 033749 | 033949 |
| 1 x 1 x 6       | 033153 | 033253 | 033453 | 033653 | 033753 | 033953 |
| 1/4 Tri x 6     |        |        |        | 033669 | 033769 |        |
| 3/8 Tri x 6     | 033173 |        | 033473 |        | 033773 |        |
| 1/2 Tri x 6     | 033177 |        |        |        |        |        |
| 1" Tri x 6      | 033181 |        |        |        |        |        |
| 1/4 Rnd x 5.5   | 033189 | 033289 | 033489 | 033689 | 033789 | 033989 |
| 3/8 Rnd x 5.5   |        | 033293 | 033493 | 033693 | 033793 | 033993 |
| 1/2 Rnd x 5.5   |        |        | 033497 | 033697 | 033797 | 033997 |

### 900-F

This stone has a super-fine structure and excellent breakdown properties for final finishing prior to diamond polish finishing. 900-F works especially well on P-20 mold steel ranging in hardness from 29-32Hrc. Primarily used for hand finishing operations and lubricant should be used.

| 900-F         | 900    |
|---------------|--------|
| 1/8 x 1/4 x 6 | 028600 |
| 1/8 x 1/2 x 6 | 028610 |
| 1/4 x 1/4 x 6 | 028630 |
| 1/4 x 1/2 x 6 | 028640 |
| 1/4 x 1 x 6   | 028650 |
| 1/2 x 1/2 x 6 | 028660 |



### DMS-I

Made from sharp grains of aluminum oxide held in a medium bond. Designed for large cavity and parting line work. Can also be used as a general purpose stone in smaller sizes. Use dry for best results.



| DMS-I       | 80     | 120    | 150    | 180    |
|-------------|--------|--------|--------|--------|
| 1/4 x 1 x 8 | K18080 | K18120 | K18150 | K18180 |
| 1/2 x 1 x 8 | K19080 | K19120 | K19150 | K19180 |

### RO-MED

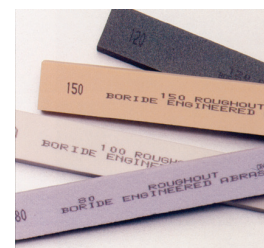
RO-MED is an excellent roughout for mold contours because of its fast Breakdown.

| RO-MED      | 80     | 100    | 150    | 220    |
|-------------|--------|--------|--------|--------|
| 1/4 x 1 x 8 | 029200 | 029230 | 029260 | 029290 |
| 1/2 x 1 x 8 | 029210 | 029240 | 029270 | 029300 |
| 1 x 2 x 8   | 029220 | 029250 | 029280 | 029310 |

### RO-HARD

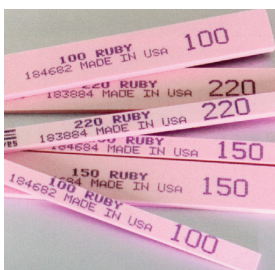
For detailing sharp corners and steps.

| RO-HARD     | 150    | 220    |
|-------------|--------|--------|
| 1/4 x 1 x 8 | 029460 | 029490 |
| 1/2 x 1 x 8 | 029470 | 029500 |
| 1 x 2 x 8   | 029480 | 029510 |



### RUBY

Ruby stones are extremely fast cutting and perform well on all tool steels. They provide sharp cutting action for fast stock removal. The consistent breakdown allows the stone to be used dry without loading. Try the "RB" for fast stock removal on mold contours.



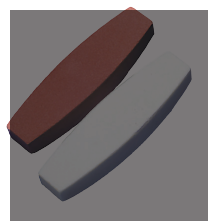
### ROUGHOUTS

Ideal for removing cutter marks after the duplicating process. From soft to hard, the Roughout stones enable rapid, aggressive stock removal.

| ROUGHOUT    | 80 Blue | 100 White | 120 Green | 180 White |
|-------------|---------|-----------|-----------|-----------|
| 1/4 X 1 X 8 | 029516  | 029530    | 029545    | 029575    |
| 1/2 x 1 x 8 | 029519  | 029533    | 029548    | 029578    |
| 1 X 1 X 8   | 029521  | 029536    | 029551    | 029581    |
| 1 x 2 x 8   | 029524  | 029539    | 029554    | 029584    |

### BOAT STONES

Available in aluminum oxide and black or green silicon carbide. Made to be easily held and primarily used on large dies and sharp edges on machined parts.



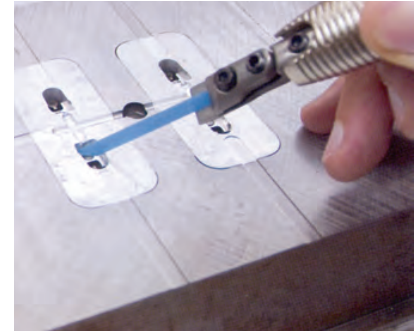
| Type            | Available Colors                      | Size                 |
|-----------------|---------------------------------------|----------------------|
| Aluminum Oxide  | White, Brown, Pink, Ruby, Red, Orange | 9" x 2-1/2" x 1-1/2" |
| Silicon Carbide | Black, Green                          | 9" x 2-1/2" x 1"     |

| RUBY          | 80     | 100    | 150    | 220    |
|---------------|--------|--------|--------|--------|
| 1/4 X 1/4 X 6 | 074329 | 074529 | 074629 | 074829 |
| 1/4 X 1/2 X 6 | 074333 | 074533 | 074633 | 074833 |
| 1/4 x 1 x 6   | 074343 | 074543 | 074643 | 074843 |
| 1/2 x 1/2 x 6 | 074341 | 074541 | 074641 | 074841 |
| 1/2 x 1 x 6   | 074345 | 074545 | 074645 | 074845 |

To order, specify type and color (i.e. Aluminum Oxide-White)

## CERAMIC SUPER STONES

The original Ceramic Stone/Super Stone is used for fine detail polishing. Made from strands of fiber disbursed in a thermoset resin. This unique stone is extremely strong and thin. Its flexibility makes this stone excellent for tight ribs, slots and EDM removal. Can be used by hand, yet works extremely well in filing, lapping & ultrasonic machines.



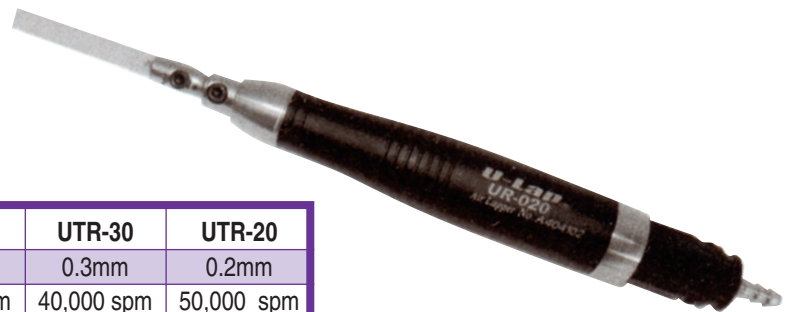
| Size (mm)      | Green (coarser) | Gold < | Lt. Brown | Orange | Brown (Black) | Blue   | White > | Red finer) |
|----------------|-----------------|--------|-----------|--------|---------------|--------|---------|------------|
| 1 x 4 x 50     |                 |        |           |        | 670587        | 670787 |         |            |
| 0.5 x 2 x 100  | 669900          | 670100 | 670200    | 670300 | 670500        | 670700 | 670800  | 670900     |
| 0.5 x 4 x 100  | 669910          | 670110 | 670210    | 670310 | 670510        | 670710 | 670810  | 670910     |
| 0.5 x 6 x 100  | 669930          | 670130 | 670230    | 670330 | 670530        | 670730 | 670830  | 670930     |
| 0.8 x 4 x 100  | 669912          | 670112 | 670212    |        | 670512        | 670712 | 670812  |            |
| 0.8 x 6 x 100  | 669932          | 670132 | 670232    |        | 670532        | 670732 |         |            |
| 0.8 x 10 x 100 |                 | 670152 | 670252    |        | 670552        | 670252 | 670852  |            |
| 1 x 2 x 100    | 669904          | 670104 | 670204    | 670304 | 670504        | 670704 | 670804  | 670904     |
| 1 x 4 x 100    | 669914          | 670114 | 670214    | 670314 | 670514        | 670714 | 670814  | 670914     |
| 1 x 6 x 100    | 669934          | 670134 | 670234    | 670334 | 670534        | 670734 | 670834  | 670934     |
| 1 x 10 x 100   | 669954          | 670154 | 670254    | 670354 | 670554        | 670754 | 670854  | 670954     |
| 1.5 x 4 x 100  | 669916          | 670116 | 670216    | 670316 | 670516        | 670716 |         |            |
| 1.5 x 6 x 100  | 669936          | 670136 | 670236    | 670336 | 670536        | 670736 |         |            |
| 1 x 4 x 150    | 669924          | 670124 | 670224    |        |               |        |         |            |
| 2.35 x 50      |                 |        |           | 670371 | 670571        | 670771 |         |            |
| 2.35 x 100     |                 |        |           |        | 670545        | 670745 |         |            |
| 3 x 50         |                 |        |           | 670381 | 670581        | 670781 | 670881  | 670981     |
| 3.16 x 50      | 669991          | 670091 | 670191    | 670391 | 670591        | 670791 |         |            |
| 3 x 100        | 669951          | 670151 | 670251    | 670351 | 670551        | 670751 | 670851  | 670951     |

## AIR OPERATED LAPPING MACHINE

Turbine-driven "in-line" reciprocating UltraLap for very small to medium sized detail/finishing work. All three systems generate minimal noise/vibration and require little maintenance.

M · D · T

| Catalog No.           | UTR-70                     | UTR-30                   | UTR-20                   |
|-----------------------|----------------------------|--------------------------|--------------------------|
| Stroke length         | 0.7mm                      | 0.3mm                    | 0.2mm                    |
| Max. Speed at no load | 35,000 spm                 | 40,000 spm               | 50,000 spm               |
| Air Consumption       | 0.05 m <sup>3</sup> /min   | 0.05 m <sup>3</sup> /min | 0.05 m <sup>3</sup> /min |
| Air Pressure Max.     | 90 psi                     | 90 psi                   | 90 psi                   |
| Dimension (mm)        | 24 x 180                   | 24 x 180                 | 24 x 180                 |
| Weight (grams)        | 175                        | 175                      | 165                      |
| Lubrication           | 1 to 2 drops/min each unit |                          |                          |



## STONEHOLDERS

Specially designed holders for hand use and profilers. Conventional and detail polishing holder designs are available. All holders are made of material that will not damage mold & die surfaces.

### Polishing Stone Holders – Handheld

| Item Number | Accommodates Stone Sizes        |
|-------------|---------------------------------|
| 029910      | 1/8 x 1/4, 1/8 x 1/2, 1/4 x 1/4 |
| 029912      | 1/4 x 1/4, 1/4 x 1/2            |
| 029913      | 3/8" round, 1/4" round          |
| 029914      | 1/16 x 1/4, 1/16 x 1/2          |
| 029915      | Set of above four               |



### Ceramic Stone Holders – Handheld

| Item Number | Length             | Accommodates Sizes |
|-------------|--------------------|--------------------|
| 029930      | 5-3/4              | 2-4mm stick        |
| 029935      | 5-3/4              | 6mm stick          |
| 029940      | 5-3/4              | 8-10mm stick       |
| 029945      | set of above three |                    |
| 029925      | 5-1/2              | 3mm round          |



### Polishing Stone Holders – Profiler

| Item Number | Shank                        | Accommodates Sizes   |
|-------------|------------------------------|----------------------|
| 029960      | 3/16"                        | 1/4 stone long       |
| 029963      | 3/16"                        | 1/4 stone short      |
| 029967      | 3/16"                        | 1/8 stone short      |
| 029958      | Large brass ring replacement |                      |
| 029923      | 3/16"                        | Vice clamp           |
| 029924      | 1/8"                         | Vice clamp           |
| 029916      | 3/16"                        | 1/8 x 1/4            |
| 029917      | 3/16"                        | 1/8 x 1/2, 1/4 x 1/4 |
| 029918      | 1/8"                         | 1/8 x 1/4            |
| 029919      | 1/8"                         | 1/8 x 1/2, 1/4 x 1/4 |



### Ceramic Stone Holders – Profiler

| Item Number | Shank                  |              |
|-------------|------------------------|--------------|
| 029950      | 1/8"                   | for profiler |
| 029953      | 3mm                    | for profiler |
| 029954      | 3/16"                  | for profiler |
| 029955      | Brass ring replacement |              |





## DMS DIAMOND COMPOUND

Made to the highest quality standards in the industry. Oil soluble of high quality diamond. Packaged in a handy syringe for easy dispensing.



| Finish   | Compound Grade | Micron Range | Approx Mesh | Color  | Concentration | Cat No. 5 Gram | Cat No. 18 Gram |
|--|----------------|--------------|-------------|--------|---------------|----------------|-----------------|
| Ultra high mirror finish for optical quality cavities.   | 1-MC           | 0-2          | 14,000      | Ivory  | Medium        | 70105M1        | 70118M1         |
| Final mirror finish.<br>Good for cavities producing clear parts.   | 3-MC           | 2-4          | 8,000       | Yellow | Medium        | 70305M1        | 70318M1         |
| Final polish for most cavities.<br>General purpose intermediate polishing.<br>Final polish for diecast cavities. | 6-MC           | 4-8          | 3,000       | Orange | Medium        | 70605M1        | 70618M1         |
|  | 9-MC           | 8-12         | 1,800       | Green  | Medium        | 70905M1        | 70918M1         |
|  | 15-MC          | 12-22        | 1,200       | Blue   | Medium        | 71505M1        | 71518M1         |
| Preliminary Polishing.   | 30-MC          | 22-36        | 600         | Red    | Medium        | 73005M1        | 73018M1         |
|  | 45-MC          | 36-54        | 325         | Brown  | Medium        | 74505M1        | 74518M1         |

## MOLD MAKERS DIAMOND

Used for precision finishing on all types of molds. Oil soluble with a wide thermal range. Packaged in 5 & 18 gram syringes.



| Application        | Grade | Micron size | Mesh   | Colour | Concentration | Part No. 5 Gram | Part No. 18 Gram |
|--------------------|-------|-------------|--------|--------|---------------|-----------------|------------------|
| Final Polish       | 1     | 0-2         | 14,000 | White  | Standard      | 331020          | 331030           |
| Final Polish       | 3     | 2-4         | 8,000  | Yellow | Standard      | 331050          | 331060           |
| Final & Pre-polish | 6     | 4-8         | 3,000  | Orange | Standard      | 331080          | 331090           |
| Final & Pre-polish | 9     | 6-10        | 1,800  | Green  | Standard      | 331110          | 331120           |
| Pre-Polish Lapping | 15    | 9-19        | 1,200  | Blue   | Standard      | 331140          | 331150           |
| Stock Removal      | 30    | 20-30       | 800    | Red    | Standard      | 331170          | 331180           |



## “SUPER US” DIAMOND COMPOUND


Very high diamond concentration contains grains precisely graded and evenly distributed in a specific viscosity medium. Provides a uniform finish & luster while allowing rapid stock removal. Oil or alcohol soluble.




| Recommendations for use                                   | Grade | Micron size  | Approx. Mesh | Color     | Concentration | Part No. 5 Gram | Part No. 10 Gram |
|---|-------|--------------|--------------|-----------|---------------|-----------------|------------------|
| Finest finishes, optical lenses, semiconductors.          | 1     | 1/2 to 1-1/2 | 15,000       | Ivory     | Very High     | DC-1VH-5        | DC-1VH-10        |
|   | 3     | 2 to 4       | 8,500        | Yellow    | Very High     | DC-3VH-5        | DC-3VH-10        |
| Final finish for most molds, dies, extrusion dies.        | 6     | 4 to 7       | 4,000        | Orange    | Very High     | DC-6VH-5        | DC-6VH-10        |
|   | 9     | 8 to 11      | 2,000        | Green     | Very High     | DC-9VH-5        | DC-9VH-10        |
|   | 15    | 12 to 18     | 1,200        | Dark Blue | Very High     | DC-15VH-5       | DC-15VH-10       |
| Preliminary finish after abrasive stone finishing.        | 30    | 25 to 33     | 675          | Red       | Very High     | DC-30VH-5       | DC-30VH-10       |
|   | 45    | 36 to 51     | 325          | Brown     | Very High     | DC-45VH-5       | DC-45VH-10       |
| Fast stock removal and roughing on hard materials/carbide | 60    | 54 to 70     | 235          | Purple    | Very High     | DC-60VH-5       | DC-60VH-10       |

# Lapping & Finishing Accessories

## LAPPING SPRAY FOR DIAMOND COMPOUNDS

|  |   |
|--|---|
|  | Catalog No. 121205  |
| Stock removal may cause diamond compounds to thin out, causing the workpiece to "burn". A proper lapping fluid must be used to prevent this. Simply spray the surface and then apply diamond then polish. Supplied in a handy 4 oz. Aerosol. |  |

## LUBRICATOR & THINNER FOR DIAMOND COMPOUNDS

|   |   |
|---|---|
|   | Catalog No. DCLT-4  |
| When polishing with diamond compound, microscopic sized metal cuttings may cause the compound to thicken. Thinner/lubricator is formulated to prevent thickening and assures proper lubrication during polishing. Supplied in a 4 oz plastic bottle with a cap that permits dispensing in small droplets. |  |

## LAPPING STICKS

Made of hardwood and soft balsa wood. Ideal for lapping & finishing by hand or with reciprocating tools. Softwood creates a higher surface finish while the hardwood cut fast and hold shape longer. All 6" long. Other types of laps available on request.

| Hard Wood | Soft Wood | Size        |
|-----------|-----------|-------------|
| DU-1      | SU-1      | 1/8 X 1/8   |
| DU-2      | SU-2      | 3/8 x 1/8   |
| DU-3      | SU-3      | 3/16 x 3/16 |
| DU-4      | SU-4      | 1/4 x 1/4   |
| DU-5      | SU-5      | 1/2 x 5/16  |
| DU-6      | SU-6      | 3/4 x 5/16  |
| DU-7      | SU-7      | 1/8 round   |
| DU-8      | SU-8      | 3/16 round  |
| DU-9      | SU-9      | 1/4 round   |

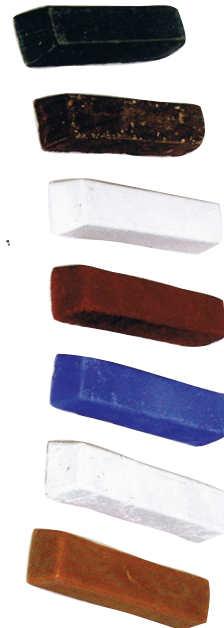


## POLISHING COMPOUNDS

From Foredom™ and made in USA. For all polishing/finishing & touch-up work.



| Compound            | Application   | Weight      | Part No. |
|---------------------|---|-------------|----------|
| Emery (Black)       | Coarse grit to remove surface imperfections, scratches, rust and burrs from iron, steel and other hard metals                               | 6.5 oz bar  | 4001     |
|                     |   | 19 oz bar   | 5001     |
| Tripoli (Brown)     | The most popular compound for general cutting, scratch removal, buffing and coloring on non-ferrous metals such as zinc, brass and aluminum | 4.5 oz bar  | 4002     |
|                     |   | 14 oz bar   | 5002     |
| White Diamond Rouge | Fast cutting on hard materials. Made with fine abrasive that produces a satin finish on chrome, stainless carbon steel, brass & aluminum.   | 5.5 oz bar  | 4003     |
| Red Rouge           | Produces a high luster finish on nickel plating and plastics for final polishing  | 5.75 oz bar | 4004     |
|                     |   | 17 oz bar   | 5004     |
| Platinum Blue       | For pre-polishing and cutting down of platinum and other metals. Also for final polishing on acrylics.                                      | 5 oz bar    | 4007     |
| Platinum White      | Final polishing. Produces a deep luster polish on platinum and all metals (8000 grit). Also for final polishing on flexite.                 | 5.75 oz bar | 4006     |
| Green Buff          | Great general purpose cutting compound for final finish work.   | 16 oz bar   | 126317   |
| 4 Bar Kit           | An kit of more popular compounds. 1 each of #4001, 4002, 4003, 4004.  |             | 4000     |












## MX COTTON FIBER FINISHING WHEELS






Excellent for polishing and deburring mold runners, and can be used in aerospace, gear manufacturing, casting applications as well. Material is muslin with aluminum oxide grit and resin bonded. Lamination runs parallel to shank to prevent chipping of wheel. Available in 80, 120, 180 and 320 grits. Stocked in medium hard bond. Mounted on 1/8 shanks. To order specify Cat No. & grit ( ie MX145080 for Mx145 80grit)

| Cat. No. | Size       |
|----------|------------|
| MX145    | 1/8 x 3/8  |
| MX146    | 1/8 x 1/2  |
| MX154    | 3/16 x 1/2 |
| MX163    | 1/4 x 1/2  |
| MX176    | 3/8 x 1/2  |
| MX185    | 1/2 x 1/2  |

## POLISHING POINTS

| WPP3P   | WPP14P  | WPP18P  | WPP19P  | WPP22P  | WPP26P  | White Polishing Points  |
|---|---|---|---|---|---|---|
|  |  |  |  |  |  | Excellent for very fine finishing. 400grit aluminum oxide ceramically bonded points on 3/32 shanks. |

| WRP1A   | WRP23A  | WRP22A  | WRP12A  | WRP17A  | WRP28A   | WRP46A  | Red Polishing Points  |
|---|---|---|---|---|--|---|---|
|  |  |  |  |  |  |  | General purpose -3/32 shanks. Aluminum oxide coarse grits on left to fine on right. For blending and shaping details. |
| Coarse  |   |   | Medium  |   | Fine   |   |   |

|   | HP12  | HP23  | HP26  | HP28  | HP59      | Blue Polishing Points                                    |
|---|---|---|---|---|-----------|--|
|  |  |  |  |  |           | Vitrified aluminum oxide, medium hardness on 3/32 shanks |
| Size  | 1/8 x 1/4   | .131x13/32  | 1/8 x 9/32  | 3/32x17/64  | 1/4 x 1/2 |  |
| Cat no.   | HP12  | HP23  | HP26  | HP28  | HP59      |  |

## GROUP "B" SHAPES - 1/8 SHANKS

### Color Blue







Designed to hold their shape. Medium hardness premium aluminum oxide. Excellent utility point.








### Color Red

Medium soft aluminum oxide recommended for non-hardened low alloy steels.

### Color White

General purpose medium soft aluminum oxide recommended for non-hardened low alloy steels. Will break down to avoid loading and allows sharp cutting edges to be exposed to the workpiece.

|   | B44   | B45  | B52   | B53   | B55   | B96              |
|---|---|--|---|---|---|------------------|
|  |  |  |  |  |  |                  |
| Shape No.   | B44   | B45  | B52   | B53   | B55   | B96              |
| Diameter  | 7/32  | 3/16   | 3/8   | 1/4   | 1/8   | 1/8              |
| Thickness   | 3/8   | 5/16   | 3/4   | 5/8   | 1/4   | 1/4              |
| Max. RPM  | 68,000  | 100,000  | 45,000  | 60,000  | 100,000   | 100,000          |
| Available in colors   | Blue, Red, White  | Blue, White  | Blue, Red, White  | Blue, Red, White  | Blue, Red, White  | Blue, Red, White |

|   | B97   | B98  | B105  | B123  | B124  | B125  | B135      |
|---|---|--|---|---|---|---|-----------|
|  |  |  |  |  |  |  |           |
| Shape No.   | B97   | B98  | B105  | B123  | B124  | B125  | B135      |
| Diameter  | 3/32  | 3/32   | 1/4   | 3/16  | 1/8   | 1/4   | 1/4       |
| Thickness   | 3/8   | 1/4  | 1/4   | 3/16  | 1/8   | 1/4   | 1/2       |
| Max. RPM  | 100,000   | 100,000  | 100,000   | 100,000   | 100,000   | 60,000  | 60,000    |
| Available in colors   | Blue, Red, White  | Blue, White  | Blue, Red, White  | Blue, Red, White  | Blue, Red, White  | Blue, Red   | Blue, Red |



## GROUP "W" SHAPES - 1/8 SHANKS

### Color Blue

Designed to hold their shape. Medium hardness premium aluminum oxide. Excellent utility point.

### Color Red

Medium soft aluminum oxide recommended for non-hardened low alloy steels.

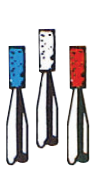
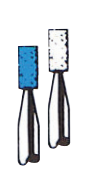
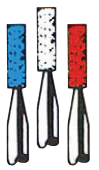
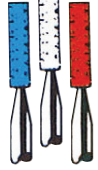
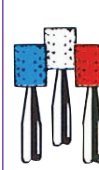
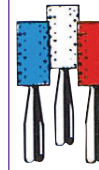
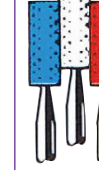
### Color White


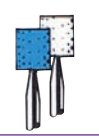
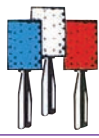
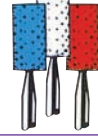

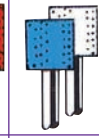
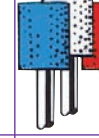
General purpose medium soft aluminum oxide recommended for non-hardened low alloy steels. Will break down to avoid loading and allows sharp cutting edges to be exposed to the workpiece.


### NOTE

The right stone the first time.

Abrasive type, grade (strength of bond), grain size, grain spacing, bond type are all factors to consider when ordering mounted stones. To get the best results one must arrive at the right combination. DMS mounted stones have been designed to our specifications after many years of field testing.

|                     |   |   |  |   |   |   |   |
|---------------------|---|---|--|---|---|---|---|
|                     |  |  |  |  |  |  |  |
| Shape No.           | W142  | W144  | W145   | W146  | W152  | W153  | W154  |
| Diameter            | 3/32  | 1/8   | 1/8  | 1/8   | 3/16  | 3/16  | 3/16  |
| Thickness           | 1/4   | 1/4   | 3/8  | 1/2   | 1/4   | 3/8   | 1/2   |
| Max. RPM            | 90,000  |   |  |   | 80,000  |   | 70,000  |
| Available in colors | Blue, Red, White  | Blue, White   | Blue, Red, White   | Blue, Red, White  | Blue, Red, White  | Blue, Red, White  | Blue, Red, White  |

|                     |   |   |  |   |   |   |   |
|---------------------|---|---|--|---|---|---|---|
|                     |  |  |  |  |  |  |  |
| Shape No.           | W160  | W161  | W162   | W163  | W170  | W175  | W176  |
| Diameter            | 1/4   | 1/4   | 1/4  | 1/4   | 5/16  | 3/8   | 3/8   |
| Thickness           | 1/4   | 5/16  | 3/8  | 1/2   | 1/2   | 3/8   | 1/2   |
| Max. RPM            | 70,000  | 60,000  |  |   | 40,000  |   | 35,000  |
| Available in colors | Blue, White   | Blue, White   | Blue, Red, White   | Blue, Red, White  | Blue, Red, White  | Blue, White   | Blue, Red, White  |

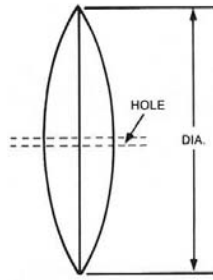
|                     |   |   |  |   |   |   |   |
|---------------------|---|---|--|---|---|---|---|
|                     |  |  |  |  |  |  |  |
| Shape No.           | W181  | W182  | W185   | W200  | W215  | W216  | W220**  |
| Diameter            | 1/2   | 1/2   | 1/2  | 3/4   | 1"  | 1"  | 1"  |
| Thickness           | 1/16  | 1/8   | 1/2  | 1/8   | 1/8   | 1/4   | 1"  |
| Max. RPM            | 70,000  |   | 60,000   | 50,000  | 38,000  |   | 25,000  |
| Available in colors | Blue, White   | Blue, White   | Blue, White  | Blue, Red, White  | Blue, White   | Blue, White   | Blue, White   |

\*\*W220 IN 1/4" SHANK ONLY

**WARNING - WEAR FACE PROTECTION**  
GRINDING WHEELS IMPROPERLY USED ARE DANGEROUS.  
Speed, safety guards, mounting procedures, operating rules, handling, storage and inspection are important.

## Knife Edge Felt Wheels

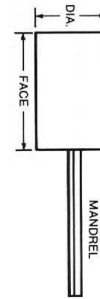
| Cat. No. | Diameter | Thickness |
|----------|----------|-----------|
| KE1      | 1/2      | 3/16      |
| KE2      | 5/8      | 3/16      |
| KE3      | 3/4      | 3/16      |
| KE4      | 1"       | 3/16      |
| KE5      | 1-1/2    | 3/16      |
| KE6      | 2"       | 3/16      |
| KE7      | 2-1/2    | 3/16      |
| KE8      | 3"       | 1/4       |
| KE9      | 4"       | 1/4       |



Available in flint hard only

## Mounted Felt Bobs (Cylindrical)

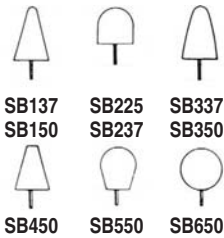
| Cat. No. | Diameter | Face  | Mandrel |
|----------|----------|-------|---------|
| MFB01    | 1/4      | 1/4   | 1/8     |
| MFB02    | 1/4      | 3/8   | 1/8     |
| MFB03    | 3/8      | 3/8   | 1/8     |
| MFB04    | 3/8      | 1/2   | 1/8     |
| MFB05    | 1/2      | 1/2   | 1/8     |
| MFB06    | 1/2      | 3/4   | 1/8     |
| MFB07    | 1/2      | 1"    | 1/8     |
| MFB08    | 3/4      | 3/4   | 1/8     |
| MFB09    | 3/4      | 1"    | 1/8     |
| MFB11    | 1"       | 1"    | 1/4     |
| MFB13    | 1"       | 1-1/2 | 1/4     |
| MFB16    | 1-1/4    | 1-1/4 | 1/4     |
| MFB18    | 1-1/2    | 1-1/2 | 1/4     |
| MFB21    | 2"       | 2"    | 1/4     |



Available in hard only.

## Shaped Felt Bobs

| Cat. No. | Diameter | Face |
|----------|----------|------|
| SB137    | 3/8      | 1/2  |
| SB150    | 1/2      | 1"   |
| SB225    | 1/4      | 1/4  |
| SB237    | 3/8      | 1/2  |
| SB337    | 3/8      | 1/2  |
| SB350    | 1/2      | 1"   |
| SB450    | 1/2      | 3/4  |
| SB550    | 1/2      | 3/4  |
| SB650    | 1/2      | 1/2  |

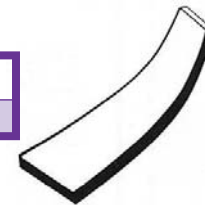


Available in hard, 1/8" shanks

## Felt Pads

| Cat. No. | Size                |
|----------|---------------------|
| FP12     | 1/8 x 1" x 3" Long. |

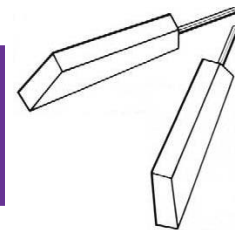
Ideal for touch-up work. Available in soft only



## Mounted Felt Laps

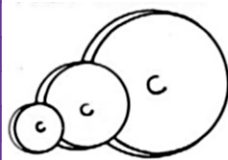
| Cat. No. | Size              |
|----------|-------------------|
| FL25     | 1/4 x 1/4 x 1-1/2 |
| FL37     | 3/8 x 3/8 x 1-3/4 |
| FL50     | 1/2 x 1/2 x 1-3/4 |

Designed for use with profilers. 45° angle cut on 1/8" shank.



## Felt Wheels

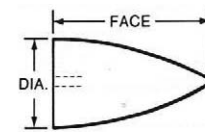
| Cat. No. | Diameter | Thickness |
|----------|----------|-----------|
| FW05012  | 1/2      | 1/8       |
| FW07512  | 3/4      | 1/8       |
| FW10012  | 1"       | 1/8       |
| FW10025  | 1"       | 1/4       |
| FW15012  | 1-1/2    | 1/8       |
| FW15025  | 1-1/2    | 1/4       |
| FW20025  | 2"       | 1/4       |
| FW20037  | 2"       | 3/8       |
| FW20050  | 2"       | 1/2       |
| FW30025  | 3"       | 1/4       |
| FW30050  | 3"       | 1/2       |



Available in hard only. With pin hole center.

