# Table of Contents

## Mold Cooling

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jiffy-Tite® Connectors, Plugs</td>
<td>223-252</td>
</tr>
<tr>
<td>Jiffy-Matic, Jiffy-Lok® Connectors</td>
<td></td>
</tr>
<tr>
<td>Jiffy-Tite® Connector Seals, Tool Kit, Wrenches</td>
<td></td>
</tr>
<tr>
<td>Coolant Bridges</td>
<td></td>
</tr>
<tr>
<td>Jiffy-Tite® Cascade Water Junctions</td>
<td></td>
</tr>
<tr>
<td>MoldBasics® Hose Connectors</td>
<td></td>
</tr>
<tr>
<td>Bubbler Tubes, Brass Plugs and Rods</td>
<td></td>
</tr>
<tr>
<td>Cascade Water Junctions</td>
<td></td>
</tr>
<tr>
<td>Brass Pressure Plugs</td>
<td></td>
</tr>
<tr>
<td>Plastic &amp; Brass Baffles</td>
<td></td>
</tr>
<tr>
<td>Heat Pipes</td>
<td></td>
</tr>
<tr>
<td>Insulator Sheets and Locating Rings</td>
<td></td>
</tr>
<tr>
<td>TruCool™ Mold Cooling</td>
<td></td>
</tr>
</tbody>
</table>

## Mold Components

### INCH

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guide Pins</td>
<td>254-287</td>
</tr>
<tr>
<td>Shoulder &amp; Straight Bushings</td>
<td></td>
</tr>
<tr>
<td>Self-Lubricating Bushings</td>
<td></td>
</tr>
<tr>
<td>Solid Bronze &amp; Bronze-Plated Bushings</td>
<td></td>
</tr>
<tr>
<td>Guided Ejection Guide Pins &amp; Bushings</td>
<td></td>
</tr>
<tr>
<td>Mold Parts for 34R Assemblies</td>
<td></td>
</tr>
<tr>
<td>Support Pillars and Stop Pins</td>
<td></td>
</tr>
<tr>
<td>Sprue Bushings</td>
<td></td>
</tr>
<tr>
<td>Locating Rings</td>
<td></td>
</tr>
<tr>
<td>3-Plate Extension Bushings</td>
<td></td>
</tr>
<tr>
<td>Special Guide Pins Fax Form</td>
<td></td>
</tr>
</tbody>
</table>

### Metric

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guide Pins</td>
<td>288-307</td>
</tr>
<tr>
<td>Angle Pins</td>
<td></td>
</tr>
<tr>
<td>Guide Pin Bushings</td>
<td></td>
</tr>
<tr>
<td>Locating Sleeves &amp; Rings</td>
<td></td>
</tr>
<tr>
<td>Sprue Bushings</td>
<td></td>
</tr>
<tr>
<td>Support Pillars</td>
<td></td>
</tr>
<tr>
<td>Tubular Dowels</td>
<td></td>
</tr>
<tr>
<td>Screws – Socket Head Cap, Flat Head</td>
<td></td>
</tr>
<tr>
<td>Lock Washers</td>
<td></td>
</tr>
<tr>
<td>Stop Disk</td>
<td></td>
</tr>
</tbody>
</table>

## Pins, Sleeves and Blades

### INCH

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ejector Pins – Straight</td>
<td>313-335</td>
</tr>
<tr>
<td>Ejector Pins – Shoulder</td>
<td></td>
</tr>
<tr>
<td>Ejector Sleeves</td>
<td></td>
</tr>
<tr>
<td>Ejector Blades</td>
<td></td>
</tr>
<tr>
<td>Thin Wall Sleeves &amp; Sleeve Extensions</td>
<td></td>
</tr>
<tr>
<td>Core Pins</td>
<td></td>
</tr>
<tr>
<td>Return and Sprue Puller Pins</td>
<td></td>
</tr>
<tr>
<td>Core Pin Retainers</td>
<td></td>
</tr>
<tr>
<td>Comparison Table Specifications</td>
<td></td>
</tr>
</tbody>
</table>

### DIN

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ejector Pins</td>
<td>336-347</td>
</tr>
<tr>
<td>Shoulder Ejector Pins</td>
<td></td>
</tr>
<tr>
<td>Ejector Sleeves</td>
<td></td>
</tr>
<tr>
<td>Ejector Blades</td>
<td></td>
</tr>
<tr>
<td>Core Pins</td>
<td></td>
</tr>
<tr>
<td>JIS – Pins, Sleeves, Blades...</td>
<td>348-353</td>
</tr>
</tbody>
</table>

### JIS

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ejector Pins</td>
<td></td>
</tr>
<tr>
<td>Ejector Blades</td>
<td></td>
</tr>
<tr>
<td>Ejector Sleeves</td>
<td></td>
</tr>
<tr>
<td>Special Pins and Sleeves</td>
<td>354-356</td>
</tr>
</tbody>
</table>

## Mold Assembly

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolts, Screws and Lock Washers</td>
<td>361-394</td>
</tr>
<tr>
<td>Keys and Key Kits</td>
<td></td>
</tr>
<tr>
<td>Set Screws</td>
<td></td>
</tr>
<tr>
<td>Tubular Dowels and Dowels</td>
<td></td>
</tr>
<tr>
<td>Mold and Die Springs</td>
<td></td>
</tr>
<tr>
<td>Belleville Washer</td>
<td></td>
</tr>
<tr>
<td>Codipro Swivel Eyebolts, Hoist Rings &amp; Shackles</td>
<td></td>
</tr>
<tr>
<td>Hoist Rings</td>
<td></td>
</tr>
<tr>
<td>Forged Eyebolts</td>
<td></td>
</tr>
<tr>
<td>Permanent Magnetic Lifters</td>
<td></td>
</tr>
<tr>
<td>Chain Slings</td>
<td></td>
</tr>
<tr>
<td>Min Recommended Assem Screw Holes</td>
<td></td>
</tr>
</tbody>
</table>
**MOLD COMPONENTS**

Index

<table>
<thead>
<tr>
<th>Component</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accelerated Ejectors</td>
<td>154-155</td>
</tr>
<tr>
<td>Accelerated Knock-Outs</td>
<td>153</td>
</tr>
<tr>
<td>Adapter</td>
<td>see Sprue Bushings</td>
</tr>
<tr>
<td>Air Poppet Valves</td>
<td>219-220</td>
</tr>
<tr>
<td>Angle Pins, INCH</td>
<td>25</td>
</tr>
<tr>
<td>Angle Pins, METRIC</td>
<td>28-29, 295</td>
</tr>
<tr>
<td>Angle Pin Inserts</td>
<td>26-27</td>
</tr>
<tr>
<td>Arburg Locating Rings</td>
<td>270</td>
</tr>
<tr>
<td>Arburg Mold Assembly Components</td>
<td>270-271</td>
</tr>
<tr>
<td>Arburg Sprue Bushing</td>
<td>277</td>
</tr>
<tr>
<td>Assembly Screws Min. Recommended Table</td>
<td>392-393</td>
</tr>
<tr>
<td>Baffle Bars</td>
<td>162</td>
</tr>
<tr>
<td>Baffles, Turbulent Flow Plastic</td>
<td>242-243</td>
</tr>
<tr>
<td>Base Plates, for Gib Assemblies</td>
<td>26</td>
</tr>
<tr>
<td>Belleville Washers (Disc Springs), METRIC</td>
<td>379</td>
</tr>
<tr>
<td>Brass Diverting Plugs and Rods</td>
<td>239</td>
</tr>
<tr>
<td>Brass Plug Baffles, Spiral</td>
<td>245</td>
</tr>
<tr>
<td>Brass Plug Baffles, Straight</td>
<td>244</td>
</tr>
<tr>
<td>Brass Pressure Plugs</td>
<td>241</td>
</tr>
<tr>
<td>Bubbler</td>
<td>see Cascade Water Junctions</td>
</tr>
<tr>
<td>Bubbler Tubes</td>
<td>239</td>
</tr>
<tr>
<td>Bushings, 3-Plate Extension</td>
<td>283-284</td>
</tr>
<tr>
<td>Bushings, Bronze-Plated INCH</td>
<td>263</td>
</tr>
<tr>
<td>Bushings, Bronze-Plated METRIC</td>
<td>299</td>
</tr>
<tr>
<td>Bushings, Solid Bronze</td>
<td>264</td>
</tr>
<tr>
<td>Bushings, Guide Pin (with Collar) METRIC</td>
<td>298</td>
</tr>
<tr>
<td>Bushings, Guide Pin (without Collar) METRIC</td>
<td>300</td>
</tr>
<tr>
<td>Bushings, Guided Ejection</td>
<td>266-267</td>
</tr>
<tr>
<td>Bushings, Guide Pin (with Collar) METRIC</td>
<td>300</td>
</tr>
<tr>
<td>Bushings, Self-Lube Guide Pin (without Collar) METRIC</td>
<td>300</td>
</tr>
<tr>
<td>Bushings, Self-Lubricating INCH</td>
<td>262</td>
</tr>
<tr>
<td>Bushings, Shoulder</td>
<td>260</td>
</tr>
<tr>
<td>Bushings, Shoulder 2”, 2.5”, 3” Diameter</td>
<td>261</td>
</tr>
<tr>
<td>Bushings, Straight</td>
<td>260</td>
</tr>
<tr>
<td>Buttons</td>
<td>see Stop Pins</td>
</tr>
<tr>
<td>CAD Data Resources</td>
<td>120</td>
</tr>
<tr>
<td>Cam Pins</td>
<td>see Angle Pins</td>
</tr>
<tr>
<td>Cascade Water Junctions</td>
<td>240</td>
</tr>
<tr>
<td>Cascade Water Junctions, Jiffy-Tite®</td>
<td>233</td>
</tr>
<tr>
<td>Centering Bushing, Locating Sleeves METRIC</td>
<td>301</td>
</tr>
<tr>
<td>Codiro Swivel Shackles Hoist Rings &amp; Eyebolts</td>
<td>380-384</td>
</tr>
<tr>
<td>Collapsible Core, Dovetail</td>
<td>93-96</td>
</tr>
<tr>
<td>Collapsible Core Mini</td>
<td>92</td>
</tr>
<tr>
<td>Collapsible Core Standard</td>
<td>91</td>
</tr>
<tr>
<td>Column</td>
<td>see Support Pillars</td>
</tr>
<tr>
<td>Cooling Products – Jiffy-Tite®, MoldBasics®</td>
<td>225-241</td>
</tr>
<tr>
<td>Core Pins, DIN Hardened</td>
<td>345</td>
</tr>
<tr>
<td>Core Pins, DIN Performance</td>
<td>346</td>
</tr>
<tr>
<td>Core Pins, INCH High Hardness</td>
<td>326</td>
</tr>
<tr>
<td>Core Pins, INCH Standard Hardness</td>
<td>325</td>
</tr>
<tr>
<td>Core Pins, Performance</td>
<td>328-329</td>
</tr>
<tr>
<td>Core Pin Retainers</td>
<td>330</td>
</tr>
<tr>
<td>CounterView® Mold Counter</td>
<td>164-169</td>
</tr>
<tr>
<td>Custom Pins &amp; Sleeves Quote Request Form</td>
<td>356</td>
</tr>
<tr>
<td>Detent Plate</td>
<td>see SmartLock®</td>
</tr>
<tr>
<td>DIN Pins, Sleeves, Blades Quote Request Form</td>
<td>347</td>
</tr>
<tr>
<td>DME Ejector and Core Pin Diameters Table</td>
<td>357-359</td>
</tr>
<tr>
<td>Dowel Pins</td>
<td>see Tubular Dowels</td>
</tr>
<tr>
<td>Dowel Pins and Tubular Dowels, INCH</td>
<td>372</td>
</tr>
<tr>
<td>Dowel Pins, Pull Dowels (Internal Thread) METRIC</td>
<td>365, 373</td>
</tr>
<tr>
<td>Early Ejector Return Assembly</td>
<td>156-157</td>
</tr>
<tr>
<td>Ejector Blades, DIN Hardened</td>
<td>344</td>
</tr>
<tr>
<td>Ejector Blades, DIN Nitrided</td>
<td>343</td>
</tr>
<tr>
<td>Ejector Blades, JIS</td>
<td>323-324</td>
</tr>
<tr>
<td>Ejector Blades, JIS Shoulder</td>
<td>316</td>
</tr>
<tr>
<td>Ejector Blades, JIS Shoulder</td>
<td>315</td>
</tr>
<tr>
<td>Ejector Blades, JIS EX Keyed</td>
<td>314</td>
</tr>
<tr>
<td>Ejector Blades, JIS EX Keyed</td>
<td>318</td>
</tr>
<tr>
<td>Ejector Blades, JIS THX Keyed</td>
<td>317</td>
</tr>
<tr>
<td>Ejector Blades, JIS THX Keyed</td>
<td>317</td>
</tr>
<tr>
<td>Ejector Blades, JIS Straight</td>
<td>349</td>
</tr>
<tr>
<td>Ejector Return Couplings</td>
<td>178</td>
</tr>
<tr>
<td>Ejector Sleeves, DIN Hardened</td>
<td>342</td>
</tr>
<tr>
<td>Ejector Sleeves, DIN Nitrided</td>
<td>341</td>
</tr>
<tr>
<td>Ejector Sleeves, INCH Nitrided OD and OD/ID</td>
<td>321-322</td>
</tr>
<tr>
<td>Ejector Sleeves, JIS</td>
<td>351-353</td>
</tr>
<tr>
<td>Ejector Sleeves (Thin Wall) and Extensions</td>
<td>320</td>
</tr>
<tr>
<td>Ejectors Accelerated</td>
<td>154-155</td>
</tr>
<tr>
<td>Ejectors, 2-Stage</td>
<td>122-140</td>
</tr>
<tr>
<td>eStore, Shop online</td>
<td>120</td>
</tr>
<tr>
<td>Expandable Cavity Systems</td>
<td>97-108</td>
</tr>
<tr>
<td>Expandable Cavity Custom Quote Request Form</td>
<td>106</td>
</tr>
<tr>
<td>External Latch Lock</td>
<td>151-152</td>
</tr>
<tr>
<td>Eyebolts, Forged</td>
<td>388</td>
</tr>
<tr>
<td>Fastie Quick Ejector Tie-In System</td>
<td>170-177</td>
</tr>
<tr>
<td>Flat Head Screws, METRIC</td>
<td>307, 368</td>
</tr>
<tr>
<td>Fountains</td>
<td>see Cascade Water Junctions</td>
</tr>
<tr>
<td>Friction Pullers</td>
<td>179</td>
</tr>
<tr>
<td>Gate Cutters</td>
<td>308</td>
</tr>
<tr>
<td>Gib Assemblies, Self-Lubricating</td>
<td>26</td>
</tr>
<tr>
<td>Guide Pins METRIC</td>
<td>28-29, 291-294</td>
</tr>
<tr>
<td>Guide Pins 2&quot;, 2.5&quot;, 3” Diameter</td>
<td>261</td>
</tr>
<tr>
<td>Guide Pins, for Special Mold Tooling</td>
<td>285-286</td>
</tr>
<tr>
<td>Guide Pins, Guided Ejection</td>
<td>265</td>
</tr>
<tr>
<td>Guide Pins, Hardened</td>
<td>258</td>
</tr>
</tbody>
</table>
MOLD COMPONENTS