## Felt Cones

| Cat. No. | Diameter | Face |
|----------|----------|------|
| C1       | 1/4      | 1/2  |
| C2       | 3/8      | 3/4  |
| C3       | 1/2      | 1"   |



Available in flinthard only

## Felt Sheets

Handy when special shapes and sizes are required. Cut your own size & shape.

| Catalog No. | Width x Length x Thickness | Density |
|-------------|----------------------------|---------|
| FST-12-187M | 12" x 12" x 3/16           | Medium  |
| FST-12-375M | 12" x 12" x 3/8            | Medium  |
| FST-12-500M | 12" x 12" x 1/2            | Medium  |
| FST-12-250S | 12" x 12" x 1/4            | Soft    |
| FST-12-250M | 12" x 12" x 1/4            | Medium  |
| FST-12-250H | 12" x 12" x 1/4            | Hard    |

# Mounted Polishing Brushes



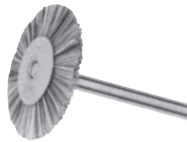
## Wheel Brushes – Bristle Fill

| Catalog No. | Diameter | Fill Material | Shank |
|-------------|----------|---------------|-------|
| 26041       | 3/4      | Stiff Hair    | 3/32  |
| 26059       | 3/4      | Stiff Hair    | 1/8   |



## Cup & Wheel Brushes

All cup & wheel brushes are made with a solid ring construction(except nylon) where each individual filament is wrapped around a steel ring and permanently anchored in the brush.



## Wheel Brushes – Wire Fill

| Catalog No. |       | Diameter | Wire Size | Shank |
|-------------|-------|----------|-----------|-------|
| Steel       | Brass |          |           |       |
| 26000       | —     | 3/4      | .003      | 1/8   |
| 26003       | —     | 3/4      | .005      | 1/8   |
| 26012       | —     | 1"       | .003      | 1/8   |
| 26015       | 26016 | 1"       | .005      | 1/8   |

## End Brushes

All end brushes(except nylon) are of one piece ferrule construction that ensures the shank and ferrule will not become separated in use. The plastic ferrule prevents scratching. Bristles are solidly looped around a metal retainer to prevent them from coming out of the ferrule during use.



## Cup Brushes – Bristle Fill

| Catalog No. | Diameter | Fill Material | Shank |
|-------------|----------|---------------|-------|
| 26091       | 9/16     | Stiff Hair    | 3/32  |
| 26093       | 9/16     | Stiff Hair    | 1/8   |
| 26094       | 9/16     | Soft Hair     | 1/8   |
| 26095       | 1"       | Stiff Hair    | 1/8   |
| 26096       | 1"       | Soft Hair     | 1/8   |



## Cup Brushes – Wire Fill

| Catalog No. |       | Diameter | Wire Size | Shank |
|-------------|-------|----------|-----------|-------|
| Steel       | Brass |          |           |       |
| 26071       | —     | 9/16     | .003      | 1/8   |
| 26074       | 26075 | 9/16     | .005      | 1/8   |



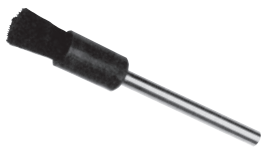
## End Brushes – Bristle Fill

| Catalog No. | Diameter | Trim Length | Fill Material | Shank |
|-------------|----------|-------------|---------------|-------|
| 26115       | 3/16     | 1/4         | Stiff Hair    | 1/8   |
| 26116       | 3/16     | 1/4         | Stiff Hair    | 3/32  |
| 26118       | 1/4      | 3/8         | Soft Hair     | 3/32  |
| 26119       | 1/4      | 3/8         | Stiff Hair    | 1/8   |
| 26121       | 5/16     | 9/16        | Stiff Hair    | 1/8   |



## End Brushes – Wire Fill

| Catalog No. |       | Diameter | Wire Size | Trim Length | Shank |
|-------------|-------|----------|-----------|-------------|-------|
| Steel       | Brass |          |           |             |       |
| 26098       | 26097 | 3/16     | .003      | 1/4         | 1/8   |
| 26107       | 26106 | 1/4      | .005      | 7/16        | 1/8   |



## End Brushes – Bristle Fill (Plastic Ferrule)

| Catalog No. | Diameter | Trim Length | Fill Material | Shank |
|-------------|----------|-------------|---------------|-------|
| 26128       | 3/16     | 1/4         | Stiff Hair    | 1/8   |
| 26131       | 1/4      | 3/8         | Stiff Hair    | 1/8   |
| 26133       | 5/16     | 9/16        | Stiff Hair    | 1/8   |



## End Brushes – Nylon Fill

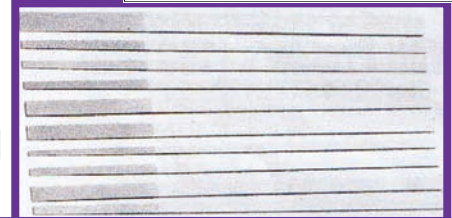
| Catalog No. | Brush Style | Diameter | Trim Length | Shank |
|-------------|-------------|----------|-------------|-------|
| 21220       | Cup         | 7/16     | —           | 3/32  |
| 21225       | Wheel       | 7/8      | —           | 3/32  |
| 21230       | End         | 3/16     | 3/8         | 3/32  |

## TAPERED DIAMOND FILES with "Flat" or "Round" Handles

Handy, very useful and top quality Diamond needle files that taper from .080" and .050" to .020". Available with "flat" or "round" handles, these special files permit filing slots or ribs as narrow as .020". Available in sets of 10 files, or individually in various sizes. The long 3mm round handled files have a removable plastic sleeve for use by hand or with profilers. The shorter, tapered files are designed for use with "Turbolappers" or Profilers.

M · D · T

### Flat Handles



### Round Handles - 5-3/16" overall length



M · D · T

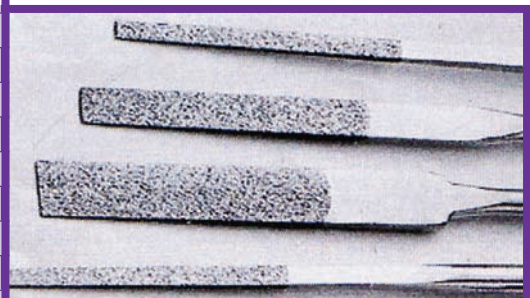
| Catalog Number | Handle Color   | Length of Diamond Coating | Thickness Max. x Min. | Grit Size |
|----------------|--|---------------------------|-----------------------|-----------|
| DFC095         | Green  | 1-3/16                    | .050 x .020           | 150       |
| DFM095         | Red  | 1-3/16                    | .050 x .020           | 280       |
| DFF095         | Yellow   | 1-3/16                    | .050 x .020           | 400       |
| DFCC160        | Black  | 1-3/16                    | .050 x .020           | 80        |
| DFC160         | Green  | 1-3/16                    | .050 x .020           | 150       |
| DFM160         | Red  | 1-3/16                    | .050 x .020           | 280       |
| DFF160         | Yellow   | 1-3/16                    | .050 x .020           | 400       |
| DFCC240        | Black  | 1-3/16                    | .050 x .020           | 80        |
| DFC240         | Green  | 1-3/16                    | .050 x .020           | 150       |
| DFM240         | Red  | 1-3/16                    | .050 x .020           | 280       |
| DFF240         | Yellow   | 1-3/16                    | .050 x .020           | 400       |
| DFF125R        | Yellow   | 1-3/16                    | .050 x .020           | 400       |
| DFSET 10/10R   | Set consists of: One each of DFC095, DFM095, DFF095, DFC160, DFF160, DFC240, DFM240, DFF240, DFF124R, DFM160 |                           |                       |           |

| Catalog Number | Overall Length   | Length of Diamond Coating | Thickness Max. x Min. | Grit Size |
|----------------|--|---------------------------|-----------------------|-----------|
| DFCC125-80     | 6-1/2"   | 2"                        | .080 x .020           | 80        |
| DFC125-80      | 6-1/2"   | 2"                        | .080 x .020           | 120       |
| DFC125-80H     | 6-1/2"   | coated 1 side only        | .080 x .020           | 120       |
| DFM125-80      | 6-1/2"   | 2"                        | .080 x .020           | 240       |
| DFF125-80      | 6-1/2"   | 2"                        | .080 x .020           | 320       |
| DFCC165-125    | 6-1/2"   | 2"                        | .080 x .020           | 80        |
| DFC165-125     | 6-1/2"   | 2"                        | .080 x .020           | 120       |
| DFC165-125H    | 6-1/2"   | coated 1 side only        | .080 x .020           | 120       |
| DFM165-125     | 6-1/2"   | 2"                        | .080 x .020           | 240       |
| DFF165-125     | 6-1/2"   | 2"                        | .080 x .020           | 320       |
| DFCC250-250    | 6-1/2"   | 2"                        | .080 x .020           | 80        |
| DFCC250-250H   | 6-1/2"   | coated 1 side only        | .080 x .020           | 80        |
| DFC250-250     | 6-1/2"   | 2"                        | .080 x .020           | 120       |
| DFC250-250H    | 6-1/2"   | coated 1 side only        | .080 x .020           | 120       |
| DFM250-250     | 6-1/2"   | 2"                        | .080 x .020           | 240       |
| DFF250-250     | 6-1/2"   | 2"                        | .080 x .020           | 320       |
| DFCC318-318    | 6-1/2"   | 2"                        | .080 x .020           | 80        |
| DFCC318-318H   | 6-1/2"   | coated 1 side only        | .080 x .020           | 80        |
| DFC318-318     | 6-1/2"   | 2"                        | .080 x .020           | 120       |
| DFC318-318H    | 6-1/2"   | coated 1 side only        | .080 x .020           | 120       |
| DFM318-318     | 6-1/2"   | 2"                        | .080 x .020           | 240       |
| DFC400-400     | 6-1/2"   | 2"                        | .080 x .020           | 120       |
| DFM400-400     | 6-1/2"   | 2"                        | .080 x .020           | 200       |
| DFSET 10/10    | Set consists of 10 files in handy plastic pouch. 2 each of DFC165-125, DFM165-125, DFM250-250. One each of DFM125-80, DFF165-125, DFM318-318, DFF318-318 |                           |                       |           |

### Round Handles (Short) - for use with Turbolappers & Profilers (3mm shanks)

| Catalog Number | Width  | Overall Length | Length of Diamond Coating | Thickness Max. x Min. | Grit Size |
|----------------|--|----------------|---------------------------|-----------------------|-----------|
| TPDF005662     | 1/4" (6mm)   | 2-1/4          | 5/8                       | .040 x .018           | 200       |
| TPDF230902     | 1/16" (2mm)  | 3-5/8          | 1-1/4                     | .040 x .018           | 200       |
| TPDF430902     | 5/32" (4mm)  | 3-5/8          | 1-1/4                     | .040 x .018           | 200       |
| TPDF630902     | 1/4" (6mm)   | 3-5/8          | 1-1/4                     | .040 x .018           | 200       |
| TPDF0056612    | 1/4" (6mm)   | 2-1/4          | 5/8                       | .040 x .018           | 120       |
| TPDF2309012    | 1/16" (2mm)  | 3-5/8          | 1-1/4                     | .040 x .018           | 120       |
| TPDF4309012    | 5/32" (4mm)  | 3-5/8          | 1-1/4                     | .040 x .018           | 120       |
| TPDF6309012    | 1/4" (6mm)   | 3-5/8          | 1-1/4                     | .040 x .018           | 120       |
| TPDFSET 5      | Set includes: 1 of TPDF2309012, 2 of TPDF4309012, 2 of TPDF6309012 |                |                           |                       |           |

M · D · T





## STANDARD DIAMOND FILES








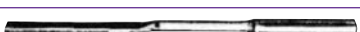
















- All standard and long type diamond files are in medium grit size 120-150 mesh. All shanks are 1/8".
- For use on carbide, stainless steel, hardened steel, glass, ceramics and other hard materials.

### Diamond Foil







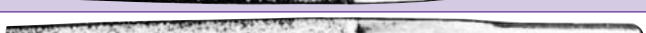

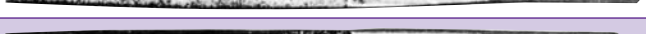



Virgin diamond abrasive grains electroplated to a very thin flexible metal foil. PSA adhesive backing provides great flexibility. Simply cut foil to size and remove backing paper to affix to your holder. Using the variety of grits available, this is an inexpensive way to make fast cutting tools.

No lubricant is required.  
Size 2" x 4" sheets

| Part No. | Grit | Part No. | Grit |
|----------|------|----------|------|
| 95000    | 120  | 95040    | 600  |
| 95010    | 150  | 95050    | 800  |
| 95020    | 200  | 95060    | 1200 |
| 95030    | 400  |          |      |






| Standard Diamond Files   | Style   | Size                   | Cat. No. Coated 1 Side | Cat. No. Coated Both Sides |
|--|---|------------------------|------------------------|----------------------------|
|   |    | .078 wide x .039 thick | DLA2x1                 | DF-11                      |
|   |   | .118 wide x .039 thick | DLA3x1                 | DF-12                      |
|   |   | .157 wide x .039 thick | DLA4x1                 | DF-13                      |
|   |   | .196 wide x .078 thick | DLA5x2                 | DF-14                      |
|   |    | .157 wide x .019 thick | DLA0.5x4               | —                          |
|   |   | .157 wide x .029 thick | DLA0.75x4              | —                          |
|   |   | .157 wide x .039 thick | DLA 1 x 4              | —                          |
|   |    | 0.039                  | DLA1                   | —                          |
|   |   | 0.078                  | DLA2                   | —                          |
|   |   | 0.118                  | DLA3                   | —                          |
|   |   | 0.157                  | DLA4                   | —                          |
|   |    | .078x.078x.078         | DLA-T2                 | —                          |
|   |   | .118x.118x.118         | DLA-T3                 | —                          |
|   |   | .157x.157x.157         | DLA-T4                 | —                          |
|   |    | .039 Radius            | DLA-R1                 | —                          |
|   |   | .059 Radius            | DLA-R1.5               | —                          |
|   |   | .078 Radius            | DLA-R2                 | —                          |
|  |  | .161 wide x .072 thick | DLAR2.5xR5             | —                          |

## LONG DIAMOND FILES

| Long Diamond Files  | Style   | Size                   | Cat. No. Coated 1 Side | Cat. No. Coated Both Sides |
|---|---|------------------------|------------------------|----------------------------|
|  |  | .196 wide x .059 thick | DLE-1                  | DLE-11                     |
|  |  | 0.118                  | DLE-2                  | —                          |
|  |  | .196 x .078            | —                      | DLE-3                      |
|  |  | .201 x .085            | —                      | DLE-4                      |
|  |  | .118 x .118 x .118     | DLE-5                  | —                          |
|  |  | .098 x .098            | DLE-6                  | —                          |

## DIAMOND NEEDLE FILES




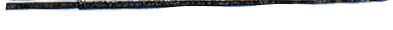

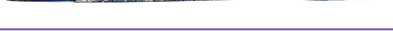
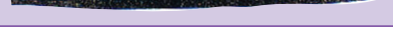
- Ideal for applications that require a longer reach. 5-1/2" long with 3" of diamond coating.
- Available in 3 grits. Shanks are color coded for easy identification.  
Blue Shank ..... coarse 80/120Grit  
Yellow Shank .... medium 120/170Grit  
Black Shank ..... fine 200/240Grit

| Style  | CATALOG NUMBER |          |          |
|--|----------------|----------|----------|
|  | 80/120G        | 120/170G | 200/240G |
|  | 121397         | 121398*  | 121399   |
|  | 121400         | 121401   | 121402   |
|  | 121403         | 121404   | 121405   |
|  | 121406         | 121407   | 121408   |
|  | 121412         | 121413   | 121414   |

\*Also available coated 1 side only. Part #DLH-1.

## REGULAR SHAPED DIAMOND NEEDLE FILES IN 3 GRADES

Handy, very useful and top quality Diamond needle files made of high quality "virgin" man made diamond grains. All tools are precision made and are suited for work on hardened and nitrided steel molds, dies and punches as well as carbide, glass, carbon fiber, graphite and semi precious stones.

| Catalog Number |   |                | Shape & Style Number | M · D · T   |
|----------------|---|----------------|----------------------|---|
| 120 Grit       | 150 Grit  | Black 120 Grit |                      |   |
| DF1-5515       | DFF1-5515   | DFB1-5515      | (1) Flat             |  |
| DF2-5020       | DFF2-5020   | DFB2-5020      | (2) Halfround        |  |
| DF3-5020       | -----   | -----          | (3) Knife            |  |
| DF4-3030       | DFF4-3030   | DFB4-3030      | (4) Round            |  |
| DF5-4040       | DFF5-4040   | DFB5-4040      | (5) Triangle         |  |
| DF6-3030       | DFF6-3030   | DFB6-3030      | (6) Square           |  |
| DF7-5020       | -----   | -----          | (7) Barrette         |  |
| DFSET12456     | Set consists of 5 files in handy plastic pouch. All 120grit part nos. DF1-5515, DF2-5020, DF4-3030, DF5-4040, DF6-3030              |                |                      |   |
| DFBSET12456    | Set consists of 5 files in handy plastic pouch. All 120grit "black" part nos. DFB1-5515, DFB2-5020, DFB4-3030, DFB5-4040, DFB6-3030 |                |                      |   |
| DFFSET12456    | Set consists of 5 files in handy plastic pouch. All 150grit part nos. DFF1-5515, DFF2-5020, DFF4-3030, DFF5-4040, DFF6-3030         |                |                      |   |
| DFSET1-6       | Set consists of 6 files & handy stand. All 120grit part nos. DF1-5515, DF2-5020, DF3-5020, DF4-3030, DF5-4040, DF6-3030             |                |                      |   |

## "EXTRA THIN" DIAMOND FILES FOR PROFILERS

These "ExtraThin" (.032") flat diamond coated files provide easy access when filing narrow slots. Used with Profilers & Lapping Machines.

## TAPERED DIAMOND FILES FOR LAPPING MACHINES














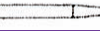



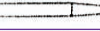







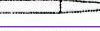



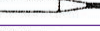



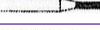







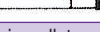
| Catalog No. | Grit   | Overall Length | Length of Coating | Dimensions   |
|-------------|--|----------------|-------------------|--------------|
| DF85150-1   | 150 Grit   | 2-1/4          | 3/4 - 1 side      | 1/32 x 13/64 |
| DF83150-2S  | 150 Grit   | 2"             | 5/8 - 2 sides     | 1/32 x 1/8   |
| DF85150-2   | 150 Grit   | 2-1/4          | 3/4 - 2 sides     | 1/32 x 13/64 |
| DF83150-2   | 150 Grit   | 2-1/4          | 3/4 - 2 sides     | 1/32 x 1/8   |
| DF86150-2   | 150 Grit   | 2-1/4          | 3/4 - 2 sides     | 1/32 x 1/4   |
| DF86200-2   | 200 Grit   | 2-1/4          | 3/4 - 2 sides     | 1/32 x 1/4   |
| DF85200-2   | 200 Grit   | 2-1/4          | 3/4 - 2 sides     | 1/32 x 13/64 |
| DF83200-2   | 200 Grit   | 2-1/4          | 3/4 - 2 sides     | 1/32 x 1/8   |
| DF85300-2   | 200 Grit   | 2-1/4          | 3/4 - 2 sides     | 1/32 x 13/64 |
| DF83300-2   | 200 Grit   | 2-1/4          | 3/4 - 2 sides     | 1/32 x 1/8   |
| DF-THIN-10  | Complete set of all 10 files in a plastic pouch. |                |                   |              |

| 120 Grit   | 150 Grit   | 200 Grit   | Width | Coated Length | Overall Length |
|------------|------------|------------|-------|---------------|----------------|
| DFTFL10120 | DFTFL10150 | DFTFL10200 | 3/8   | 2-3/8         | 3-1/2          |
| DFTFL8120  | DFTFL8150  | DFTFL8200  | 5/16  | 2-3/8         | 3-1/2          |
| DFTFL6120  | DFTFL6150  | DFTFL6200  | 1/4   | 1-5/8         | 2-3/4          |
| DFTFL4120  | DFTFL4150  | DFTFL4200  | 5/32  | 1"            | 2-3/4          |



M · D · T

## DIAMOND POINTS M · D · T

| Diamond Points 1/8 Shank - 150Grit |   |          |  | Diamond Points 3/32 Shank-120Grit |   |          |   |
|------------------------------------|---|----------|--|-----------------------------------|---|----------|---|
| DP20T-18                           |  | DP10B-18 |  | DP-13060                          |  | DP-01014 |  |
| DP30T-18                           |  | DP15B-18 |  | DP-40020                          |  | DP-01018 |  |
| DP30V-18                           |  | DP30J-18 |  | DP-40030                          |  | DP-01023 |  |
| DP13R-18                           |  | DP40J-18 |  | DP-66023                          |  | DP-01029 |  |
| DP14R-18                           |  | DP50J-18 |  | DP-68030                          |  | DP-01042 |  |
| DP15R-18                           |  | DP34S-18 |  | DP-61040                          |  | DP-10035 |  |
| DP20P-18                           |  | DP36S-18 |  | DP-74030                          |  | DP-10012 |  |
| DP30P-18                           |  | DP20B-18 |  | DP-66045                          |  | DP-11016 |  |
| DP40P-18                           |  | DP30B-18 |  | DP-52030                          |  | DP-11021 |  |
| DP50P-18                           |  | DP40F-18 |  | DP-04050                          |  | DP-10930 |  |
| DP20SET-18                         | Set of all 20 diamond points in plastic case  |          |  | DPW20-332                         | Set of 20 all 20 diamond points in wallet   |          |   |

## 200 Series

## 300 Series

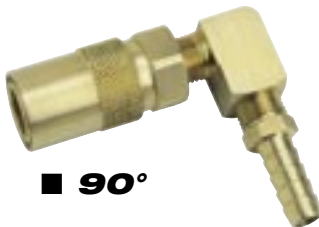
## 500 Series



■ **STRAIGHT**



■ **45°**



■ **90°**

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| S204           | 1/4       |
| S205           | 5/16      |
| S206           | 3/8       |
| N/A            | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| S306           | 3/8       |
| S308           | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| N/A            | 3/8       |
| S504           | 1/2       |
| S506           | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| S224           | 1/4       |
| S225           | 5/16      |
| S226           | 3/8       |
| N/A            | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| S326           | 3/8       |
| S328           | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| N/A            | 3/8       |
| S524           | 1/2       |
| S526           | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| S214           | 1/4       |
| S215           | 5/16      |
| S216           | 3/8       |
| N/A            | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| S316           | 3/8       |
| S318           | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| N/A            | 3/8       |
| S514           | 1/2       |
| S516           | 3/4       |

Note: For "Push-Lok" hose barbs add PL to catalog number. Example S204PL

# Valved Sockets

## 200 Series

## 300 Series

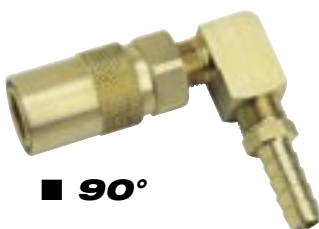
## 500 Series



■ **STRAIGHT**



■ **45°**



■ **90°**

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| S204V          | 1/4       |
| S205V          | 5/16      |
| S206V          | 3/8       |
| N/A            | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| S306V          | 3/8       |
| S308V          | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| N/A            | 3/8       |
| N/A            | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| S224V          | 1/4       |
| S225V          | 5/16      |
| S226V          | 3/8       |
| N/A            | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| S326V          | 3/8       |
| S328V          | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| N/A            | 3/8       |
| N/A            | 1/2       |
| N/A            | 3/4       |

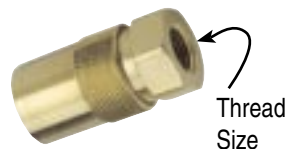
| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| S214V          | 1/4       |
| S215V          | 5/16      |
| S216V          | 3/8       |
| N/A            | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| S316V          | 3/8       |
| S318V          | 1/2       |
| N/A            | 3/4       |

| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| N/A            | 1/4       |
| N/A            | 5/16      |
| N/A            | 3/8       |
| N/A            | 1/2       |
| N/A            | 3/4       |

Note: For "Push-Lok" hose barbs add PL to catalog number. Example S204VPL





## 200 Series

| CATALOG NUMBER | THREAD SIZE (NPT) |
|----------------|-------------------|
| CMB-200-18     | 1/8               |
| CMB-200-14     | 1/4               |
|                |                   |
|                |                   |

## 300 Series

| CATALOG NUMBER | THREAD SIZE (NPT) |
|----------------|-------------------|
|                |                   |
| CMB-300-14     | 1/4               |
| CMB-300-38     | 3/8               |
|                |                   |

## 500 Series

| CATALOG NUMBER | THREAD SIZE (NPT) |
|----------------|-------------------|
|                |                   |
|                |                   |
|                |                   |
| CMB-500-12     | 1/2               |

Socket bodies are flow-thru only.

## Seals



### 200 Series

| CATALOG NUMBER | SEAL MATERIAL |
|----------------|---------------|
| S-200-6        | SILICONE      |
| V-200-6        | VITON         |

### 300 Series

| CATALOG NUMBER | SEAL MATERIAL |
|----------------|---------------|
| S-300-6        | SILICONE      |
| V-300-6        | VITON         |

### 500 Series

| CATALOG NUMBER | SEAL MATERIAL |
|----------------|---------------|
| S-500-6        | SILICONE      |
| V-500-6        | VITON         |

# Connector Plugs

### MALE (brass)



## 200 Series

| CATALOG NUMBER | PIPE THREAD | FLOW DIA. |
|----------------|-------------|-----------|
| P250           | 1/16        | 3/16      |
| P251           | 1/8         | 1/4       |
| P252           | 1/4         | 1/4       |
| P253           | 3/8         | 1/4       |
|                |             |           |

## 300 Series

| CATALOG NUMBER | PIPE THREAD | FLOW DIA. |
|----------------|-------------|-----------|
|                |             |           |
| P351           | 1/8         | 1/4       |
| P352           | 1/4         | 3/8       |
| P353           | 3/8         | 3/8       |
| P354           | 1/2         | 3/8       |
|                |             |           |

## 500 Series

| CATALOG NUMBER | PIPE THREAD | FLOW DIA. |
|----------------|-------------|-----------|
|                |             |           |
|                |             |           |
| P552           | 1/4         | 3/8       |
| P553           | 3/8         | 1/2       |
| P554           | 1/2         | 5/8       |
| P556           | 3/4         | 5/8       |

**BSP AVAILABLE**

|          |     |     |
|----------|-----|-----|
| P251-BSP | 1/8 | 1/4 |
| P252-BSP | 1/4 | 1/4 |
|          |     |     |

|          |     |     |
|----------|-----|-----|
| P351-BSP | 1/8 | 1/4 |
| P352-BSP | 1/4 | 3/8 |
| P353-BSP | 3/8 | 3/8 |

|          |     |     |
|----------|-----|-----|
| P553-BSP | 3/8 | 1/2 |
| P554-BSP | 1/2 | 5/8 |
|          |     |     |

### FEMALE (plated steel)



| CATALOG NUMBER | PIPE THREAD | FLOW DIA. |
|----------------|-------------|-----------|
|                |             |           |
| P251F          | 1/8         | 1/4       |
| P252F          | 1/4         | 1/4       |
| P253F          | 3/8         | 1/4       |
|                |             |           |

| CATALOG NUMBER | PIPE THREAD | FLOW DIA. |
|----------------|-------------|-----------|
|                |             |           |
|                |             |           |
| P352F          | 1/4         | 3/8       |
| P353F          | 3/8         | 3/8       |
| P354F          | 1/2         | 3/8       |
|                |             |           |

| CATALOG NUMBER | PIPE THREAD | FLOW DIA. |
|----------------|-------------|-----------|
|                |             |           |
|                |             |           |
|                |             |           |
|                |             |           |
| P554F          | 1/2         | 5/8       |
| P556F          | 3/4         | 5/8       |

### FEMALE (brass)



| CATALOG NUMBER | PIPE THREAD | FLOW DIA. |
|----------------|-------------|-----------|
| P250FB         | 1/16        | 1/4       |
| P251FB         | 1/8         | 1/4       |
| P252FB         | 1/4         | 1/4       |
| P253FB         | 3/8         | 1/4       |
|                |             |           |

| CATALOG NUMBER | PIPE THREAD | FLOW DIA. |
|----------------|-------------|-----------|
|                |             |           |
| P351FB         | 1/8         | 11/32     |
| P352FB         | 1/4         | 3/8       |
| P353FB         | 3/8         | 3/8       |
| P354FB         | 1/2         | 3/8       |
|                |             |           |

| CATALOG NUMBER | PIPE THREAD | FLOW DIA. |
|----------------|-------------|-----------|
|                |             |           |
|                |             |           |
| P551FB         | 1/8         | 11/32     |
| P552FB         | 1/4         | 7/16      |
| P553FB         | 3/8         | 9/16      |
| P554FB         | 1/2         | 5/8       |

**BSP AVAILABLE**

|            |     |     |
|------------|-----|-----|
| P251FB-BSP | 1/8 | 1/4 |
| P252FB-BSP | 1/4 | 1/4 |
|            |     |     |

|            |     |       |
|------------|-----|-------|
| P351FB-BSP | 1/8 | 11/32 |
| P352FB-BSP | 1/4 | 3/8   |
| P353FB-BSP | 3/8 | 3/8   |

|            |     |      |
|------------|-----|------|
| P553FB-BSP | 3/8 | 9/16 |
| P554FB-BSP | 1/2 | 5/8  |
|            |     |      |

## Brass Extension Plugs



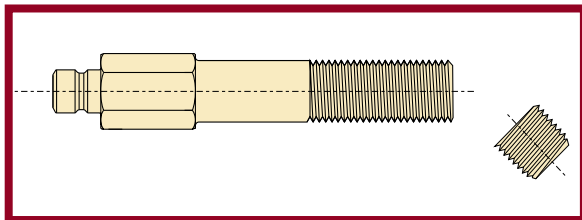
**M** Brass & Stainless

| 1/4" Pipe Hole Size | Thread Size | Length |        |      |        |      |        |      |         |      |
|---------------------|-------------|--------|--------|------|--------|------|--------|------|---------|------|
|                     |             |        | 2-1/2" | 4"   | 5-1/2" | 7"   | 8-1/2" | 10"  | 11-1/2" | 13"  |
|                     | 1/16"       | P250   | x025   | x040 | x055   | -    | -      | -    | -       | -    |
|                     | 1/8"        | P251   | x025   | x040 | x055   | x070 | x085   | x100 | x115    | x113 |
|                     | 1/4"        | P252   | x025   | x040 | x055   | x070 | x085   | x100 | x115    | x113 |
|                     | 3/8"        | P253   | x025   | x040 | x055   | x070 | x085   | x100 | x115    | x113 |

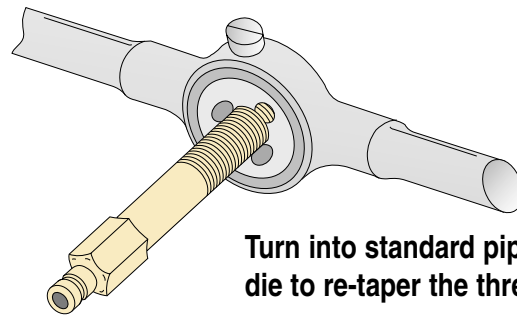
| 3/8" Hole Size | Thread Size | Length |        |      |        |      |        |      |         |      |
|----------------|-------------|--------|--------|------|--------|------|--------|------|---------|------|
|                |             |        | 2-1/2" | 4"   | 5-1/2" | 7"   | 8-1/2" | 10"  | 11-1/2" | 13"  |
|                | 1/16"       | P350   | x025   | x040 | x055   | -    | -      | -    | -       | -    |
|                | 1/8"        | P351   | x025   | x040 | x055   | x070 | x085   | x100 | x115    | x113 |
|                | 1/4"        | P352   | x025   | x040 | x055   | x070 | x085   | x100 | x115    | x113 |
|                | 3/8"        | P353   | x025   | x040 | x055   | x070 | x085   | x100 | x115    | x113 |
|                | 1/2"        | P354   | x025   | x040 | x055   | x070 | x085   | x100 | x115    | x113 |

| 1/2" Pipe Hole Size | Thread Size | Length |        |      |        |      |        |      |         |      |
|---------------------|-------------|--------|--------|------|--------|------|--------|------|---------|------|
|                     |             |        | 2-1/2" | 4"   | 5-1/2" | 7"   | 8-1/2" | 10"  | 11-1/2" | 13"  |
|                     | 3/8"        | P553   | x025   | x040 | x055   | x070 | x085   | x100 | x115    | x113 |
|                     | 1/2"        | P554   | x025   | x040 | x055   | x070 | x085   | x100 | x115    | x113 |

## Length Adjustments



If special length adjustments are required, simply cut to length and chamfer the end.