Index

Guide Pins, Shoulder, Hardened ........................................... 259
Guide Pins, with Collar METRIC .......................................... 292-294
Guide Pins, without Collar METRIC ....................................... 296-297
Guide Posts ........................................................................... see Guide Pins
Guided Ejection Systems ......................................................... 268-269
Hardness Conversion Table & Hardness Data ......................... 335
Heat Pipes ............................................................................. 246-247
Helical Gear, Stack Mold Systems .......................................... 112-119
Hoist Rings Eyebolts & Swivel Shackles ................................. 380-388
Hollow Dowels ....................................................................... see Tubular Dowels
Horn Pins ................................................................................. see Angle Pins
Hydraulic Locking Core Pull Cylinders (HLCP) ....................... 46-55
HLCP Quote Request Form ..................................................... 55
Hydraulic UnscREWing Device ................................................. 80-88
Insulator Sheets, High Temperature ....................................... 248-249
Interlocks, Black and Gold, INCH ......................................... 197-198
Interlocks, Black and Gold, METRIC ..................................... 199-200
Interlocks, IN2 Side .............................................................. 186-187
Interlocks, Parting Line ........................................................ 191-192
Interlocks, Straight-Side ....................................................... 188
Interlocks, Tapered Rectangle, INCH .................................... 196
Interlocks, Tapered Round, INCH ........................................ 193-194
Interlocks, Tapered Round, METRIC .................................... 195
Interlocks, X-Style ............................................................... 189-190
Internal Latch Lock ............................................................... 143-150
Jiffy Latch-Lok® Assemblies ................................................. 160-161
Jiffy-Tite® Cooling Products .................................................. 225-233
Keys and Key Kits, INCH ....................................................... 366
Keys, METRIC ..................................................................... 367
Knock-Out Extension Pucks .................................................... 158-159, 274-275
Knock-Out Rod ..................................................................... see Return Pins
Knock-Outs, Accelerated ........................................................ 153
Krytox®, DuPont™ TM7 Grease .............................................. 56, 331
Latch Locks .......................................................................... 143-163
Leader Pins ............................................................................ see Guide Pins
L-Gibs .................................................................................. 40-44
L-Gibs, Bronze-Plated ............................................................ 42
L-Gibs, Self-Lubricating ........................................................ 43-44
Lifting Chains ....................................................................... 390
Limit Bolts ............................................................................. see Shoulder Bolts
Limit Switches ...................................................................... 180-183
Locating Rings for Plastic Molds ............................................ 280-281
Locating Rings, METRIC ........................................................ 302
Locating Rings (for use with Insulator Sheets) ......................... 281
Locating Sleeves ................................................................... 301
Lock Washers (Spring Washers), METRIC ......................... 306, 365
Magnetic Lifters ................................................................... 389
Metric Equivalents and Conversions ..................................... 287
Min. Recommended Additional Assy SHCS - CHART ... 392-393
Mold and Die Springs, Extra Heavy Duty Green .................... 378
Mold and Die Springs, Heavy Duty Gold ............................... 377
Mold and Die Springs, Medium Duty Blue ............................ 375
Mold and Die Springs, Medium Heavy Duty Red ................... 376
MoldBasics® Cooling Products .............................................. 234-238
Mold Components, Euro-Series (METRIC) ......................... 290-307
Mold Components, InCh ....................................................... 257-286
Mold Counter, CounterView® ................................................. 164-169
Mold Dating Inserts, Dual-Ring ............................................ 210
Mold Dating Inserts, Indexable & Front Removable ............... 206-207
Mold Dating Inserts, Blind Hole Applications ....................... 211
Mold Dating Inserts, Hi-Temperature/Blind Hole .................... 208-209
Mold Inserts, Resin Identifiers .............................................. 212
Mold Inserts, Food & Container Identifiers ........................... 213
Mold Insert Spacers ............................................................. 213
Mold Parts, 34R Mold Assemblies ....................................... 270
Mold Assembly Parts, Shoulder Guide Pins & Bushings ....... 271
Mold Service Table .............................................................. 360
Mold Straps .......................................................................... 201
MUD Quick-Change® Components Overview ..................... 394
O-Rings .................................................................................. 232
Performance Core Pins ........................................................ 328-329
Pillows .................................................................................. see Support Pillars
Pins and Sleeves Comparison Chart ..................................... 334
Pins and Sleeves Quote Request Form ................................. 333, 347, 356
Plastic Baffles, Turbulent Flow ............................................ 242-243
platenGUARD® ................................................................. 282
Posts ...................................................................................... see Guide Pins
Pressure Plugs, Brass .......................................................... 241
ProWeld Micro-welding System ............................................. 202
Puller Pins ............................................................................ see Sprue Puller Pins
Push Back Pins .................................................................... see Return Pins
Recycling Inserts & Electrodes .............................................. 214-215
Resin Identifiers ................................................................... 212
Rest Buttons .......................................................................... see Stop Pins
Return Pins, INCH ............................................................... 331
Runner Shut-Off Inserts ....................................................... 221-222
Set Screws with Dog Point (Allen Head), METRIC .............. 371
Set Screws with Flat Point (Grub Screw), METRIC ............... 371
Set Screws with Spring Loaded Ball Plunger, METRIC ........ 370
Set Screws with Spring Loaded Plunger, METRIC ............... 369
Shoulder Bolts, INCh .......................................................... 366
Shoulder Bolts, METRIC ...................................................... 367
Shoulder Screw .................................................................... see Shoulder Bolts
Sintered Vents ...................................................................... 216-217
SLIDE Econo-Spray® Pin Lube & Grease ............................... 316
Slide Retainer, SmartLock® .................................................. 16-19
Slide Retainers .................................................................... 12-24
Slide Retainers, Mini-Might™ ................................................ 12-15
SmartLock® Slide Retainer and Limit Switch ......................... 16-19
Socket Head Cap Screw, INCh .............................................. 364
Socket Head Cap Screw, METRIC ......................................... 306, 365

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## MOLD COMPONENTS

### Index

- Socket Head Stripper Bolts, INCH .................................................. 366
- Special Guide Pins **Quote Request Form** ........................................... 286
- Special Pins and Sleeves ........................................................................ 355-356
- Springs .................................................................................................. 375-378
- Spring Washers ..................................................................................... see Lock Washers
- Sprue Bushings ...................................................................................... 276-277
- Sprue Bushings, Hardened, METRIC .................................................... 303
- Sprue Bushings, Performance .................................................................. 278-279
- Sprue Ejector Pins ................................................................................. see Sprue Puller Pins
- Sprue Puller Pins, INCH ......................................................................... 332
- Square Gibs, Self-Lubricating .................................................................. 45
- Stack Mold Systems, Overview ............................................................... 113-114
- Stack Mold Systems, Helical Gear .......................................................... 115-119
- Stop Buttons ............................................................................................ see Stop Pins
- Stop Disk (for Ejector Plates), METRIC .................................................. 307, 368
- Stop Pins/Disk INCH ................................................................................. 273
- Stripper Bolts ........................................................................................... see Shoulder Bolts
- Sucker Pins ............................................................................................... see Core Pins
- Support Pillars, INCH ............................................................................. 272-273
- Support Pillars, METRIC ......................................................................... 304
- Thinswitch® Limit Switches ..................................................................... 180-183
- Thin Wall Ejector Sleeves ....................................................................... 320
- TM7, DuPont® Krytox® Grease .................................................................. 56, 331
- TruCool™ Mold Cooling ............................................................................ 250-252
- Tubular Dowels & Dowel Pins, INCH ..................................................... 372
- Tubular Dowels, METRIC ......................................................................... 301
- Turbulent Flow Plastic Baffles ................................................................. 242-243
- Two-Stage Ejectors ................................................................................. 122-140
- UniLifter® System ..................................................................................... 60-64
- VectorForm Lifter Systems ......................................................................... 66-78
- Vortex® Core Pins & Plugs ......................................................................... 218, 327
- Washer Disk for Tubular Dowels, METRIC ............................................. 301, 374
- Washers, Belleville – Disc Spring .............................................................. 379
- Washers, Lock Washers – Spring ............................................................ 306, 365
- Wear Plates, Bronze-Plated ....................................................................... 30-33
- Wear Plates, Self-Lubricating ................................................................. 34-35
- Wear Ways, Self-Lubricating ................................................................. 36-37
MOLD COMPONENTS
Terms and Conditions of Sale

1. FOB POINT/PRICES: Products are sold F.O.B. point of origin. Any taxes are in addition to the prices and may be invoiced later.

2. SHIPPING SCHEDULE: The shipping schedule is our current estimate of delivery dates and we agree to use reasonable efforts to comply with the schedule.

3. WARRANTY:
(a) Any DME trademarked or tradenamed product or part thereof manufactured by or for us which, under normal operating conditions in the plant of the Buyer thereof, proves defective in material or workmanship, as determined by our inspection, within 12 months from the date of shipment will be replaced or repaired free of charge to Buyer.

This warranty is contingent upon the following conditions:
(i) that Buyer establish that the product has been properly installed, maintained, and operated within the limits of related and normal usage as specified by us; and that, upon our request, Buyer will return to us at our expense the defective product or part thereof.
(ii) the terms of this warranty do not in any way extend to any product or part thereof which have a life, under normal usage, inherently shorter than 12 months.
(iii) the conditions of actual production in each end user's plant vary considerably. Therefore, descriptions of the production or performance capabilities of any product or software materials are estimates only and are not warranted.

4. EXCLUSIONS OF WARRANTIES:
THE WARRANTIES TO REPAIR OR REPLACE DEFECTIVE PRODUCTS OR PARTS AS SET FORTH IN PARAGRAPH 3, AND ANY ADDITIONAL WARRANTY EXPRESSLY STATED TO BE A WARRANTY AND SET FORTH IN WRITING AS PART OF THESE TERMS HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

5. LIMITATION OF REMEDIES AND LIABILITIES:
UNDER NO CIRCUMSTANCES SHALL WE OR ANY AFFILIATE OF OURS HAVE ANY LIABILITY WHATSOEVER FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES HOWSOEVER CAUSED OR ARISING (INCLUDING CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE), such as, but not limited to, loss of profit or revenue; loss of use of the product, part thereof; cost of capital; cost of replacement equipment; or claims resulting from contracts between Buyer, its customers and/or suppliers. Unless expressly provided for herein, in no event shall we or any affiliate of ours assume responsibility or liability for (a) penalties, penalty clauses or liquidated damages clauses of any description, (b) certifications or (c) indemnification of Buyer or others for costs, damages or expenses arising out of or related to the product or part thereof.

6. CANCELLATION: Unless otherwise agreed, Buyer may cancel all or any part of the order by written notice received by us before our completion of the order or applicable portion of the order. On receipt of such notice, all work on the order or part thereof canceled will be stopped as promptly as is reasonably possible. Buyer will then be invoiced for and will pay to us a cancellation charge. For completed items, the charge will be equal to their established prices. For items not completed, the charge will be equal to our full cost plus a premium in addition to a charge for any packing and storage and insurance needed for the balance of the material as scrap.

7. PAYMENT TERMS: Payment is due in accordance with any applicable progress, advance or other agreed upon payment schedule, or, if no such schedule has been agreed to, upon Acceptance as specified in Paragraph 8, but in no event later than 30 days from the date of invoice. No cash discount is provided. If, in our judgment, Buyer's financial condition changes, we may stop work until financial arrangements satisfactory to us are made.

8. ACCEPTANCE OF PRODUCT: Each such product shall be deemed to be accepted within seven days after delivery of the product to the Buyer, unless we receive written notification of rejection for cause from Buyer within the seven day period.

"Returned Goods": No goods are returnable without prior approval, prepaid transportation and an issued RMA number. All items are subject to our inspection before credit will be allowed. Special mold bases or steel, items involving custom work, made-to-order items, date-sensitive products, or items not shown in our catalog are considered non-returnable. NO GOODS ARE RETURNABLE LATER THAN THIRTY DAYS AFTER RECEIPT OF MERCHANDISE.

9. PATENT INDEMNITY: We shall defend any suit or proceeding brought against Buyer and pay all costs and damages awarded against Buyer provided that:
(a) The suit or proceeding is based upon a claim that the product or part thereof is an infringement of any claim of a presently existing U.S. patent;
(b) The claim of infringement is not based, directly or indirectly, upon (i) the manufacture, use, or sale of any product furnished by us which has been modified without our consent; or, (ii) the manufacture, use, or sale of any combination of a product furnished by us with products not furnished by us; or (iii) performance of a patented process using a product furnished by us or production thereby of a patented product; and,
(c) We are notified promptly and given information and assistance (at our expense) and the authority to defend the suit or proceeding. We shall not be responsible hereunder for any settlement made without our written consent nor shall we be responsible for costs or expenses incurred without our written consent. If our product is adjudicated to be an infringement and its use in the U.S. by Buyer is enjoined, we shall, at our own expense, either:
(i) procure for Buyer the right to continue using our product;
(ii) replace it with a noninfringing product;
(iii) modify it so it becomes noninfringing;
(iv) remove the product or part thereof and refund Buyer's net book value and transportation costs attributable to it.

The foregoing states our entire liability with respect to any patent infringement by our products or any parts thereof. To the extent that our product or any part thereof is supplied according to specifications and designs furnished by Buyer, Buyer agrees to indemnify us in the manner and to the extent set forth above insofar as the terms thereof are appropriate.

10. FORCE MAJEURE: We shall not be liable for any delay in performance or nonperformance which is due to war, fire, flood, acts of God, acts of third parties, acts of governmental authority or any agency or commission thereof, accident, breakdown of equipment, differences with employees or similar or dissimilar causes beyond our reasonable control, including but not limited to, those interfering with production, supply or transportation of products, raw materials or components or our ability to obtain, on terms we deem reasonable, material, labor, equipment or transportation.

11. ACCEPTANCE OF ORDERS: Buyer agrees that all orders, including any arising from our Proposal, shall include these terms and conditions only, notwithstanding any different or additional terms that may be embodied in Buyer's order. All orders are subject to our acceptance and we reserve the right to reject orders as, in our sole judgement, mandated by business conditions. We reserve the right to not proceed with any order until all necessary information is received from Buyer.

12. MERGER CLAUSE: This Agreement entirely supersedes any prior oral representations, correspondence, proposal, quotation, or agreement. This writing constitutes the final and total expression of such agreement between the parties, and it is a complete and exclusive statement of the terms of that agreement.

13. ASSIGNMENT: Neither party may assign this Agreement without the written consent of the other party, except that we may assign this Agreement to a third party that acquires substantially all of our assets or we may assign the flow of funds arising out of this Agreement.

14. GOVERNING LAW: This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.
MOLD COMPONENTS
Sales and Ordering Information

U.S.A.

TERMS AND CONDITIONS OF SALE: See previous page.

PHONE ORDERS – TOLL FREE: 800-626-6653. DME’s Customer Service Dept. operates Monday through Friday from 7 a.m. to 7 p.m. E.S.T. Calls can be made from anywhere in the continental U.S. and Puerto Rico (Puerto Rico: use “137” prefix instead of “1”). Our Customer Service Representatives will be happy to answer your questions on DME products or services, provide on-the-spot feedback on product availability and shipping details, or take any messages you wish relayed to your local DME sales, manufacturing or technical service representatives.

MAIL ORDERS: If you prefer to order by mail, please address your order to:
- DME Company, 2911 Stephenson Highway, Madison Heights, Michigan 48071-2330
  ATTN: Customer Service Dept.

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

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

eStore: store.milacron.com

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

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

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

Estimating locations are:
- 29111 Stephenson Highway, Madison Heights, MI 48071, FAX: 888-808-4363
- 1117 Fairplains Street, Greenville, MI 48338, Tel. 616-754-4601, FAX: 616-225-3924
- 3275 Deziel Drive, Windsor, Ont N8W 5A5, Tel. 519-948-5001, FAX: 519-948-4652

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

CANADA

TERMS AND CONDITIONS OF SALE: See previous page.

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

MAIL ORDERS: Send to: DME Company, 6210 Northwest Drive, Mississauga, Ontario L4V 1J6.

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

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

Table of Contents

**Angle Pin (Horn Pin)**
- APD ....................... 25, 28-29

**Wear Plate**
- WPB, SLP, SLW .................. 30-37

**Mini-Might Assembly**
- PSR ...................... 12-15

---

**SLIDE RETAINERS**
- MINI-MIGHT® SLIDE RETAINERS .................. 12-15
- SMARTLOCK® AND LIMIT SWITCH .................. 16-19
- SLIDE RETAINER ASSEMBLIES ...................... 20-23
- SLIDE RETAINER ACTUATION SEQUENCE .............. 24

**ANGLE PINS**
- ANGLE PINS ...................... 25
- ANGLE PIN INSERTS .................. 26-27
- METRIC ANGLE PINS (GUIDE PINS) .................. 28-29

**WEAR PLATES**
- BRONZE-PLATED WEAR PLATES .................... 30-31
- BRONZE-PLATED WEAR PLATES METRIC .............. 32-33
- SELF-LUBRICATING WEAR PLATES .................. 34-35
- SELF-LUBRICATING WEAR WAYS ..................... 36-37

**GIB ASSEMBLIES**
- SELF-LUBRICATING GIB ASSEMBLIES ............... 38
- BASE PLATES FOR GIB ASSEMBLIES ................. 39
- L-GIBS FOR GIB ASSEMBLIES .................... 40-41
- BRONZE-PLATED L-GIBS ............................ 42-43
- SELF-LUBRICATING L-GIBS .......................... 44-45
- SELF-LUBRICATING SQUARE GIBS ................. 45

**HYDRAULIC LOCKING CORE PULL CYLINDERS**
- HLCP PRODUCT OVERVIEW ......................... 47-48
- HLCP CYLINDER ADVANTAGES ...................... 49-52

**MOLD DESIGN & INSTALLATION**
- CONSIDERATIONS .......................... 53-54
- HLCP – FAXABLE QUOTE FORM ................. 55

**Krytox TM7 Grease** ..................... 56

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U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com
SLIDE ACTION COMPONENTS
Mini-Might® Slide Retainers

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

Installation Dimensions for Machining V-Groove in Slide

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

NOTE: See “Pocket Dimensions” for additional information.

SLIDE ACTION COMPONENTS
Mini-Might® Slide Retainers

Dimensional Information for Mini-Might® Slide Retainers – PSR

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

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

All items in stock.

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

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

Material: Hardened H-13 Steel (Body and Plunger)
NOTE: Use .028 thick spacer under retaining key when mold has been machined for .500 thick wear plate. Mold maker to machine to suit.

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

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø K</th>
<th>Ø L</th>
<th>Ø M</th>
<th>N DIM</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSR1000</td>
<td>.625</td>
<td>.869</td>
<td>.94</td>
<td>.670</td>
</tr>
<tr>
<td>PSR2000</td>
<td>.750</td>
<td>.987</td>
<td>1.06</td>
<td>.715</td>
</tr>
<tr>
<td>PSR4000</td>
<td>.875</td>
<td>1.105</td>
<td>1.19</td>
<td>.763</td>
</tr>
</tbody>
</table>
The SmartLock® slide retainer and limit switch is designed for injection molders to provide switching and a slide detent in one unique package. The SmartLock locking function prevents premature slide movement during molded part ejection while the SPDT switch is simultaneously actuated.

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

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

**NOTE:** Please contact DME for high-temperature applications.

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

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

**Available via**
eSTORE
store.milacron.com
The SmartLock switch is designed for use in very low power mold protection control circuits. It is not intended to switch heavy loads in power applications.

### Rated Current vs. Steel Temperature – SLS2220

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

### Parts Included in SmartLock Slide Retainer and Limit Switch – SLS2220

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>QTY</th>
<th>REPL ITEM NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWITCH ASSEMBLY</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>SWITCH MOUNTING SCREWS (#6-32 X 3/8” FLAT HEAD)</td>
<td>2</td>
<td>SLFH222A</td>
</tr>
<tr>
<td>WIRE CLAMPS (.5” X .82” X .15” WITH .213” MOUNTING HOLE)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>WIRE CLAMP SCREWS (#10-24 X 1/2” BUTTON HEAD)</td>
<td>2</td>
<td>1024BHCSA</td>
</tr>
<tr>
<td>PLUNGER ASSEMBLY</td>
<td>1</td>
<td>PLUNGER, SMALL - SLP222A PLUNGER SPRING - SLPS222</td>
</tr>
<tr>
<td>INSTRUCTION SHEET</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Suggested machining and wire routing.

- Option #1: Drill ø.26” MIN. thru to pocket
- Option #2: Mill wire channel ø.25” ball end mill .25” deep to wire outlet
- Mill pocket into vertical hole for wire clearance
Slide Action Components

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

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

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

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

Note:
To prevent the dowel pin from contacting and applying pressure against the back of the retainer jaw (which could cause bending or shearing of the dowel pin or hold-down shoulder screw) the installation dimensions shown on these pages are recommended.

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

How to Order:
Use Item Numbers in charts for ordering.

Material:
- Includes top and bottom jaw plate, compression spring, shoulder screw with thread locking element and dowel pin.
- Dimension F, the distance from dowel pin centerline at end of slide travel and centerline of shoulder screw, is important. Overtravel of dowel pin beyond clearance provided at back of jaw area could result in damage to retainer.

All items in stock.
Pocket Dimensions/Installation Guidelines
(Slide Retention Application Shown)

Section A-A

Pocket must provide support for slide retainer positioning guides in areas specified by dimension P on both sides of slide retainer. If nut, or if retainer is surface mounted, centering guide blocks must be added to provide support in these areas. A positive stop block must be installed and properly located to prevent dowel pin from applying pressure against back of jaw area.

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

Retrofit Data for Molds with Previous Design Slide Retainers

NOTES:

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

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

HOW TO ORDER: Use Item Numbers in charts for ordering. All items in stock.
**Mold Open**
Step 1: Mold is closed, sliding cores are in position for molding parts.

Step 2: Mold is fully open. Movement of the B-side of molds causes A-side angle pins to push sliding cores away from stationary cores. Sliding cores must lock in position via slide retainers to ensure proper mate with angle pins when mold closes.

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

---

### Angle Pins – APD

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

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø D</th>
<th>L LENGTH</th>
<th>M MAX</th>
<th>Ø P or press fit area on angle pins</th>
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<tbody>
<tr>
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<td>.580</td>
<td>.256</td>
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<td>2.748</td>
<td>.87</td>
<td>.625</td>
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<td>APD0405</td>
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<td>1.4415</td>
</tr>
</tbody>
</table>

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

**Installation Notes**

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

**Mold Machining and Installation Dimensions**

- Ø A
- Ø B
- Ø C
- Ø D

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

*Refer to Installation Note #1.*
DME Angle Pin Inserts are pre-machined with 10°, 15° or 20° angle holes and are supplied with a flat machined to facilitate keying to prevent rotation. They are sized to accommodate DME standard angle pins.

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

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

NOTE: Mold machining and installation data is available. Contact DME.

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø A HOLE</th>
<th>Ø B</th>
<th>Ø C</th>
<th>Ø D</th>
<th>Ø E</th>
<th>Ø F OFFSET</th>
<th>Ø G</th>
<th>Ø H FLAT</th>
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</table>

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

(U.S. Patent No. 5,234,329)
**SLIDE ACTION COMPONENTS**

Metric Angle Pins (Guide Pins)

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

Material: DIN 1.7131 (AISI 5115 Type) Steel

**TYPE:** APD

**NOMINAL SIZE (MM)**

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All items in stock.

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

**Metric ISO Tolerances**

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Available via store.milacron.com
SLIDE ACTION COMPONENTS
Bronze-Plated Wear Plates

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

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

**Bronze-Plated Wear Plates** – WPB

<table>
<thead>
<tr>
<th>WIDTH</th>
<th>THICKNESS</th>
<th>WEIGHT</th>
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</tbody>
</table>

**T**

- All items in stock.

WHEN ORDERING, PLEASE SPECIFY:
- 1. Item Numbers from tables
- 2. Plate length
- 3. Number of pieces
- 4. Method of shipment

*To calculate weight, multiply the weight per inch by the number of inches (length) desired.

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

Bronze-Plated Wear Plates – WPM Metric

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

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

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

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

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

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

SLIDE ACTION COMPONENTS
Bronze-Plated Wear Plates – Metric

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All items in stock.

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

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

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

Material: Aluminum Bronze with Graphite Plugs  Hardness: 179 Bhn

**T SLIDE ACTION COMPONENTS**
Self-Lubricating Wear Plates

<table>
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**HOW TO ORDER:** Use Item Numbers in charts for ordering.

All items in stock.
SLIDE ACTION COMPONENTS  
Self-Lubricating Wear Ways

Self-Lubricating Wear Ways – SLW

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

Material: Aluminum Bronze with Graphite Plugs  
Hardness: 179 Bhn

NOTE: All DME Self-Lubricating Wear Ways are supplied in 40” lengths.

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

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

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All items in stock.

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

Suggestions for Fastening

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

NOTE: For 3/8” thicknesses, the suggested screw is a 1/4 flathead screw (or 1/4 socket head screw max).

NOTE: For 1/2", 5/8", 3/4” thicknesses, the suggested screw is a 3/8 socket head screw max.

<table>
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<td>.750</td>
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</table>
SLIDE ACTION COMPONENTS
Self-Lubricating Gib Assemblies

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

Self-Lubricating Gib Assemblies – SLA
Material: Aluminum Bronze with Graphite Plugs
Hardness: 179 Bhn

SLA1001 1.12 2.62 2.00 .312 1.12 1.50 .75
SLA1002 1.12 2.62 3.00 .312 1.12 1.50 .75
SLA1003 1.12 2.62 4.00 .312 1.12 1.50 .75
SLA2001 1.12 3.12 3.00 .375 1.12 1.62 .75
SLA2002 1.12 3.12 4.00 .375 1.12 1.62 .75
SLA2003 1.12 3.12 5.00 .375 1.12 1.62 .75
SLA3001 1.25 4.12 3.00 .500 1.62 2.36 .88
SLA3002 1.25 4.12 4.00 .500 1.62 2.36 .88
SLA3003 1.25 4.12 5.00 .500 1.62 2.36 .88
SLA3004 1.25 4.12 6.00 .500 1.62 2.36 .88
SLA4001 1.62 6.82 4.00 .750 1.62 2.62 1.25
SLA4002 1.62 6.82 5.00 .750 1.62 2.62 1.25
SLA4003 1.62 6.82 6.00 .750 1.62 2.62 1.25

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

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

SLIDE ACTION COMPONENTS
Base Plates for Assemblies

- Aluminum Bronze with Graphite Plugs
- Hardness: 179 Bhn

SBP1001 2.62 0.00 .69 1.31 .38 1.50 2.34 4
SBP1002 2.62 0.00 0.88 2.12 .38 1.50 2.34 4
SBP1003 2.62 0.00 .370 2.75 4
SBP2001 3.12 0.00 .88 2.12 .38 1.68 2.34 4
SBP2002 3.12 0.00 1.00 3.00 .38 1.68 2.34 6
SBP3001 4.12 0.00 1.00 2.12 .50 2.25 3.62 4
SBP3002 4.12 0.00 1.12 2.88 .50 2.25 3.62 6
SBP3003 4.12 0.00 1.25 3.75 .50 2.25 3.62 8
SBP3004 4.12 0.00 1.50 4.50 .50 2.25 3.62 8
SBP4001 4.62 0.00 1.12 2.88 .50 2.41 4.00 4
SBP4002 4.62 0.00 1.25 3.75 .50 2.41 4.00 6
SBP4003 4.62 0.00 1.50 4.50 .50 2.41 4.00 8

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

FOR ITEM NO. SBP1001
HOLE LOCATIONS ONLY
NOTES:
1. Tolerances not noted are ±.010, Hole locations are ±.005.
2. Graphic plug pattern varies by product size.

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

SLIDE ACTION COMPONENTS
L-Gibs for Gib Assemblies

DRILLED & C’BORED FOR 5/16 SOCKET HEAD CAP SCREWS
(EXCEPT ITEM NUMBERS: SGA1001, SGA1002 AND SGA1003
WHICH ARE DRILLED AND C’BORED
FOR ¼ S.H.C.S.)

Ø .32 SPOT DRILL FOR Ø ¼ DOWEL
(2 PLACES)

SLIDE ACTION COMPONENTS
L-Gibs for Gib Assemblies

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>H</th>
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<th>L</th>
<th>D</th>
<th>G</th>
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MOUNTING HOLE QTY:
2

All items in stock.

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

Bronze-Plated L-Gibs – LGB

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<th>ITEM NUMBER</th>
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**Typical Applications of L-Gibs and Wear Plates**

---

**SLIDE ACTION COMPONENTS**

Self-Lubricating L-Gibs

DME Self-Lubricating L-Gibs provide a long-lasting wear surface for high-production molds using slides and cams. L-Gibs are easy to machine and can be shaped to any configuration, requiring no special tools. They are supplied with no pre-drilled holes, providing the designer with flexibility in mounting patterns. This allows the designer to work around water lines and other components in the mold.

### Bronze-Plated L-Gibs – LGB

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

### Self-Lubricating L-Gibs – SLG

- Material: Aluminum Bronze with Graphite Plugs
- Hardness: 179 Bhn

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**NOTES:**

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

**WHEN ORDERING, PLEASE SPECIFY:**

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

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

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

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

Self-Lubricating L-Gibs – Metric

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

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

SLIDE ACTION COMPONENTS
Self-Lubricating Square Gibs

Material: Aluminum Bronze with Graphite Plugs
Hardness: 179 Bhn

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

WHEN ORDERING, PLEASE SPECIFY:
1. Item Numbers from charts
2. Quantity
3. Method of shipment
DME HYDRAULIC LOCKING CORE PULL CYLINDERS FOR PLASTICS AND DIE CAST TOOLS

ENABLING COST-SAVING MOVEMENT OF SLIDING CORES

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

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

*Refer to Note #1.

System Cost Savings
Cost savings achieved when the Hydraulic Locking Core Pull Cylinder is used instead of traditional methods:
- Mold design and manufacturing time
- Mold fitting and assembly time
- Mold maintenance time
- Material cost (smaller mold base required)
- Cycle time reduction

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

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

HYDRAULIC LOCKING CORE PULL CYLINDERS

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

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

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

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

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

Fig. 3. Slide Movement example using the Hydraulic Locking Core Pull Cylinder.

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

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

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

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

### NOTES:

Sensors require power.*

---

### ITEM NUMBER STROKE ROD DIA. CYLINDER BORE DIA.

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</tr>
<tr>
<td>HLCP300-2000DW</td>
<td>0.15</td>
<td>67.440</td>
</tr>
<tr>
<td>HLCP300-4000DW</td>
<td>0.20</td>
<td>112.480</td>
</tr>
<tr>
<td>HLCP500-2500DW</td>
<td>0.20</td>
<td>50.980</td>
</tr>
<tr>
<td>HLCP500-5000DW</td>
<td>0.30</td>
<td>50.980</td>
</tr>
<tr>
<td>HLCP750-3000DW</td>
<td>0.20</td>
<td>50.980</td>
</tr>
<tr>
<td>HLCP750-6000DW</td>
<td>0.30</td>
<td>76.480</td>
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</table>

### HOLDING FORCE

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>HOLDING FORCE IN KILO NEWTON (kN)</th>
<th>HOLDING FORCE IN POUND FORCE (bf)</th>
<th>HOLDING FORCE IN METRIC TON (ton)</th>
<th>HOLDING FORCE IN US (AVDP) TON (ton)</th>
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</thead>
<tbody>
<tr>
<td>HLCP060-1000DW</td>
<td>13.488</td>
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<tr>
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<td>11,240</td>
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<tr>
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<td>26,728</td>
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<td>2.6728</td>
</tr>
<tr>
<td>HLCP150-1375DW</td>
<td>44.960</td>
<td>24,728</td>
<td>4.4960</td>
<td>2.4728</td>
</tr>
<tr>
<td>HLCP150-2750DW</td>
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<td>35,968</td>
<td>6.7440</td>
<td>3.5968</td>
</tr>
<tr>
<td>HLCP200-1750DW</td>
<td>44.960</td>
<td>24,728</td>
<td>4.4960</td>
<td>2.4728</td>
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<td>HLCP200-3500DW</td>
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<td>5.0980</td>
<td>2.6728</td>
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<td>35,968</td>
<td>6.7440</td>
<td>3.5968</td>
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<td>5.0980</td>
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<tr>
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<td>50.980</td>
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<td>5.0980</td>
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<td>76.480</td>
<td>44.960</td>
<td>7.6480</td>
<td>4.4960</td>
</tr>
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</table>

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

**Hydraulic Locking Core Pull Cylinder Assembly Sizes**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>CYLINDER BORE DIA.</th>
<th>NPTF TAP</th>
<th>ROD DIA.</th>
<th>CYLINDER BORE DIA.</th>
<th>STROKE</th>
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<tbody>
<tr>
<td>HLCP060-1000DWP</td>
<td>25.4 mm (1.00 in)</td>
<td>1⁄8</td>
<td>16 mm (0.63 in)</td>
<td>30 mm (1.18 in)</td>
<td>30.5 mm (1.20 in)</td>
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<tr>
<td>HLCP060-2000DWP</td>
<td>50.8 mm (2.00 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP100-1250DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP100-2500DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP150-1375DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP150-2750DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP200-1750DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP200-3500DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP300-2000DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP300-4000DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP500-2500DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP500-5000DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP750-3000DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
<tr>
<td>HLCP750-6000DWP</td>
<td>63.5 mm (2.50 in)</td>
<td>1⁄4</td>
<td>20 mm (0.79 in)</td>
<td>36 mm (1.42 in)</td>
<td>46.0 mm (1.78 in)</td>
</tr>
</tbody>
</table>