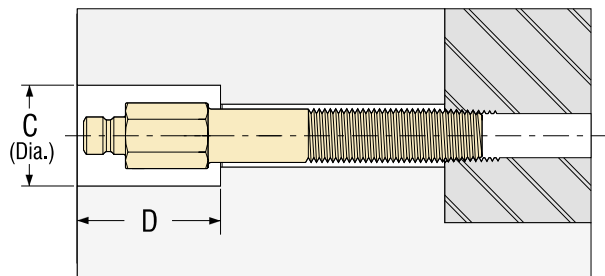


Turn into standard pipe threading die to re-taper the threads.

| CATALOG SERIES | C (DIA.) | D     |
|----------------|----------|-------|
| 250            | 3/4      | 1"    |
| 251            | 7/8      | 1-1/4 |
| 252            | 1"       | 1-1/2 |
| 253            | 1-1/8    | 1-1/2 |
| 350            | 1"       | 1-1/4 |
| 351            | 1"       | 1-1/4 |
| 352            | 1"       | 1-1/2 |
| 353            | 1-1/8    | 1-1/2 |
| 354            | 1-1/2    | 1-3/4 |
| 553            | 1-3/8    | 1-5/8 |
| 554            | 1-1/2    | 1-3/4 |

## Installation

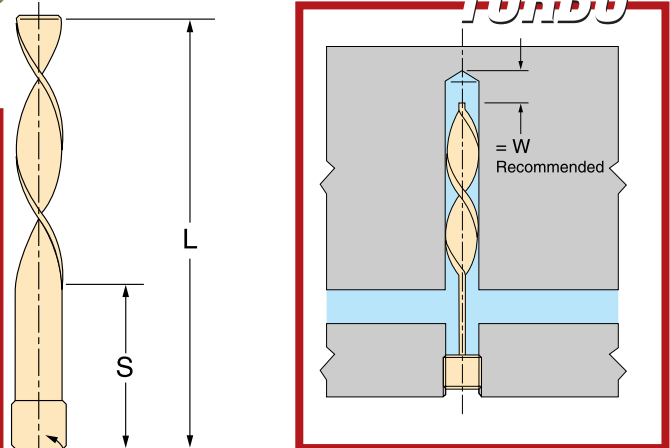
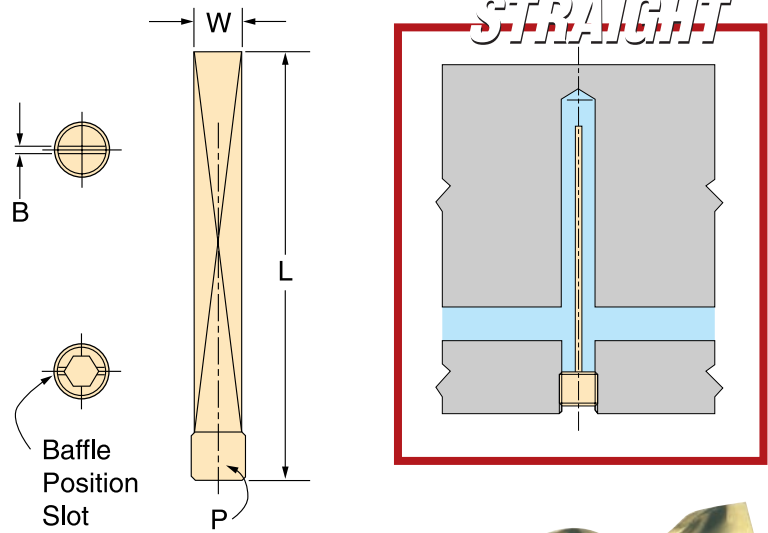
At assembly, the tapered brass threads provide a dependable, leak proof seal. With one-piece construction, removing the plug is guaranteed.



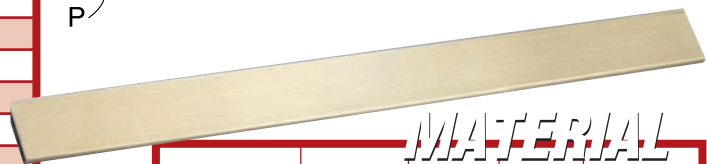
# Brass Baffles



| CATALOG NUMBER | P PLUG SIZE (NPT) | L OVERALL LENGTH (INCHES) | W BLADE WIDTH (-.005) (-.015) | DRILL SIZE | B BLADE THICKNESS |
|----------------|-------------------|---------------------------|-------------------------------|------------|-------------------|
| BA0604         | 1/16              | 4                         | 1/4                           | 1/4        | .057              |
| BA0608         | 1/16              | 8                         | 1/4                           | 1/4        | .057              |
| BA0612         | 1/16              | 12                        | 1/4                           | 1/4        | .057              |
| BA1204         | 1/8               | 4                         | 5/16                          | 5/16       | .057              |
| BA1208         | 1/8               | 8                         | 5/16                          | 5/16       | .057              |
| BA1212         | 1/8               | 12                        | 5/16                          | 5/16       | .057              |
| BA2505         | 1/4               | 5                         | 7/16                          | 7/16       | .085              |
| BA2510         | 1/4               | 10                        | 7/16                          | 7/16       | .085              |
| BA2515         | 1/4               | 15                        | 7/16                          | 7/16       | .085              |
| BA3706         | 3/8               | 6                         | 9/16                          | 9/16       | .093              |
| BA3712         | 3/8               | 12                        | 9/16                          | 9/16       | .093              |
| BA3718         | 3/8               | 18                        | 9/16                          | 9/16       | .093              |
| BA5008         | 1/2               | 8                         | 11/16                         | 11/16      | .093              |
| BA5016         | 1/2               | 16                        | 11/16                         | 11/16      | .093              |
| BA7512         | 3/4               | 12                        | 15/16                         | 15/16      | .093              |
| BA7520         | 3/4               | 20                        | 15/16                         | 15/16      | .093              |
| BA7536         | 3/4               | 36                        | 15/16                         | 15/16      | .093              |
| BA9016         | 1"                | 16                        | 1-1/8                         | 1-1/8      | .102              |
| BA9024         | 1"                | 24                        | 1-1/8                         | 1-1/8      | .102              |
| BA9036         | 1"                | 36                        | 1-1/8                         | 1-1/8      | .102              |



| CATALOG NUMBER | P PLUG SIZE (NPT) | L OVERALL LENGTH (INCHES) | W BLADE WIDTH (-.005) (-.015) | DRILL SIZE | B BLADE THICKNESS | S STRAIGHT LENGTH (INCHES) |
|----------------|-------------------|---------------------------|-------------------------------|------------|-------------------|----------------------------|
| TB0604         | 1/16              | 4                         | 1/4                           | 1/4        | .050              | 2                          |
| TB0608         | 1/16              | 8                         | 1/4                           | 1/4        | .050              | 4                          |
| TB0612         | 1/16              | 12                        | 1/4                           | 1/4        | .050              | 6                          |
| TB1204         | 1/8               | 4                         | 5/16                          | 5/16       | .050              | 2                          |
| TB1208         | 1/8               | 8                         | 5/16                          | 5/16       | .050              | 4                          |
| TB1212         | 1/8               | 12                        | 5/16                          | 5/16       | .050              | 6                          |
| TB2505         | 1/4               | 5                         | 7/16                          | 7/16       | .080              | 2                          |
| TB2510         | 1/4               | 10                        | 7/16                          | 7/16       | .080              | 4                          |
| TB2515         | 1/4               | 15                        | 7/16                          | 7/16       | .080              | 6                          |
| TB3706         | 3/8               | 6                         | 9/16                          | 9/16       | .090              | 2                          |
| TB3712         | 3/8               | 12                        | 9/16                          | 9/16       | .090              | 4                          |
| TB3718         | 3/8               | 18                        | 9/16                          | 9/16       | .090              | 6                          |
| TB5008         | 1/2               | 8                         | 11/16                         | 11/16      | .090              | 3                          |
| TB5016         | 1/2               | 16                        | 11/16                         | 11/16      | .090              | 5                          |
| TB7512         | 3/4               | 12                        | 15/16                         | 15/16      | .090              | 4                          |
| TB7520         | 3/4               | 20                        | 15/16                         | 15/16      | .090              | 6                          |
| TB9016         | 1"                | 16                        | 1-1/8                         | 1-1/8      | .105              | 5                          |
| TB9024         | 1"                | 24                        | 1-1/8                         | 1-1/8      | .105              | 8                          |



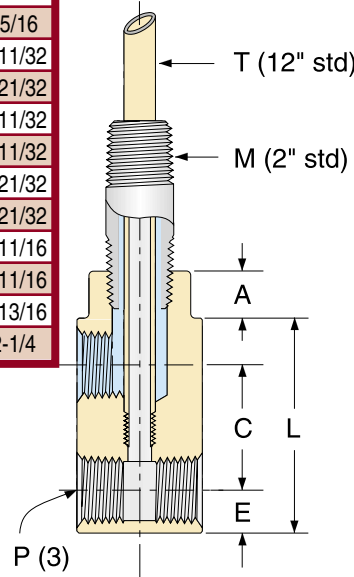
| CATALOG NUMBER | (REF.) PLUG SIZE (NPT) | OVERALL LENGTH (INCHES) | BLADE WIDTH (-.005) (-.015) | BLADE THICKNESS |
|----------------|------------------------|-------------------------|-----------------------------|-----------------|
| BM06-025-36    | 1/16                   | 36                      | 1/4                         | .050            |
| BM12-031-36    | 1/8                    | 36                      | 5/16                        | .050            |
| BM25-043-36    | 1/4                    | 36                      | 7/16                        | .080            |
| BM37-056-36    | 3/8                    | 36                      | 9/16                        | .090            |
| BM50-068-36    | 1/2                    | 36                      | 11/16                       | .090            |
| BM75-090-36    | 3/4                    | 36                      | 29/32                       | .090            |
| BM75-093-36    | 3/4                    | 36                      | 15/16                       | .090            |
| BM90-112-36    | 1"                     | 36                      | 1-1/8                       | .105            |

- Flush-seal (7/8 taper) brass pipe plugs are standard.
- Steel, stainless, and 3/4 taper are available.
- Turbo baffles create turbulent cooling action and keeps blade centered in the cooling channel.
- Patented technology allows 300% more wrenching torque. (Not on 1" baffles.)

# Standard Cascades

## ASSEMBLIES

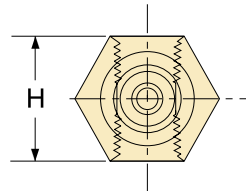
| CATALOG NUMBER | M PIPE NIPPLE (NPT) | P PIPE TAP SIZE (NPT) | T BRASS TUBE O.D. | BRASS TUBE INCLUDED | H HEX SIZE | E     | C     | A     | L       |
|----------------|---------------------|-----------------------|-------------------|---------------------|------------|-------|-------|-------|---------|
| 16N            | 1/8                 | 1/16                  | 3/16              | 187T-12             | 3/4        | 7/32  | 1/2   | 9/32  | 15/16   |
| 186N           | 1/8                 | 1/8                   | 3/16              | 187T-12             | 7/8        | 21/64 | 11/16 | 9/32  | 1-11/32 |
| 181N           | 1/8                 | 1/8                   | 3/16              | 187T-12             | 7/8        | 21/64 | 1"    | 9/32  | 1-21/32 |
| 146N           | 1/4                 | 1/8                   | 1/4               | 250T-12             | 1"         | 21/64 | 11/16 | 7/32  | 1-11/32 |
| 146N-4         | 1/4                 | 1/4                   | 1/4               | 250T-12             | 1"         | 21/64 | 11/16 | 7/32  | 1-11/32 |
| 141N           | 1/4                 | 1/8                   | 1/4               | 250T-12             | 1"         | 21/64 | 1"    | 7/16  | 1-21/32 |
| 141N-4         | 1/4                 | 1/4                   | 1/4               | 250T-12             | 1"         | 21/64 | 1"    | 7/16  | 1-21/32 |
| 381N           | 3/8                 | 1/8                   | 5/16              | 312T-12             | 1"         | 11/32 | 1"    | 13/32 | 1-11/16 |
| 381N-4         | 3/8                 | 1/4                   | 5/16              | 312T-12             | 1"         | 11/32 | 1"    | 13/32 | 1-11/16 |
| 121N-4         | 1/2                 | 1/4                   | 7/16              | 437T-12             | 1-1/4      | 13/32 | 1"    | 9/16  | 1-13/16 |
| 341N-4         | 3/4                 | 3/8                   | 5/8               | 625T-12             | 1-1/2      | 1/2   | 1-1/4 | 3/4   | 2-1/4   |



- Assemblies include brass head, 12" brass tube, 2" long galvanized pipe nipple, and brass pipe plug.
- Order extra length brass tubes below.
- Cascade assemblies are available in special pipe tap and tube combinations.

## HEADS

| CATALOG NUMBER | TUBE THREAD SIZE | BRASS TUBE NUMBER |
|----------------|------------------|-------------------|
| 16H            | 10-32            | 187T              |
| 186H           | 10-32            | 187T              |
| 181H           | 10-32            | 187T              |
| 146H           | 1/4-28           | 250T              |
| 146H-4         | 1/4-28           | 250T              |
| 141H           | 1/4-28           | 250T              |
| 141H-4         | 1/4-28           | 250T              |
| 381H           | 5/16-24          | 312T              |
| 381H-4         | 5/16-24          | 312T              |
| 121H-4         | 7/16-20          | 437T              |
| 341H-4         | 5/8-18           | 625T              |



- For use with standard brass tubes.
- All dimensions are same as above assembly chart for corresponding catalog number.
- Supplied with brass pipe plug.
- Special pipe tap sizes, tube thread sizes and hole locations are available.
- Use brass tubes on page HC5.

## HIGH FLOW HEADS

| CATALOG NUMBER | TUBE THREAD SIZE | HIGH FLOW TUBE NUMBER |
|----------------|------------------|-----------------------|
| 16H-HFT        | 1/4-28           | HF187T                |
| 186H-HFT       | 1/4-28           | HF187T                |
| 181H-HFT       | 1/4-28           | HF187T                |
| 146H-HFT       | 5/16-24          | HF250T                |
| 146H-4-HFT     | 5/16-24          | HF250T                |
| 141H-HFT       | 5/16-24          | HF250T                |
| 141H-4-HFT     | 5/16-24          | HF250T                |
| 381H-HFT       | 3/8-24           | HF312T                |
| 381H-4-HFT     | 3/8-24           | HF312T                |
| 121H-4-HFT     | 1/2-20           | HF437T                |



- For use with high flow stainless tubes.
- All dimensions are same as above assembly chart except for tube thread size.
- Supplied with brass pipe plug.
- Special pipe tap sizes, tube thread sizes and hole locations are available.
- Use high flow stainless tubes on page HC5.

# High Flow Cascades

Increased inlet areas produce higher flow rates.

## ASSEMBLIES

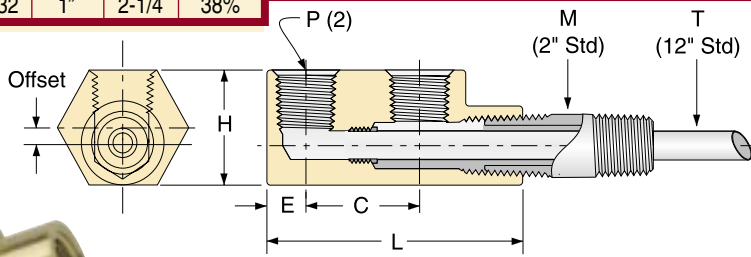
| CATALOG NUMBER | M PIPE NIPPLE (NPT) | P PIPE TAP SIZE (NPT) | T HIGH FLOW TUBE O.D. | T HIGH FLOW TUBE INCLUDED | H HEX SIZE | OFFSET | E     | C     | L       | % ACTUAL FLOW INCREASE |
|----------------|---------------------|-----------------------|-----------------------|---------------------------|------------|--------|-------|-------|---------|------------------------|
| HF16N          | 1/16                | 1/16                  | 1/8                   | HF125T-12                 | 5/8        | 3/32   | 1/4   | 1/2   | 1-1/4   | -                      |
| HF186N         | 1/8                 | 1/8                   | 3/16                  | HF187T-12                 | 3/4        | 3/32   | 5/16  | 11/16 | 1-5/8   | 64%                    |
| HF181N         | 1/8                 | 1/8                   | 3/16                  | HF187T-12                 | 3/4        | 3/32   | 5/16  | 1"    | 1-15/16 | 64%                    |
| HF146N-4       | 1/4                 | 1/4                   | 1/4                   | HF250T-12                 | 1"         | 5/32   | 11/32 | 11/16 | 1-7/8   | 48%                    |
| HF141N-4       | 1/4                 | 1/4                   | 1/4                   | HF250T-12                 | 1"         | 5/32   | 11/32 | 1"    | 2-3/16  | 48%                    |
| HF381N-4       | 3/8                 | 1/4                   | 3/8                   | HF375T-12                 | 1-1/8      | 1/8    | 11/32 | 1"    | 2-1/4   | 38%                    |

- Up to 64% higher flow rates than standard cascades.
- Offset design provides more sealing threads without pipe interference.
- Assemblies include brass head, 12" high flow stainless tube, and 2" long galvanized pipe nipple.

If cooling rates are limiting cycle times, or connection leakage is a problem, the High Flow Cascade should solve the problem.

## HEADS

| CATALOG NUMBER | HIGH FLOW TUBE THREAD SIZE | USE HIGH FLOW TUBE NUMBER |
|----------------|----------------------------|---------------------------|
| HF16H          | 10-32                      | HF125T-                   |
| HF186H         | 1/4-28                     | HF187T-                   |
| HF181H         | 1/4-28                     | HF187T-                   |
| HF146H-4       | 5/16-24                    | HF250T-                   |
| HF141H-4       | 5/16-24                    | HF250T-                   |
| HF381H-4       | 7/16-20                    | HF375T-                   |



- All dimensions are same as above assembly chart.
- Special pipe tap sizes and tube combinations are available.
- Use high flow stainless tubes on page HC5.

# Compact Cascades

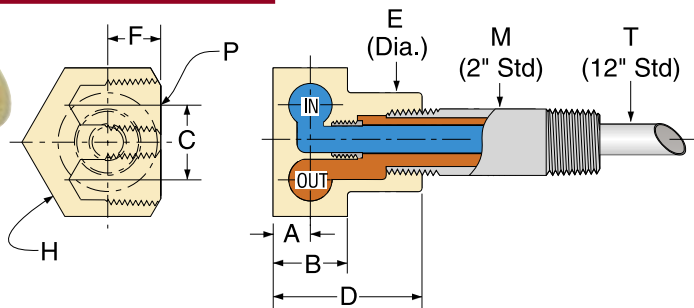
## ASSEMBLIES

| CATALOG NUMBER | M PIPE NIPPLE (NPT) | P IN/OUT PIPE (NPT) | T HIGH FLOW TUBE O.D. | H HIGH FLOW TUBE INCLUDED | H HEX SIZE | A    | B    | C     | D     | E   | F    |
|----------------|---------------------|---------------------|-----------------------|---------------------------|------------|------|------|-------|-------|-----|------|
| ET1816         | 1/8                 | 1/16                | 3/16                  | HF187T-12                 | 15/16      | 7/32 | 7/16 | 1/2   | 1"    | 5/8 | .330 |
| ET1418         | 1/4                 | 1/8                 | 1/4                   | HF250T-12                 | 1-1/4      | 5/16 | 5/8  | 11/16 | 1-1/4 | 3/4 | .410 |
| ET1414         | 1/4                 | 1/4                 | 1/4                   | HF250T-12                 | 1-1/2      | 3/8  | 3/4  | 3/4   | 1-1/2 | 7/8 | .540 |
| ET3814         | 3/8                 | 1/4                 | 5/16                  | HF312T-12                 | 1-1/2      | 3/8  | 3/4  | 3/4   | 1-1/2 | 1"  | .540 |

- Assemblies include brass head, 12" high flow stainless tube, and 2" long galvanized pipe nipple.
- In/Out connections are positioned sideways for mounting in tight spaces or thin mold plates.

## HEADS

| CATALOG NUMBER | M PIPE NIPPLE (NPT) | P IN/OUT PIPE (NPT) | HIGH FLOW TUBE THREAD SIZE | USE HIGH FLOW TUBE NUMBER |
|----------------|---------------------|---------------------|----------------------------|---------------------------|
| ET1816H        | 1/8                 | 1/16                | 1/4-28                     | HF187T-                   |
| ET1418H        | 1/4                 | 1/8                 | 5/16-24                    | HF250T-                   |
| ET1414H        | 1/4                 | 1/4                 | 5/16-24                    | HF250T-                   |
| ET3814H        | 3/8                 | 1/4                 | 3/8-24                     | HF312T-                   |



- All dimensions are same as above assembly chart.
- Use high flow stainless tubes on page HC5.

Compact Cascades provide maximum cooling rates with improved design and High Flow Tubes.



# High Flow Tubes

INCREASE FLOW UP TO 300%



| TUBE O.D. | TUBE I.D. | THREAD SIZE | THREAD LENGTH | CATALOG NUMBER |            |            |            |
|-----------|-----------|-------------|---------------|----------------|------------|------------|------------|
|           |           |             |               | 12"            | 18"        | 24"        | 36"        |
| .090      | .076      | 5-44        | 1/8           | HF093T-12      | HF093T-18  | HF093T-24  | HF093T-36  |
| .090      | .076      | 10-32       | 3/16          | JHF093T-12     | JHF093T-18 | JHF093T-24 | JHF093T-36 |
| .125      | .109      | 10-32       | 3/16          | HF125T-12      | HF125T-18  | HF125T-24  | HF125T-36  |
| .125      | .109      | 1/4-28      | 1/4           | JHF125T-12     | JHF125T-18 | JHF125T-24 | JHF125T-36 |
| .187      | .167      | 1/4-28      | 1/4           | HF187T-12      | HF187T-18  | HF187T-24  | HF187T-36  |
| .187      | .167      | 5/16-24     | 5/16          | JHF187T-12     | JHF187T-18 | JHF187T-24 | JHF187T-36 |
| .250      | .230      | 5/16-24     | 5/16          | HF250T-12      | HF250T-18  | HF250T-24  | HF250T-36  |
| .250      | .230      | 3/8-24      | 3/8           | JHF250T-12     | JHF250T-18 | JHF250T-24 | JHF250T-36 |
| .312      | .288      | 3/8-24      | 3/8           | HF312T-12      | HF312T-18  | HF312T-24  | HF312T-36  |
| .312      | .288      | 7/16-20     | 7/16          | JHF312T-12     | JHF312T-18 | JHF312T-24 | JHF312T-36 |
| .365      | .340      | 7/16-20     | 7/16          | HF375T-12      | HF375T-18  | HF375T-24  | HF375T-36  |
| .365      | .340      | 1/2-20      | 1/2           | JHF375T-12     | JHF375T-18 | JHF375T-24 | JHF375T-36 |
| .427      | .397      | 1/2-20      | 1/2           | HF437T-12      | HF437T-18  | HF437T-24  | HF437T-36  |

- All stainless construction for high strength and durability.
- Cut to exact lengths at no charge.
- We stock over 150 sizes of thin wall stainless tube.
- We build stepped tube assemblies and custom threaded tubes to your print.

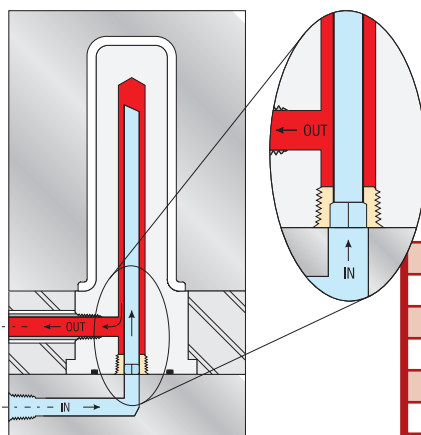
## Standard Tubes



| TUBE O.D. | TUBE I.D. | THREAD SIZE | THREAD LENGTH | CATALOG NUMBER |         |         |         |
|-----------|-----------|-------------|---------------|----------------|---------|---------|---------|
|           |           |             |               | 12"            | 18"     | 24"     | 36"     |
| .125      | .062      | 5-44        | 3/16          | 125T-12        | 125T-18 | 125T-24 | 125T-36 |
| .187      | .123      | 10-32       | 3/16          | 187T-12        | 187T-18 | 187T-24 | 187T-36 |
| .250      | .170      | 1/4-28      | 1/4           | 250T-12        | 250T-18 | 250T-24 | 250T-36 |
| .312      | .210      | 5/16-24     | 5/16          | 312T-12        | 312T-18 | 312T-24 | 312T-36 |
| .375      | .273      | 3/8-24      | 3/8           | 375T-12        | 375T-18 | 375T-24 | 375T-36 |
| .437      | .307      | 7/16-20     | 7/16          | 437T-12        | 437T-18 | 437T-24 | 437T-36 |
| .625      | .495      | 5/8-18      | 5/8           | 625T-12        | 625T-18 | 625T-24 | 625T-36 |

- Tubes 18" and longer have both ends threaded.
- Half-hard temper for reliable performance.
- Also available in stainless steel.
- Bulk tube available.

## Piston Tubes



Coolant flows through hex socket and high flow stainless tube.

| PIPE SIZE (NPT) | TUBE O.D. | TUBE I.D. | CATALOG NUMBER |         |         |         |
|-----------------|-----------|-----------|----------------|---------|---------|---------|
|                 |           |           | 12"            | 24"     | 36"     | 48"     |
| 1/16            | .125      | .109      | PT16-12        | PT16-24 | PT16-36 | PT16-48 |
| 1/8             | .187      | .167      | PT18-12        | PT18-24 | PT18-36 | PT18-48 |
| 1/4             | .250      | .230      | PT14-12        | PT14-24 | PT14-36 | PT14-48 |
| 3/8             | .365      | .345      | PT38-12        | PT38-24 | PT38-36 | PT38-48 |
| 1/2             | .365      | .340      | PT12-12        | PT12-24 | PT12-36 | PT12-48 |
| 3/4             | .427      | .397      | PT34-12        | PT34-24 | PT34-36 | PT34-48 |

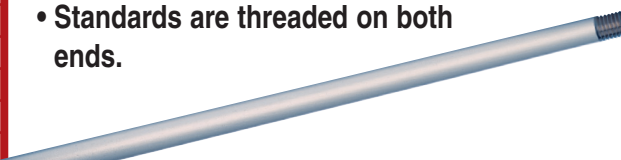
High-Flow Stainless Tube gives maximum cooling rates.

- Precision brazed assembly provides high strength and reliable performance.
- Flow thru pipe plug is available in custom sizes and materials.

| TUBE O.D. | TUBE I.D. | THREAD SIZE | CATALOG NUMBER |
|-----------|-----------|-------------|----------------|
| .093      | .077      | NO THREADS  | 093TS-18       |
| .125      | .062      | 5-44        | 125TS-18       |
| .187      | .123      | 10-32       | 187TS-18       |
| .250      | .170      | 1/4-28      | 250TS-18       |
| .312      | .210      | 5/16-24     | 312TS-18       |

- Stainless tubes are 18" overall.
- Standards are threaded on both ends.

## Stainless Tubes



# HexKey Cascades



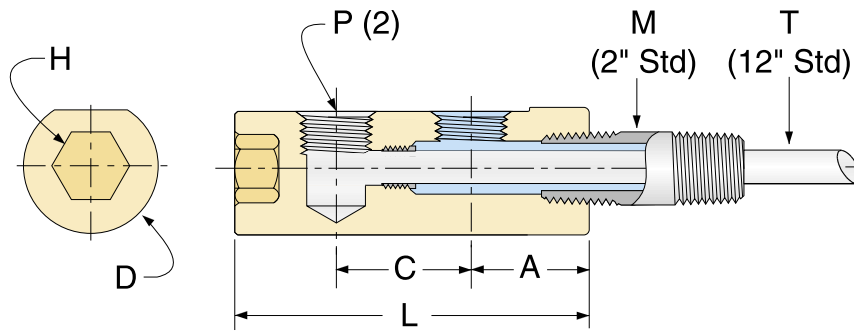
HexKey Cascades are round, and install with an Allen wrench. They may be installed with minimal clearance or very close together where space is limited.



## ASSEMBLIES

| CATALOG NUMBER | M PIPE NIPPLE (NPT) | P PIPE TAP SIZE (NPT) | T HIGH FLOW TUBE O.D. | HIGH FLOW TUBE INCLUDED | H HEX KEY SIZE | L     | C     | A     | NOMINAL CLEARANCE DRILL | D ACTUAL O.D. |
|----------------|---------------------|-----------------------|-----------------------|-------------------------|----------------|-------|-------|-------|-------------------------|---------------|
| E16N           | 1/16                | 1/16                  | 1/8                   | HF125T-12               | 5/16           | 1.625 | 9/16  | 1/2   | 5/8                     | .610          |
| E16N-2         | 1/8                 | 1/16                  | 3/16                  | HT187T-12               | 3/8            | 1.687 | 9/16  | 9/16  | 3/4                     | .735          |
| E186N          | 1/8                 | 1/8                   | 3/16                  | HT187T-12               | 3/8            | 1.875 | 11/16 | 9/16  | 7/8                     | .860          |
| E181N          | 1/8                 | 1/8                   | 3/16                  | HT187T-12               | 3/8            | 2.187 | 1"    | 9/16  | 7/8                     | .860          |
| E146N          | 1/4                 | 1/8                   | 1/4                   | HT250T-12               | 1/2            | 2.187 | 11/16 | 13/16 | 1"                      | .985          |
| E146N-4        | 1/4                 | 1/4                   | 1/4                   | HT250T-12               | 1/2            | 2.312 | 11/16 | 7/8   | 1"                      | .985          |
| E141N          | 1/4                 | 1/8                   | 1/4                   | HT250T-12               | 1/2            | 2.500 | 1"    | 13/16 | 1"                      | .985          |
| E141N-4        | 1/4                 | 1/4                   | 1/4                   | HT250T-12               | 1/2            | 2.625 | 1"    | 7/8   | 1"                      | .985          |
| E381N-4        | 3/8                 | 1/4                   | 5/16                  | HT312T-12               | 1/2            | 2.625 | 1"    | 7/8   | 1"                      | .985          |
| E121N-4        | 1/2                 | 1/4                   | 3/8                   | HT375T-12               | 1/2            | 2.812 | 1"    | 1"    | 1-1/4                   | 1.235         |

- Assemblies include brass head, 12" high flow stainless tube, and 2" long galvanized pipe nipple.
- Easy to install and remove.