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

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

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

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

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

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

**TYPICAL PROPERTIES OF Chemour Krytox™ TM7**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM7TUBE2OZ</td>
<td>TM7 KRYTOX GREASE 2OZ TUBE</td>
</tr>
<tr>
<td>TM7TUBE8OZ</td>
<td>TM7 KRYTOX GREASE 8OZ TUBE</td>
</tr>
<tr>
<td>TM7JAR1KG</td>
<td>TM7 KRYTOX GREASE 1KG JAR</td>
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Standard NLGI Penetration Grade</td>
<td>#2</td>
</tr>
<tr>
<td>Estimation Useful Temperature Range</td>
<td>-20 to 290</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>(-4 to 555)</td>
</tr>
<tr>
<td>Pour Point, °C (°F)</td>
<td>-25 (-13)</td>
</tr>
<tr>
<td>Base Oil Viscosity, cSt</td>
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</tr>
<tr>
<td>20 °C (68 °F)</td>
<td>1,715</td>
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<tr>
<td>40 °C (104 °F)</td>
<td>500</td>
</tr>
<tr>
<td>100 °C (212 °F)</td>
<td>46</td>
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<td>Oil Volatility, % in 22 hr,</td>
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<td>260 °C (500 °F), D972 modified</td>
<td>&lt;1</td>
</tr>
<tr>
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<td>White, creamy consistency</td>
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<tr>
<td>Specific Gravity</td>
<td>2.0</td>
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Table of Contents

Typical Application ........................................ 60
Core Blades .................................................... 61-62
U-Couplings & T-Gibs ....................................... 63
Design Guidelines ........................................... 64
**UNILIFTER® UNDERCUT RELEASING SYSTEM**

**Unilift® Typical Application**

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

**TYPICAL APPLICATION:**
MOLD AND RELEASE INTERNAL UNDERCUT

---

**Flat Core Blades – INCH**

<table>
<thead>
<tr>
<th>STYLE</th>
<th>SERIES (MM)</th>
<th>R</th>
<th>HT</th>
<th>ITEM NUMBER</th>
<th>T + .000 - .001</th>
<th>W + .000 - .001</th>
<th>L + 2 – 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>MiniLifter</td>
<td>.250</td>
<td>.350</td>
<td>.156</td>
<td>.31</td>
<td>0.23</td>
<td>0.35</td>
<td>0.50</td>
</tr>
<tr>
<td>UniLifter</td>
<td>.500</td>
<td>.406</td>
<td>.187</td>
<td>.62</td>
<td>0.49</td>
<td>0.51</td>
<td>1.01</td>
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<tr>
<td>XL-Lifter</td>
<td>1.000</td>
<td>.875</td>
<td>.375</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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**Flat Core Blades – METRIC** (dimensions in mm)

<table>
<thead>
<tr>
<th>SERIES (MM)</th>
<th>R</th>
<th>HT</th>
<th>ITEM NUMBER</th>
<th>T + .000 - .001</th>
<th>W + .000 - .001</th>
<th>L + 2 – 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>5</td>
<td>15</td>
<td>15</td>
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</tr>
<tr>
<td>16</td>
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**Round Core Blades – INCH**

<table>
<thead>
<tr>
<th>STYLE</th>
<th>SERIES (MM)</th>
<th>R</th>
<th>HT</th>
<th>ITEM NUMBER</th>
<th>T + .000 - .001</th>
<th>W + .000 - .001</th>
<th>L + 2 – 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>MiniLifter</td>
<td>.250</td>
<td>.350</td>
<td>.156</td>
<td>.31</td>
<td>0.23</td>
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<td>0.50</td>
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<tr>
<td>UniLifter</td>
<td>.500</td>
<td>.406</td>
<td>.187</td>
<td>.62</td>
<td>0.49</td>
<td>0.51</td>
<td>1.01</td>
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<tr>
<td>XL-Lifter</td>
<td>1.000</td>
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<td>.375</td>
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<td>1.00</td>
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**Round Core Blades – METRIC** (dimensions in mm)

<table>
<thead>
<tr>
<th>SERIES (MM)</th>
<th>R</th>
<th>HT</th>
<th>ITEM NUMBER</th>
<th>T + .000 - .001</th>
<th>W + .000 - .001</th>
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<tbody>
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**NOTE:**
1. Thickness (T) and width (W) of blades can be ground for fitting to insert pockets and/or to accommodate a nominal size molded detail.
2. Diameter (D) of round core blades is supplied +.000/−.001" (or +.000/−.025mm) for fitting in a bored hole or bushing.
UNILIFTER® UNDERCUT RELEASING SYSTEM

Core Blades

Material: Ampco 21
Hardness: 29 RC

**Flat Core Blades – INCH**

<table>
<thead>
<tr>
<th>SERIES (MW)</th>
<th>R</th>
<th>HT</th>
<th>ITEM NUMBER</th>
<th>D + 0.000 – 0.001</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>.500</td>
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<td>.187</td>
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<td>ULIBUAS62X100L14</td>
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**Round Core Blades – INCH**

<table>
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<tr>
<th>SERIES (MW)</th>
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<th>HT</th>
<th>ITEM NUMBER</th>
<th>D + 0.000 – 0.001</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td>ULIBUA75X100L14</td>
<td>.750</td>
<td>14</td>
</tr>
</tbody>
</table>

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

UNILIFTER® UNDERCUT RELEASING SYSTEM

U-Couplings

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

**U-COUPINGS – INCH**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>ITEM NUMBER</th>
<th>CW</th>
<th>CL</th>
<th>CH</th>
<th>RC</th>
<th>R</th>
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<tbody>
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<td>.250</td>
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**U-COUPINGS – METRIC**

<table>
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<th>SERIES</th>
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<th>CH</th>
<th>RC</th>
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</table>

**T-Gibs**

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

**T-GIBS – INCH**

<table>
<thead>
<tr>
<th>SERIES</th>
<th>ITEM NUMBER</th>
<th>CW</th>
<th>CL</th>
<th>CH</th>
<th>RC</th>
<th>R</th>
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**T-GIBS – METRIC**

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**T-GIBS – METRIC dimensions in mm**

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

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

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

<table>
<thead>
<tr>
<th>SERIES</th>
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<th>Y MIN</th>
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<tbody>
<tr>
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<tr>
<td>1000</td>
<td>.375</td>
<td>.71</td>
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</table>

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

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

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

5. Fit and Finish
   Recommended clearance for core blade is .001−.0015" (.025−.038 mm) where permissible. Although standard core blades are approximately 10 Rc above P-20 and 10 Rc below hardened tool steel, additional performance can be obtained by treating after finish machining (TiN coating, chrome flash, etc).

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

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

   L-shaped core blades, or blades made from other materials can also be supplied on special order. Contact DME for details.
VectorForm Lifter Advantages
- 30˚+ Angle – Half the stroke for the same undercut
- Simple plate machining
- Easy installation
- May be ganged
  - Multiple systems may be “ganged” to lift a large lifter core
  - A single system can lift multiple lifter cores
- Accelerate or decelerate the motion of the lifter core relative to the ejector plate
- Cooling may be added
- Design flexibility is improved

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

- The **Standard Slide Base (SB)** is the most flexible and the most economical slide base. The Standard Slide Base can be custom machined by the mold builder to meet specialized application requirements. The Standard Slide Base is also the most robust slide base with respect to loads and forces.

- The **Joint Slide Base (JB)** permits the lifter core assembly to be retained with a single pin.

- The **Universal Slide Base (UB)** is similar to the Joint Slide Base, although the single pin is replaced by a universal joint which offers greater flexibility than the Joint Slide Base (JB) while still requiring only one screw to retain the lifter core assembly.

VectorForm Lifter System Features & Benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Standard Slide Base (SB)</th>
<th>Joint Slide Base (JB)</th>
<th>Universal Slide Base (UB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patent No.</td>
<td>2823782</td>
<td>DME Supplied</td>
<td>Customer Supplied</td>
</tr>
</tbody>
</table>

Moves freely at angles up to 30°. Plate machining is significantly simplified as no diagonal hole machining is required in order to install the VectorForm Lifter System.

The robust design and construction of the VectorForm Lifter System ensures that it is secure at any given ejector stroke regardless of angle used.

The compact design of the VectorForm Lifter System minimizes potential for interference with the other components within the mold.

VectorForm Lifter Systems maximize design flexibility and offer off-the-shelf installation into most lifter applications.

Maximizes allowable undercut space.

The lifter core assembly may be secured to the Slide Base in a variety of ways, maximizing design flexibility.

VectorForm Lifter System components are engineered for the common injection molding environment. No special coatings are necessary.

Motion may be accelerated previously.

The lifter core assembly may be accelerated or decelerated at any given angle up to 30°.

VectorForm Lifter Systems
Overview

VectorForm Slide Bases
Overview

VectorForm Lifter Systems
Overview

VectorForm Lifter Systems
Overview

VectorForm Lifter Systems
Overview
VECTORFORM LIFTER SYSTEMS

Overview

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

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

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

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

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

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

7. Non-Standard Shapes/Materials
   - Lifter core blocks may be machined to any desired shape and size, provided the chosen number and size of the VectorForm Lifter System core standard components will support the lifter core blocks. Lifter core blocks are to be supplied by the moldmaker.
**VECTORFORM LIFTER SYSTEMS**

**Advanced Applications**

Example of multiple lifter cores being actuated in parallel by a Standard Slide Base (SB).

VectorForm Lifter System example with tandem ejector pins in close proximity to slide base. Joint Slide Base (JB) shown.

*NOTE:* Ejector pins are secured to, and move with, the ejector plate assembly, not the VectorForm System Slide Base.

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

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

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

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

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

Example of multiple lifter cores being actuated in parallel by a Standard Slide Base (SB).

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

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

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

**Component Specifications**

### Standard Slide Base – SB

- **Material:** SCM-440 / DIN 42 CrMo4 / AISI-4140
- **Hardness:** 30-33 HRC

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

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

### Universal Slide Base – UB

- **Material:** SCM-440 / DIN 42 CrMo4 / AISI-4140
- **Hardness:** 30-33 HRC
- **Heat Treatment:** Nitriding is permissible

#### Additional Machining:
- None

### Joint Slide Base – JB

- **Material:** SCM-440 / DIN 42 CrMo4 / AISI-4140
- **Hardness:** 29-34 HRC

#### Joint Pin Material:
- SKH51 / DIN S6-5-2 / AISI M2

#### Heat Treatment:
- Gas nitriding is permissible
- During nitriding, use a pin finer (-0.01) than the attached joint pin

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

### Slide Base Ordering Information

#### Standard Slide Base – SB

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<tr>
<th>Sizes</th>
<th>SB - STANDARD SLIDE BASE</th>
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#### Joint Slide Base – JB

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#### Universal Slide Base – UB

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### Dimensions

- **Sizes:** 06, 08, 10, 13, 16, 20

### Installation Classification

- **Symbol:** J, C, T, F, L, D, H, W, M, V, N
- **Dimensions:**
  - J: 13, 15, 20, 25, 30, 35, 40
  - C: 50, 50, 60, 70, 80, 90, 100
  - T: 15, 20, 25, 30, 35, 40
  - F: 20, 25, 30, 35, 40, 50
  - L: 40, 50, 60, 70, 80, 90, 100
  - D: 10.5, 13.5, 17, 22, 27, 33
  - H: 15, 20, 25, 30, 40
  - W: 6.5, 7.5, 10, 12.5, 15, 20
  - M: 02, 04, 06, 08
  - V: 15, 20, 25
  - M*: 03, 04, 05

**NOTE:** Dimensions for retaining step to be machined by moldmaker as necessary.

*Applies to JB and UB only.*
**VectorForm Lifter Systems**

**Component Specifications**

---

### Guide Rod – GR

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

### Guide Plate – GP

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

---

### Additional Machining:

- Center distance: 
  \[ L' = \frac{Y}{\cos K^\circ} \]  
  \[ L = L' + 2P \]
- All dimensions shown are to be held after any additional machining has been performed
- Non-designated chamfer “C” tolerance: 0.5 – 1.0
- Non-designated “T” tolerance: +0.01,
- Lifter core hole or slot
- As required to accommodate the lifter core assembly

---

### Installation Classification

- **I**
- **J**
- **C**

---

### Dimensions Per Lifter Size

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---

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

---

**Additional Machining:**

- Center distance: 
  \[ L' = \frac{Y}{\cos K^\circ} \]  
  \[ L = L' + 2P \]
- All dimensions shown are to be held after any additional machining has been performed
- Non-designated chamfer “C” tolerance: 0.5 – 1.0
- Non-designated “T” tolerance: +0.01,
- Lifter core hole or slot
- As required to accommodate the lifter core assembly

---

**VectorForm Lifter Systems**

**Component Specifications**

### Holder Bushing – HB

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

### Additional Machining:

- None
**VECTORFORM LIFTER SYSTEMS**

Ordering Information

<table>
<thead>
<tr>
<th>SIZES</th>
<th>06</th>
<th>08</th>
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</tbody>
</table>

VectorForm Lifter Sets include:

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

---

**VECTORFORM LIFTER SYSTEMS**

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

**Benefits of using a secondary guide rod on lifter core assemblies**

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

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

**Single-Rod Lifter Systems**

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

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

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

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

**Dual-Rod Lifter Systems**

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

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

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

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

---

**Fig. 1** Example of a preferred embodiment for designing a lifter core assembly. A second guide rod is used to create a parallelogram that significantly reduces moments acting on the lifter rod.

**Fig. 2** Reduction in bending stress in lifter rod allows for larger angle, thereby reducing die height.

---

**VectorForm Lifter Systems Ordering Information**

**VectorForm Lifter Set Ordering Information**

**VectorForm Lifter Sets include:**

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

**SIZES**

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<td>JS – JOINT SET</td>
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VECTORFORM LIFTER SYSTEMS

Dual Rod Design Benefits

How to Incorporate Dual-Rod Technology

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

Both the primary lifter core rod and the second guide rod are aligned and retained by the sliding base within the ejector plate assembly. Since the second guide rod must not move, it is retained further down in the base of the ejector box assembly, as seen in Fig. 1. To retain the second guide rod, use a pivoting guide bushing, held in with a pin to the sliding plate. Since the loads acting on the pin are minimal, the pin can be small.

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

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

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

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

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

Many Advantages to Dual-Rod Design

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

Components

1 Base Construction – ZG
Hydraulic Cylinder

**NOTE:**
End caps 1A and 1B, Internal Seals ZD, and NPT Pipe Thread Adaptors are included in Base Construction.

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E1</th>
<th>E2</th>
<th>F</th>
<th>G</th>
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**NOTE:**
* Metric socket head cap screws included with Flange (see I).
* Metric socket head screw included.

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

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

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

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

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

<table>
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Hydraulic Unscrewing Devices

Components

S.A.E. Rack – ZZ

Guideway – ZF

Cam Riser – ZL

Notes:
1. Two guideways are required per rack or per cam riser.
2. Only one length is stocked and must be cut to length to fit for shorter hydraulic cylinders.
3. Metric flat head screws are included with guideway (see III).

Table 1: S.A.E. Rack – ZZ

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Notes: A is the bore size of the 20° Base Construction Hydraulic Cylinder.

Table 2: CAM Riser – ZL

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Notes: A is the bore size of the 20° Base Construction Hydraulic Cylinder.

Table 3: Guideway – ZF

<table>
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<th>D</th>
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<td>ZF4001</td>
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</table>

Notes: A is the bore size of the 20° Base Construction Hydraulic Cylinder.

S.A.E. Rack – ZZ

Guideway – ZF

Cam Riser – ZL

End Caps (out) – ZHU

End Caps (in) – ZHI

Seal Kit – ZD

Pipe Thread Adapters – ZG

Note: Mating Gear to be supplied by moldmaker.

Note: All other dimensions in inches unless otherwise specified.

Note: BSPP = British Pipe Thread Parallel

M = Metric Socket Head Cap Screw

SM = Metric Flat Head Socket Cap Screw

Note: Appropriate angle to be put on by moldmaker.

Note: Mating Gear to be supplied by moldmaker.

Note: Adapter converts male BSPT to female NPT.
HYDRAULIC UNSCREWING DEVICE
Calculations/Specifications

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

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

a) Required revolutions (thread core)

b) Required stroke – Inches

2. Length of Rack

b2 = x + y + b1

C. Unscrewing Force

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

f) Residual Pressure (PSI)

= 1/100 of maximum injection pressure

g) Effective core surface area (Square inches or in², Outer Core Cylinder Shell)

Flat end of threaded core neglected, x 2 value for 45° triangle thread shape

= major thread dia. of the core x x thread height x 2

h) Unscrewing torque (in-lb)

= Residual Pressure x Effective core surface area x major thread radius of core

i) Unscrewing force rack (lb)

= Unscrewing Torque x Number of cavities

= Gear pitch radius

k) Hydraulic force (lb)

NOTE: x 1.5 is 50% Safety Factor, if x 1.0 there would be no safety factor.