## HEADS

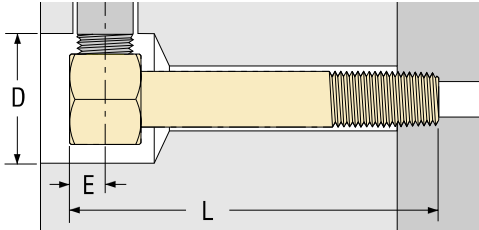
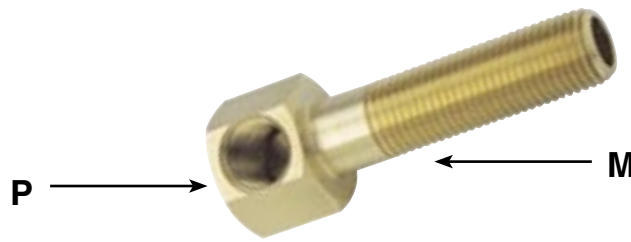
| CATALOG NUMBER | HIGH FLOW TUBE THREAD SIZE | USE HIGH FLOW TUBE NUMBER |
|----------------|----------------------------|---------------------------|
| E16H           | 10-32                      | HF125T-                   |
| E16H-2         | 1/4-28                     | HF187T                    |
| E186H          | 1/4-28                     | HF187T-                   |
| E181H          | 1/4-28                     | HF187T-                   |
| E146H          | 5/16-24                    | HF250T-                   |
| E146H-4        | 5/16-24                    | HF250T-                   |
| E141H          | 5/16-24                    | HF250T-                   |
| E141H-4        | 5/16-24                    | HF250T-                   |
| E381H-4        | 3/8-24                     | HF312T-                   |
| E121H-4        | 7/16-20                    | HF375T-                   |



- All dimensions are same as above assembly chart.
- HexKey Cascade heads use High Flow stainless tubes on page HC5.



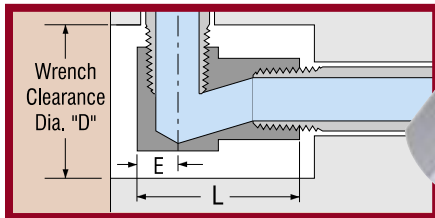
## Brass Extension



- Positive socket wrench installation.
- One piece construction ensures positive alignment, and complete removal.
- Easy length adjustment (see Brass Extension Plugs).
- Custom elbows are available in exact lengths and a wide variety of thread combinations. (Including BSP)

| ELBOW NUMBER | P TAP SIZE (NPT) | M PIPE SIZE MALE (NPT) | D WRENCH CLEARANCE DIAMETER | E     | OVERALL LENGTH "L" |      |       |      |       |      |        |      |      |
|--------------|------------------|------------------------|-----------------------------|-------|--------------------|------|-------|------|-------|------|--------|------|------|
|              |                  |                        |                             |       | 2-1/2              | 4"   | 5-1/2 | 7"   | 8-1/2 | 10"  | 11-1/2 | 13"  |      |
| 18B          | 1/8              | 1/8                    | 3/4                         | 1-1/4 | 9/32               | X025 | X040  | X055 | X070  | X085 | X100   | X115 | X130 |
| 1814B        | 1/8              | 1/4                    | 3/4                         | 1-1/4 | 9/32               | X025 | X040  | X055 | X070  | X085 | X100   | X115 | X130 |
| 14B          | 1/4              | 1/4                    | 7/8                         | 1-3/8 | 11/32              | X025 | X040  | X055 | X070  | X085 | X100   | X115 | X130 |
| 1438B        | 1/4              | 3/8                    | 7/8                         | 1-3/8 | 11/32              | X025 | X040  | X055 | X070  | X085 | X100   | X115 | X130 |
| 38B          | 3/8              | 3/8                    | 1"                          | 1-1/2 | 1/2                | X025 | X040  | X055 | X070  | X085 | X100   | X115 | X130 |
| 50B          | 1/2              | 1/2                    | 1-1/4                       | 1-3/4 | 5/8                | X025 | X040  | X055 | X070  | X085 | X100   | X115 | X130 |

To order, add overall length to catalog number. Example: 18BX025



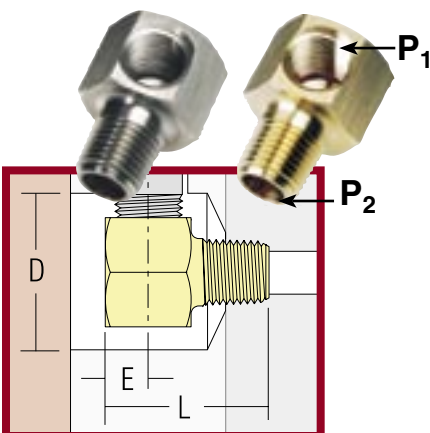
## Hex Elbows

- Available in brass or zinc plated steel.
- Easy socket wrench installation and removal.
- Angular flow path allows connecting fittings to be torqued tight without choking off flow.
- Requires much smaller clearance diameter than standard pipe elbows.

| ELBOW NUMBER | P <sub>1</sub> TAP SIZE FEMALE (NPT) | P <sub>2</sub> TAP SIZE FEMALE (NPT) | L     | E     | D WRENCH CLEARANCE DIAMETER | HEX SIZE | CATALOG NUMBER |         |
|--------------|--------------------------------------|--------------------------------------|-------|-------|-----------------------------|----------|----------------|---------|
|              |                                      |                                      |       |       |                             |          | STEEL          | BRASS   |
| 16S          | 1/16                                 | 1/16                                 | 13/16 | 7/32  | 1"                          | 9/16     | 16S-S          | 16S-B   |
| 18S          | 1/8                                  | 1/8                                  | 1"    | 9/32  | 1-1/4                       | 3/4      | 18S-S          | 18S-B   |
| 1814S        | 1/8                                  | 1/4                                  | 1-1/4 | 9/32  | 1-1/4                       | 3/4      | 1814S-S        | 1814S-B |
| 14S          | 1/4                                  | 1/4                                  | 1-3/8 | 11/32 | 1-3/8                       | 7/8      | 14S-S          | 14S-B   |
| 1438S        | 1/4                                  | 3/8                                  | 1-3/8 | 11/32 | 1-3/8                       | 7/8      | 1438S-S        | 1438S-B |
| 38S          | 3/8                                  | 3/8                                  | 1-5/8 | 1/2   | 1-1/2                       | 1"       | 38S-S          | 38S-B   |
| 50S          | 1/2                                  | 1/2                                  | 1-7/8 | 9/16  | 1-7/8                       | 1-1/4    | 50S-S          | 50S-B   |
| 75S          | 3/4                                  | 3/4                                  | 2-1/4 | 5/8   | 2-1/4                       | 1-1/2    | 75S-S          | 75S-B   |

## Male Hex Elbows

- Available in brass or plated steel.
- Easy socket wrench installation and removal.
- Full flow path allows connecting fittings to be torqued tight without choking off flow.
- Requires minimum clearance diameter.



| ELBOW NUMBER | P <sub>1</sub> TAP SIZE FEMALE (NPT) | P <sub>2</sub> TAP SIZE MALE (NPT) | L     | E     | D WRENCH CLEARANCE DIAMETER | HEX SIZE | CATALOG NUMBER |          |
|--------------|--------------------------------------|------------------------------------|-------|-------|-----------------------------|----------|----------------|----------|
|              |                                      |                                    |       |       |                             |          | STEEL          | BRASS    |
| 16MS         | 1/16                                 | 1/16                               | 13/16 | 7/32  | 1"                          | 9/16     | 16MS-S         | 16MS-B   |
| 18MS         | 1/8                                  | 1/8                                | 1"    | 9/32  | 1-1/4                       | 3/4      | 18MS-S         | 18MS-B   |
| 1814MS       | 1/8                                  | 1/4                                | 1-1/4 | 9/32  | 1-1/4                       | 3/4      | 1814MS-S       | 1814MS-B |
| 14MS         | 1/4                                  | 1/4                                | 1-3/8 | 11/32 | 1-3/8                       | 7/8      | 14MS-S         | 14MS-B   |
| 1438MS       | 1/4                                  | 3/8                                | 1-3/8 | 11/32 | 1-3/8                       | 7/8      | 1438MS-S       | 1438MS-B |
| 38MS         | 3/8                                  | 3/8                                | 1-5/8 | 1/2   | 1-1/2                       | 1"       | 38MS-S         | 38MS-B   |
| 50MS         | 1/2                                  | 1/2                                | 1-7/8 | 9/16  | 1-7/8                       | 1-1/4    | 50MS-S         | 50MS-B   |
| 75MS         | 3/4                                  | 3/4                                | 2-1/4 | 5/8   | 2-1/4                       | 1-1/2    | 75MS-S         | 75MS-B   |

# Extension Elbows

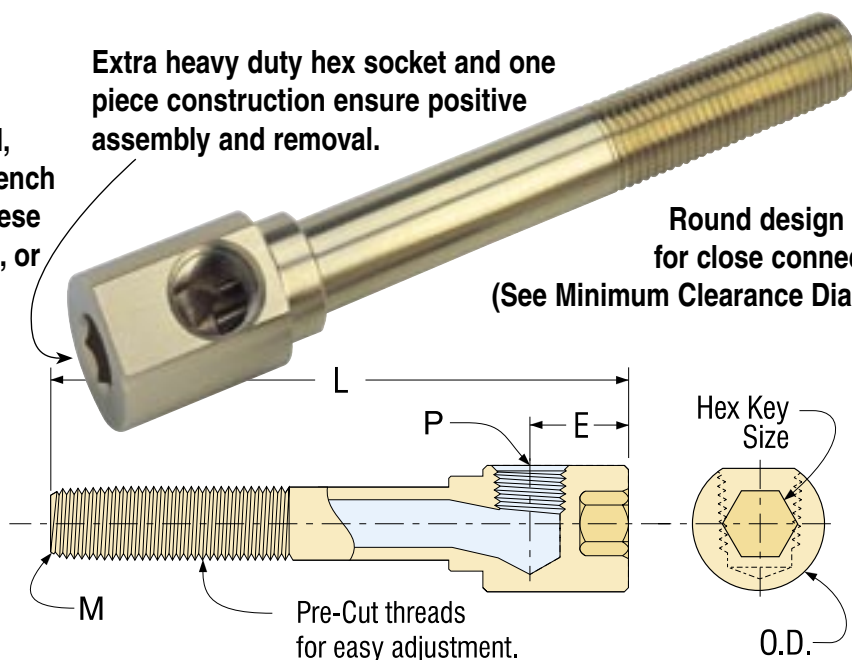


HexKey Extension Elbows are round, and install with an Allen wrench. Wrench clearance is not required, making these elbows ideal for use inside the mold, or anywhere space is limited.

- Angular flow path allows connecting pipe fittings to be torqued tight without choking off flow.
- Accurate length adjustments are easy with the Brass Extension Plug thread system.

Extra heavy duty hex socket and one piece construction ensure positive assembly and removal.

Round design allows for close connections. (See Minimum Clearance Diameter)

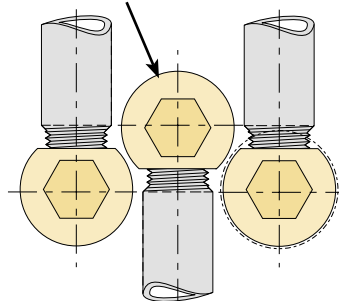


| CATALOG NUMBER | P<br>TAP SIZE<br>FEMALE<br>(NPT) | M<br>PIPE SIZE<br>MALE<br>(NPT) | E    | O.D.  | MINIMUM<br>CLEARANCE<br>DIAMETER | HEX<br>KEY<br>SIZE | OVERALL LENGTH "L" |      |       |      |       |      |        |      |
|----------------|----------------------------------|---------------------------------|------|-------|----------------------------------|--------------------|--------------------|------|-------|------|-------|------|--------|------|
|                |                                  |                                 |      |       |                                  |                    | 2-1/2              | 4"   | 5-1/2 | 7"   | 8-1/2 | 10"  | 11-1/2 | 13"  |
| EKL16          | 1/16                             | 1/16                            | .531 | .552  | 9/16                             | 1/4                | X025               | X040 | X055  | X070 | X085  | X100 | X115   | X130 |
| EKL18          | 1/8                              | 1/8                             | .580 | .615  | 5/8                              | 5/16               | X025               | X040 | X055  | X070 | X085  | X100 | X115   | X130 |
| EKL14          | 1/4                              | 1/4                             | .660 | .860  | 7/8                              | 3/8                | X025               | X040 | X055  | X070 | X085  | X100 | X115   | X130 |
| EKL38          | 3/8                              | 3/8                             | .780 | .985  | 1"                               | 1/2                | X025               | X040 | X055  | X070 | X085  | X100 | X115   | X130 |
| EKL50          | 1/2                              | 1/2                             | .940 | 1.235 | 1-1/4                            | 1/2                | X025               | X040 | X055  | X070 | X085  | X100 | X115   | X130 |

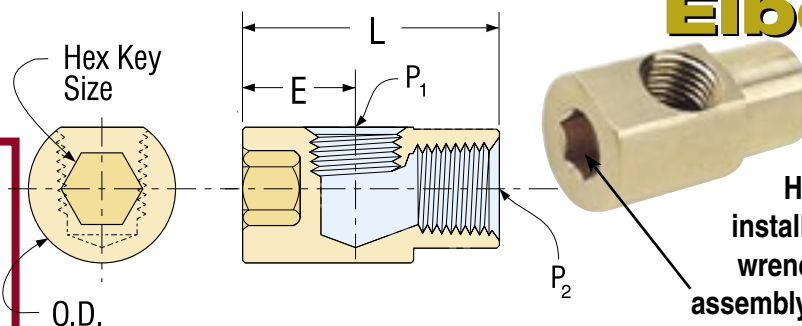
To order, add overall length to catalog number. Example: EKL16X025

- Angular coolant path prevents fitting interference at assembly and guarantees full flow. (See Drawing)

Compact, round design allows for close connections. (See Minimum Clearance Diameter)



## HexKey Elbows

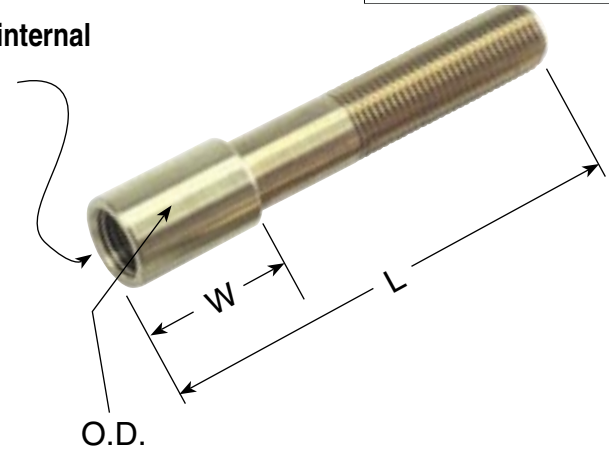
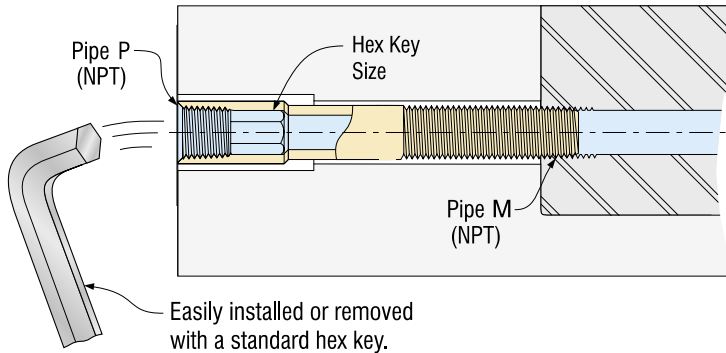


HexKey Elbows install with an Allen wrench for positive assembly and removal.

| CATALOG NUMBER | P <sub>1</sub><br>TAP SIZE<br>FEMALE<br>(NPT) | P <sub>2</sub><br>TAP SIZE<br>FEMALE<br>(NPT) | L     | E    | O.D.  | MINIMUM<br>CLEARANCE<br>DIAMETER | HEX<br>KEY<br>SIZE |
|----------------|---|---|-------|------|-------|----------------------------------|--------------------|
| HKL16          | 1/16  | 1/16  | 1.125 | .531 | .552  | 9/16                             | 1/4                |
| HKL18          | 1/8   | 1/8   | 1.250 | .580 | .615  | 5/8                              | 5/16               |
| HKL1814        | 1/8   | 1/4   | 1.375 | .593 | .860  | 7/8                              | 3/8                |
| HKL14          | 1/4   | 1/4   | 1.500 | .660 | .860  | 7/8                              | 3/8                |
| HKL1438        | 1/4   | 3/8   | 1.625 | .712 | .985  | 1"                               | 1/2                |
| HKL38          | 3/8   | 3/8   | 1.750 | .780 | .985  | 1"                               | 1/2                |
| HKL50          | 1/2   | 1/2   | 2.125 | .940 | 1.235 | 1-1/4                            | 1/2                |

# Extension Pipes

Heavy duty internal hex socket

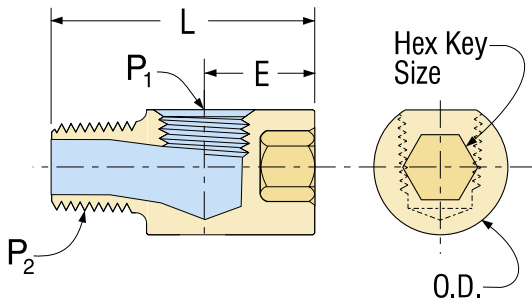


- HexKey Extension Pipes are available in a wide variety of special lengths and threads.
- Accurate length adjustments are easy with the Brass Extension Plug thread system.

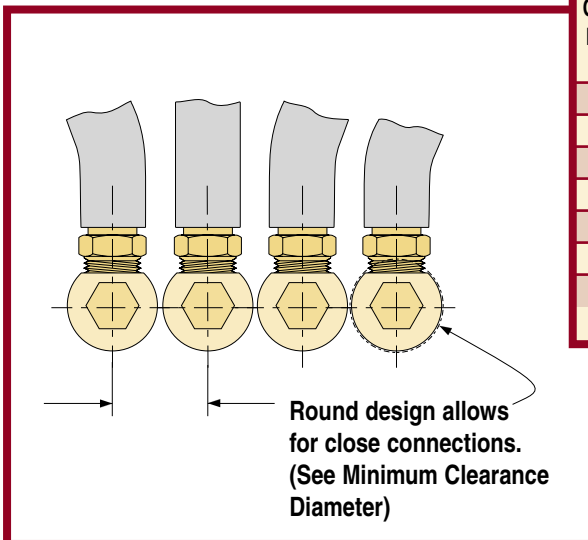
| CATALOG NUMBER | P TAP SIZE FEMALE (NPT) | M PIPE SIZE MALE (NPT) | W     | O.D.  | HEX KEY SIZE | OVERALL LENGTH "L" |      |       |      |       |
|----------------|-------------------------|------------------------|-------|-------|--------------|--------------------|------|-------|------|-------|
|                |                         |                        |       |       |              | 2-1/2              | 4"   | 5-1/2 | 7"   | 8-1/2 |
| EP18           | 1/8                     | 1/8                    | 3/4   | 1/2   | 1/4          | X025               | X040 | X055  | X070 | X085  |
| EP14           | 1/4                     | 1/4                    | 1"    | 11/16 | 3/8          | X025               | X040 | X055  | X070 | X085  |
| EP38           | 3/8                     | 3/8                    | 1-1/4 | 13/16 | 1/2          | X025               | X040 | X055  | X070 | X085  |
| EP50           | 1/2                     | 1/2                    | 1-1/2 | 1"    | 9/16         | X025               | X040 | X055  | X070 | X085  |

To order, add overall length to catalog number. Example EP18X025

## HexKey Street Elbows



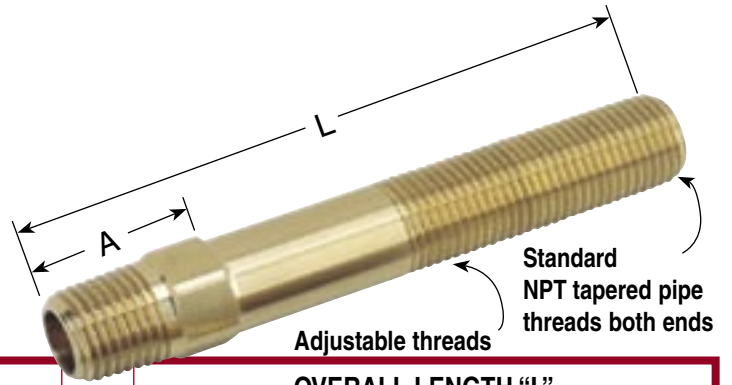
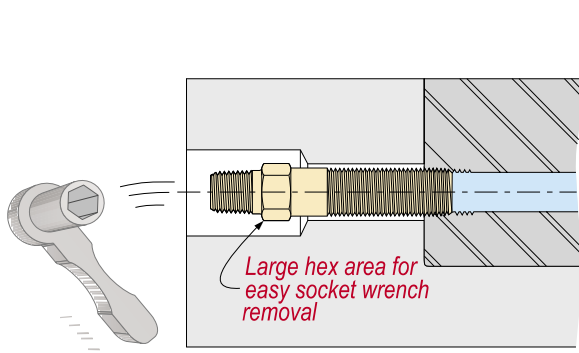
Extra heavy duty hex socket allows maximum assembly torque and positive removal.



| CATALOG NUMBER | P <sub>1</sub> TAP SIZE FEMALE (NPT) | P <sub>2</sub> PIPE SIZE MALE (NPT) | L     | E    | O.D.  | MINIMUM CLEARANCE DIAMETER | HEX KEY SIZE |
|----------------|--------------------------------------|-------------------------------------|-------|------|-------|----------------------------|--------------|
| KL16           | 1/16                                 | 1/16                                | 1.156 | .531 | .552  | 9/16                       | 1/4          |
| KL1618         | 1/16                                 | 1/8                                 | 1.218 | .531 | .615  | 5/8                        | 5/16         |
| KL18           | 1/8                                  | 1/8                                 | 1.312 | .580 | .615  | 5/8                        | 5/16         |
| KL1814         | 1/8                                  | 1/4                                 | 1.500 | .593 | .860  | 7/8                        | 3/8          |
| KL14           | 1/4                                  | 1/4                                 | 1.625 | .660 | .860  | 7/8                        | 3/8          |
| KL1438         | 1/4                                  | 3/8                                 | 1.625 | .712 | .985  | 1"                         | 1/2          |
| KL38           | 3/8                                  | 3/8                                 | 1.750 | .780 | .985  | 1"                         | 1/2          |
| KL50           | 1/2                                  | 1/2                                 | 2.250 | .940 | 1.235 | 1-1/4                      | 1/2          |

- HexKey Street Elbows install with an Allen wrench for positive assembly and removal.
- Angular coolant path allows connecting fittings to be torqued tight without choking off flow.

# Nipples



- Especially useful when installing Cascade Heads, Hex Elbows, etc.
- Longer or special lengths are available.
- Available in special thread combinations.

| CATALOG NUMBER | PIPE SIZE (NPT) | A     | HEX SIZE | OVERALL LENGTH "L" |      |        |      |        |      |         |      |
|----------------|-----------------|-------|----------|--------------------|------|--------|------|--------|------|---------|------|
|                |                 |       |          | 2-1/2"             | 4"   | 5-1/2" | 7"   | 8-1/2" | 10"  | 11-1/2" | 12"  |
| APN16          | 1/16            | 11/16 | 3/8      | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| APN18          | 1/8             | 3/4   | 7/16     | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| APN14          | 1/4             | 7/8   | 9/16     | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| APN38          | 3/8             | 1"    | 11/16    | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| APN12          | 1/2             | 1-3/8 | 7/8      | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |

To order, add overall length to catalog number. Example: APN16X025



## Brass Pipe Nipples

| CATALOG NUMBER | PIPE SIZE (NPT) | OVERALL LENGTH |        |      |        |      |        |      |        |      |        |      |      |      |      |      |      |      |
|----------------|-----------------|----------------|--------|------|--------|------|--------|------|--------|------|--------|------|------|------|------|------|------|------|
|                |                 | CLOSE          | 1-1/2" | 2"   | 2-1/2" | 3"   | 3-1/2" | 4"   | 4-1/2" | 5"   | 5-1/2" | 6"   | 7"   | 8"   | 9"   | 10"  | 11"  | 12"  |
| BPN16          | 1/16            | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |
| BPN18          | 1/8             | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |
| BPN14          | 1/4             | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |
| BPN38          | 3/8             | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |
| BPN12          | 1/2             | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |

To order, add overall length to catalog number. Example: BPN16X025

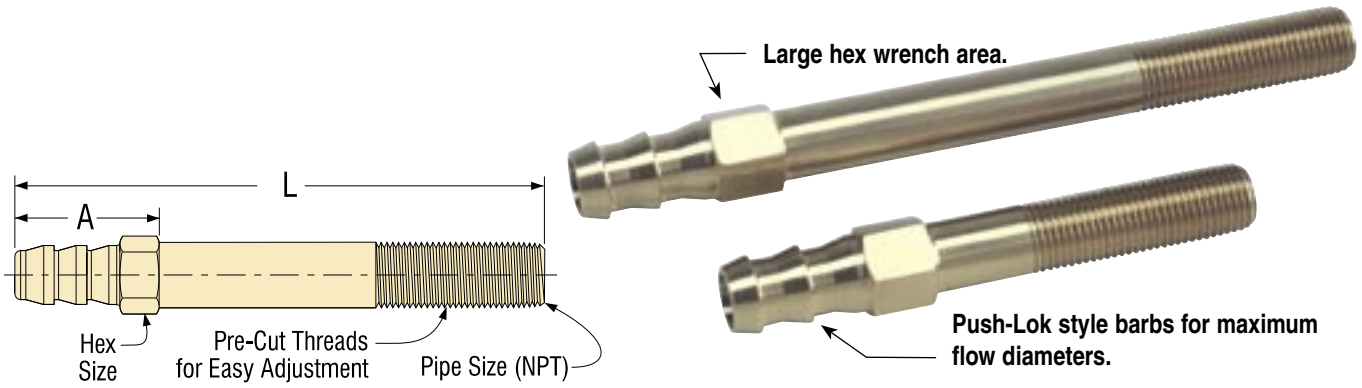


## Galvanized Pipe Nipples

| CATALOG NUMBER | PIPE SIZE (NPT) | OVERALL LENGTH |        |      |        |      |        |      |        |      |        |      |      |      |      |      |      |      |
|----------------|-----------------|----------------|--------|------|--------|------|--------|------|--------|------|--------|------|------|------|------|------|------|------|
|                |                 | CLOSE          | 1-1/2" | 2"   | 2-1/2" | 3"   | 3-1/2" | 4"   | 4-1/2" | 5"   | 5-1/2" | 6"   | 7"   | 8"   | 9"   | 10"  | 11"  | 12"  |
| GPN16*         | 1/16            | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |
| GPN18          | 1/8             | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |
| GPN14          | 1/4             | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |
| GPN38          | 3/8             | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |
| GPN12          | 1/2             | X000           | X015   | X020 | X025   | X030 | X035   | X040 | X045   | X050 | X055   | X060 | X070 | X080 | X090 | X100 | X110 | X120 |

To order, add overall length to catalog number. Example: GPN16X025

\* 1/16 pipe nipples are stainless steel.



- One piece brass construction.
- Hose clamps are not required when used with Push-Lok hose.

| CATALOG NUMBER | HOSE I.D. | PIPE SIZE (NPT) | HEX SIZE | A     | OVERALL LENGTH "L" |      |        |      |        |      |         |      |
|----------------|-----------|-----------------|----------|-------|--------------------|------|--------|------|--------|------|---------|------|
|                |           |                 |          |       | 2-1/2"             | 4"   | 5-1/2" | 7"   | 8-1/2" | 10"  | 11-1/2" | 13"  |
| EB14-1         | 1/4       | 1/16            | 3/8      | 1-1/8 | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| EB14-2         | 1/4       | 1/8             | 7/16     | 1-1/8 | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| EB38-2         | 3/8       | 1/8             | 1/2      | 1-1/4 | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| EB38-4         | 3/8       | 1/4             | 9/16     | 1-3/8 | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| EB50-4         | 1/2       | 1/4             | 5/8      | 1-1/2 | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| EB50-6         | 1/2       | 3/8             | 11/16    | 1-1/2 | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| EB50-8         | 1/2       | 1/2             | 7/8      | 1-5/8 | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |
| EB75-8         | 3/4       | 1/2             | 7/8      | 2-1/8 | X025               | X040 | X055   | X070 | X085   | X100 | X115    | X130 |

To order, add overall length to catalog number. Example: EB14-1X025

| CATALOG NUMBER | HOSE I.D. | PIPE SIZE (NPT) |
|----------------|-----------|-----------------|
| PLM-04-02      | 1/4       | 1/8             |
| PLM-04-04      | 1/4       | 1/4             |
| PLM-06-02      | 3/8       | 1/8             |
| PLM-06-04      | 3/8       | 1/4             |
| PLM-08-04      | 1/2       | 1/4             |
| PLM-08-06      | 1/2       | 3/8             |
| PLM-08-08      | 1/2       | 1/2             |
| PLM-08-12      | 1/2       | 3/4             |
| PLM-12-08      | 3/4       | 1/2             |
| PLM-12-12      | 3/4       | 3/4             |

## Push-Lok Hose Barbs



- All Push-Lok Hose fittings are constructed of brass and do not require hose clamps when used with Push-Lok hose.
- Flow diameters are maximized for improved flow rates.

## Push-Lok Hose - 801 Series



- Constructed of synthetic rubber tube, one textile braide reinforcement, and synthetic rubber cover.
- Temperature range with water to 185° F.
- Use with Push-Lok or standard fittings.

| CATALOG NUMBER | HOSE I.D. | HOSE O.D. | WORKING PRESSURE (PSI) | BURST PRESSURE (PSI) | MINIMUM BEND RADIUS (IN.) | INCHES OF MERCURY |
|----------------|-----------|-----------|------------------------|----------------------|---------------------------|-------------------|
| 801-4          | 1/4       | 0.50      | 250                    | 1000                 | 2-1/2"                    | 28                |
| 801-6          | 3/8       | 0.63      | 250                    | 1000                 | 3"                        | 28                |
| 801-8          | 1/2       | 0.78      | 250                    | 1000                 | 5"                        | 28                |
| 801-10         | 5/8       | 0.91      | 250                    | 1000                 | 6"                        | 15                |
| 801-12         | 3/4       | 1.03      | 250                    | 1000                 | 7"                        | 15                |

Grey hose is standard.

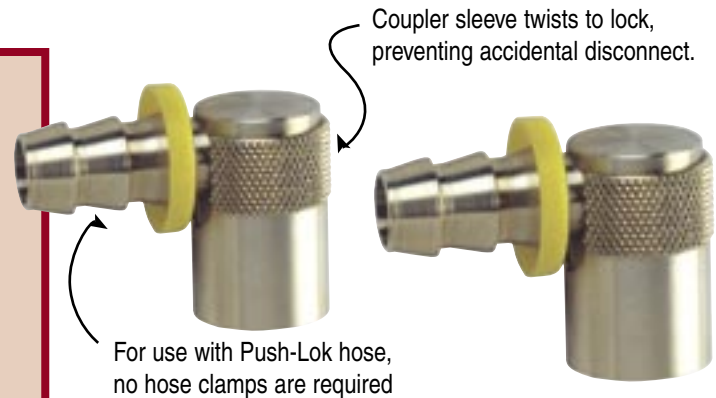
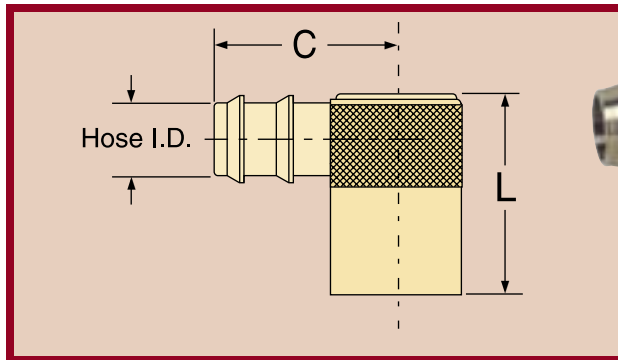
Minimum order length is 10'

To order, add color code and length to catalog number. Example for 100' of 1/4 I.D. red: 801-4-R-100'

Color codes: (Red=R) (Grey=GR) (Yellow=Y) (Green=G) (Black=B) (Blue=BL)

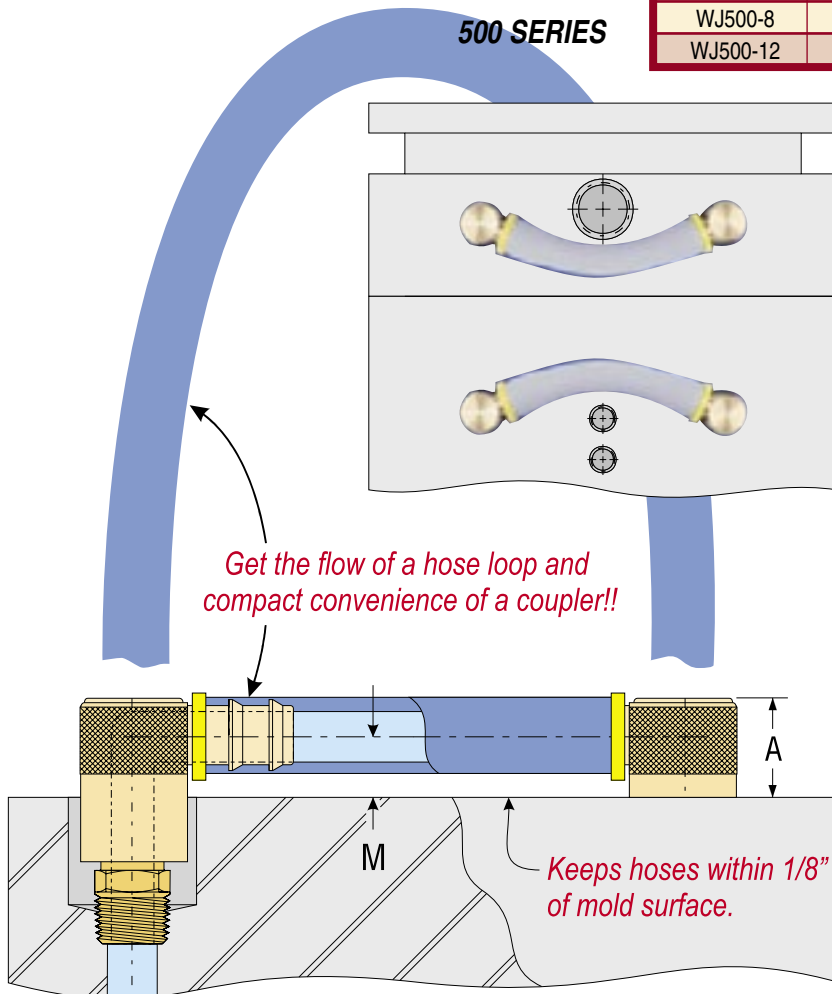


# Water Jumpers



**Oversized and unrestricted flow path maintains full flow rate of hose used.**

| CATALOG NUMBER | FITS PLUG SERIES | HOSE I.D. | L      | C      | M   | A     |
|----------------|------------------|-----------|--------|--------|-----|-------|
| WJ200-4        | 200              | 1/4       | 1"     | 1-1/4  | 3/8 | 5/8   |
| WJ200-5        | 200              | 5/16      | 1"     | 1-1/4  | 3/8 | 5/8   |
| WJ200-6        | 200              | 3/8       | 1"     | 1-1/4  | 3/8 | 5/8   |
| WJ300-6        | 300              | 3/8       | 1-7/16 | 1-9/16 | 1/2 | 7/8   |
| WJ300-8        | 300              | 1/2       | 1-7/16 | 1-9/16 | 1/2 | 7/8   |
| WJ500-8        | 500              | 1/2       | 2-1/8  | 2"     | 7/8 | 1-1/8 |
| WJ500-12       | 500              | 3/4       | 2-1/8  | 2"     | 7/8 | 1-1/8 |



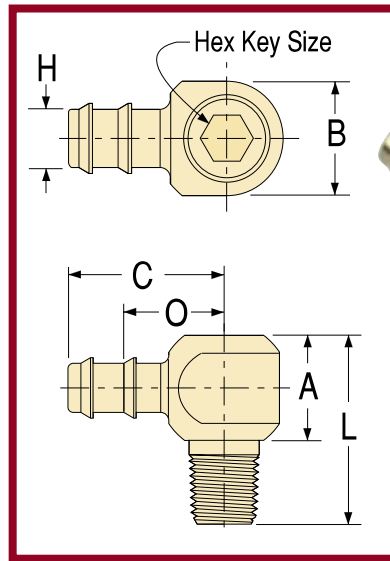
- Eliminates bulky hose loops.
- Compact design neatly and safely holds cooling lines close to the mold surface.
- Stock only one part number for any hose size. No special tubes or length restrictions.
- Compatible with all major mold connection systems.
- Unlimited installation options. Fits around obstacles, and installs in compact spaces.
- Viton seals for temperatures up to 400° F.
- All brass and stainless steel construction.



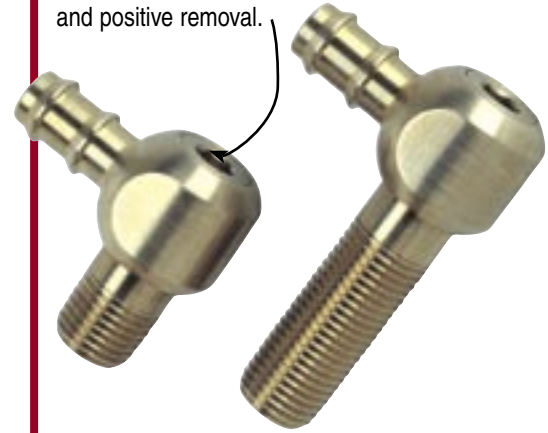
# Water Jumpers

## Swivel

- Can be fully recessed to prevent accidental disconnect or damage.
- Swivel body allows installation in tight spaces.
- Eliminate crimped hoses and setup errors.
- Supplied with Viton O-Ring seals.
- All brass construction.
- Hex key installation.
- Custom length Jumpers can be quoted.

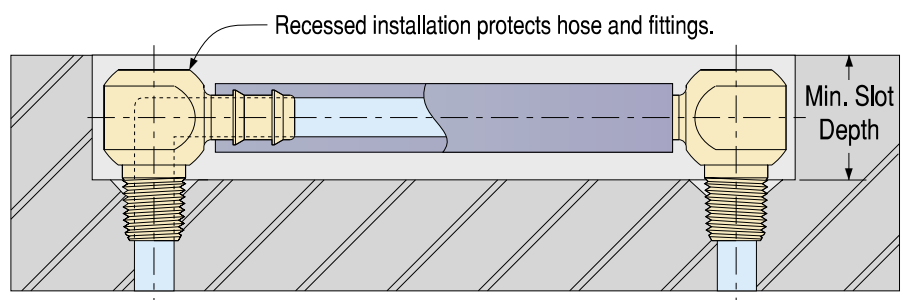
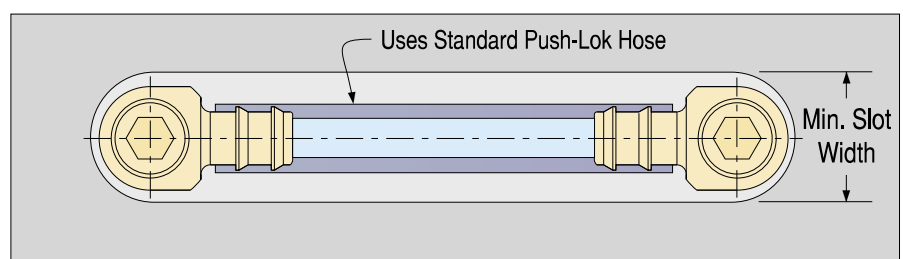
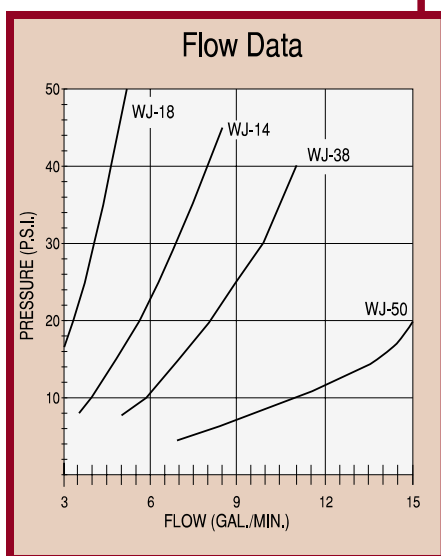


Heavy duty hex key socket allows maximum torque and positive removal.



Threads can be adjusted to specific lengths.

| CATALOG NUMBER | PIPE SIZE (NPT) | H HOSE I.D. | HEX KEY SIZE | L      | A     | C      | O     | B     | MIN. SLOT WIDTH | MIN. SLOT DEPTH |
|----------------|-----------------|-------------|--------------|--------|-------|--------|-------|-------|-----------------|-----------------|
| WJ18-S         | 1/8             | 5/16        | 3/16         | 1-3/16 | 11/16 | 1"     | 5/8   | .660  | 11/16           | 1"              |
| WJ18-M         | 1/8             | 5/16        | 3/16         | 2"     | 11/16 | 1"     | 5/8   | .660  | 11/16           | 1"              |
| WJ18-L         | 1/8             | 5/16        | 3/16         | 3-1/2  | 11/16 | 1"     | 5/8   | .660  | 11/16           | 1"              |
| WJ14-S         | 1/4             | 3/8         | 1/4          | 1-7/16 | 13/16 | 1-3/16 | 25/32 | .840  | 7/8             | 1-3/16          |
| WJ14-M         | 1/4             | 3/8         | 1/4          | 2-3/8  | 13/16 | 1-3/16 | 25/32 | .840  | 7/8             | 1-3/16          |
| WJ14-L         | 1/4             | 3/8         | 1/4          | 3-7/8  | 13/16 | 1-3/16 | 25/32 | .840  | 7/8             | 1-3/16          |
| WJ38-S         | 3/8             | 1/2         | 5/16         | 1-5/8  | 1"    | 1-3/8  | 15/16 | .980  | 1"              | 1-3/8           |
| WJ38-M         | 3/8             | 1/2         | 5/16         | 2-5/8  | 1"    | 1-3/8  | 15/16 | .980  | 1"              | 1-3/8           |
| WJ38-L         | 3/8             | 1/2         | 5/16         | 4-1/8  | 1"    | 1-3/8  | 15/16 | .980  | 1"              | 1-3/8           |
| WJ50-S         | 1/2             | 3/4         | 3/8          | 2"     | 1-1/8 | 1-1/2  | 1-1/8 | 1.235 | 1-1/4           | 1-9/16          |
| WJ50-M         | 1/2             | 3/4         | 3/8          | 3"     | 1-1/8 | 1-1/2  | 1-1/8 | 1.235 | 1-1/4           | 1-9/16          |
| WJ50-L         | 1/2             | 3/4         | 3/8          | 4-1/2  | 1-1/8 | 1-1/2  | 1-1/8 | 1.235 | 1-1/4           | 1-9/16          |



# Pressure Plugs



## Threadless Plugs



- Threadless plugs utilize an expandable O-ring to create a positive seal.
- Seals rough or corroded holes.
- Withstands pressures up to 72 psi.
- No tapping is required.

| CATALOG NUMBER | NOMINAL SIZE | HEIGHT | HEX SIZE | DRILL SIZE | O-RING CATALOG NUMBER |
|----------------|--------------|--------|----------|------------|-----------------------|
| TBPP012        | 1/8          | .50    | 5/64     | 11/32      | OR-012                |
| TBPP025        | 1/4          | .56    | 1/8      | 7/16       | OR-025                |
| TBPP037        | 3/8          | .62    | 1/8      | 9/16       | OR-037                |
| TBPP050        | 1/2          | .62    | 1/8      | 11/16      | OR-050                |
| TBPP012-OS     | 1/8          | .50    | 5/64     | 23/64      | OR-012                |
| TBPP025-OS     | 1/4          | .56    | 1/8      | 29/64      | OR-025                |
| TBPP037-OS     | 3/8          | .62    | 1/8      | 37/64      | OR-037                |
| TBPP050-OS     | 1/2          | .62    | 1/8      | 45/64      | OR-050                |

- Standard plugs are flush type (7/8" taper per foot).
- Oversize plugs are (3/4" taper per foot). To order add -OS to catalog number.

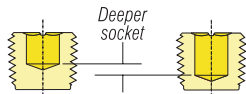
| THREAD SIZE (NPT) | TPI    | FLUSH HEIGHT | CATALOG NUMBER |             |                 |
|-------------------|--------|--------------|----------------|-------------|-----------------|
|                   |        |              | BRASS          | ALLOY STEEL | STAINLESS STEEL |
| 1/16              | 27     | .250         | BPP006         | APP006      | SPP006          |
| 1/8               | 27     | .250         | BPP012         | APP012      | SPP012          |
| 1/4               | 18     | .406         | BPP025         | APP025      | SPP025          |
| 3/8               | 18     | .406         | BPP037         | APP037      | SPP037          |
| 1/2               | 14     | .531         | BPP050         | APP050      | SPP050          |
| 3/4               | 14     | .531         | BPP075         | APP075      |                 |
| 1"                | 11-1/2 | .656         | BPP100         | APP100      |                 |
| 1-1/4             | 11-1/2 | .656         | BPP125         |             |                 |
| 1-1/2             | 11-1/2 | .656         | BPP150         |             |                 |

## Heavy Duty Plugs

| CATALOG NUMBER | THREAD SIZE (NPT) |
|----------------|-------------------|
| XTBF-006       | 1/16              |
| XTBF-012       | 1/8               |
| XTBF-025       | 1/4               |
| XTBF-037       | 3/8               |
| XTBF-050       | 1/2               |
| XTBF-075       | 3/4               |

- Standard brass flush seal plugs with **XT** forming technology for maximum wrenching torque.
- Extra deep socket can't "round out" when plugs are installed or removed.
- Order in any quantity.

With Patented **XT** Technology....



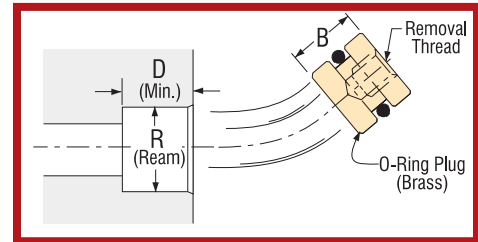
Extra deep socket is stronger, and *will not* strip out.

## O-Ring Plugs



| CATALOG NUMBER | R REAM SIZE | B (+.000) (-.005) | D (+.005) (-.000) | REMOVAL THREAD SIZE |
|----------------|-------------|-------------------|-------------------|---------------------|
| OR-06          | .281        | 1/4               | .250              | 6-32                |
| OR-12          | .375        | 5/16              | .312              | 10-32               |
| OR-25          | .500        | 5/16              | .312              | 10-32               |
| OR-38          | .625        | 7/16              | .437              | 1/4-20              |
| OR-50          | .750        | 1/2               | .500              | 1/4-20              |
| OR-75          | 1.000       | 5/8               | .625              | 3/8-16              |

- O-Ring plugs are used when backed up by other mold inserts, holder block, etc.
- They require less space than NPT pressure plugs. Less interference in tight spaces.
- Standard Buna O-Ring provides seal to 210°.
- Viton O-rings and quad rings are available.



## Stop Plugs



| CATALOG NUMBER | THREAD SIZE (NPT) |
|----------------|-------------------|
| MP-012BSP      | 1/8-28            |
| MP-025BSP      | 1/4-19            |
| MP-037BSP      | 3/8-19            |
| MP-050BSP      | 1/2-14            |
| MP-075BSP      | 3/4-14            |
| MP-100BSP      | 1-11              |



## BSP Plugs

- Fits BSPT and BSPP threaded holes.
- Features extra deep socket for strength.
- Order in any quantity.

| CATALOG NUMBER | FITS SOCKET SERIES NUMBER |
|----------------|---------------------------|
| CP-200         | <b>200</b>                |
| CP-300         | <b>300</b>                |
| CP-500         | <b>500</b>                |

- Stops coolant flow on hoses with flow-thru sockets.
- Prevents accidents by plugging unused hoses and manifold ports.
- Keeps couplers and seals clean when not in use.

# Fittings & Accessories



## Reducing Bushings



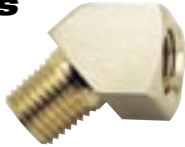
| CATALOG NUMBER | PIPE SIZE  |
|----------------|------------|
| RB18-1         | 1/8 X 1/16 |
| RB14-2         | 1/4 X 1/8  |
| RB38-4         | 3/8 X 1/4  |
| RB50-6         | 1/2 X 3/8  |
| RB75-8         | 3/4 X 1/2  |

## Male Reducers



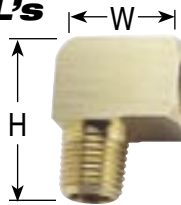
| CATALOG NUMBER | PIPE SIZE  | L      |
|----------------|------------|--------|
| MR18-1         | 1/8 X 1/16 | 1"     |
| MR14-2         | 1/4 X 1/8  | 1-3/16 |
| MR38-4         | 3/8 X 1/4  | 1-7/16 |
| MR50-6         | 1/2 X 3/8  | 1-5/8  |

## 45° Street EL's



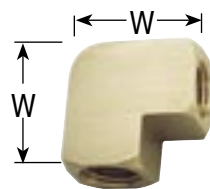
| CATALOG NUMBER | PIPE SIZE |
|----------------|-----------|
| AL-18          | 1/8       |
| AL-14          | 1/4       |
| AL-38          | 3/8       |
| AL-50          | 1/2       |

## 90° Street EL's



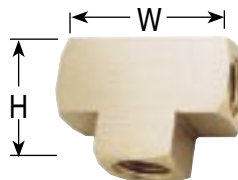
| CATALOG NUMBER | PIPE SIZE | W     | H     |
|----------------|-----------|-------|-------|
| SL-18          | 1/8       | 11/16 | 15/16 |
| SL-14          | 1/4       | 1"    | 1-1/4 |
| SL-38          | 3/8       | 1-1/8 | 1-3/8 |
| SL-50          | 1/2       | 1-1/2 | 1-3/4 |

## 90° Elbows



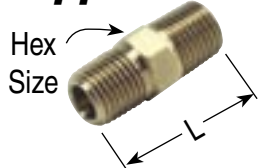
| CATALOG NUMBER | PIPE SIZE | W      |
|----------------|-----------|--------|
| EL-18          | 1/8       | 13/16  |
| EL-14          | 1/4       | 1-1/8  |
| EL-38          | 3/8       | 1-1/4  |
| EL-50          | 1/2       | 1-9/16 |

## Tees



| CATALOG NUMBER | PIPE SIZE | W       | H      |
|----------------|-----------|---------|--------|
| T-18           | 1/8       | 1-1/16  | 13/16  |
| T-14           | 1/4       | 1-1/2   | 1-1/8  |
| T-38           | 3/8       | 1-11/16 | 1-1/4  |
| T-50           | 1/2       | 2-1/8   | 1-9/16 |

## Hex Nipples



| CATALOG NUMBER | PIPE SIZE | HEX SIZE | L       |
|----------------|-----------|----------|---------|
| HN-18          | 1/8       | 7/16     | 31/32   |
| HN-14          | 1/4       | 9/16     | 1-3/8   |
| HN-38          | 3/8       | 11/16    | 1-7/16  |
| HN-50          | 1/2       | 7/8      | 1-13/16 |

## Male Hose Barbs



| CATALOG NUMBER | HOSE I.D. | PIPE SIZE |
|----------------|-----------|-----------|
| MB14-2         | 1/4       | 1/8       |
| MB14-4         | 1/4       | 1/4       |
| MB15-2         | 5/16      | 1/8       |
| MB15-4         | 5/16      | 1/4       |
| MB38-2         | 3/8       | 1/8       |
| MB38-4         | 3/8       | 1/4       |
| MB50-4         | 1/2       | 1/4       |
| MB50-6         | 1/2       | 3/8       |
| MB50-8         | 1/2       | 1/2       |
| MB75-8         | 3/4       | 1/2       |
| MB75-12        | 3/4       | 3/4       |

## Female Hose Barbs



| CATALOG NUMBER | HOSE I.D. | PIPE SIZE |
|----------------|-----------|-----------|
| FB14-2         | 1/4       | 1/8       |
| FB14-4         | 1/4       | 1/4       |
| FB15-4         | 5/16      | 1/4       |
| FB38-2         | 3/8       | 1/8       |
| FB38-4         | 3/8       | 1/4       |
| FB50-6         | 1/2       | 3/8       |
| FB50-8         | 1/2       | 1/2       |

## Hose Splicers



| CATALOG NUMBER | HOSE I.D. |
|----------------|-----------|
| HS-14          | 1/4 X 1/4 |
| HS-38          | 3/8 X 3/8 |
| HS-50          | 1/2 X 1/2 |

## Hex Couplings



| CATALOG NUMBER | PIPE SIZE |
|----------------|-----------|
| C-18           | 1/8       |
| C-14           | 1/4       |
| C-38           | 3/8       |
| C-50           | 1/2       |

## Hose Clamps



| CATALOG NUMBER | MAX. HOSE O.D. |
|----------------|----------------|
| HC-58          | 5/8            |
| HC-78          | 7/8            |
| HC-118         | 1-1/8          |

## Teflon Tape

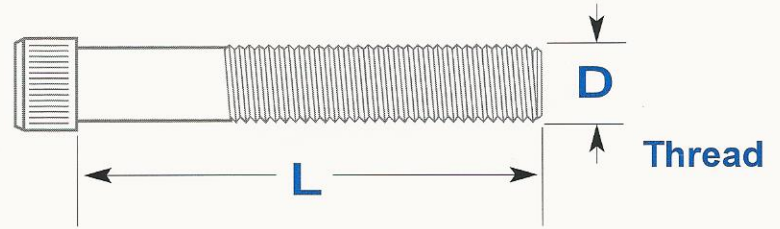


| CATALOG NUMBER | ROLL SIZE  |
|----------------|------------|
| TL-250         | 1/4 X 520" |
| TL-500         | 1/2 X 520" |



# Screw Socket head

- High grade alloy steel
- Heat treated to 38-45 R/C
- Tensile strength of 180,000 psi minimum



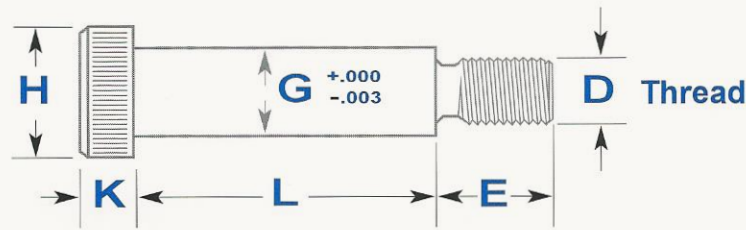
| Dia. D | Length Under Head L | Catalog Number | Dia. D    | Length Under Head L | Catalog Number | Dia. D     | Length Under Head L | Catalog Number | Dia. D    | Length Under Head L | Catalog Number |           |
|--------|---------------------|----------------|-----------|---------------------|----------------|------------|---------------------|----------------|-----------|---------------------|----------------|-----------|
| #6-32  | 1/4                 | SH63225        | 1/4-20    | 2-3/4               | SH2520275      | 1/2-13     | 5/8                 | SH501363       | 5/8-11    | 4-1/2               | SH6311450      |           |
|        | 3/8                 | SH63238        |           | 3                   | SH2520300      |            | 3/4                 | SH501375       |           | 5                   | SH6311500      |           |
|        | 1/2                 | SH63250        | 5/16-18   | 3/8                 | SH311838       |            | 7/8                 | SH501388       |           | 5-1/2               | SH6311550      |           |
|        | 5/8                 | SH63263        |           | 1/2                 | SH311850       |            | 1                   | SH5013100      |           | 6                   | SH6311600      |           |
|        | 3/4                 | SH63275        |           | 5/8                 | SH311863       |            | 1-1/4               | SH5013125      |           | 6-1/2               | SH6311650      |           |
|        | 7/8                 | SH63288        |           | 3/4                 | SH311875       |            | 1-1/2               | SH5013150      |           | 7                   | SH6311700      |           |
|        | 1                   | SH632100       |           | 7/8                 | SH311888       |            | 1-3/4               | SH5013175      |           | 7-1/2               | SH6311750      |           |
| #8-32  | 1/4                 | SH832025       |           | 1                   | SH3118100      |            | 2                   | SH5013200      |           | 8                   | SH6311800      |           |
|        | 3/8                 | SH832038       |           | 1-1/4               | SH3118125      |            | 2-1/4               | SH5013225      |           | 10                  | SH63111000     |           |
|        | 1/2                 | SH832050       |           | 1-1/2               | SH3118150      |            | 2-1/2               | SH5013250      |           | 12                  | SH63111200     |           |
|        | 5/8                 | SH832063       |           | 1-3/4               | SH3118175      |            | 2-3/4               | SH5013275      |           | 3/4-10              | 2              | SH7510200 |
|        | 3/4                 | SH832075       |           | 2                   | SH3118200      |            | 3                   | SH5013300      |           |                     | 2-1/4          | SH7510225 |
|        | 7/8                 | SH832088       | 2-1/4     | SH3118225           | 3-1/4          | SH5013325  | 2-1/2               | SH7510250      |           |                     |                |           |
|        | 1                   | SH832100       | 2-1/2     | SH3118250           | 3-1/2          | SH5013350  | 2-3/4               | SH7510275      |           |                     |                |           |
|        | 1-1/4               | SH832125       | 2-3/4     | SH3118275           | 4              | SH5013400  | 3                   | SH7510300      |           |                     |                |           |
| 1-1/2  | SH832150            | 3              | SH3118300 | 4-1/2               | SH5013450      | 3-1/4      | SH7510325           |                |           |                     |                |           |
| #10-24 | 3/8                 | SH102438       | 3-1/4     | SH3118325           | 5              | SH5013500  | 3-1/2               | SH7510350      |           |                     |                |           |
|        | 1/2                 | SH102450       | 3-1/2     | SH3118350           | 5-1/2          | SH5013550  | 4                   | SH7510400      |           |                     |                |           |
|        | 5/8                 | SH102463       | 3/8-16    | 1/2                 | SH381650       | 5-3/4      | SH5013575           | 4-1/2          | SH7510450 |                     |                |           |
|        | 3/4                 | SH102475       |           | 5/8                 | SH381663       | 6          | SH5013600           | 5              | SH7510500 |                     |                |           |
|        | 7/8                 | SH102488       |           | 3/4                 | SH381675       | 6-1/2      | SH5013650           | 5-1/2          | SH7510550 |                     |                |           |
|        | 1                   | SH1024100      |           | 7/8                 | SH381688       | 7          | SH5013700           | 6              | SH7510600 |                     |                |           |
|        | 1-1/4               | SH1024125      |           | 1                   | SH3816100      | 8          | SH5013800           | 6-1/2          | SH7510650 |                     |                |           |
|        | 1-1/2               | SH1024150      |           | 1-1/4               | SH3816125      | 9          | SH5013900           | 7              | SH7510700 |                     |                |           |
|        | 1-3/4               | SH1024175      |           | 1-1/2               | SH3816150      | 10         | SH50131000          | 8              | SH7510800 |                     |                |           |
| 2      | SH1024200           | 1-3/4          |           | SH3816175           | 12             | SH50131200 | 10                  | SH75101000     |           |                     |                |           |
| 1/4-20 | 3/8                 | SH252038       |           | 2                   | SH3816200      | 5/8-11     | 1                   | SH6311100      | 1-8       | 12                  | SH75101200     |           |
|        | 1/2                 | SH252050       |           | 2-1/4               | SH3816225      |            | 1-1/4               | SH6311125      |           | 2                   | SH1008200      |           |
|        | 5/8                 | SH252063       | 2-1/2     | SH3816250           | 1-1/2          |            | SH6311150           | 2-1/2          |           | SH1008250           |                |           |
|        | 3/4                 | SH252075       | 2-3/4     | SH3816275           | 1-3/4          |            | SH6311175           | 3              |           | SH1008300           |                |           |
|        | 7/8                 | SH252088       | 3         | SH3816300           | 2              |            | SH6311200           | 3-1/2          |           | SH1008350           |                |           |
|        | 1                   | SH2520100      | 3-1/4     | SH3816325           | 2-1/4          |            | SH6311225           | 4              |           | SH1008400           |                |           |
|        | 1-1/4               | SH2520125      | 3-1/2     | SH3816350           | 2-1/2          |            | SH6311250           | 5              |           | SH1008500           |                |           |
|        | 1-1/2               | SH2520150      | 4         | SH3816400           | 2-3/4          |            | SH6311275           | 5-1/2          |           | SH1008550           |                |           |
|        | 1-3/4               | SH2520175      | 4-1/2     | SH3816450           | 3              |            | SH6311300           | 6              |           | SH1008600           |                |           |
|        | 2                   | SH2520200      | 5         | SH3816500           | 3-1/4          |            | SH6311325           | 6-1/2          |           | SH1008650           |                |           |
|        | 2-1/4               | SH2520225      | 6         | SH3816600           | 3-1/2          |            | SH6311350           | 7              |           | SH1008700           |                |           |
|        | 2-1/2               | SH2520250      | 1/2-13    | 1/2                 | SH501350       |            | 4                   | SH6311400      |           | 8                   | SH1008800      |           |



# Shoulder Screw



- 1" to 7" lengths
- Made from high-grade alloy steel
- 1/4" to 3/4" diameters
- Heat treated to 36 R/C minimum for greater strength



| Shoulder Diameter<br>G | Thread<br>D | Thread Length<br>E | Head Diameter<br>H     | Head Height<br>K       | Hex Hole Across Flats |
|------------------------|-------------|--------------------|------------------------|------------------------|-----------------------|
| 1/4                    | #10-24      | 3/8                | 3/8<br>+.000<br>-.018  | 3/16<br>+.000<br>-.006 | 1/8                   |
| 5/16                   | 1/4-20      | 7/16               | 7/16<br>+.000<br>-.019 | 7/32<br>+.000<br>-.006 | 5/32                  |
| 3/8                    | 5/16-18     | 1/2                | 9/16<br>+.000<br>-.019 | 1/4<br>+.000<br>-.006  | 1/8                   |
| 1/2                    | 3/8         | 5/8                | 3/4<br>+.000<br>-.021  | 5/16<br>+.000<br>-.006 | 1/4                   |
| 5/8                    | 1/2-13      | 3/4                | 7/8<br>+.000<br>-.022  | 3/8<br>+.000<br>-.007  | 5/16                  |
| 3/4                    | 5/8-11      | 7/8                | 1<br>+.000<br>-.023    | 1/2<br>+.000<br>-.008  | 3/8                   |

| Dia. G | Shoulder Length L | Catalog Number |
|--------|-------------------|----------------|
| 1/4    | 1                 | SB25100        |
|        | 1-1/4             | SB25125        |
|        | 1-1/2             | SB25150        |
| 5/16   | 1                 | SB31100        |
|        | 1-1/4             | SB31125        |
|        | 1-1/2             | SB31150        |
|        | 1-3/4             | SB31175        |
|        | 2                 | SB31200        |
| 3/8    | 1                 | SB38100        |
|        | 1-1/4             | SB38125        |
|        | 1-1/2             | SB38150        |
|        | 1-3/4             | SB38175        |
|        | 2                 | SB38200        |
|        | 2-1/4             | SB38225        |
|        | 2-1/2             | SB38250        |
|        | 2-3/4             | SB38275        |
|        | 3                 | SB38300        |
|        | 3-1/4             | SB38325        |
|        | 3-1/2             | SB38350        |
| 3-3/4  | SB38375           |                |
| 1/2    | 1                 | SB50100        |
|        | 1-1/4             | SB50125        |
|        | 1-1/2             | SB50150        |

| Dia. G | Shoulder Length L | Catalog Number |
|--------|-------------------|----------------|
| 1/2    | 1-3/4             | SB50175        |
|        | 2                 | SB50200        |
|        | 2-1/4             | SB50225        |
|        | 2-1/2             | SB50250        |
|        | 2-3/4             | SB50275        |
|        | 3                 | SB50300        |
|        | 3-1/4             | SB50325        |
|        | 3-1/2             | SB50350        |
|        | 3-3/4             | SB50375        |
|        | 4                 | SB50400        |
|        | 4-1/4             | SB50425        |
|        | 4-1/2             | SB50450        |
|        | 4-3/4             | SB50475        |
|        | 5                 | SB50500        |
| 5/8    | 1-1/4             | SB63125        |
|        | 1-1/2             | SB63150        |
|        | 1-3/4             | SB63175        |
|        | 2                 | SB63200        |
|        | 2-1/4             | SB63225        |
|        | 2-1/2             | SB63250        |
|        | 2-3/4             | SB63275        |
|        | 3                 | SB63300        |
| 3/4    | 3-1/4             | SB63325        |
|        | 3-1/2             | SB63350        |
|        | 3-3/4             | SB63375        |

| Dia. G | Shoulder Length L | Catalog Number |
|--------|-------------------|----------------|
| 5/8    | 4                 | SB63400        |
|        | 4-1/4             | SB63425        |
|        | 4-1/2             | SB63450        |
|        | 4-3/4             | SB63475        |
|        | 5                 | SB63500        |
|        | 5-1/2             | SB63550        |
| 3/4    | 6                 | SB63600        |
|        | 1-1/2             | SB75150        |
|        | 1-3/4             | SB75175        |
|        | 2                 | SB75200        |
|        | 2-1/4             | SB75225        |
|        | 2-1/2             | SB75250        |
|        | 2-3/4             | SB75275        |
|        | 3                 | SB75300        |
|        | 3-1/4             | SB75325        |
|        | 3-1/2             | SB75350        |
|        | 3-3/4             | SB75375        |
|        | 4                 | SB75400        |
|        | 4-1/4             | SB75425        |
|        | 4-1/2             | SB75450        |
| 4-3/4  | SB75475           |                |
| 5      | SB75500           |                |
| 5-1/2  | SB75550           |                |
| 6      | SB75600           |                |
| 7      | SB75700           |                |

## MOLD CLEANERS:



### Mold Cleaner Plus Degreaser 4 No. 46910

No chlorinated solvents. Removes silicones, grease, oil and wax build-up o mold surfaces without need for wiping.