= Unscrewing Force x 1.5
### Calculations/Specifications

**Working Cylinder Stroke**

Unscrewing force available at different hydraulic pressures (PSI)

<table>
<thead>
<tr>
<th>A (PISTON)</th>
<th>B (SHAFT)</th>
<th>1,160 PSI</th>
<th>1,450 PSI</th>
<th>1,740 PSI</th>
<th>2,030 PSI</th>
<th>2,175 PSI</th>
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<tr>
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</tbody>
</table>

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

**Returning Cylinder Stroke**

Force available at different hydraulic pressures (PSI)

- **Application A**
  - Without guiding thread with cam
  - Item No.  | QTY | Description
  - ZG-xx-yyyy | 1 | Hydraulic Cylinder
  - ZZ-xx-yyyy | 2 | S.A.E. Rack
  - ZZ-xx-yyyy | 1 | Cam Riser
  - ZF-yyyyy | 3 | Guideways for Rack & Cam

- **Application B**
  - With guiding thread
  - Item No.  | QTY | Description
  - ZG-xx-yyyy | 1 | Hydraulic Cylinder
  - ZZ-xx-yyyy | 1 | S.A.E. Rack
  - ZF-yyyyy | 2 | Guideways for Rack

**Application C**

- Item No.  | QTY | Description
  - ZG-xx-yyyy | 2 | Hydraulic Cylinder
  - ZZ-xx-yyyy | 2 | S.A.E. Rack
  - ZF-yyyyy | 4 | Guideways for Rack

**Application D**

- Item No.  | QTY | Description
  - ZG-xx-yyyy | 1 | Hydraulic Cylinder
  - ZZ-xx-yyyy | 2 | S.A.E. Rack
  - ZF-yyyyy | 2 | Guideways for Rack

**NOTE:**

- Moldmaker should provide limit switches for fully closed and for cylinder extended. Full cylinder extension should be avoided to improve internal cylinder seal life.
- A complete Engineering Design Guide, plus separate example, are available at www.dme.net/hud

---

### Applications

- **Required DME Component List**

- **Application A**
  - Without guiding thread with cam
  - Item No.  | QTY | Description
  - ZG-xx-yyyy | 1 | Hydraulic Cylinder
  - ZZ-xx-yyyy | 2 | S.A.E. Rack
  - ZZ-xx-yyyy | 1 | Cam Riser
  - ZF-yyyyy | 3 | Guideways for Rack & Cam

- **Application B**
  - With guiding thread
  - Item No.  | QTY | Description
  - ZG-xx-yyyy | 1 | Hydraulic Cylinder
  - ZZ-xx-yyyy | 1 | S.A.E. Rack
  - ZF-yyyyy | 2 | Guideways for Rack

- **Application C**
  - Item No.  | QTY | Description
  - ZG-xx-yyyy | 2 | Hydraulic Cylinder
  - ZZ-xx-yyyy | 2 | S.A.E. Rack
  - ZF-yyyyy | 4 | Guideways for Rack

- **Application D**
  - Item No.  | QTY | Description
  - ZG-xx-yyyy | 1 | Hydraulic Cylinder
  - ZZ-xx-yyyy | 2 | S.A.E. Rack
  - ZF-yyyyy | 2 | Guideways for Rack

**NOTE:**

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

---

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

Applications

Application C
With guiding thread

Application D
Long guiding cores

Safety Protection
Box fabricated by moldmaker completely covers full movement of Unscrewing Device.

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

DME COLLAPSIBLE CORE AND EXPANDABLE CAVITY SYSTEMS

EFFICIENTLY MOLD PLASTIC PARTS REQUIRING INTERNAL THREADS, UNDERCUTS, PROTRUSIONS OR CUT-OUTS
**Collapsible Core, ECS**

**Table of Contents**

1. RT-Series Collapsible Cores
   - Standard RT-Series ........................................ 91
   - Mini RT-Series ........................................... 92
2. DT-Series (DoveTail) Collapsible Cores & Accessories
   - DoveTail Collapsible Cores ................................ 93-94
   - Quick Lock Plate Option ................................... 95
   - Split Rings & Optional Retention Sleeve .............. 96

---

**Standard Expandable Cavity Systems**

- Cost Savings & FAQ ......................................... 97
- EX-CAV™ System & Mounting Kits ......................... 98
- Technical Information ......................................... 99

---

**Custom Expandable Cavity Systems**

- Features and Benefits ........................................ 100
- Components ...................................................... 101
- Typical Applications .......................................... 102
- Cavity and Striker Insert Design ......................... 103
- Operating Sequence ........................................... 104
- Application Guidelines ....................................... 105
- Quote Request Form .......................................... 106

---

**Expandable Cavity Application Data**

- Plastic Part Design .......................................... 107
- Typical Mold Layouts ......................................... 108

---

Collapsible Cores

**RT-Series Collapsible Cores**

Economically produce complex plastic parts

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

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

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

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

---

Collapsible Cores

**RT-Series Collapsible Cores**

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<td>5.00</td>
<td>2.50</td>
<td>1.67</td>
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*†*CC352PC 1.740 44.19 1.270 32.25 0.910 23.11 0.785 19.93 1.150 29.21 0.110 2.80 0.115 2.92 1.400 35.56 0.80 20.32 0.068 1.72 0.073 1.85 6.805 173.82


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www.dme.net

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†3,660,001 Foreign Patents Issued

U.S. Patent Nos. 3,247,548; 3,068,801; 3,068,802; 3,068,803

Canada 800-387-6600

U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net  ■ store.milacron.com
Easily mold parts with closures as small as 13mm

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

As a result, up to 80% full threads or undercuts can be molded. The function of the collapsing core also permits threads to stop at any point along the molded length – threads need not run out to the top of the core as with unscrewing molds. If a seal is required in the top of the closure, an undercut can be molded into the part to hold such a seal in place.

The collapsing action also permits a longer threaded area to be formed, without adding to the cycle time or requiring long rack and pinion mechanisms. In addition to threads, other configurations such as dimples, cut-outs or protrusions beyond the capabilities of unscrewing molds can be successfully molded. Three standard sizes of Collapsible Mini-Cores are available, for 13-16, 17-20 and 21-24mm closures.

Full technical details on core grinding and mold configurations such as dimples, cut-outs and snap-fit designs. Available in four original standard sizes and in customized sizes, the DT Series Collapsible Core eliminates the need for unscrewing mechanisms.

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

### Simplified Mold Design Maximizes Cost Savings

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

### Dove Tail Collapsible Cores Enable Application Design Flexibility
- All standard DT Series Collapsible Cores offer 360 degree molding of threads or other undercut features
- Molded parts are not required to be closed at one end; they may be partially or completely open
- DME offers customized DT Cores with pre-machined part detail
- A variety of coatings and treatments are available
- For an engineering review, email your part drawing or application to dme_mech_eng@milacron.com

### Collapsible Cores

**Collapsible Mini-Cores**

RT-Series Mini Collapsible Cores

1. Cores listed above include core, center pin, positive collapse sleeve, clamping ring and a special, non-bladed center pin when required for proper core grinding.

2. Collapsible Mini-Cores with longer molding lengths, special diameters, collar or number of segments will be quoted on request. For larger diameters (up to 35mm), see Collapsible Cores.

---

**Collapsible Cores**

DT Series Collapsible Cores

---

**Notes:**

1. Core listed above include core, center pin, positive collapse sleeve, clamping ring and a special, non-bladed center pin when required for proper core grinding.

2. Collapsible Mini-Cores with longer molding lengths, special diameters, collar or number of segments will be quoted on request. For larger diameters (up to 35mm), see Collapsible Cores.
DT Series Collapsible Cores

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>U.0 CORE DIAMETER</th>
<th>U.0 CLEARING LENGTH</th>
<th>L</th>
<th>MOUNTING LENGTH</th>
<th>L1</th>
<th>CORE DIAMETER</th>
<th>H</th>
<th>MAXIMUM HOLE DIAMETER</th>
<th>H1</th>
<th>CORE LENGTH</th>
<th>B</th>
<th>MOUNTING SCREWS</th>
<th>Y</th>
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<th>HARDNESS</th>
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<td>10.5mm</td>
<td>.375in</td>
<td>6mm</td>
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<td>3.230in</td>
<td>50mm</td>
<td>1.969in</td>
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<td>37mm</td>
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DT Series Collapsible Cores Optional Quick Lock Plate

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<th>ITEM NUMBER</th>
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<th>CD</th>
<th>GD</th>
<th>OW</th>
<th>DS</th>
<th>H</th>
<th>B</th>
<th>M</th>
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<td>18.0mm</td>
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<td>.396</td>
<td>21.0mm</td>
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<td>.481</td>
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<td>.569</td>
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<td>1.24</td>
<td>2.50</td>
<td>.15</td>
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DT Series Collapsible Core Quick Lock Plate

- **Material:** A-2, 54-57 HRC
- **Utilizing the exclusive Quick Lock mounting configuration, the DT Core can be removed and serviced while the mold remains in the press. The feature allows for a higher cavitation percentage and lower maintenance costs than other tool design approaches.**

---

**Technical Specifications:**

**Collapsible Core Dimensions:**

- **Diameter:**
  - 51.99mm (2.205in)
  - 58.32mm (2.300in)
  - 63.50mm (2.500in)
  - 71.45mm (2.810in)
  - 81.91mm (3.225in)

- **Length:**
  - 2.2200in (2.770in)
  - 2.3820in (3.021in)
  - 2.3820in (3.021in)
  - 2.7700in (3.350in)
  - 2.7700in (3.350in)

**Mating Core Dimensions:**

- **Diameter:**
  - 1.5350in (40.01mm)
  - 1.6140in (41.02mm)
  - 1.6140in (41.02mm)
  - 1.6140in (41.02mm)
  - 1.7320in (43.99mm)

**Flats are tangent to GD**

---

**Contact Information:**

- **DME North America:**
  - U.S. 800-626-6653
  - Canada 800-387-6600
  - dme@milacron.com

- **DME Website:**
  - www.dme.net
  - store.milacron.com

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**Quick Lock Plate Dimensions:**

- **Shank Diameter:**
  - 5/16in (5.30mm)
  - 3/8in (9.52mm)
  - 7/16in (11.11mm)

**Quick Lock Plate Location:**

- Location of plate groove determined by mold design.

---

**Optional Quick Lock Plate:**

- Material: A-2, 54-57 HRC
Collapsible Cores

DT Series Collapsible Cores Split Rings & Optional Retention Sleeve

Utilizing the split ring allows for a simpler attachment method.

Material: A-2, 54-57 HRC

Retention Sleeves for the DoveTail Cores assure the position of the molded part during core collapse and part ejection. Email dme_mech_eng@milacron.com for more information.

DT Series Collapsible Cores Split Rings & Optional Retention Sleeve

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>NAME</th>
<th>OUT DIAMETER</th>
<th>IN DIAMETER</th>
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<td>304.8mm</td>
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<td>2.99mm</td>
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</table>

Cost Savings that Maximize Value

- Simplified mold design
  - Eliminates traditional slides; allows molding of details once considered “un-moldable”
  - Uses existing sector system for actuation; either mold open or ejection stages the Expandable Cavity forward to release the molded undercut
- Reduces maintenance costs
- Maximizes cavities per mold
  - Compact; often enabling more cavities in the mold and/or the use of a smaller mold base
  - Improved mold balance and flexibility in design
- Easily accommodates family molds
- Detail is machined in a one-piece unit eliminating the risk of error or mismatch that can occur with mating slides
- Manufactured with certified alloy steel (A-2) and proprietary processing techniques to ensure long life and dependable performance

Frequently Asked Questions

Q. What are the material types from which an Expandable Cavity can be made, and how much hardness and wear resistance is expected?
A. A-2 tool steel is the default material. It has a hardness of 54-57 HRC. Wear resistance is very good.

Q. Are surface treatments recommended?
A. It depends on the application. The DME engineering staff will review potential options, if needed.

Q. Are there any temperature limitations?
A. Maximum temperature is 260°C/500°F.

Q. What is the expected life cycle of an Expandable Cavity and what maintenance is required?
A. Customers have run millions of cycles. The biggest factor for performance is not the flexing aspect or fatigue as much as cleanliness of the tool over the life of the mold.
STANDARD EXPANDABLE CAVITY SYSTEMS
EX-CAV System & Mounting Kits

EX-CAV System

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

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

STANDARD EXPANDABLE CAVITY SYSTEMS
EX-CAV System & Mounting Kits

Expandable Cavities simplify tooling design to effectively mold undercuts such as threads, dimples, and protrusions on parts such as snap O-ring caps, plumbing supplies, industrial flanges and valves, electrical fixtures, and much more. The patented Expandable Cavity design eliminates the engineering, maintenance, and machining required for slide action mechanisms which results in smaller molds or higher mold cavitation.

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

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

STANDARD EXPANDABLE CAVITY SYSTEMS
Technical Information

EX-CAV20 20 14 13 2.5 1.6 3 14 M8 15
EXCAV26 26 18 20 3.5 2.5 4 16 M10 15
EXCAV38 38 30 27 4.0 3.0 4 27 M16 20
EXCAV50 50 40 39 5.5 3.5 5 34 M24 20

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

Technical Information:
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CUSTOM EXPANDABLE CAVITY SYSTEMS
Expandable Cavity System – Features and Benefits

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

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

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

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

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

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

General maintenance
After 100-200 initial shots, the Expandable Cavity should be rechecked to ensure proper mechanical function. A routine maintenance program of your Expandable Cavity System is recommended after 50,000 to 100,000 cycles. Thoroughly degrease and demagnetize system components. Observe for signs of abnormal wear. A light lubricant such as a P.T.F.E. should then be applied to the Striker Insert, Center Pin and the Expandable Cavity. This will increase the life of the system components. Never use a heavy grease. Re-install Expandable Cavity System.

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

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

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

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

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

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

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

Typical Applications

Fig. 1
With "A" Side Striker Insert

"A" SIDE STRIKER
COOLING CHANNEL
MOLDED PART, Luer CAP
EXPANDABLE CAVITY
CENTER PIN
EJECTOR SLEEVE
MOLD OPEN
MOLD CLOSED

Fig. 2
With "B" Side Striker Insert

MOLDED PART, BARB
"B" SIDE STRIKER
CENTER PIN
EJECTOR SLEEVE
MOLD OPEN
MOLD CLOSED

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

"A" SIDE STRIKER
EXPANSION LIMITER SLEEVE
STRIPPER PLATE
EJECTOR SLEEVE

CUSTOM EXPANDABLE CAVITY SYSTEMS

Expandable Cavity and Striker Insert Design

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

The general calculations for total expansion necessary are:

1. Calculate the critical expansion per side

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

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

2. Calculate the loss of expansion

Loss of expansion = molding length x .050 in

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

3. Calculate the total expansion

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

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

Typical Operating Sequence

Mold Closed

Mold Open, Cavity Expanded

Ejector Forward, Part Ejected

The possibilities are almost limitless

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

Detailing

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

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

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

How to order

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

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

NOTE: Demo part has four (4) different quadrants of detail (call DME for a sample).

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

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

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

QUOTExFAX HOTLINES AVAILABLE or email customer_service@dme.net

United States 888-808-4363 • Canada 800-461-9965 • International 248-398-7394

Company name: DME account #: P.O. #: Phone: Address: State/Province: ZIP/Postal Code: Country:

SHIPPING METHOD:

[ ] UPS Ground [ ] UPS 2nd Day Air [ ] UPS Next Day [ ] FedEx [ ] Other

Expandable Cavity Requirements

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

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

III. MOLDED PART LENGTH:
   A. Molding Length: (Within the Expandable Cavity)
   B. Mold Shut-off: (Shut-off land below part)

IV. EXPANSION REQUIREMENTS: (See Expandable Cavity and Striker Insert Design)
   A. Critical Expansion per side:
   B. Loss of expansion (.050in/in):

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

   [ ] Retrofit [ ] New Mold

DME EXPANDABLE CAVITY SYSTEM

QUADRANT 1
0-RING GROOVES

QUADRANT 2
PROJECTED SHAPES

QUADRANT 3
1 3/16-16 THREAD
1.125 x 0.05 2° to 5° DRAFT

QUADRANT 4
DME

EXPANDABLE CAVITY SYSTEM

2° to 5° DRAFT ON ALL PROTRUSIONS AND UNDERCUTS

EXPANDABLE CAVITY SYSTEMS

Plastic Part Design

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

NOTE: Demo part has four (4) different quadrants of detail (call DME for a sample).

NOTE: Demo part has four (4) different quadrants of detail (call DME for a sample).
EXPANDABLE CAVITY SYSTEMS
Typical Mold Layouts

Go from this …
Mold Layout with Conventional Slide Mold

Radial Mold Layout with Expandable Cavity

Nest Mold Layout with Expandable Cavity

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

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

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

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

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

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

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

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

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

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

Stack Mold Components

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

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

Pre-Engineered Subassemblies
Centering Devices — to synchronize two or more parting line openings.
• Helical Gear
Center Supports — to support the center portion of the stack mold while the mold is open.
• Low-cost bronze shoes
• Frictionless Smart Line Center Support System
Hot Runner Systems — to deliver the plastics from the machine barrel to the cavities.
• Sprue bars
• Stack manifold
• Nozzles

HELICAL GEAR STACK MOLD SYSTEMS

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

DME Helical Gear housings and assemblies greatly simplify the design and development of stack molds – leaving you more time to concentrate on core and cavity details.

**HELICAL GEAR CENTERING DEVICE** – complete assembly

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

**HELICAL GEAR STACK MOLD SYSTEMS**

**Helical Gear Calculations**

DME Helical Gear Stack Mold Centering Device Calculation Sheet

**NOTE:** Number of assembly screws and tubular dowels vary with Helical Gear size.
HELICAL GEAR STACK MOLD SYSTEMS

Helical Gear Calculations

C1 = 2 x (A16 + B2) (Final Length of Helical Gear)
IF B4 + A10 + A19 <= 0.5 x B1
   Y -> OK
N -> ERROR: NUT HOUSING IS TOO LONG: INCREASE B1 OR REDUCE B4
IF B3 <= A6
   Y -> OK
N -> CENTER PLATE IS TOO THIN: INCREASE B3
IF B2 + A16 + A18 <= 0.5 x B1
   Y -> OK
N -> ERROR: GEAR IS TOO LONG: INCREASE B1 OR REDUCE B2
IF C1 <= B1 – 10
   Y -> OK
N -> ERROR: GEAR IS TOO LONG: REDUCE B2
C2 = B4 + A10 – A6 – A5 – A4 (Final Length of Nut Housing)
IF C2 <= A2
   Y -> OK
N -> ERROR: NUT HOUSING IS TOO SHORT: INCREASE B4
IF C2 <= A6
   Y -> OK
N -> ERROR: NUT HOUSING IS TOO LONG: REDUCE B4
IF C2 <= 0.5 x B1 – A6 – A5 – A4 – A19
   Y -> OK
N -> ERROR: GEAR IS TOO LONG: INCREASE B1 OR REDUCE B4

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

HELICAL GEAR STACK MOLD SYSTEMS

Helical Gear Components

Material: Pre-Hardened Steel
Variable length; cut to match your application.

Alignment Rod
Material: Steel

Shipping Strap
Material: Steel

Nut Housing End Cap
Material: Aircraft Aluminum

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

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

1.3900

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

ITEM NUMBERS

HELICAL GEAR SHAFT
HG28SH1000 HG38SH1200 HG48SH2000 HG38SH1500

NUT HOUSING END CAP
HG28NHC HG38NHC HG48NHC

NYLON NUT
HG28NNL (left) HG38NNL (left) HG28NNR (right) HG38NNR (right)

BRASS NUT
HG28BNL (left) HG38BNL (left) HG48BNL (left) HG28BNR (right) HG38BNR (right) HG38BNR (right)

ROLLER BEARING HOUSING
HG28RBH HG38RBH HG48RBH

TAPERED ROLLER BEARING
HG28RB HG38RB HG48RB

ALIGNMENT ROD
HG28AR HG38AR HG48AR

SHIPPING STRAP
HG28ST HG38ST HG48ST

INPUT DATA

HG28-1000 HG38-1200 HG38-1500 HG48-2000
B1
B2
B3
B4

OUTPUT DATA

HG28-1000 HG38-1200 HG38-1500 HG48-2000
C1
C2

MOUNTING SCREWS AND DOWELS

ITEM NUMBERS

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

HELICAL GEAR STACK MOLD SYSTEMS

Helical Gear

Material: Steel

Roller Bearing Housing
Material: Aircraft Aluminum

Tapered Roller Bearing
Material: Industry Standard

CONSTANT DIMENSIONS

HG28-1000 HG38-1200 HG38-1500 HG48-2000
A1 1000 1200 1500 2000.0
A2 .522 .600 .600 .800.0
A3 436 520 670 900.0
A4 12 15 15 20.0
A5 5 5 5 5.0
A6 47 60 60 75.0
A7 37 48 48 60.0
A8 60 75 75 100.0
A9 22 29 29 36.0
A10 70 90 90 140.0
A11 55 70 70 70.0
A12 15 20 20 20.0
A13 35 55 55 75.0
A14 45 60 60 75.0
A15 95 120 120 150.0
A16 124 155 155 200.0
A17 376 445 595 800.0
A18 5 5 5 5.0
A19 5 5 5 5.0
A20 — — — 120.0

NOTE: It is recommended that a set of spare nylon nuts be kept on hand.
ESTORE & CAD LIBRARY
DME – Your One Stop Shop For Mold Technologies

CLICK AND SAVE - BOTH TIME AND MONEY
The eStore is the easiest, most efficient way to purchase everything you need for your companies operations and having the information on them at your fingertips.

What are the benefits of being a registered estore user?
• Free ground UPS freight on orders over $50.00
• Faster checkout process
• Order Review and Tracking Status
• Build and validate lists of frequently purchased parts

Need to get registered? That’s easy... visit store.milacron.com and click on Register in the upper right corner.

The DME CAD Imbedded Parts Library
DME has over 65,000 CAD files available for everything from mold bases and MUD inserts to hot runner components, temperature control connectors as well as thousands of mechanical components. With 150 native and neutral file types available, this means you have access to 9 million different file options.

The DME CAD Imbedded Parts Library is accessible throughout www.dme.net. This new imbedded library does not require any login or password. When you locate a product or item within our online website, direct links to CAD data are now incorporated into the page. However, for those who are familiar with our prior PARTcommunity or PARTserver libraries, they are still available for your use. All of these CAD libraries are based on a single library foundation which is managed by DME with the assistance of PARTsolutions.

You can also access the complete CAD library at: http://www.dme.net/dme/resources/cad_library.html

DME 2-STAGE EJECTORS
POSITIVE, PRECISION CONTROL OF TWO-STAGE EJECTION

Table of Contents
Benefits ...................................................................................................... 122
Selection Guidelines ................................................................. 123
Sequencing .................................................................................. 124-125
Application Examples, Top Last .................................. 126-128
Component Information, Top Last ........................... 131-132
Assembly & Installation, Bottom Last .................. 133-134
Component Information, Bottom Last ................. 135-137
Component Information ........................................... 138

Two-Stage Ejectors (Metric) .................................................. 139
Two-Stage Single-Stroke Ejector (Metric) .......... 140
Adapter with Screw .......................................................... 140
2-STAGE EJECTORS

Positive, Precise Plate Control

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

Benefits

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

2-STAGE EJECTORS

Size and Quantity Selection Guidelines

- Select 20mm diameter (small), 26mm diameter (medium), or 32mm diameter (large) 2-Stage Ejector based on the width of the mold base (large molds, thick plates or heavy load applications may require the next size assembly).
- Determine the travel range for each ejection stroke (first and second), being careful not to exceed the maximum stroke specified for the chosen 2-Stage Ejector style and size. This selection is based on the specific application.
- In general, a minimum of two 2-Stage Ejectors are required. For larger molds, thick plates, or an application where loads are near maximum, additional assemblies and/or larger assemblies may be required. An application must never exceed the maximum recommended load values.
- A balanced load must be maintained to avoid cocking and binding which could cause severe overloading. Only one size of 2-Stage Ejectors should be used in each mold base.

<table>
<thead>
<tr>
<th>2-STAGE EJECTOR ASSEMBLY ITEM NUMBER</th>
<th>BASIC CENTER ROID SIZE</th>
<th>STROKE 1</th>
<th>STROKE 2</th>
<th>RECOMMENDED MAXIMUM MOLD BASE WIDTH</th>
<th>MAXIMUM RECOMMENDED LOAD VALUES (PER ASS'Y)</th>
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<tr>
<td></td>
<td>MINIMUM</td>
<td>MAXIMUM</td>
<td>MINIMUM</td>
<td>MAXIMUM</td>
<td>STATIC</td>
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<td></td>
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<tr>
<td>TS120A 20mm (Small)</td>
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<td>75.0</td>
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<td>19.0</td>
<td>5.8 kN</td>
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<td>16</td>
<td>3.11</td>
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<td>Up to 16”, 2 BL205.8kN</td>
<td>1300lbf</td>
<td>130.0 lbf</td>
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<tr>
<td>TS124A* 26mm (Medium)</td>
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<td>242.8 lbf</td>
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</tbody>
</table>

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

NOTE: Puller Pins are not shown. Puller Pins must be purchased separately.
1. Ejector Plates Back

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

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

2-STAGE EJECTORS
Top Last Sequencing

---

1. Ejector Plates Back

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

3. Second Ejector Stroke
The bottom (moving platen side) ejector plate assembly continues to move through the “second” (or remaining) stroke until the bottom ejector plate assembly contacts the top ejector plate assembly.

2-STAGE EJECTORS
Bottom Last Sequencing

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2-STAGE EJECTORS
Top Last Sequencing

2-STAGE EJECTORS
Bottom Last Sequencing

---

Support Plate

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Patent No. 6,575,730
Patent No. 6,106,271
(Additional patents pending)
2-Stage Ejectors

Application Examples

2-Stage Ejector Bottom Last – TSBL

Application Example 1

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

2-Stage Ejector Bottom Last – TSBL

Application Example 2

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

2-Stage Ejector Bottom Last – TSBL

Application Example 3

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

2-Stage Ejector Bottom Last – TSBL

Application Example 4

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

Application Examples

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

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

STATIONARY PLATEN SIDE

STROKE 1 (H1) + STROKE 2 (H2)

TOP EJECTOR RETAINER (TER)

TOP EJECTOR PLATE (TEP)

SUPPORT PLATE

CENTER ROD LENGTH
(TO BE CUT BY MOLDMAKER)

1. Tolerances depicted here are installation tolerances
2. See component detail drawings for specific component tolerances
3. Refer to applicable tables for nominal dimension

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

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

S2

MOVING PLATEN SIDE

STROKE 1 (H1) + STROKE 2 (H2)

TOP EJECTOR RETAINER (TER)

TOP EJECTOR PLATE (TEP)

SUPPORT PLATE

CENTER ROD LENGTH
(TO BE CUT BY MOLDMAKER)
Assembly and Installation Guidelines

- At end of first stroke, Body for Cam Fingers must seat firmly against Center Rod flange.
- The Body must not apply full static pressure against Cam Fingers at end of first stroke.
- The moldmaker must cut and/or grind the Center Rod to the required length prior to installation of the 2-Stage Ejector assembly into the mold base. Do not cut off more than the minimum stroke (H2). The recommended tolerance on the Center Rod length after the customer has cut the Center Rod is +0/-0.02mm or less.
- Stroke 1 (H1) is reduced by cutting and/or grinding the moving platen end of the Center Rod. Minimum H2 specified in table does not include additional stop pins to stationary-side spacer plate. To reduce H2 even further than what is specified in table, add stop pins.
- Stroke 2 (H2) is reduced by cutting and/or grinding the stationary platen end of the Center Rod. Minimum H2 specified in table, add stop pins.

Travel Sleeve – TS

Component Information – Top Last

Center Rod – CR

Component Information – Top Last

Top Last – TSTL

Assembly and Installation Information – Top Last

2-STAGE EJECTORS

2-STAGE EJECTOR TOP LAST (TSTL)

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>CENTER ROSE DIA</th>
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<th>H1 – STROKE 1</th>
<th>H2 – STROKE 2</th>
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</table>

Travel Sleeve – TS

Component Information – Top Last

Center Rod – CR

Component Information – Top Last

Top Last – TSTL

Assembly and Installation Guidelines

- At end of first stroke, Body for Cam Fingers must seat firmly against Center Rod flange.
- The Body must not apply full static pressure against Cam Fingers at end of first stroke.
- The moldmaker must cut and/or grind the Center Rod to the required length prior to installation of the 2-Stage Ejector assembly into the mold base. Do not cut off more than the minimum stroke (H2). The recommended tolerance on the Center Rod length after the customer has cut the Center Rod is +0/-0.02mm or less.
- Stroke 1 (H1) is reduced by cutting and/or grinding the moving platen end of the Center Rod. Minimum H2 specified in table does not include additional stop pins to stationary-side spacer plate. To reduce H2 even further than what is specified in table, add stop pins.
- All 2-Stage Ejectors in a mold must be cut to the same strokes.
- It is recommended that guided ejection be used.
- Ejector speed must be controlled, ensuring that excessive shock loading does not occur.
- 2-Stage Ejectors are not suitable for severe load conditions.
- 2-Stage Ejectors must not be exposed to temperatures that exceed 150°C (300°F) at any time.
- Lubricate all metal-to-metal contact areas initially and periodically as required. A good grade of moldmakers non-melting type grease for the appropriate temperature should be used.

Center Rod – CR

Component Information – Top Last

Top Last – TSTL

Assembly and Installation Guidelines

- At end of first stroke, Body for Cam Fingers must seat firmly against Center Rod flange.
- The Body must not apply full static pressure against Cam Fingers at end of first stroke.
- The moldmaker must cut and/or grind the Center Rod to the required length prior to installation of the 2-Stage Ejector assembly into the mold base. Do not cut off more than the minimum stroke (H2). The recommended tolerance on the Center Rod length after the customer has cut the Center Rod is +0/-0.02mm or less.
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- All 2-Stage Ejectors in a mold must be cut to the same strokes.
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- Ejector speed must be controlled, ensuring that excessive shock loading does not occur.
- 2-Stage Ejectors are not suitable for severe load conditions.
- 2-Stage Ejectors must not be exposed to temperatures that exceed 150°C (300°F) at any time.
- Lubricate all metal-to-metal contact areas initially and periodically as required. A good grade of moldmakers non-melting type grease for the appropriate temperature should be used.
2-STAGE EJECTORS

Component Information – Top Last

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

2-STAGE EJECTORS

Component Information – Top

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

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

ASSEMBLY ITEM NUMBER | CENTER ROD DIA | COMPONENT ITEM NUMBER | D4 DIA | D5 DIA | D7 DIA | D17 DIA | D18 DIA | D19 DIA
--- | --- | --- | --- | --- | --- | --- | --- | ---
TSTL20 20mm (Small) | TSTL20BD | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
TSTL26 26mm (Medium) | TSTL26BD | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
TSTL32 32mm (Large) | TSTL32BD | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

ASSEMBLY ITEM NUMBER | CENTER ROD DIA | COMPONENT ITEM NUMBER | L5 LENGTH | L7 LENGTH | L23 LENGTH | L24 LENGTH | C3 CHAMFER
--- | --- | --- | --- | --- | --- | --- | ---
TSTL20 20mm (Small) | TSTL20BD | 104.0 | 94.0 | 6.1 | 30.0 | .5 mm |
TSTL26 26mm (Medium) | TSTL26BD | 116.0 | 103.0 | 8.2 | 37.0 | .5 mm |
TSTL32 32mm (Large) | TSTL32BD | 131.0 | 113.4 | 10.2 | 47.0 | .6 mm |

ASSEMBLY ITEM NUMBER | CENTER ROD DIA | COMPONENT ITEM NUMBER | KIT ITEM NUMBER | ST STS
--- | --- | --- | --- | ---
TSTL20 20mm (Small) | TSTL20BD | TSTL20K | TSTL20BDK |
TSTL26 26mm (Medium) | TSTL26BD | TSTL26K | TSTL26BDK |
TSTL32 32mm (Large) | TSTL32BD | TSTL32K | TSTL32BDK |

2-STAGE EJECTORS

Assembly and Installation Information – Bottom Last

STATIONARY PLATEN SIDE

CENTER ROD LENGTH (TO BE CUT BY MOLDMAKER)