### On / Cycle Mold Cleaner No. 44212

At the press warm mold cleaner. Use for multi-purpose cleaning as well as equipment cleaning.

### Next Gen Cleaner No. 46410

Powerful, biodegradable cleaner Meets or exceeds the toughest health and safety issues, CLEANING POWER.

### Resin Remover Mold Cleaner No. 41914

Powerful solvents to remove resin build-up and most color deposits of many resinous plastics.

### Citra Cling Mold & Metal Cleaner No. 46515

Foaming cleaner is a superior clinging action allows for maximum cleaning. Water-based cleaner

### Plastic Cleaner with FOAM action No. 41515

Foaming spray to effectively remove oil and dirt marks from all plastics, even sensitive polycarbonates.

### Mold & Metal Wipes No. 46370

Fast, convenient, cleaning towels quickly clean almost any surface\*. Use for preparing molds for production.

### Polish Mold Cleaner Compound No. 43310

Polish cleaner removes stains and mold deposits. Conditions mold for faster startups and improved releasing.

## RUST PREVENTIVES



### Mold Shield Dry Rust Preventive No. 42910

New ultra-dry formula delivers which will not penetrate into moving parts. Non-silicone and non-wax formulation.

### Acid Vapor Neutralizer Inhibitor No. 44011

Formulated to protect plastic molding dies while in storage from corrosive attack by hydrochloric and hydrobromic acids.

### NO-Rust Preventive & Inhibitor No. 40212

The one-step rust preventive that contains both neutralizer and rust preventive. Ideal for plastic mold protection.

### Quick Rust Preventive whit Red No. 42810R

Dry formula makes oils stay where they are sprayed RED tracking color Fast clean up. Two years protection.

## LUBRICANTS



### Silicon Spray Lube No. 42112N

Silicone lubricant. An all-around general purpose lubricant for use on all kinds of machinery.

### Heavy-Duty Release & Pin Lube No. 54912

An ideal lubricant for the front half of ejector pins, lubricant minimizes the possibility of leaching out onto molded parts.

### Penetrant Plus & Lubricant No. 41812

Non-silicone PTFE-base formulation penetrates and frees frozen parts. Lifts and replaces moisture with protective film.

### Super Grease Lubricant No. 43310

Lubricant grease with operating temperatures from -45F to +650F. Clear, clean, non-yellowing grease. Excellent dielectric.



MOLD RELEASES



**Econo-MIST Silicon Mold Release No. 41612N**

A light-duty mold release. NSF M1 designated Food Grade Lubricant. Is non-staining and odorless. Recognized by UL.

**Quick Lecithin Mold Release No. 44812E**

A medium-duty, non-silicone, paintable, all-temperature lecithin mold release agent that's fast-drying on cold and hot molds.

**Polycarbonate Mold Release No. 41412**

A heavy-duty, paintable mold release agent. Biodegradable & odorless. No crazing or blemishing. Recognized by UL.

**Quick Paintable Mold release No. 44712E**

A medium-duty, all-temperature paintable mold release agent that's fast-drying on cold and hot molds.

**Silicone Mold Release Agent No. 40112N**

A heavy-duty, agent that provides faster molding & more production. Approved for food machinery(++). Heat-stable.

**Pure EZE Mold Release Agent No. 41212N**

A non-silicone, paintable, all-purpose mold release agent. Neutral white-oil-based release contains no lecithin.

**Universal Mold release No. 42612H**

A heavy-duty, non-silicone, paintable mold release. FDA approved lubricant. Colorless.

**Zinc Stearate Release Powder No. 41012N**

A non-silicone, paintable mold release agent. Lubricant powder. For polysulfones and rubber molding and more.

**Thermoset Mold Release Agent No. 45414**

Mold release agent made with synthetic carnauba wax. Contains no silicones or oils.

**Dry Film Lube Release Agent No. 41112N**

Mold release agent formulated for deep draw molds. More durable bonded formulation.

**Paintable Mold Release No. 41012N**

A light-duty, paintable mold release agent permits post-production part decoration. Paint over it. Plate over it.

**Hi-Temp 1800 Release No. 41012N**

Contains boron nitride for molding at temperatures up to 1800F. Excellent for die-casting metals.

PURGING



**NPT Purging Compound No. 451-05**

Purging compound requires no mixing or preparation time. Shortens purge cycle time. Eliminates need for multiple purging products. Removes all traces of barrel residue.

**P.D.Q. Liquid Compound No. 43432**

Liquid purging compound works with carrier for effective resin to resin and color to color changes. Purge quickly at a fraction of the cost of conventional purges.

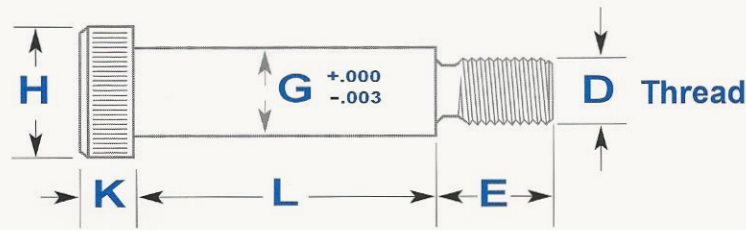
**Charge It Re-chargeable Can No. 43600**

Refillable, rechargeable tank can be filled with liquid product and charged with compressed air.

# Shoulder Screw



- 1" to 7" lengths
- Made from high-grade alloy steel
- 1/4" to 3/4" diameters
- Heat treated to 36 R/C minimum for greater strength



| Shoulder Diameter<br>G | Thread<br>D | Thread Length<br>E | Head Diameter<br>H     | Head Height<br>K       | Hex Hole Across Flats |
|------------------------|-------------|--------------------|------------------------|------------------------|-----------------------|
| 1/4                    | #10-24      | 3/8                | 3/8<br>+.000<br>-.018  | 3/16<br>+.000<br>-.006 | 1/8                   |
| 5/16                   | 1/4-20      | 7/16               | 7/16<br>+.000<br>-.019 | 7/32<br>+.000<br>-.006 | 5/32                  |
| 3/8                    | 5/16-18     | 1/2                | 9/16<br>+.000<br>-.019 | 1/4<br>+.000<br>-.006  | 1/8                   |
| 1/2                    | 3/8         | 5/8                | 3/4<br>+.000<br>-.021  | 5/16<br>+.000<br>-.006 | 1/4                   |
| 5/8                    | 1/2-13      | 3/4                | 7/8<br>+.000<br>-.022  | 3/8<br>+.000<br>-.007  | 5/16                  |
| 3/4                    | 5/8-11      | 7/8                | 1<br>+.000<br>-.023    | 1/2<br>+.000<br>-.008  | 3/8                   |

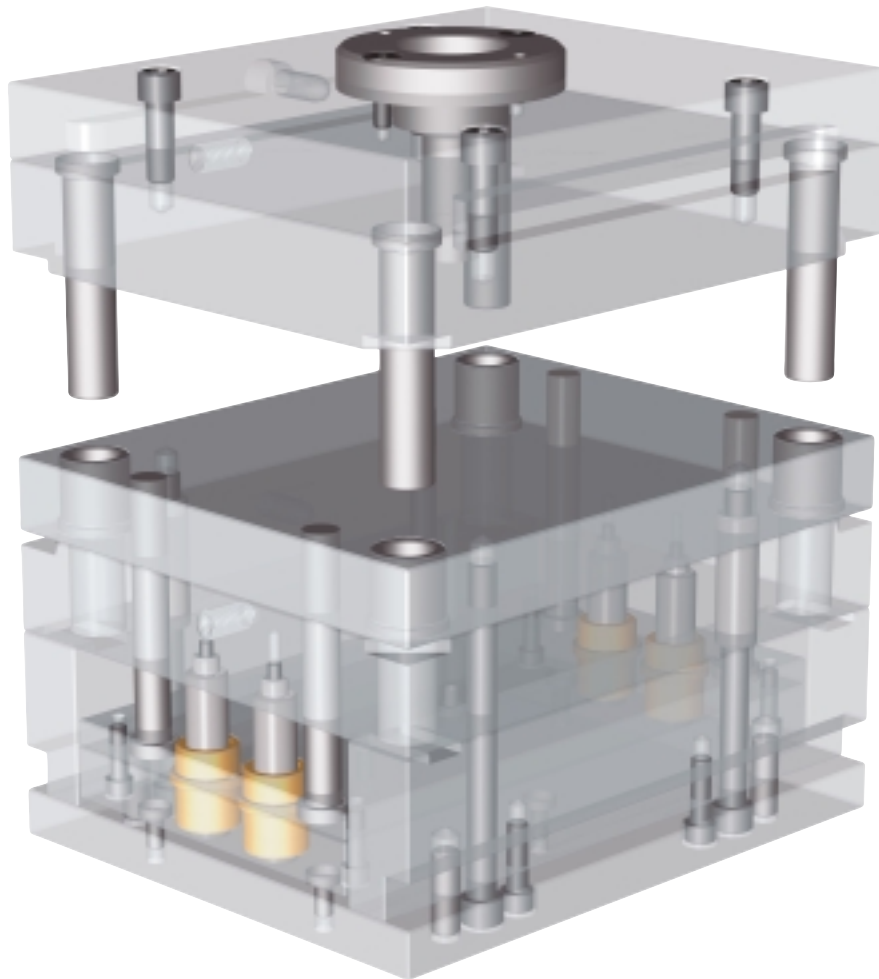
| Dia.<br>G | Shoulder Length<br>L | Catalog Number |
|-----------|----------------------|----------------|
| 1/4       | 1                    | SB25100        |
|           | 1-1/4                | SB25125        |
|           | 1-1/2                | SB25150        |
| 5/16      | 1                    | SB31100        |
|           | 1-1/4                | SB31125        |
|           | 1-1/2                | SB31150        |
|           | 1-3/4                | SB31175        |
|           | 2                    | SB31200        |
| 3/8       | 1                    | SB38100        |
|           | 1-1/4                | SB38125        |
|           | 1-1/2                | SB38150        |
|           | 1-3/4                | SB38175        |
|           | 2                    | SB38200        |
|           | 2-1/4                | SB38225        |
|           | 2-1/2                | SB38250        |
|           | 2-3/4                | SB38275        |
|           | 3                    | SB38300        |
|           | 3-1/4                | SB38325        |
|           | 3-1/2                | SB38350        |
| 3-3/4     | SB38375              |                |
| 1/2       | 1                    | SB50100        |
|           | 1-1/4                | SB50125        |
|           | 1-1/2                | SB50150        |

| Dia.<br>G | Shoulder Length<br>L | Catalog Number |
|-----------|----------------------|----------------|
| 1/2       | 1-3/4                | SB50175        |
|           | 2                    | SB50200        |
|           | 2-1/4                | SB50225        |
|           | 2-1/2                | SB50250        |
|           | 2-3/4                | SB50275        |
|           | 3                    | SB50300        |
|           | 3-1/4                | SB50325        |
|           | 3-1/2                | SB50350        |
|           | 3-3/4                | SB50375        |
|           | 4                    | SB50400        |
|           | 4-1/4                | SB50425        |
|           | 4-1/2                | SB50450        |
|           | 4-3/4                | SB50475        |
|           | 5                    | SB50500        |
| 5/8       | 1-1/4                | SB63125        |
|           | 1-1/2                | SB63150        |
|           | 1-3/4                | SB63175        |
|           | 2                    | SB63200        |
|           | 2-1/4                | SB63225        |
|           | 2-1/2                | SB63250        |
|           | 2-3/4                | SB63275        |
|           | 3                    | SB63300        |
| 3/4       | 3-1/4                | SB63325        |
|           | 3-1/2                | SB63350        |
|           | 3-3/4                | SB63375        |

| Dia.<br>G | Shoulder Length<br>L | Catalog Number |
|-----------|----------------------|----------------|
| 5/8       | 4                    | SB63400        |
|           | 4-1/4                | SB63425        |
|           | 4-1/2                | SB63450        |
|           | 4-3/4                | SB63475        |
|           | 5                    | SB63500        |
|           | 5-1/2                | SB63550        |
| 3/4       | 6                    | SB63600        |
|           | 1-1/2                | SB75150        |
|           | 1-3/4                | SB75175        |
|           | 2                    | SB75200        |
|           | 2-1/4                | SB75225        |
|           | 2-1/2                | SB75250        |
|           | 2-3/4                | SB75275        |
|           | 3                    | SB75300        |
|           | 3-1/4                | SB75325        |
|           | 3-1/2                | SB75350        |
|           | 3-3/4                | SB75375        |
|           | 4                    | SB75400        |
|           | 4-1/4                | SB75425        |
|           | 4-1/2                | SB75450        |
| 4-3/4     | SB75475              |                |
| 5         | SB75500              |                |
| 5-1/2     | SB75550              |                |
| 6         | SB75600              |                |
| 7         | SB75700              |                |

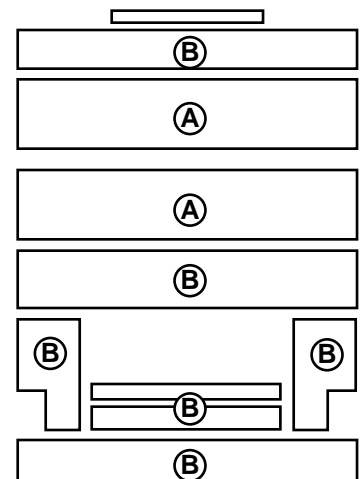


## *E-Series* MOLD BASES



### Features of the E-Series Mold Bases

- #3 Steel A & B plates for maximum strength and stability plus optimum polishing and texturing.
- Pry slots between A and B plates and between B plate and Support Plate.
- Vented leader pins.
- Eyebolt locations in Top Clamp Plate and Support Plate allow E-Bases to be lifted in two orientations.
- Supplied with the DMS standard SSP guided ejection system ensuring accuracy and extra support.
- “SB” series solid aluminum bronze guided ejector bushings.
- Return pin locations to industry standards.
- Machined for sprue puller pin, except in B plate.



(A) AISI : P20

(B) AISI : 1040

## E-Series MOLD BASES

| A | B | C | H | CATALOG # |
|---|---|---|---|-----------|
|---|---|---|---|-----------|

### 7-7/8 x 7-7/8

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 7/8   | 7/8   | 2-1/2 | 7-7/8  | E-0808-0707 |
|       | 1-3/8 | 2-1/2 | 8-3/8  | E-0808-0713 |
|       | 1-7/8 | 2-1/2 | 8-7/8  | E-0808-0717 |
|       | 2-3/8 | 2-1/2 | 9-3/8  | E-0808-0723 |
|       | 2-7/8 | 3     | 10-3/8 | E-0808-0727 |
| 1-3/8 | 7/8   | 2-1/2 | 8-3/8  | E-0808-1307 |
|       | 1-3/8 | 2-1/2 | 8-7/8  | E-0808-1313 |
|       | 1-7/8 | 2-1/2 | 9-3/8  | E-0808-1317 |
|       | 2-3/8 | 3     | 10-3/8 | E-0808-1323 |
|       | 2-7/8 | 3     | 10-7/8 | E-0808-1327 |
| 1-7/8 | 7/8   | 2-1/2 | 8-7/8  | E-0808-1707 |
|       | 1-3/8 | 2-1/2 | 9-3/8  | E-0808-1713 |
|       | 1-7/8 | 2-1/2 | 9-7/8  | E-0808-1717 |
|       | 2-3/8 | 3     | 10-7/8 | E-0808-1723 |
|       | 2-7/8 | 3-1/2 | 11-7/8 | E-0808-1727 |
| 2-3/8 | 7/8   | 2-1/2 | 9-3/8  | E-0808-2307 |
|       | 1-3/8 | 2-1/2 | 9-7/8  | E-0808-2313 |
|       | 1-7/8 | 2-1/2 | 10-3/8 | E-0808-2317 |
|       | 2-3/8 | 3     | 11-3/8 | E-0808-2323 |
|       | 2-7/8 | 3-1/2 | 12-3/8 | E-0808-2327 |
| 2-7/8 | 7/8   | 3     | 10-3/8 | E-0808-2707 |
|       | 1-3/8 | 3     | 10-7/8 | E-0808-2713 |
|       | 1-7/8 | 3-1/2 | 11-7/8 | E-0808-2717 |
|       | 2-3/8 | 3-1/2 | 12-3/8 | E-0808-2723 |
|       | 2-7/8 | 4     | 13-3/8 | E-0808-2727 |

### 7-7/8 x 11-7/8

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 7/8   | 7/8   | 2-1/2 | 7-7/8  | E-0812-0707 |
|       | 1-3/8 | 3     | 8-7/8  | E-0812-0713 |
|       | 1-7/8 | 3     | 9-3/8  | E-0812-0717 |
|       | 2-3/8 | 3-1/2 | 10-3/8 | E-0812-0723 |
|       | 2-7/8 | 3-1/2 | 10-7/8 | E-0812-0727 |
| 1-3/8 | 7/8   | 2-1/2 | 8-3/8  | E-0812-1307 |
|       | 1-3/8 | 3     | 9-3/8  | E-0812-1313 |
|       | 1-7/8 | 3     | 9-7/8  | E-0812-1317 |
|       | 2-3/8 | 3-1/2 | 10-7/8 | E-0812-1323 |
|       | 2-7/8 | 3-1/2 | 10-7/8 | E-0812-1327 |
| 1-7/8 | 7/8   | 2-1/2 | 8-7/8  | E-0812-1707 |
|       | 1-3/8 | 3     | 9-7/8  | E-0812-1713 |
|       | 1-7/8 | 3-1/2 | 10-7/8 | E-0812-1717 |
|       | 2-3/8 | 3-1/2 | 11-3/8 | E-0812-1723 |
|       | 2-7/8 | 3-1/2 | 11-7/8 | E-0812-1727 |
| 2-3/8 | 7/8   | 3     | 9-7/8  | E-0812-2307 |
|       | 1-3/8 | 3     | 10-3/8 | E-0812-2313 |
|       | 1-7/8 | 3-1/2 | 11-3/8 | E-0812-2317 |
|       | 2-3/8 | 3-1/2 | 11-7/8 | E-0812-2323 |
|       | 2-7/8 | 3-1/2 | 11-7/8 | E-0812-2327 |

### 9-7/8 x 8

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 7/8   | 1-3/8 | 2-1/2 | 8-3/8  | E-1008-0713 |
|       | 1-7/8 | 2-1/2 | 8-7/8  | E-1008-0717 |
| 1-3/8 | 1-3/8 | 2-1/2 | 9-3/8  | E-1008-1313 |
|       | 1-7/8 | 3     | 10-3/8 | E-1008-1317 |
| 1-7/8 | 1-7/8 | 3-1/2 | 11-3/8 | E-1008-1717 |

### 9-7/8 x 11-7/8

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 7/8   | 1-3/8 | 3     | 9-3/8  | E-1012-0713 |
|       | 1-7/8 | 3     | 9-7/8  | E-1012-0717 |
|       | 2-3/8 | 3-1/2 | 10-7/8 | E-1012-0723 |
| 1-3/8 | 1-3/8 | 3     | 9-7/8  | E-1012-1313 |
|       | 1-7/8 | 3     | 10-3/8 | E-1012-1317 |
|       | 2-3/8 | 3-1/2 | 11-3/8 | E-1012-1323 |
| 1-7/8 | 1-7/8 | 3-1/2 | 11-3/8 | E-1012-1717 |
|       | 2-3/8 | 3-1/2 | 11-7/8 | E-1012-1723 |
| 2-3/8 | 2-3/8 | 3-1/2 | 12-3/8 | E-1012-2323 |

| A | B | C | H | CATALOG # |
|---|---|---|---|-----------|
|---|---|---|---|-----------|

### 9-7/8 x 16

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 1-3/8 | 1-3/8 | 3     | 9-7/8  | E-1016-1313 |
|       | 1-7/8 | 3     | 10-3/8 | E-1016-1317 |
|       | 2-3/8 | 3-1/2 | 11-3/8 | E-1016-1323 |
| 1-7/8 | 1-3/8 | 3     | 10-3/8 | E-1016-1713 |
|       | 1-7/8 | 3-1/2 | 11-3/8 | E-1016-1717 |
| 2-3/8 | 2-3/8 | 3-1/2 | 11-7/8 | E-1016-1723 |
|       | 1-3/8 | 3     | 10-7/8 | E-1016-2313 |
|       | 1-7/8 | 3-1/2 | 11-7/8 | E-1016-2317 |
| 2-3/8 | 2-3/8 | 3-1/2 | 12-3/8 | E-1016-2323 |

### 10-7/8 x 12

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 1-3/8 | 1-7/8 | 3     | 10-3/8 | E-1112-1317 |
|       | 2-3/8 | 3-1/2 | 11-3/8 | E-1112-1323 |
| 1-7/8 | 1-7/8 | 3-1/2 | 11-3/8 | E-1112-1717 |
|       | 2-3/8 | 3-1/2 | 11-7/8 | E-1112-1723 |

### 10-7/8 x 14

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 1-3/8 | 1-7/8 | 3     | 10-3/8 | E-1114-1317 |
|       | 2-3/8 | 3-1/2 | 11-3/8 | E-1114-1323 |
| 1-7/8 | 1-7/8 | 3-1/2 | 11-3/8 | E-1114-1717 |
|       | 2-3/8 | 3-1/2 | 11-7/8 | E-1114-1723 |
| 2-3/8 | 1-7/8 | 3-1/2 | 11-7/8 | E-1114-2317 |
|       | 2-3/8 | 3-1/2 | 12-3/8 | E-1114-2323 |

### 11-7/8 x 12

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 1-3/8 | 1-3/8 | 3     | 9-7/8  | E-1212-1313 |
|       | 1-7/8 | 3     | 10-3/8 | E-1212-1317 |
|       | 2-3/8 | 3-1/2 | 11-3/8 | E-1212-1323 |
| 1-7/8 | 1-3/8 | 3     | 10-3/8 | E-1212-1713 |
|       | 1-7/8 | 3     | 10-7/8 | E-1212-1717 |
|       | 2-3/8 | 3-1/2 | 11-7/8 | E-1212-1723 |
| 2-3/8 | 1-3/8 | 3-1/2 | 11-3/8 | E-1212-2313 |
|       | 1-7/8 | 3-1/2 | 11-7/8 | E-1212-2317 |
|       | 2-3/8 | 3-1/2 | 12-3/8 | E-1212-2323 |

### 11-7/8 x 15

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 1-3/8 | 1-7/8 | 3     | 10-3/8 | E-1215-1317 |
|       | 2-3/8 | 3-1/2 | 11-3/8 | E-1215-1323 |
| 1-7/8 | 1-7/8 | 3     | 10-7/8 | E-1215-1717 |
|       | 2-3/8 | 3-1/2 | 11-7/8 | E-1215-1723 |
| 2-3/8 | 1-7/8 | 3-1/2 | 11-7/8 | E-1215-2317 |
|       | 2-3/8 | 3-1/2 | 12-3/8 | E-1215-2323 |

### 13-3/8 x 15

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 1-3/8 | 1-7/8 | 3     | 10-3/8 | E-1315-1317 |
|       | 2-3/8 | 3-1/2 | 11-3/8 | E-1315-1323 |
| 1-7/8 | 1-7/8 | 3     | 10-7/8 | E-1315-1717 |
|       | 2-3/8 | 3-1/2 | 11-7/8 | E-1315-1723 |
| 2-3/8 | 1-7/8 | 3-1/2 | 11-7/8 | E-1315-2317 |
|       | 2-3/8 | 3-1/2 | 12-3/8 | E-1315-2323 |

### 13-3/8 x 18

|       |       |       |        |             |
|-------|-------|-------|--------|-------------|
| 1-7/8 | 1-7/8 | 3     | 10-7/8 | E-1318-1717 |
|       | 2-3/8 | 3-1/2 | 11-7/8 | E-1318-1723 |
| 2-3/8 | 1-7/8 | 3-1/2 | 11-7/8 | E-1318-2317 |
|       | 2-3/8 | 3-1/2 | 12-3/8 | E-1318-2323 |

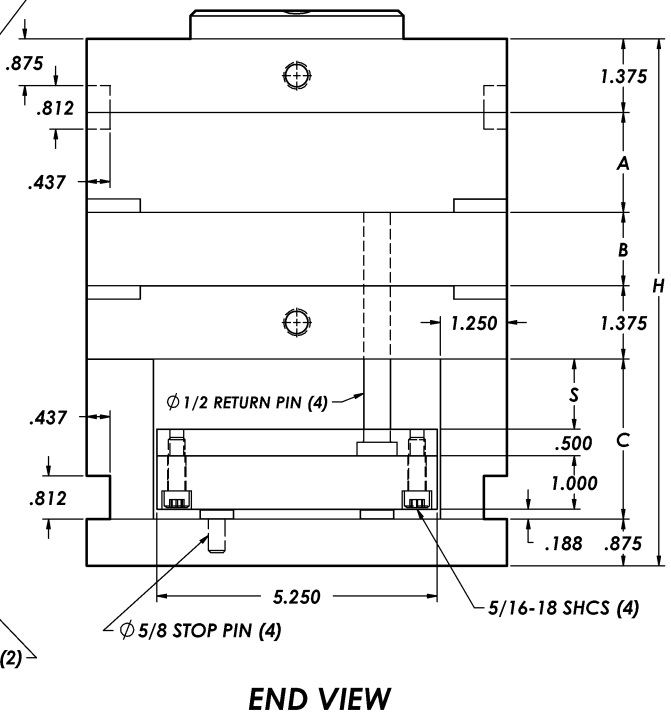
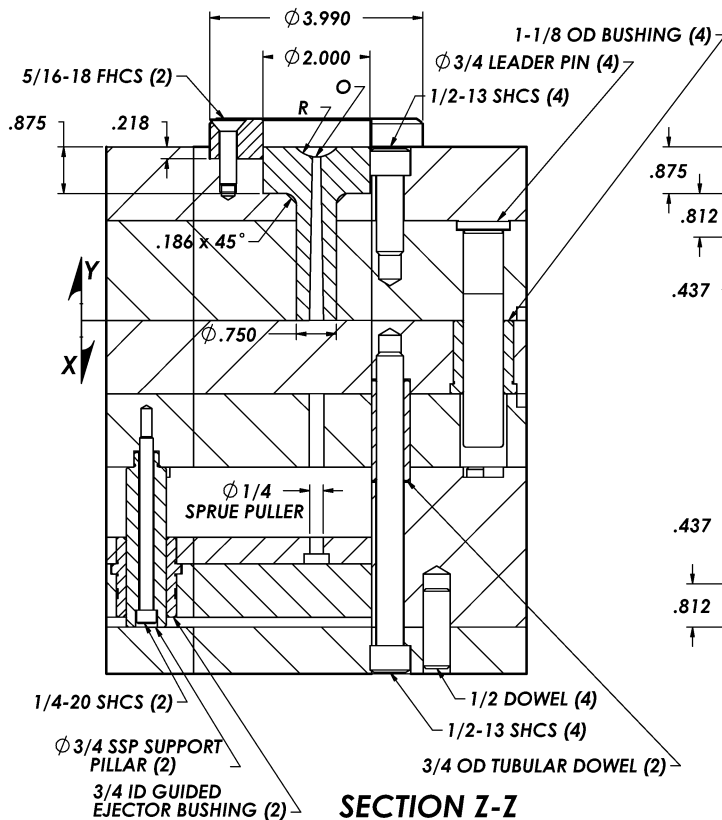
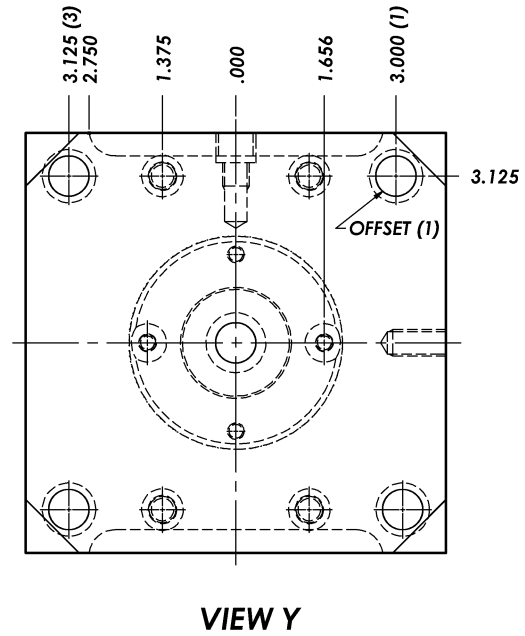
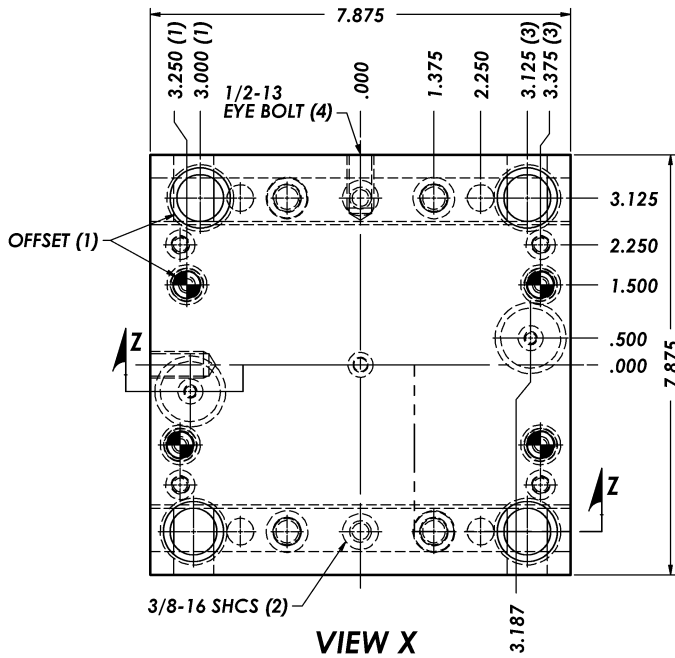
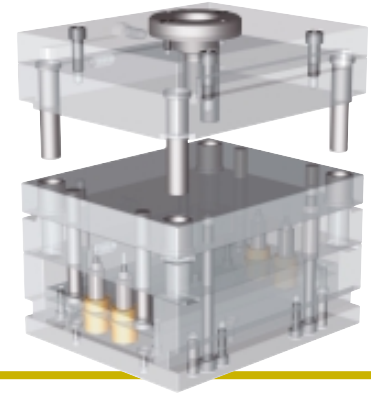
## E-Series MOLD BASES

When ordering specify the following:

- Catalog number: **E0808**
- **A** plate thickness
- **B** plate thickness
- **O** sprue bushing orifice
- **R** sprue bushing radius
- Locating ring LR501 or LR504

# 7<sup>7</sup>/<sub>8</sub> x 7<sup>7</sup>/<sub>8</sub>

Example: E-0808-0707 O=5/32 R=1/2



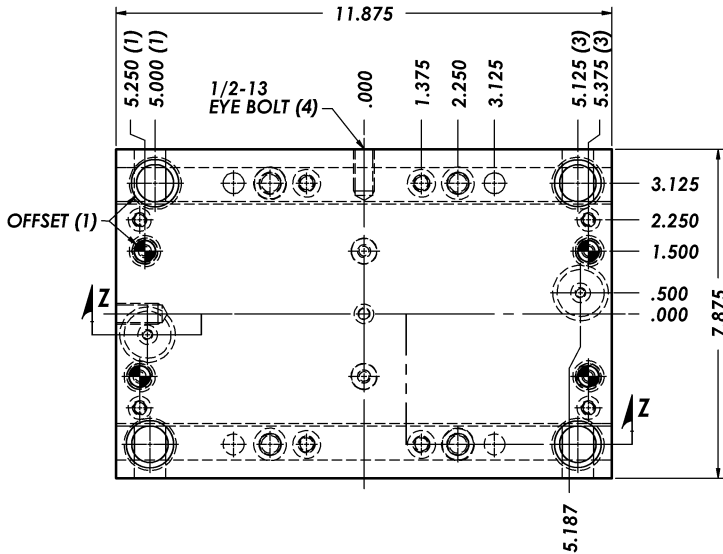
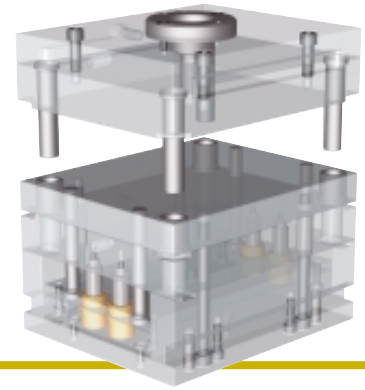
## E-Series MOLD BASES

When ordering specify the following:

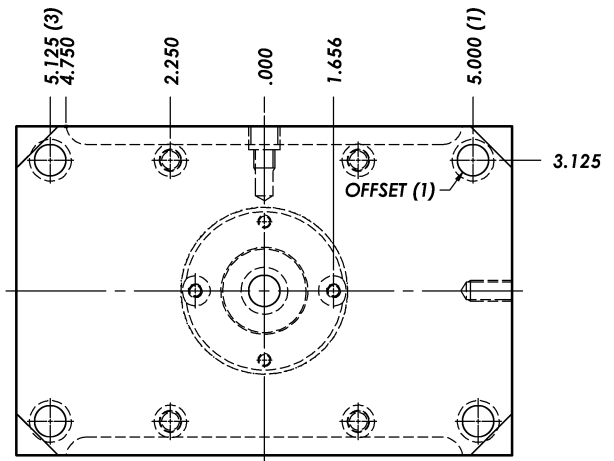
- Catalog number: **E0812**
- A plate thickness
- B plate thickness
- O sprue bushing orifice
- R sprue bushing radius
- Locating ring LR501 or LR504

# 7<sup>7</sup>/<sub>8</sub> x 11<sup>7</sup>/<sub>8</sub>

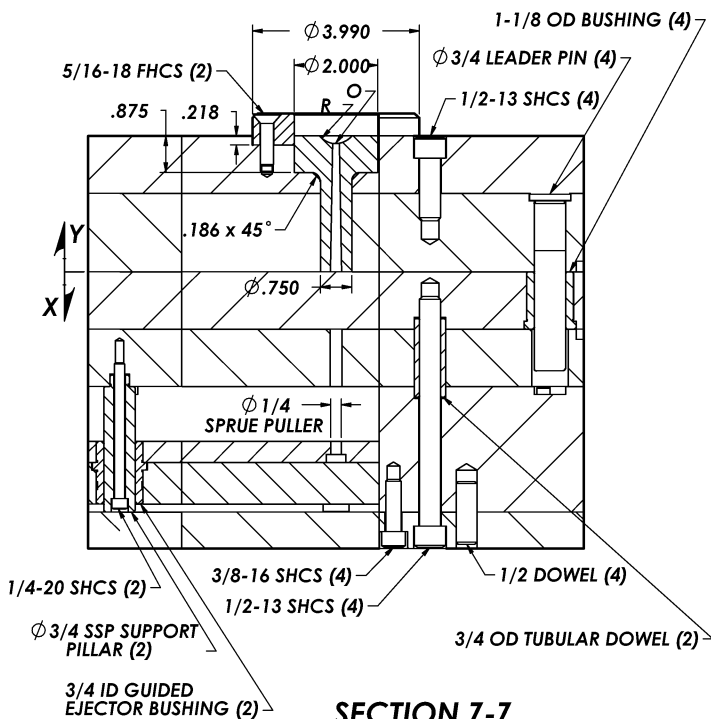
Example: E-0812-0707 O=5/32 R=1/2



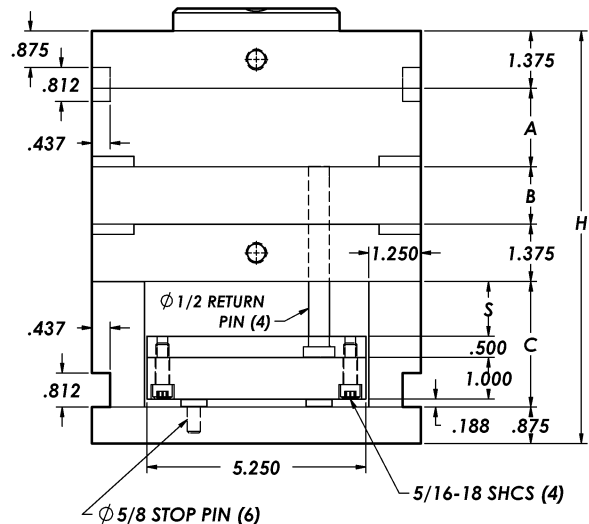
VIEW X



VIEW Y



SECTION Z-Z



END VIEW



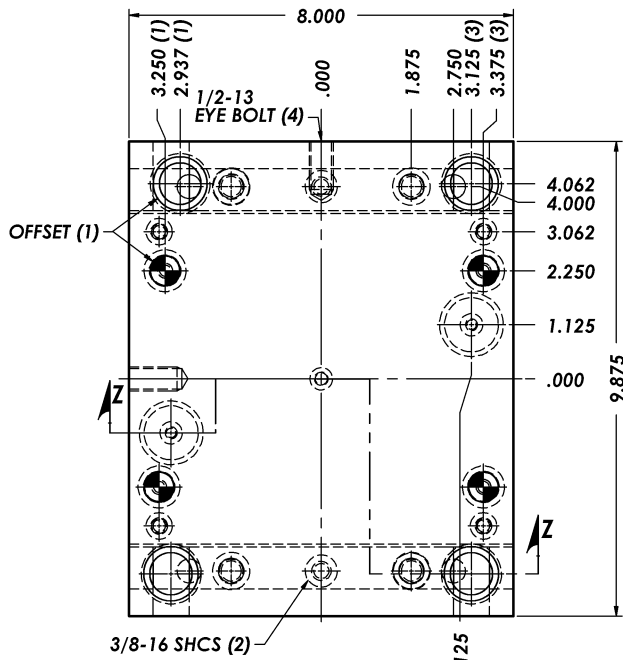
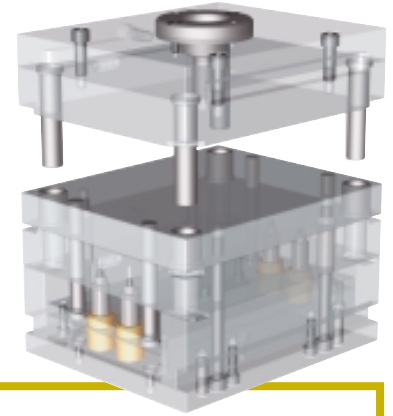
## E-Series MOLD BASES

When ordering specify the following:

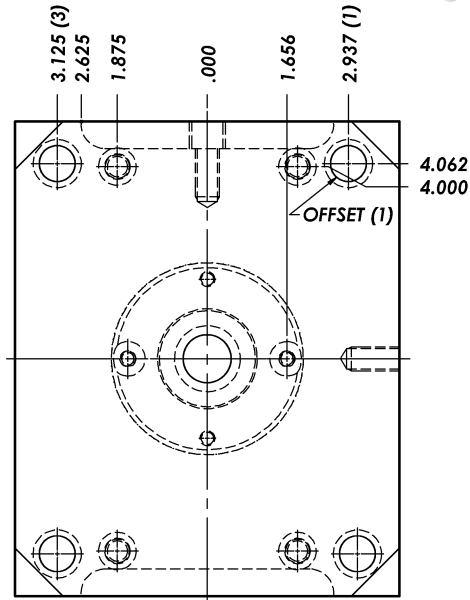
- Catalog number: **E1008**
- **A** plate thickness
- **B** plate thickness
- **O** sprue bushing orifice
- **R** sprue bushing radius
- Locating ring LR501 or LR504

# 9<sup>7</sup>/<sub>8</sub> x 8

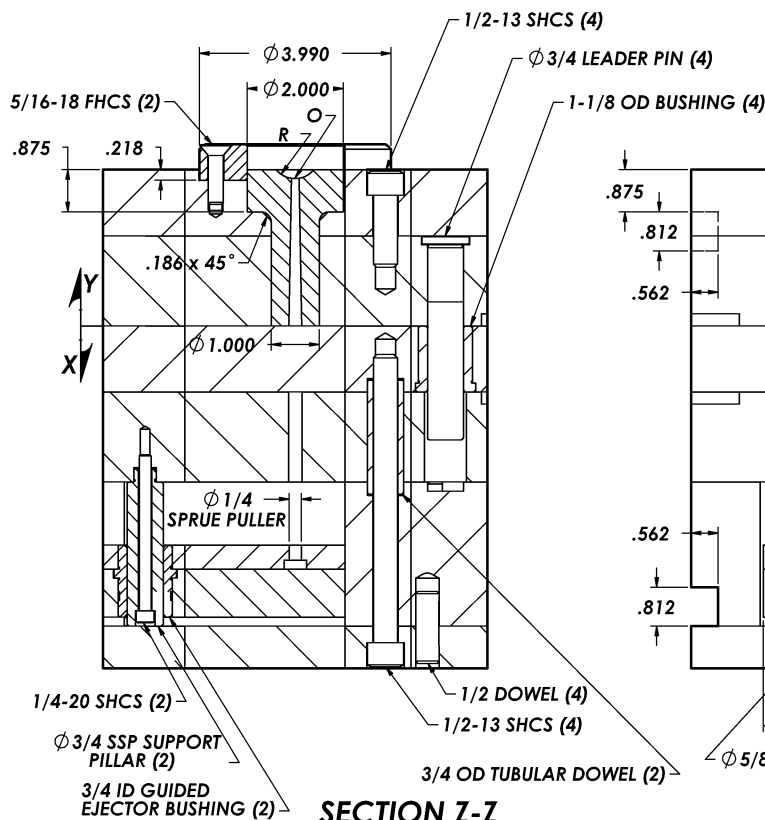
Example: E-1008-1313 O=7/32 R=1/2



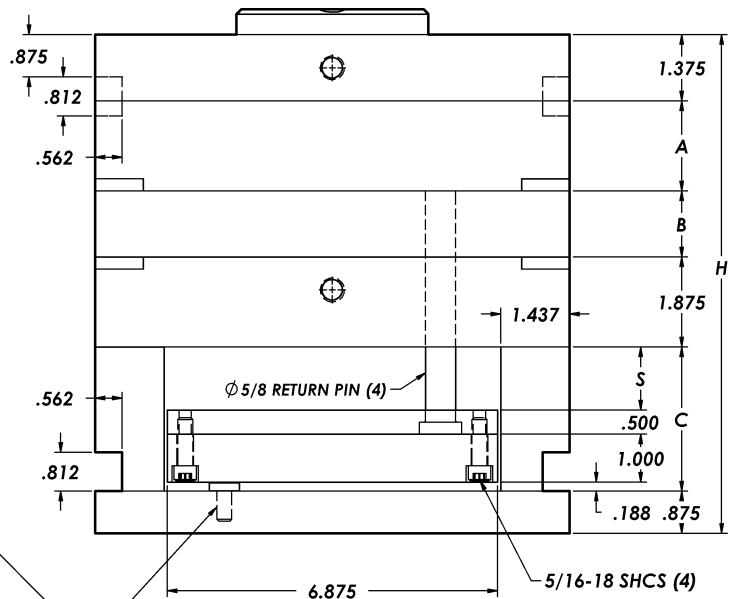
**VIEW X**



**VIEW Y**



**SECTION Z-Z**



**END VIEW**

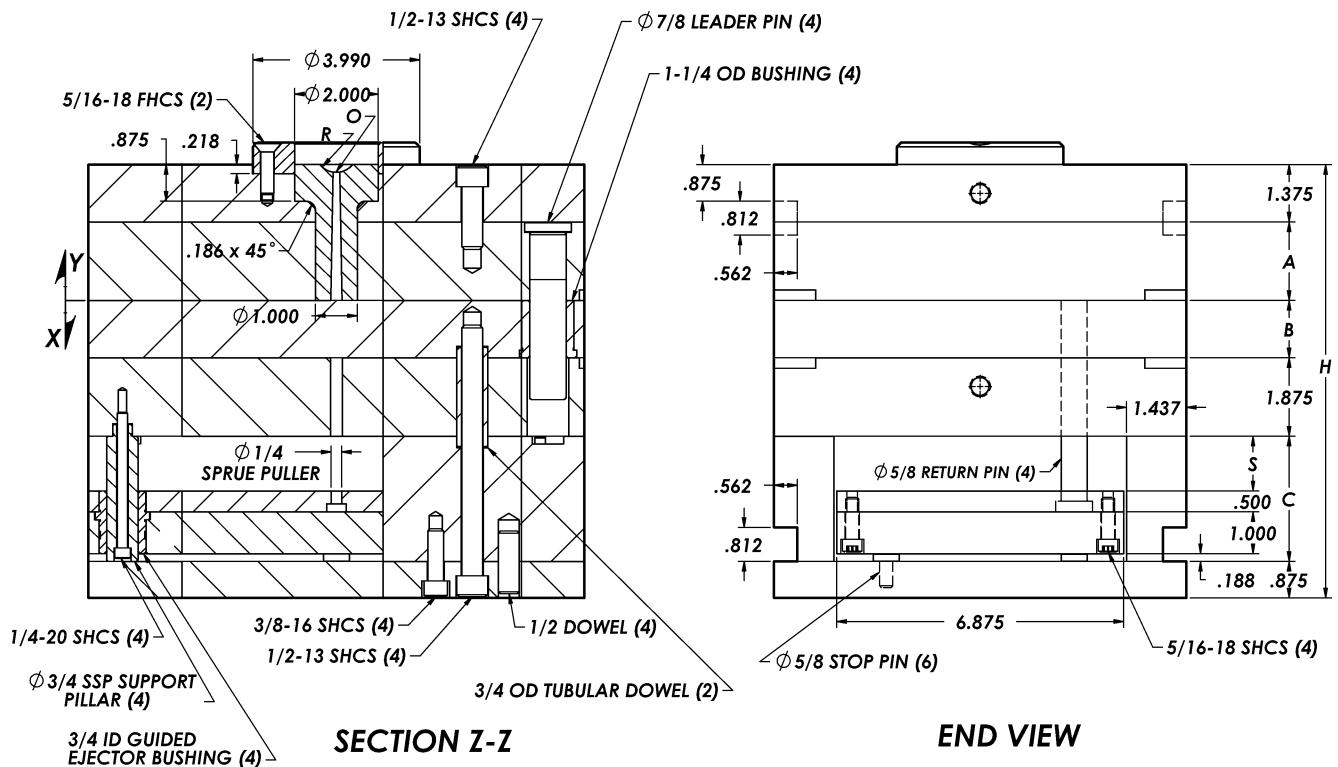
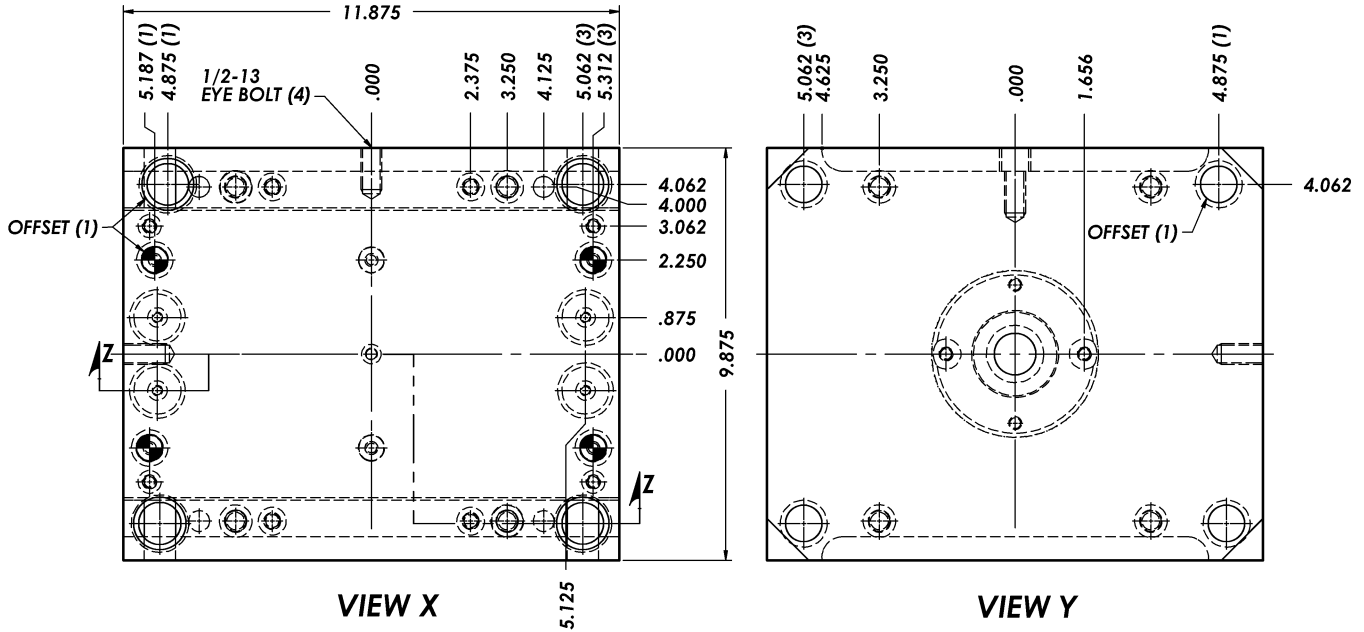
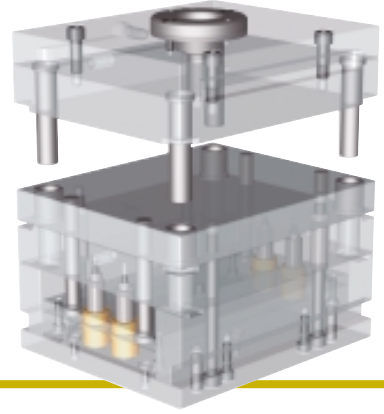
## E-Series MOLD BASES

When ordering specify the following:

- Catalog number: **E1012**
- **A** plate thickness
- **B** plate thickness
- **O** sprue bushing orifice
- **R** sprue bushing radius
- Locating ring LR501 or LR504

# 9<sup>7</sup>/<sub>8</sub> x 11<sup>7</sup>/<sub>8</sub>

Example: E-1012-1313 O=7/32 R=1/2



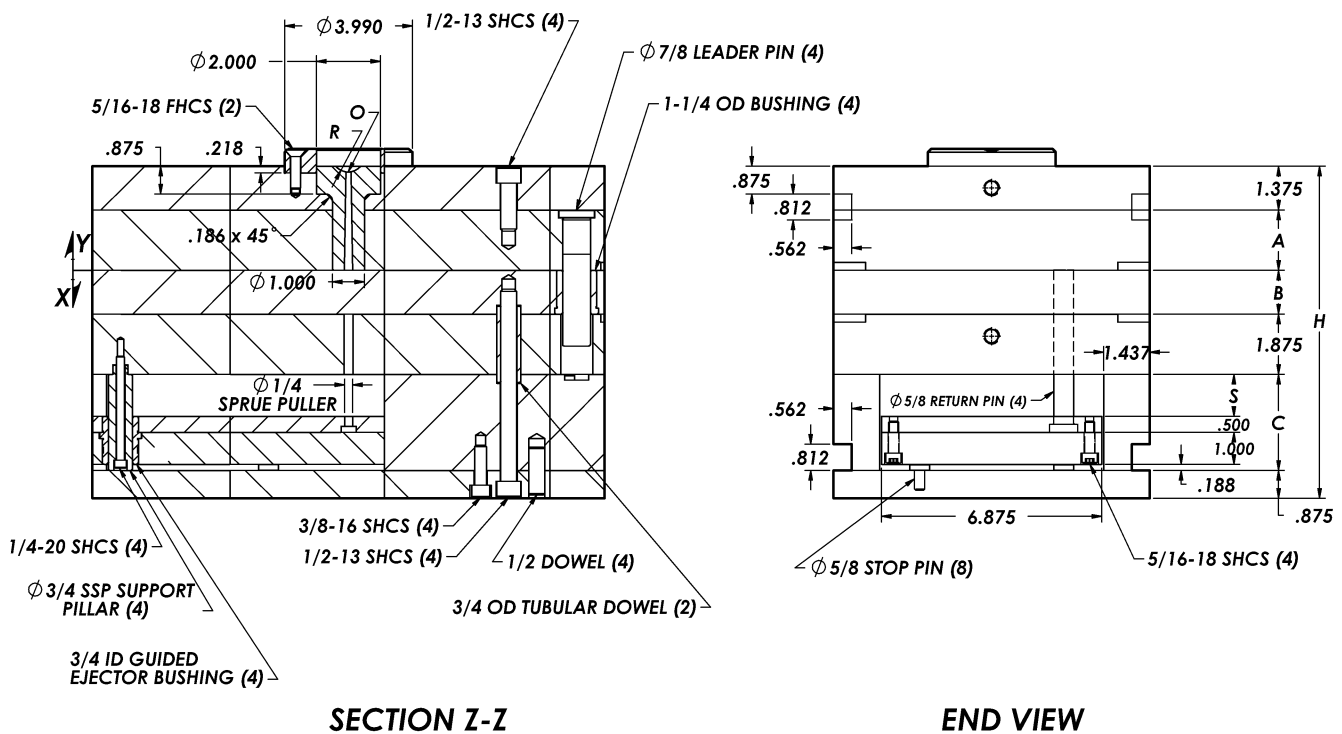
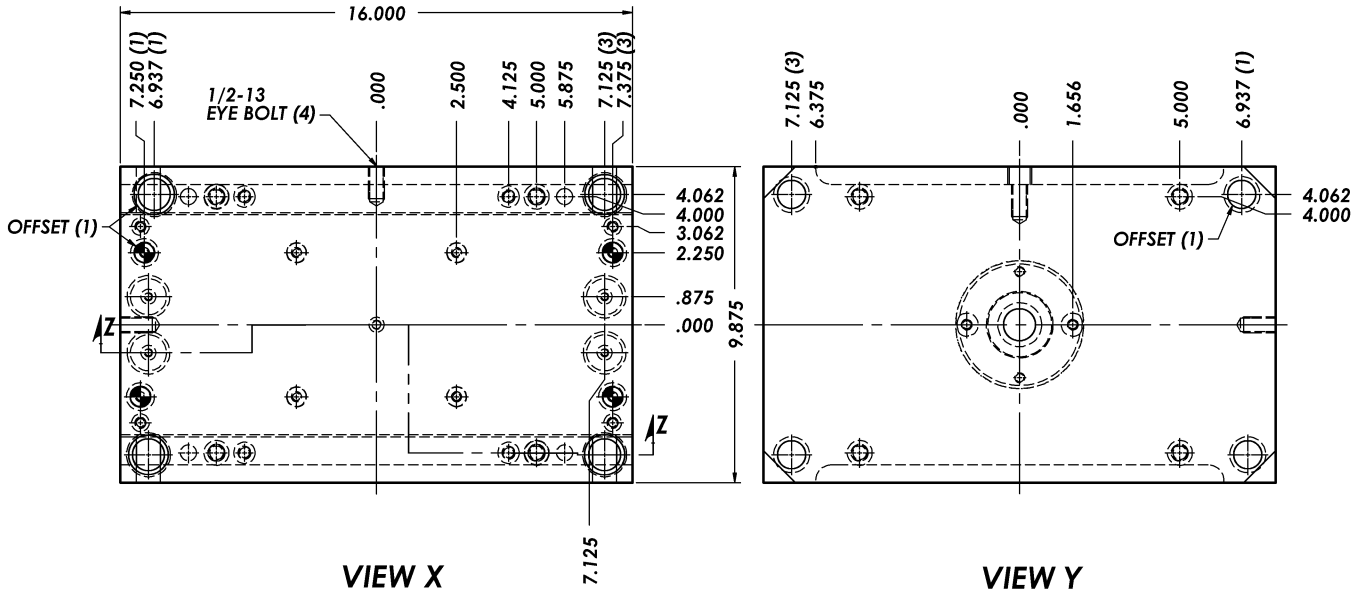
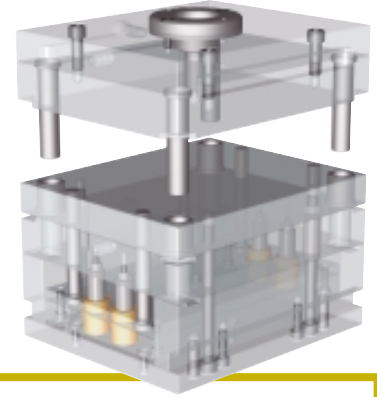
## E-Series MOLD BASES

When ordering specify the following:

- Catalog number: **E1016**
- **A** plate thickness
- **B** plate thickness
- **O** sprue bushing orifice
- **R** sprue bushing radius
- Locating ring LR501 or LR504

# 9<sup>7</sup>/<sub>8</sub> x 16

Example: E-1016-1313 O=7/32 R=1/2



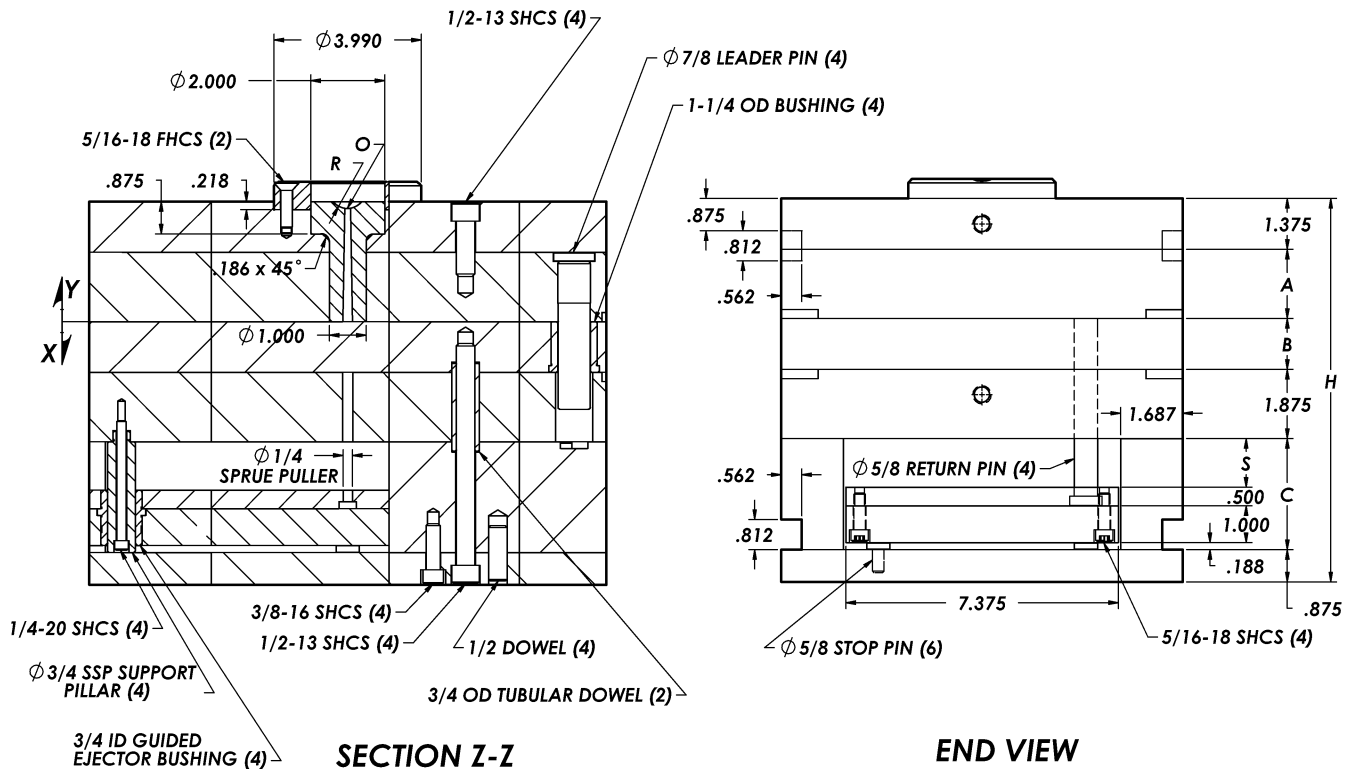
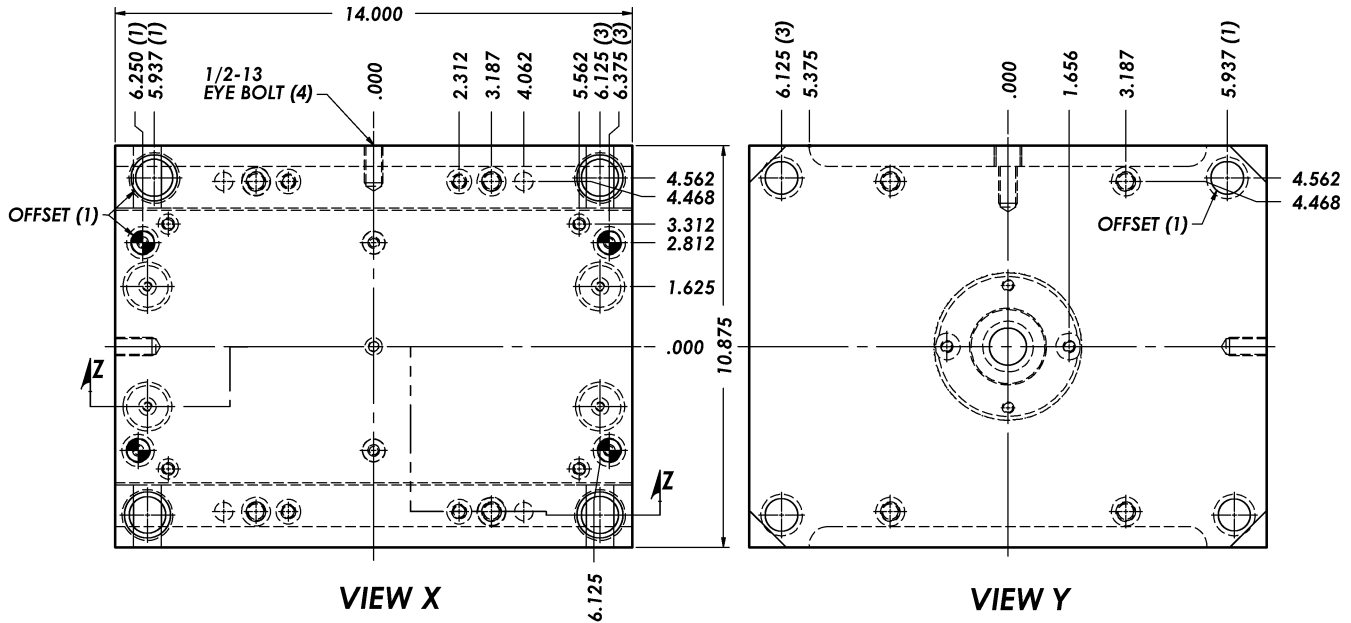
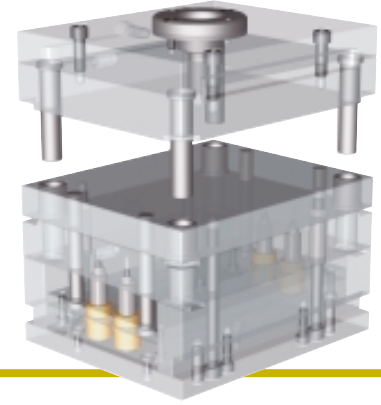
## E-Series MOLD BASES