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

2-Stage Ejector Component Information – Bottom

Moving Platen Side

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

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

### Component Information – Bottom Last

#### Travel Sleeve – TS

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>CENTER ROD DIA</th>
<th>COMPONENT ITEM NUMBER</th>
<th>DR DIA</th>
<th>DS DIA</th>
<th>LENGTH</th>
<th>TI THREAD</th>
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<tbody>
<tr>
<td>TSBL20</td>
<td>18mm (Small)</td>
<td>TSBL20TS</td>
<td>.500</td>
<td>.340</td>
<td>1.08</td>
<td>A 2-56</td>
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<tr>
<td>TSBL20A</td>
<td>19mm (Medium)</td>
<td>TSBL20TS</td>
<td>.500</td>
<td>.340</td>
<td>1.08</td>
<td>A 2-56</td>
</tr>
<tr>
<td>TSBL20B</td>
<td>18mm (Larg)</td>
<td>TSBL20TS</td>
<td>.500</td>
<td>.340</td>
<td>1.08</td>
<td>A 2-56</td>
</tr>
</tbody>
</table>

*Supplied to provide maximum travel with no cut-off. To reduce travel in Stroke 2 (H2), cut threaded end per installation data.*

#### Center Rod – CR

<table>
<thead>
<tr>
<th>ASSEMBLY ITEM NUMBER</th>
<th>CENTER ROD DIA</th>
<th>COMPONENT ITEM NUMBER</th>
<th>DR DIA</th>
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<th>LENGTH</th>
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<td>TSBL20CR</td>
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<td>19mm (Medium)</td>
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<td>1.08</td>
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<tr>
<td>TSBL20B</td>
<td>18mm (Larg)</td>
<td>TSBL20CR</td>
<td>.500</td>
<td>.340</td>
<td>1.08</td>
<td>A 2-56</td>
</tr>
</tbody>
</table>

*Supplied to provide maximum travel with no cut-off. To reduce travel in Stroke 2 (H2), cut threaded end per installation data.*

### 2-STAGE EJECTORS

#### Assembly and Installation – Bottom Last

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>CENTER ROD DIA</th>
<th>CENTER ROD LENGTH</th>
<th>TRAVEL SLEEVE LENGTH</th>
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<th>H2 – STROKE 2</th>
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<tr>
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<tr>
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<td>28.58</td>
<td>M8</td>
<td>14.00</td>
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<td>TSBL20A</td>
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<td>32.21</td>
<td>32.21</td>
<td>M6</td>
<td>11.00</td>
</tr>
</tbody>
</table>

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

**Body for Cam Fingers – BD**

(Body only without Cam Fingers)

**2-STAGE EJECTORS**

**Locking Ring – LR**

**Component Information – Bottom Last**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ASSEMBLY</th>
<th>CENTER ROD DIA</th>
<th>COMPONENT ITEM NUMBER</th>
<th>CENTER ROD DIA</th>
<th>TRAVEL SLEEVE</th>
<th>BODY FOR CAM FINGERS</th>
<th>CAM FINGER REPLACEMENT KIT</th>
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</thead>
<tbody>
<tr>
<td>TSBL20A</td>
<td>32mm (Small)</td>
<td>TSBL20A</td>
<td>TSBL20.R</td>
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<td>1.095</td>
<td>1.295</td>
<td>TSBL20K</td>
</tr>
<tr>
<td>TSBL26A</td>
<td>26mm (Medium)</td>
<td>TSBL26A</td>
<td>TSBL26.R</td>
<td>1.354</td>
<td>1.255</td>
<td>1.354</td>
<td>TSBL26K</td>
</tr>
<tr>
<td>TSBL32A</td>
<td>32mm (Large)</td>
<td>TSBL32A</td>
<td>TSBL32.R</td>
<td>1.514</td>
<td>1.415</td>
<td>1.514</td>
<td>TSBL32K</td>
</tr>
</tbody>
</table>

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

**Top Last Replacement Component Item Numbers**

**Bottom Last Replacement Component Item Numbers**

**Cam Finger Replacement Kit – KT**

With (B) Cam Fingers, and (B) Locking Pins

**Replacement Kit – KT**

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

**BLIND SLOT FOR LOCKING PIN**

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

**Puller Pin – PP**

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

### 2-STAGE EJECTORS

**Component Information – Bottom Last**

**Locking Ring – LR**

**Component Information – Bottom Last**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ASSEMBLY</th>
<th>CENTER ROD DIA</th>
<th>COMPONENT ITEM NUMBER</th>
<th>CENTER ROD DIA</th>
<th>TRAVEL SLEEVE</th>
<th>BODY FOR CAM FINGERS</th>
<th>CAM FINGER REPLACEMENT KIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSBL20A</td>
<td>32mm (Small)</td>
<td>TSBL20A</td>
<td>TSBL20.R</td>
<td>1.194</td>
<td>1.095</td>
<td>1.295</td>
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<tr>
<td>TSBL26A</td>
<td>26mm (Medium)</td>
<td>TSBL26A</td>
<td>TSBL26.R</td>
<td>1.354</td>
<td>1.255</td>
<td>1.354</td>
<td>TSBL26K</td>
</tr>
<tr>
<td>TSBL32A</td>
<td>32mm (Large)</td>
<td>TSBL32A</td>
<td>TSBL32.R</td>
<td>1.514</td>
<td>1.415</td>
<td>1.514</td>
<td>TSBL32K</td>
</tr>
</tbody>
</table>

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

**Puller Pin – PP**

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

**Replacement Kit – KT**

*Puller Pins are not included with BL Assemblies and must be ordered separately.
Two-Stage Ejectors – Installation

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

TL Assembly

Bottom Last (BL)

Step 1

Cam Finger is knocked toward the inside diameter region of the Body for Cam Fingers.

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

Step 2

A portion of Locking Pin breaks cleanly away and travels with the moving Cam Finger toward the inside diameter of the Body for Cam Fingers.

Step 3

Both the Cam Finger and broken piece of Locking Pin drop into the inside diameter of the Body for Cam Fingers.

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

Two-Stage Single-Stroke Ejector – FW 1850
The two-stage single-stroke ejector can be integrated into ejection molding tools. This ejector automatically divides the motion into two sequential strokes.

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

Adapter with Screw – FW 1851
Material: 1.6582

MOLD PLATE OPERATION
PRECISION CONTROL OF MOLD PLATE OPERATION FEATURING: INTERNAL LATCH-LOCK ACCELERATED EJECTORS LATCH LOCKS AND PULLERS COUNTERVIEW MOLD COUNTERS
MOLD PLATE OPERATION

Table of Contents

Internal Latch Lock
Benefits and Selection Table ........................................ 143
Typical Application Design Guidelines ......................... 144
Set-Up Dimensional Information ................................. 145
Component Dimensional Information .......................... 146-148
Optional Guided Ejection & Return Sleeves ................. 149
Typical Applications ................................................... 150
External Accelerated Lock .................. 151-152
Accelerated Knock-Outs ............................................. 153

Latch Locks and Pullers
Jiffy Latch-Lok™ Assemblies .................................. 160-161
Latch Locks – General Information ........................... 162
Latch Locks – Typical Applications ............................ 163

CounterView Mold Counters
CounterView R-Series .............................................. 164
CounterView 100-200 Series ....................................... 165
CvE Monitor® ............................................................. 166-169

Ejection Control
FastTie® Quick Ejector Tie-In System ......................... 170-177
Ejector Return Couplings .......................................... 178
Friction Pullers .......................................................... 179

Limit Switches
Thinswitch® Liquid-Resistant Limit Switch ................. 180
Thinswitch® Limit Switch (Standard & High Temp) ....... 181-182
Global Thinswitch® ..................................................... 183

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INTERNAL LATCH LOCK
Benefits and Selection Table

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

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

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

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

DME’s Internal Latch Lock allows control of the mold plate opening sequence on mold bases with stripper plates. It enables one plate or group of plates to be latched together while the first parting line opening occurs. Then, after a predetermined amount of travel, the latch lock releases the latched plate or group of plates for the remaining parting line or parting lines to open.

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INTERNAL LATCH LOCK

Typical Application Design Guidelines

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

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

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

4. The answers to the above items (1-3) should establish a specific item number assembly from the table on page 123.

5. A minimum of four assemblies are recommended per mold. However, for larger molds, thick plates, or an application where the travel is longer and/or when mold plates are thicker. DME AX-Series mold base is shown in this typical application.

6. The center puller pin should be counterbored into its mounting plate 4mm (.157") minimum for most applications, as shown in the drawings at right. This counterbore aligns the center puller pin to latch. This is typically done in applications where the travel is longer and/or when mold plates are thicker. Some applications may require a thicker than standard before latching plate. DME AX-Series mold base is shown in this typical application.

7. The most common applications for the latch locks are for the DME AX-Series stripper plate mold bases. However, many other types of stripper plate mold bases can also be used with this internal plate latching mechanism. It is important to make sure that the leader pin lengths in all applications are long enough to fully engage the stripper plate through its full travel. The latch lock mechanism latches two plates together but is not intended to provide guidance. Instead, it relies on the leader pins in the proper alignment and support of the actuated stripper plates.

8. In the fully latched position the Internal Latch Lock mechanism will allow movement of approximately 0.4mm (.016") for the 28mm diameter and 34mm diameter assemblies and approximately 0.5mm (.020") for the 45mm and 60mm diameter assemblies and assemblies.

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

10. The Internal Latch Lock is not recommended for severe load applications.

11. The Internal Latch Lock must not be exposed to temperatures exceeding 150°C (300°F) at any time.

12. Lubricate all metal-to-metal contact areas internally and peripherally as required. A good grade of moldmakers non-melting type grease is recommended for the appropriate temperature should be used.

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

U.S. Patent No. 5,494,435

INTERNAL LATCH LOCK

Set-Up Dimensional Information

DME AX-Series stripper plate mold base is shown

<table>
<thead>
<tr>
<th>BASIC LATCH LOCK SIZE</th>
<th>INTERNAL LATCH LOCK ITEM NUMBER</th>
<th>MOUNTING PLATE MINIMUM THICKNESS RANGE</th>
<th>INTERNAL LATCH LOCK ITEM NUMBER</th>
<th>MOUNTING PLATE MINIMUM THICKNESS RANGE</th>
<th>INTERNAL LATCH LOCK ITEM NUMBER</th>
<th>MOUNTING PLATE MINIMUM THICKNESS RANGE</th>
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<tbody>
<tr>
<td>28mm</td>
<td>DKL2811</td>
<td>3.149±.004</td>
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<td>3.149±.004</td>
<td>DKL6022</td>
<td>3.149±.004</td>
</tr>
</tbody>
</table>

(1) Supplied to provide maximum travel with no cut off. To reduce travel between maximum and minimum, cut off slotted travel limiting sleeve on threaded end only per installation data. Cut off to no less than minimum travel; maintain close tolerances per installation data.

(2) This set-up dimension is critical and must be maintained as specified to properly locate pin and cam body to latch. Dimension W is from top of X-1 stripper plate to top end of center puller pin. See installation data for additional information.

(3) ‘Y’ mounting plate dimension will be the “A” plate for AX-Series stripper plate mold bases.

(4) This counterbore depth is critical and must be maintained as specified to locate split sleeve, cam body, and pin to latch.
INTERNAL LATCH LOCK
Component Dimensional Information

Assembly Retaining Screw

Spring Retainer

Body for Cam Fingers (Body Only Without Cam Fingers)

INTERNAL LATCH LOCK
Component Dimensional Information

Spring for Holding Pin

Holding Pin for Cams

Slotted Travel Limiting Sleeve

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

INTERNAL LATCH LOCK
Component Dimensional Information

Basic Latch Size

Spring for Holding Pin

Holding Pin for Cams

Slotted Travel Limiting Sleeve

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

Basic Latch Size

Spring for Holding Pin

Holding Pin for Cams

Slotted Travel Limiting Sleeve

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

Basic Latch Size

Spring for Holding Pin

Holding Pin for Cams

Slotted Travel Limiting Sleeve

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

Basic Latch Size

Spring for Holding Pin

Holding Pin for Cams

Slotted Travel Limiting Sleeve

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

Basic Latch Size

Spring for Holding Pin

Holding Pin for Cams

Slotted Travel Limiting Sleeve

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

Basic Latch Size

Spring for Holding Pin

Holding Pin for Cams

Slotted Travel Limiting Sleeve

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

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

Component Dimensional Information

<table>
<thead>
<tr>
<th>SIZE</th>
<th>DIA</th>
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<th>THICK</th>
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<td>28 1.102</td>
<td>.748</td>
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<tr>
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<td>45mm</td>
<td>36 1.438</td>
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<tr>
<td>Large</td>
<td>40mm</td>
<td>50mm</td>
<td>40 1.575</td>
<td>1.381</td>
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</table>

Rubber Spring

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Internal Latch Lock Mechanism with the Optional Sleeve

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

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

- Sleeves can add guided ejection function to mold base along with plate latching mechanism.
- Sleeves can replace function of return pins in mold base for most applications using the plate latching mechanism.
- Sleeves fit around the center puller pin of the plate latching mechanism and are mounted in the ejector assembly, thus eliminating the need for additional mold space usually required for the guided ejection and return pin functions.

Optional Guided Ejection and Return Sleeves

<table>
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<tr>
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<td>Large</td>
<td>40mm</td>
<td>50mm</td>
<td>40 1.575</td>
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</table>

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

Replacer Components

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<tr>
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NOTE:
- Choose the appropriate length sleeve so that it can be cut off to a length that will fully return the ejector assembly. See installation data.
- The center puller pins must support and guide the sleeves, as well as the ejector assembly. The pins must have sufficient bearing surface contact as specified by dimension "L41" minimum.
- Additional bearing surface contact for the center puller pins may require a thicker bottom clamping plate or the addition of another plate to the bottom of the mold for some applications. See installation data.

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</tbody>
</table>
INTERNAL LATCH LOCK

Typical Applications

To float "A" plate away from top clamp plate while locking "A" and "B" plates.

Center rod tied into bottom clamp plate.

EXTERNAL LATCH LOCK

Positive and Precise Positioning of Floating Plates

Typical Applications

To float "X-1" plate away from "A" plate while locking "X-1" and "B" plates.

Center rod tied into bottom clamp plate.

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</table>
**EXTERNAL LATCH LOCK**

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

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

**Typical Applications**

**ITEM NUMBER**  
AKO1

- Positive & Precise Positioning of Floating Plates
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- Ensures floating plates will be where they should be throughout the life of the mold
- Positively and precisely positions plates every time the mold opens and closes, allowing molds to run faster
- Simplifies mold design while improving design flexibility
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**ACCELERATED KNOCK-OUTS**

**Accelerated Knock-Outs – Typical Application**

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

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

**Typical Applications**

**SA...PU** - shock absorber, buffer damper  
**DI** - maximum delayed stroke  
**Sz** - switching zone, stroke 2 begins slightly before the end of stroke 1

- Simple design reduces machining time & labor costs
- Standardized components simplify mold maintenance
- Eliminates springs & associated play in plates, and reduces mold maintenance
- Standard sizes accommodate most mold base sizes and stroke lengths
- (4) sizes of housings with (2) housing lengths each; (3) puller bar lengths
- Puller bars & housing may be shortened as desired
- Stroke may be with or without delay

<table>
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<th>ITEM NUMBER</th>
<th>INTENDED MOLD SIZE</th>
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</table>

**NOTE:** Key ejector pin and limit possible over travel of pin as required.
ACCELERATED EJECTORS

Accelerated Ejectors – General Information

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

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

**Accelerated Ejector Dimensions**

<table>
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<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>USED WITH PLATE THICKNESS</th>
<th>EJECTOR PLATE</th>
<th>EJECTOR RETAINER PLATE</th>
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<td>BUMPER TYPE – REGULAR</td>
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<td>3/4</td>
<td>3/4</td>
</tr>
</tbody>
</table>

**Accelerated Ejectors – General Information**

- Stroke for all units = 5/8 maximum
- Keep pinion lubricated
- Do not use with opposing spring pressure

**Pin Type**

- **Bumper Type**
  - **ACCELERATED STROKE**
  - **TOTAL TRAVEL INCLUDING SPRING DROP AT END OF PART READY TO BE EJECTED**
  - **MOLDED PARTS READY TO BE EJECTED**
  - **TO BE EJECTED**
  - **MOLDED PART READY**

- **Pin Type**
  - **ACCELERATED STROKE**
  - **TOTAL TRAVEL INCLUDING SPRING DROP AT END OF PART READY TO BE EJECTED**
  - **MOLDED PARTS READY TO BE EJECTED**
  - **TO BE EJECTED**
  - **MOLDED PART READY**

**Accelerated Ejector Dimensions**

<table>
<thead>
<tr>
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<th>B</th>
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<th>D</th>
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EARLY EJECTOR RETURN ASSEMBLY

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

Early Ejector Return Unit Assembly

For returning ejector plate before mold is closed

Early Ejector Return Operation Sequence

Normal Installation in Mold Base

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Early Ejector Return Unit Assembly

For returning ejector plate before mold is closed

Early Ejector Return Operation Sequence

Normal Installation in Mold Base

Determining Post Length

<table>
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<td>2.000</td>
<td>2.000</td>
<td>2.060</td>
</tr>
</tbody>
</table>

*Remove this amount of stock from bottom end of post.