When ordering specify the following:

- Catalog number: **E1114**
- **A** plate thickness
- **B** plate thickness
- **O** sprue bushing orifice
- **R** sprue bushing radius
- Locating ring LR501 or LR504

# 10<sup>7</sup>/<sub>8</sub> x 14

Example: E-1114-1717 O=7/32 R=1/2



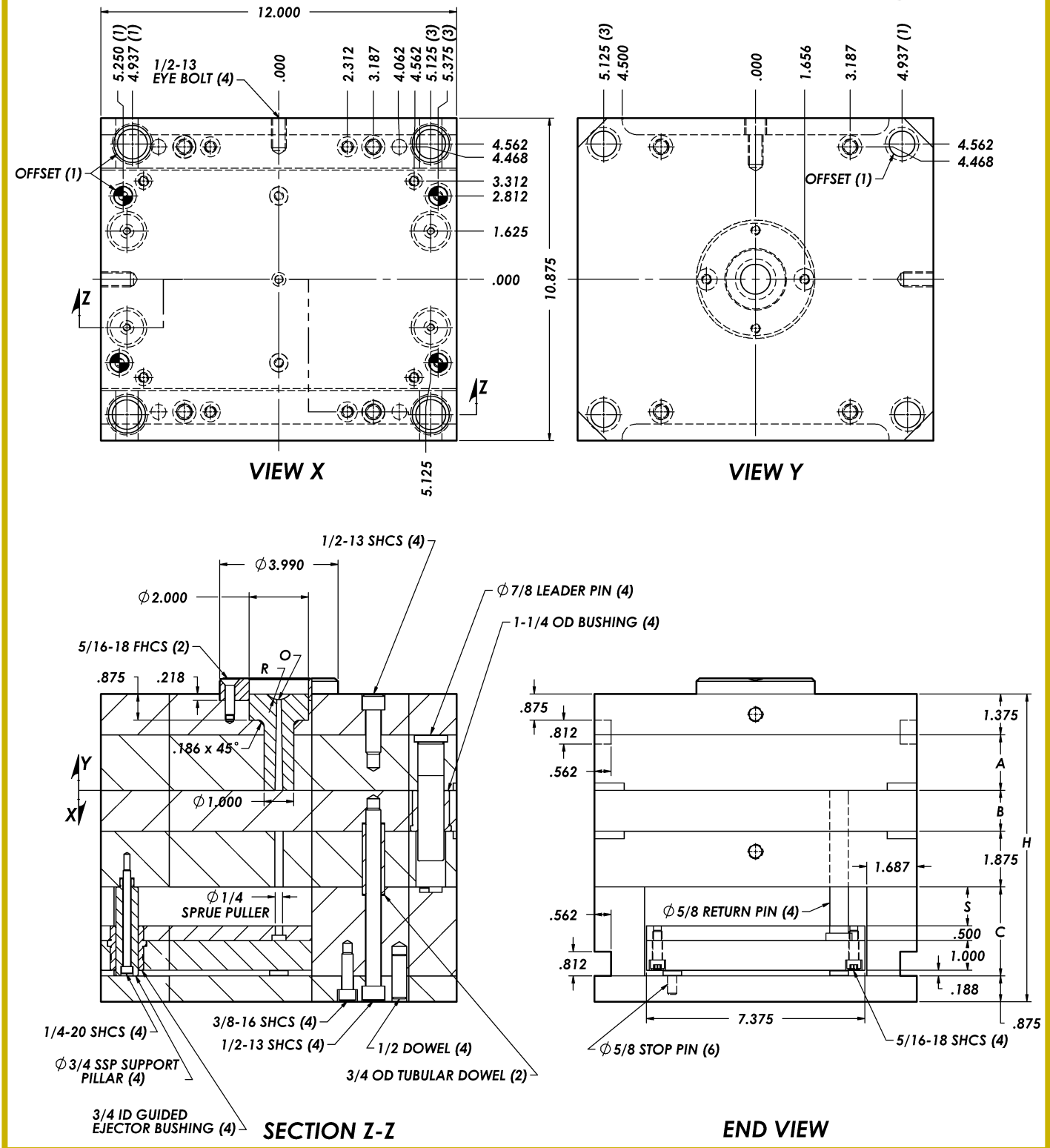
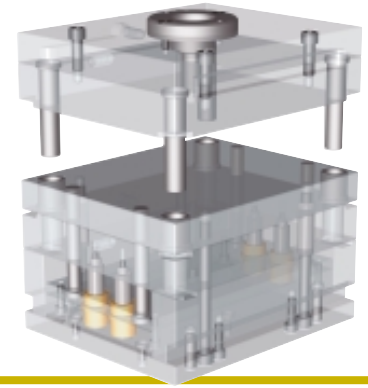
## E-Series MOLD BASES

When ordering specify the following:

- Catalog number: **E1112**
- **A** plate thickness
- **B** plate thickness
- **O** sprue bushing orifice
- **R** sprue bushing radius
- Locating ring LR501 or LR504

# 10<sup>7</sup>/<sub>8</sub> x 12

Example: E-1112-1717 O=7/32 R=1/2



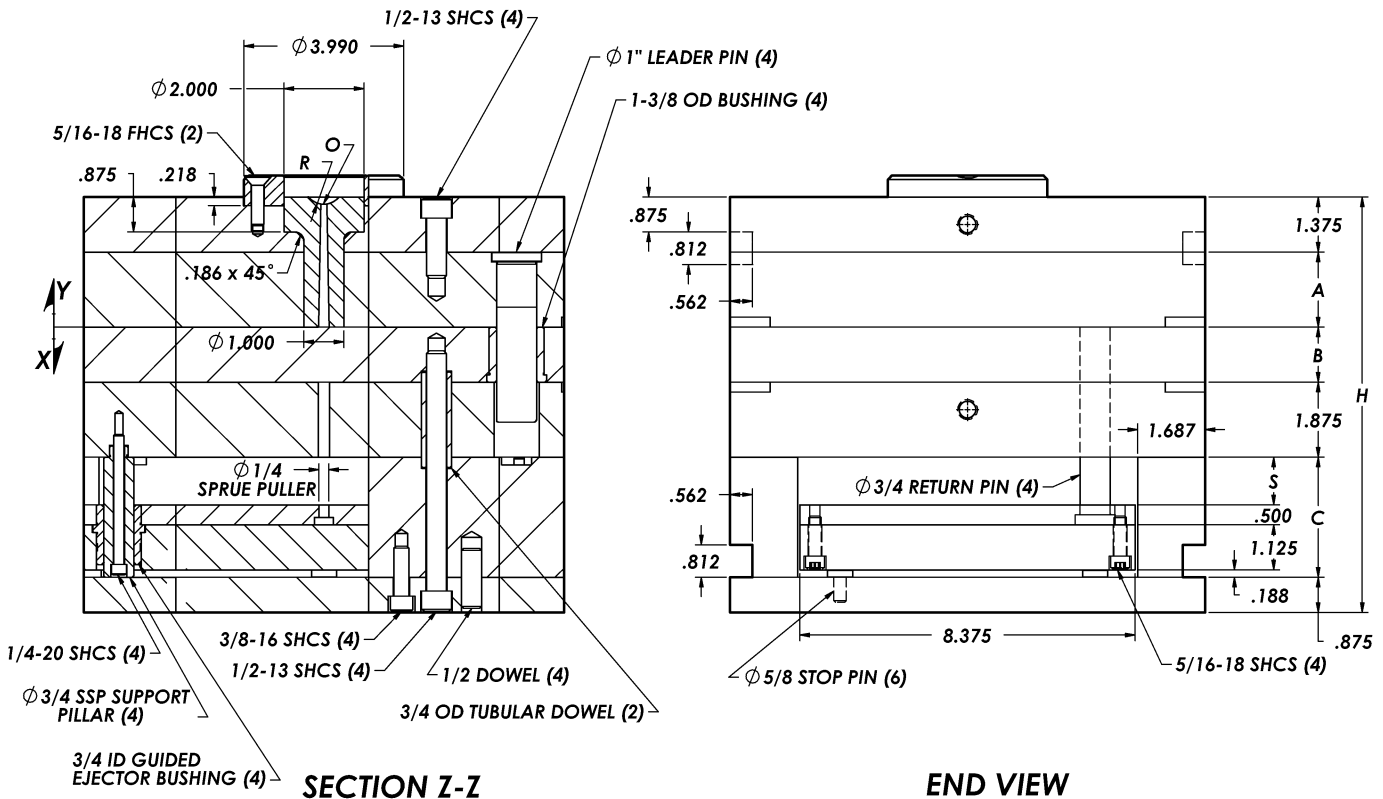
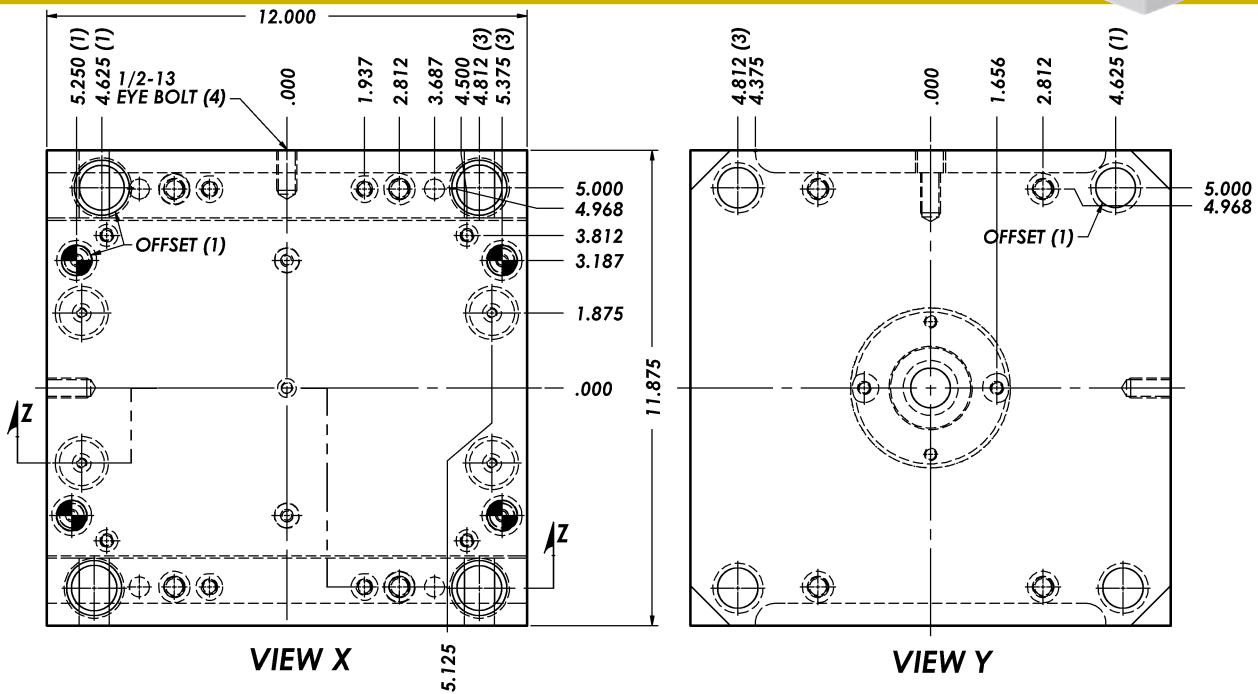
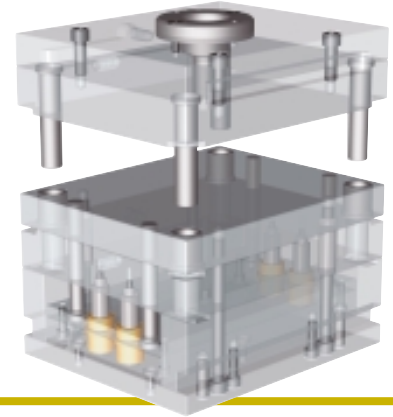
## E-Series MOLD BASES

When ordering specify the following:

- Catalog number: **E1212**
- A plate thickness
- B plate thickness
- O sprue bushing orifice
- R sprue bushing radius
- Locating ring LR501 or LR504

# 11<sup>7</sup>/<sub>8</sub> x 12

Example: E-1212-1313 O=7/32 R=1/2





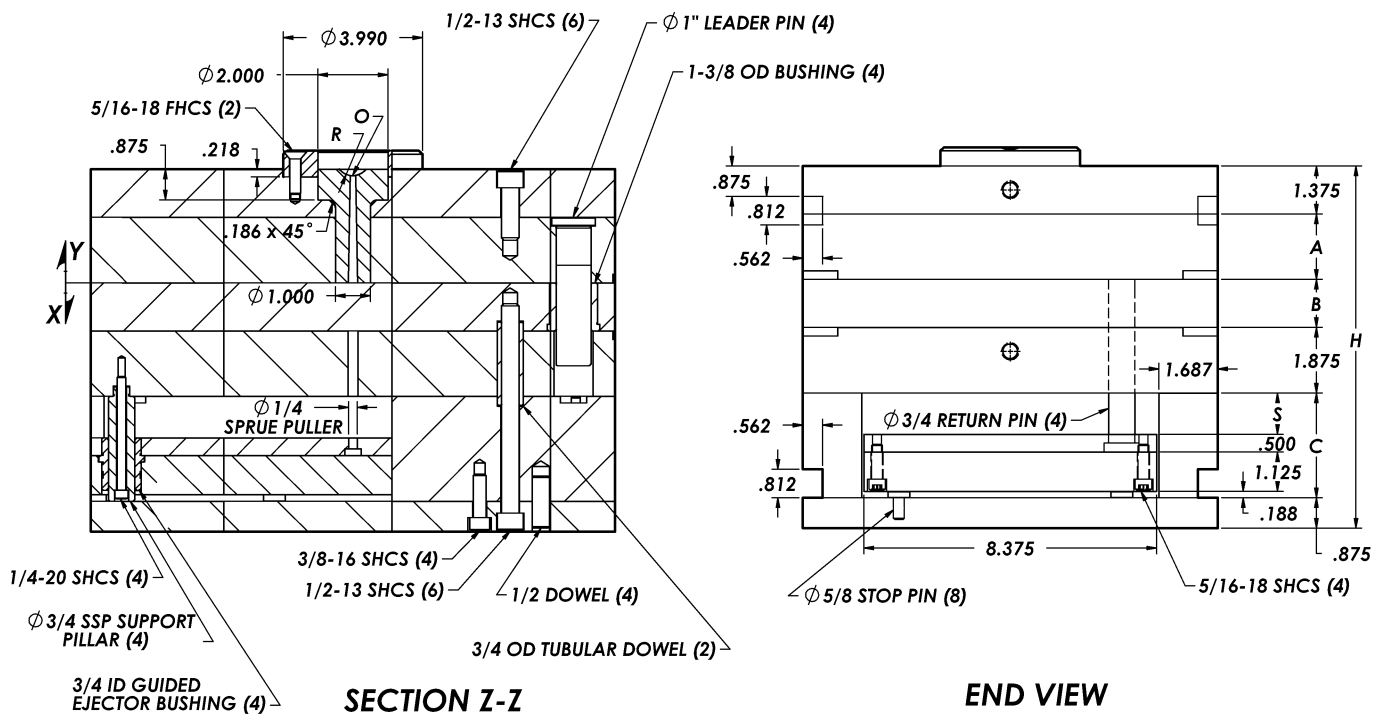
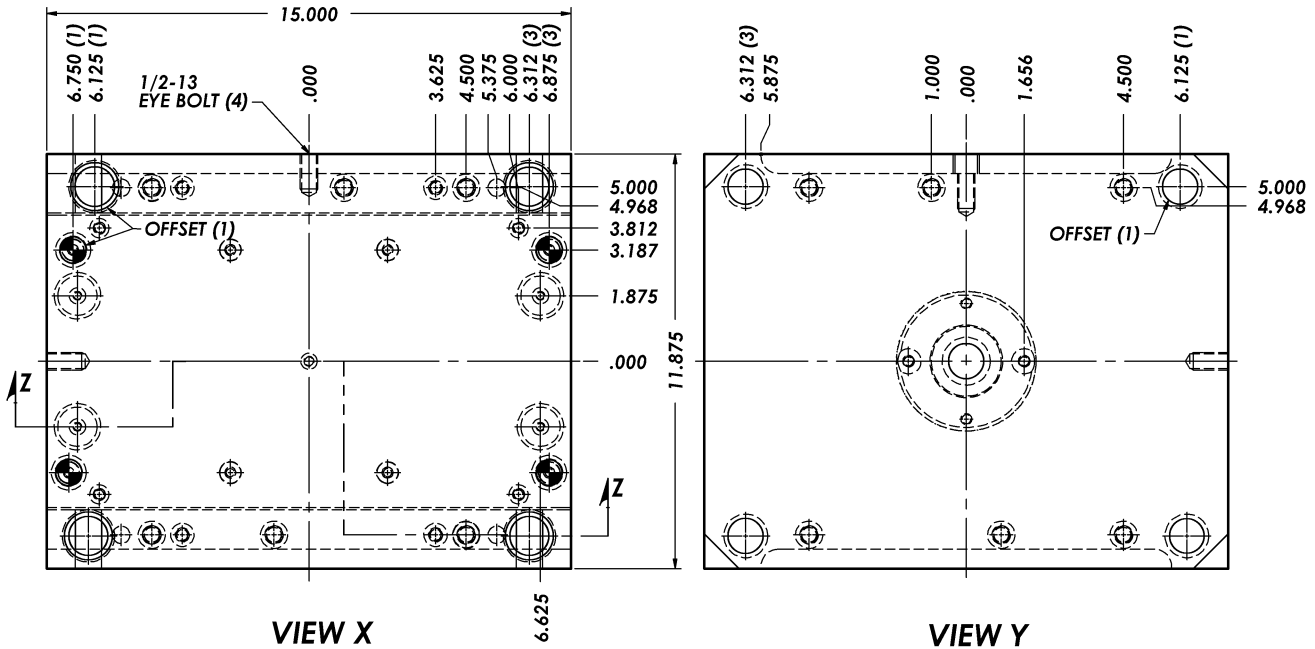
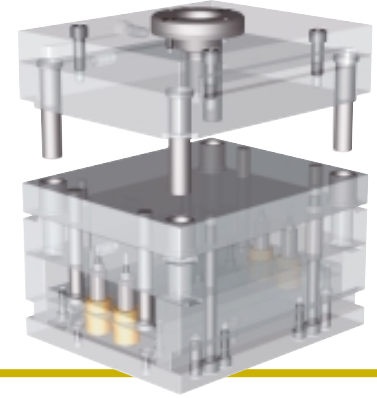
## E-Series MOLD BASES

When ordering specify the following:

- Catalog number: **E1215**
- **A** plate thickness
- **B** plate thickness
- **O** sprue bushing orifice
- **R** sprue bushing radius
- Locating ring LR501 or LR504

# 11<sup>7</sup>/<sub>8</sub> x 15

Example: E-1215-1717 O=7/32 R=1/2



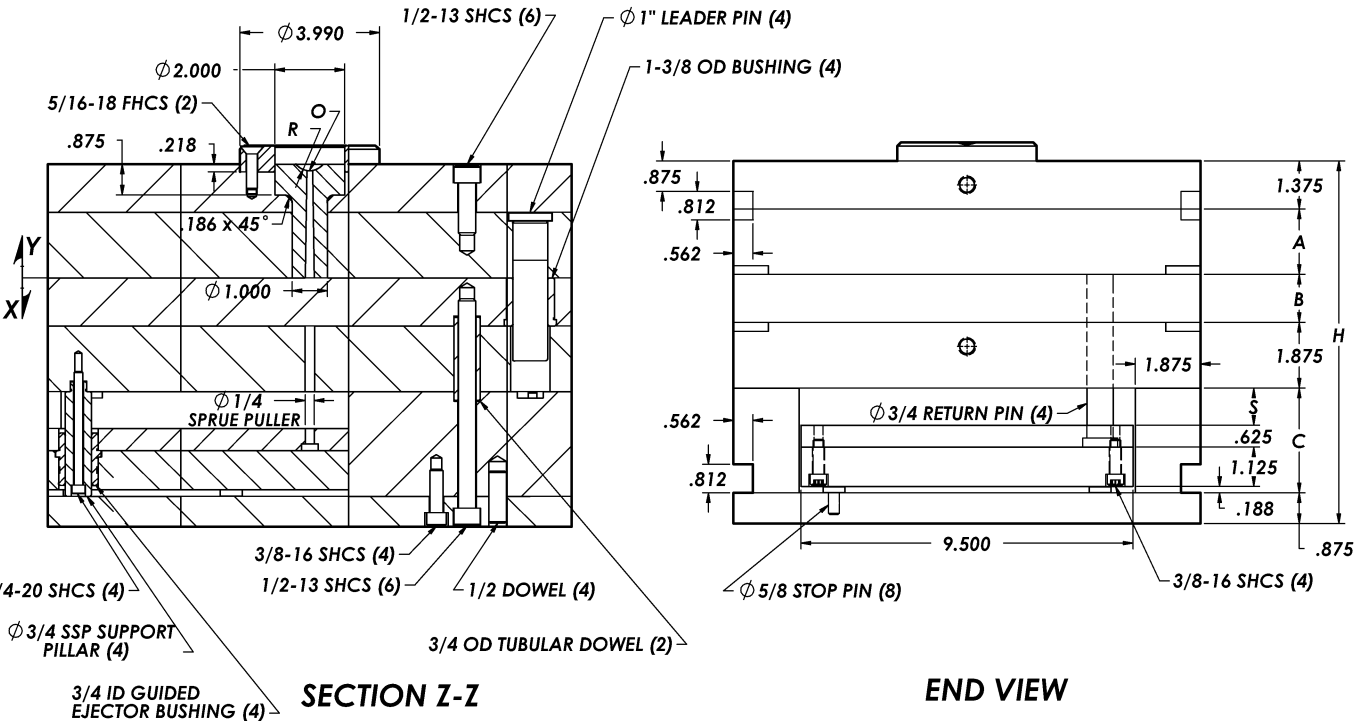
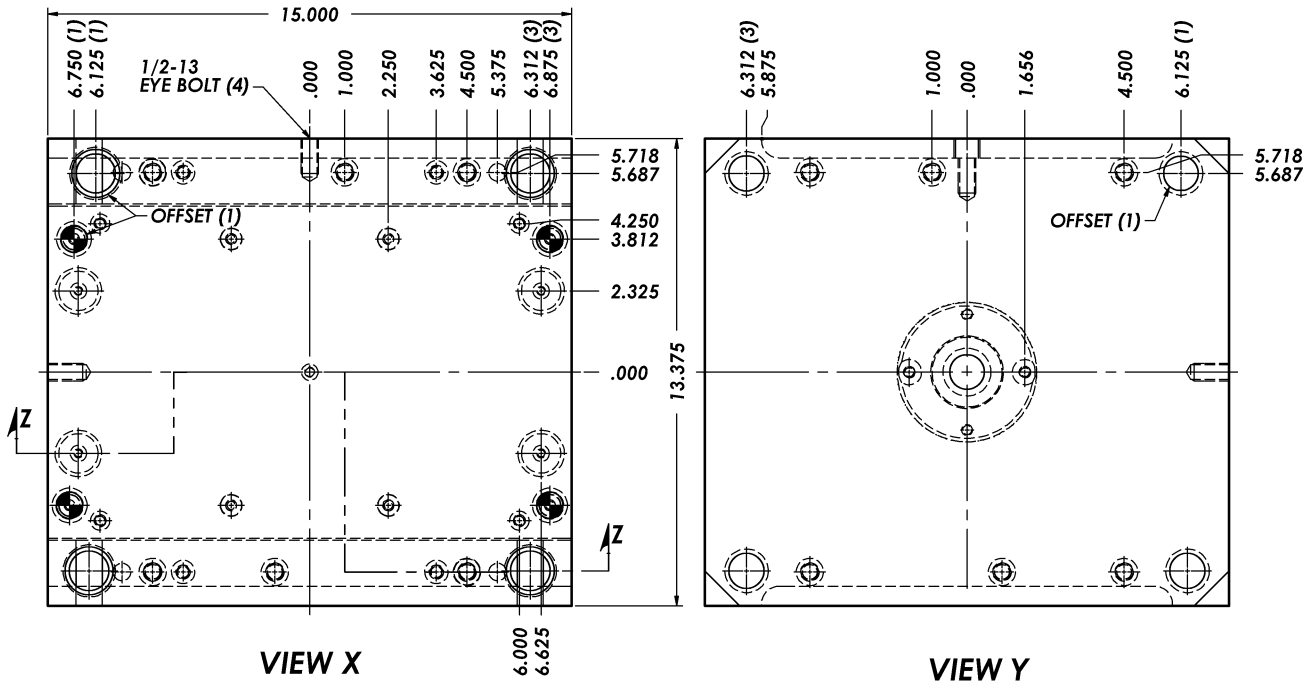
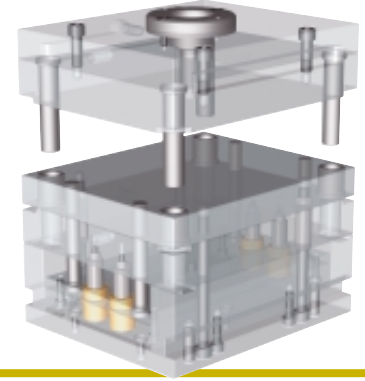
## E-Series MOLD BASES

When ordering specify the following:

- Catalog number: **E1315**
- **A** plate thickness
- **B** plate thickness
- **O** sprue bushing orifice
- **R** sprue bushing radius
- Locating ring LR501 or LR504

# 13<sup>3</sup>/<sub>8</sub> x 15

Example: E-1315-1717 O=7/32 R=1/2



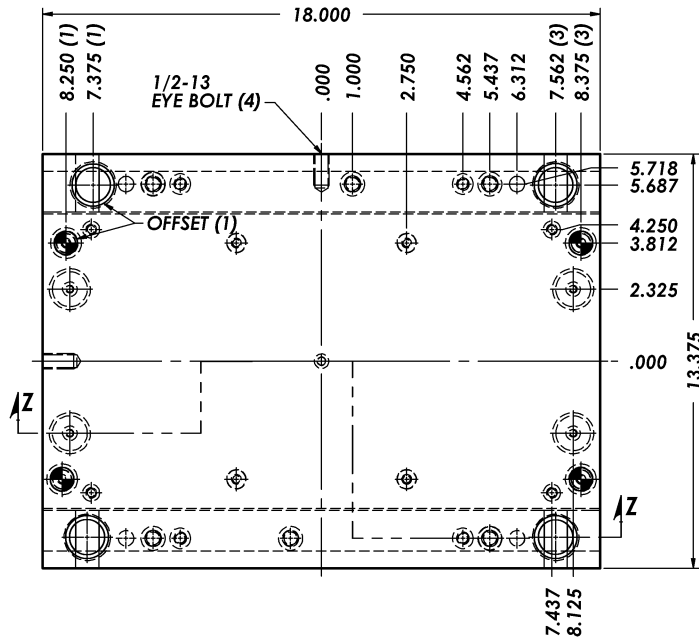
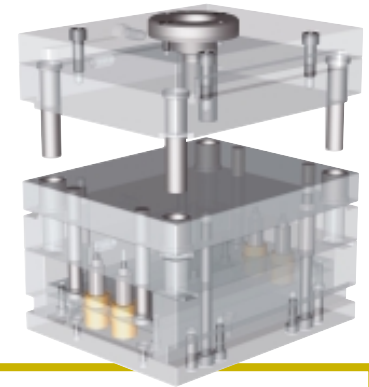
## E-Series MOLD BASES

When ordering specify the following:

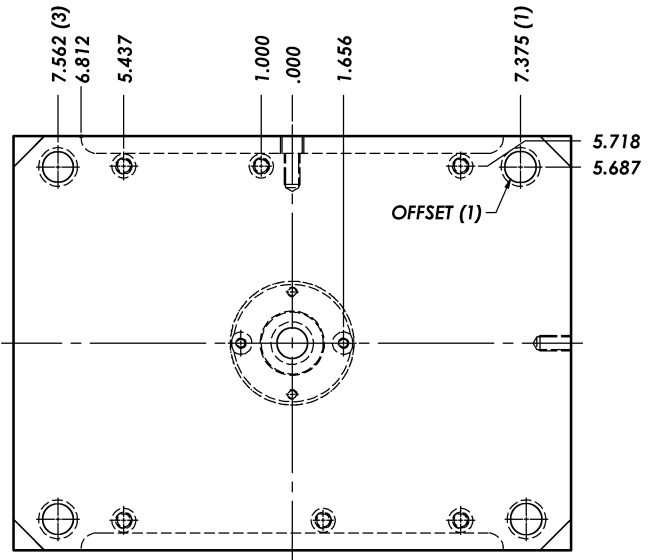
- Catalog number: **E1318**
- **A** plate thickness
- **B** plate thickness
- **O** sprue bushing orifice
- **R** sprue bushing radius
- Locating ring LR501 or LR504

# 13<sup>3</sup>/<sub>8</sub> x 18

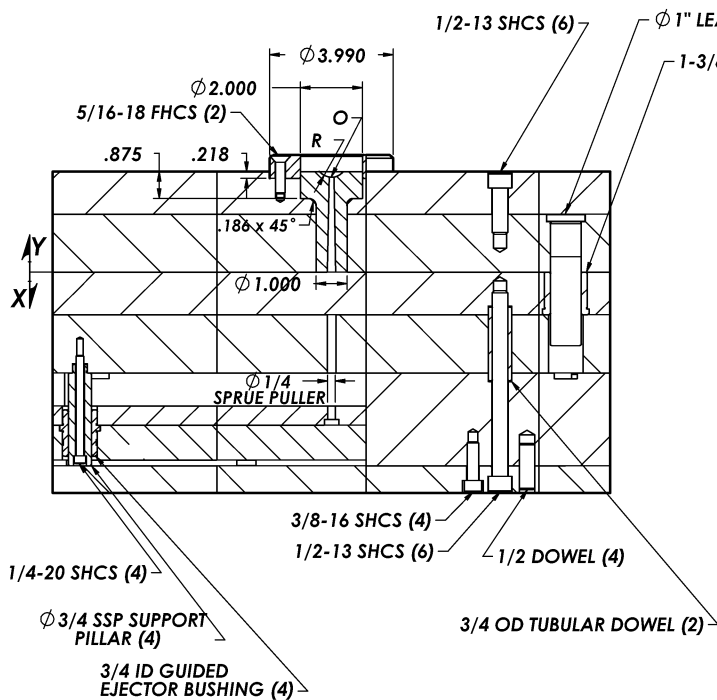
Example: E-1318-1717 O=7/32 R=1/2



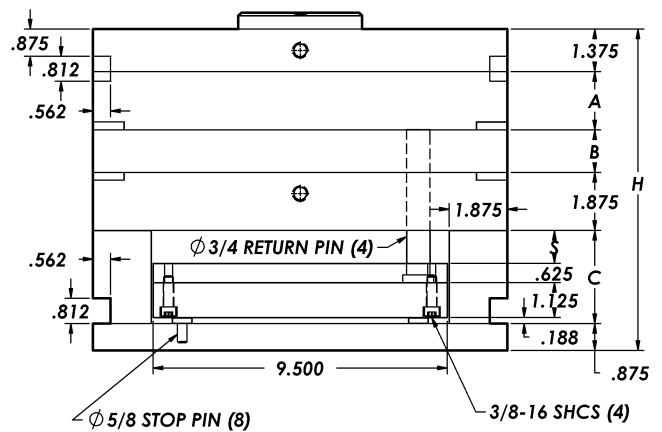
VIEW X



VIEW Y



SECTION Z-Z



END VIEW