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

Knock Out Extension Pucks

KO Extension Pucks standardize mold ejector systems by unifying press knock out rod lengths. Wide range of thread configurations available for many different press types.

**Item Number**

<table>
<thead>
<tr>
<th>Thread Type</th>
<th>L.Dim</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCPE1038</td>
<td>3/8&quot;-16 UNC 1/2&quot;-13 UNC</td>
</tr>
<tr>
<td>BCPE1012</td>
<td>1/2&quot;-13 UNC 5/8&quot;-11 UNC</td>
</tr>
<tr>
<td>BCPE1034</td>
<td>5/8&quot;-11 UNC 3/4&quot;-10 UNC</td>
</tr>
<tr>
<td>BCPE10NT</td>
<td>-NONE-</td>
</tr>
<tr>
<td>BCPE1538</td>
<td>3/8&quot;-16 UNC 1/2&quot;-13 UNC</td>
</tr>
<tr>
<td>BCPE1512</td>
<td>1/2&quot;-13 UNC 5/8&quot;-11 UNC</td>
</tr>
<tr>
<td>BCPE1534</td>
<td>5/8&quot;-11 UNC 3/4&quot;-10 UNC</td>
</tr>
<tr>
<td>BCPE15NT</td>
<td>-NONE-</td>
</tr>
</tbody>
</table>

**Material**

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

(4) 1/4"-20 SHCS included

* NT - No Thread, Mold Maker to Machine

---

**Reversible K.O. Extension Puck**

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

**Item Number**

<table>
<thead>
<tr>
<th>Thread Type</th>
<th>L.Dim</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCPE1038</td>
<td>3/8&quot;-16 UNC 1/2&quot;-13 UNC</td>
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<tr>
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<td>5/8&quot;-11 UNC 3/4&quot;-10 UNC</td>
</tr>
<tr>
<td>BCPE10NT</td>
<td>-NONE-</td>
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<tr>
<td>BCPE1538</td>
<td>3/8&quot;-16 UNC 1/2&quot;-13 UNC</td>
</tr>
<tr>
<td>BCPE1512</td>
<td>1/2&quot;-13 UNC 5/8&quot;-11 UNC</td>
</tr>
<tr>
<td>BCPE1534</td>
<td>5/8&quot;-11 UNC 3/4&quot;-10 UNC</td>
</tr>
<tr>
<td>BCPE15NT</td>
<td>-NONE-</td>
</tr>
</tbody>
</table>

**Material**

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

(4) 1/4"-20 SHCS included
**Jiffy Latch-Lok™ Assemblies**

**Jiffy Latch-Lok™ Assemblies – General Information**

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

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

Once properly installed, the Latch-Lok eliminates the possibility of pneumatic controls or timing devices with delicate adjustments. The Jiffy Latch-Lok permits you to shorten the ejection stroke, improve cycle time and increase the number of parts per shift.

The Jiffy Latch-Lok is available in sizes for regular or heavy-duty change, or connections that can be accidentally knocked off.

Replacement parts are available.

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

To Control Stripper Plate

Cycle time is often wasted waiting for the press knock-out bar to function. With the application of the DME Jiffy Latch-Lok, as illustrated to the left, the stripper plate is moved in a secondary action of the mold opening without the aid of the press knock-out bar.

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

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

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

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

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

For those mold applications where a shorter press stroke is required, the DME Jiffy Latch-Lok is extremely effective.

You can activate the Jiffy Latch-Lok at any time after the mold begins to open, and pull the ejector assembly forward. This simple action shortens cycle time and increases part production.

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

**Jiffy Latch-Lok™ Assemblies**

**Jiffy Latch-Lok™ Assemblies – Replacement Parts**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>FOR LATCH-LOK LL151</th>
<th>FOR LATCH-LOK LL101</th>
<th>FOR LATCH-LOK LL121</th>
<th>FOR LATCH-LOK LL201</th>
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</thead>
<tbody>
<tr>
<td>LATCH BAR</td>
<td>ITEM NUMBER</td>
<td>ITEM NUMBER</td>
<td>ITEM NUMBER</td>
<td>ITEM NUMBER</td>
</tr>
<tr>
<td>LL150</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>LL151</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>RELEASE BAR</td>
<td>ITEM NUMBER</td>
<td>ITEM NUMBER</td>
<td>ITEM NUMBER</td>
<td>ITEM NUMBER</td>
</tr>
<tr>
<td>LL100</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>LL101</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>LL200</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>LL201</td>
<td>18</td>
<td>18</td>
<td>18</td>
<td>18</td>
</tr>
</tbody>
</table>

Replacement parts are available.

**Dimensions**

**U.S. Patent No. 3,706,116**

**1/2” Plate**

**3/8” Plate**

**3/16” Plate**

**Notes**

- All dimensions are in inches.
- Clearance hole sizes are for S.H.C.S. (Semi-Hex-Catalog Size) screws.
- All holes rotated 90° as shown.
- Centerline to centerline.

**T.C.P.**

**BODY**

**LATCH BAR**

**SPACER**

**RELEASE BAR**

**Support Plate**

**Ejector Housing**

**Stripper Plate**

**Hoist Plate**

**Support Plate**
LATCH LOCKS
Latch Locks – General Information

KU: Latch Locks – Baffle Bars
KU11…
appropriate for KL11070
KL12…
KU12…
appropriate for KL11070
KL12…
KL13…
KU22…
appropriate for KL22256

LATCH LOCKS
Latch Locks – Typical Application

Spares Parts
KF: Springs
KK: Heads
KV: Wearing Bars

Typical Application

Combinations
KL1/1
KL1/2
KL1/3
KL2/2

Spare Parts

Item Number | KU12000 | KU12500 | KU13000 | KU22000
---|---|---|---|---
Item Number | 7 | 7 | 10 | 12
a | 15 | 15 | 15.5 | 15.5
b | 28 | 28 | 38 | 38
h | 7 | 7 | 8 | 8
l | 150 | 220 | 270 | 360
m | 25 | 30 | 30 | 45

Item Number | KU11090 | KU11220 | KU11270 | KU11270
---|---|---|---|---
Item Number | 10 | 10 | 10 | 10
a | 15 | 15 | 15 | 15
b | 25 | 25 | 25 | 25
h | 27 | 27 | 27 | 27
l | 6 | 6 | 6 | 6
m | 51.5 | 51.5 | 51.5 | 51.5
n | 35 | 35 | 35 | 35
p | 192 | 192 | 192 | 192
q | 30 | 30 | 30 | 30
r | 10 | 10 | 10 | 10
s | 40 | 40 | 40 | 40

Item Number | KU11210 | KU11270 | KU11270 | KU12220
---|---|---|---|---
Item Number | 10 | 10 | 10 | 10
a | 15 | 15 | 15 | 15
b | 15 | 15 | 15 | 15
h | 15 | 15 | 15 | 15
l | 520 | 520 | 520 | 520
m | 75 | 75 | 75 | 75
n | 32 | 32 | 32 | 32
p | 80 | 80 | 80 | 80

Item Number | KU11205 | KU11256 | KU11256 | KU12256
---|---|---|---|---
Item Number | 10 | 14 | 14 | 13
a | 28 | 30 | 30 | 30
b | 17 | 15 | 15 | 15
h | 30 | 12 | 12 | 12
l | 8102 | 8102 | 8102 | 8102
m | 5400 | 5400 | 5400 | 5400
n | 10 | 10 | 10 | 10

Item Number | KU12210 | KU12256 | KU12256 | KU12256
---|---|---|---|---
Item Number | 20 | 14 | 14 | 13
a | 12 | 15 | 15 | 15
b | 29 | 30 | 30 | 30
h | 12 | 12 | 12 | 12
l | 8102 | 8102 | 8102 | 8102
m | 5400 | 5400 | 5400 | 5400
n | 10 | 10 | 10 | 10

Item Number | KU12210 | KU12256 | KU12256 | KU12256
---|---|---|---|---
Item Number | 10 | 14 | 14 | 13
a | 12 | 15 | 15 | 15
b | 29 | 30 | 30 | 30
h | 12 | 12 | 12 | 12
l | 8102 | 8102 | 8102 | 8102
m | 5400 | 5400 | 5400 | 5400
n | 10 | 10 | 10 | 10

Item Number | KU12210 | KU12256 | KU12256 | KU12256
---|---|---|---|---
Item Number | 10 | 14 | 14 | 13
a | 12 | 15 | 15 | 15
b | 29 | 30 | 30 | 30
h | 12 | 12 | 12 | 12
l | 8102 | 8102 | 8102 | 8102
m | 5400 | 5400 | 5400 | 5400
n | 10 | 10 | 10 | 10

Item Number | KU12210 | KU12256 | KU12256 | KU12256
---|---|---|---|---
Item Number | 10 | 14 | 14 | 13
a | 12 | 15 | 15 | 15
b | 29 | 30 | 30 | 30
h | 12 | 12 | 12 | 12
l | 8102 | 8102 | 8102 | 8102
m | 5400 | 5400 | 5400 | 5400
n | 10 | 10 | 10 | 10
COUNTERVIEW® MOLD COUNTER

CounterView R-Series

General Description

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

Parting Line at Left

Each R-Series CounterView includes the actuator. All except CVR18D and CVRL18D require attachment of the actuator rod to the threaded unit.

INCH Standard

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>NOMINAL PLATE THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVRL43D</td>
<td>4.375</td>
</tr>
<tr>
<td>CVRL38D</td>
<td>3.875</td>
</tr>
<tr>
<td>CVRL33D</td>
<td>3.375</td>
</tr>
<tr>
<td>CVRL23D</td>
<td>2.375</td>
</tr>
<tr>
<td>CVRL18D</td>
<td>1.875</td>
</tr>
</tbody>
</table>

METRIC Standard

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>NOMINAL PLATE THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CVR83D</td>
<td>8.375</td>
</tr>
<tr>
<td>CVR56D</td>
<td>5.600</td>
</tr>
<tr>
<td>CVR38D</td>
<td>3.875</td>
</tr>
<tr>
<td>CVR33D</td>
<td>3.375</td>
</tr>
</tbody>
</table>

CounterView 100-200 Series

General Description

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

Benefits

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

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

INCH Standard

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ROUND CY ROD LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCV05</td>
<td>0.5</td>
</tr>
<tr>
<td>RCV10</td>
<td>1.0</td>
</tr>
<tr>
<td>RCV15</td>
<td>1.5</td>
</tr>
<tr>
<td>RCV20</td>
<td>2.0</td>
</tr>
<tr>
<td>RCV25</td>
<td>2.5</td>
</tr>
<tr>
<td>RCV30</td>
<td>3.0</td>
</tr>
</tbody>
</table>

METRIC Standard

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ROUND CY ROD LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>CV06</td>
<td>0.6</td>
</tr>
<tr>
<td>CV10</td>
<td>1.0</td>
</tr>
<tr>
<td>CV15</td>
<td>1.5</td>
</tr>
<tr>
<td>CV20</td>
<td>2.0</td>
</tr>
<tr>
<td>CV25</td>
<td>2.5</td>
</tr>
<tr>
<td>CV30</td>
<td>3.0</td>
</tr>
</tbody>
</table>

DME CounterView Replacement Actuator Rods

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ROUND CY ROD LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCV06</td>
<td>0.6</td>
</tr>
<tr>
<td>RCV10</td>
<td>1.0</td>
</tr>
<tr>
<td>RCV15</td>
<td>1.5</td>
</tr>
<tr>
<td>RCV20</td>
<td>2.0</td>
</tr>
<tr>
<td>RCV25</td>
<td>2.5</td>
</tr>
<tr>
<td>RCV30</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Parting Line at Right

INSTALLATION

Parting Line

Left hand (actuated with parting line on the left) CounterView mounted in A Plate (CVRL23D shown)

NOMINAL PLATE THICKNESS

<table>
<thead>
<tr>
<th>PLATE</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Plate</td>
<td>.125 (3.25mm)</td>
</tr>
<tr>
<td>B Plate</td>
<td>.170 (4.30mm)</td>
</tr>
</tbody>
</table>

Parting Line

Right hand (actuated with parting line on the right) CounterView mounted in B Plate (CVRL43D shown)

NOMINAL PLATE THICKNESS

<table>
<thead>
<tr>
<th>PLATE</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Plate</td>
<td>.120 (3.05mm)</td>
</tr>
<tr>
<td>B Plate</td>
<td>.170 (4.30mm)</td>
</tr>
</tbody>
</table>

MOLDMONITOR.COM

Enables access to mold information online at http://moldmonitor.com.

CounterView is a registered trademark of Progressive Components.

U.S. #5,571,639

Others issued and pending

DME CounterView Mold Counter

A plate

Backup Plate for insert

Parting Line

100 ±.01 (.254 ±.002) Actuator required. [If actuator rod is to be modified, this circumstance should be maintained.]

Series CounterView can be installed in the A or B plates with a minimum of 3.05mm (.120) parting line.

INCH Standard

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ROUND CY ROD LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCV06</td>
<td>0.6</td>
</tr>
<tr>
<td>RCV10</td>
<td>1.0</td>
</tr>
<tr>
<td>RCV15</td>
<td>1.5</td>
</tr>
<tr>
<td>RCV20</td>
<td>2.0</td>
</tr>
<tr>
<td>RCV25</td>
<td>2.5</td>
</tr>
<tr>
<td>RCV30</td>
<td>3.0</td>
</tr>
</tbody>
</table>

METRIC Standard

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>ROUND CY ROD LENGTH</th>
</tr>
</thead>
<tbody>
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<tr>
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</tr>
<tr>
<td>CV15</td>
<td>1.5</td>
</tr>
<tr>
<td>CV20</td>
<td>2.0</td>
</tr>
<tr>
<td>CV25</td>
<td>2.5</td>
</tr>
<tr>
<td>CV30</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Actuation required

Parting Line

Right hand (actuated with parting line on the right) CounterView mounted in B Plate (CVRL43D shown)

NOMINAL PLATE THICKNESS

<table>
<thead>
<tr>
<th>PLATE</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
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<tr>
<td>B Plate</td>
<td>.170 (4.30mm)</td>
</tr>
</tbody>
</table>

Actuation required

Parting Line

Left hand (actuated with parting line on the left) CounterView mounted in A Plate (CVRL23D shown)

NOMINAL PLATE THICKNESS

<table>
<thead>
<tr>
<th>PLATE</th>
<th>THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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</tbody>
</table>

Parting Line

Right hand (actuated with parting line on the right) CounterView mounted in B Plate (CVRL43D shown)

NOMINAL PLATE THICKNESS

<table>
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<tr>
<td>B Plate</td>
<td>.170 (4.30mm)</td>
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</tbody>
</table>

Parting Line

Left hand (actuated with parting line on the left) CounterView mounted in A Plate (CVRL23D shown)

NOMINAL PLATE THICKNESS

<table>
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<tr>
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<tbody>
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<tr>
<td>B Plate</td>
<td>.170 (4.30mm)</td>
</tr>
</tbody>
</table>
**General Description**

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

**Mounting Options**

- **Internal Mounting with Extension Rod**
- **External Mounting with Mounting Block**

**Benefits**

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

**CounterViews**

- CVe Metric (with Mounting Block) Parting Line M4 x 25mm SHCS
- CVe Inch (with Mounting Block) Parting Line #8-32 x 1" SHCS
- CVe Metric (with 203mm rod) Extension (Includes 203mm rod) M4 x 25mm SHCS
- CVe Inch Parting Line #8-32 x 1" SHCS

**On-Mold Display Modes**

- **Cycle Count**
  - Total cycles for the life of the mold is presented on the main screen of the CVe Monitor.
  - Efficiency Percentage - Recent
  - The percentage of time the mold has been active in the past 25,000 cycles.

- **Cycle Time**
  - Since the first production cycle, the cycle time is shown in seconds for the life of the mold.
  - Cycle Time - Recent
  - Cycle time for the past 25,000 cycles.

- **Cycle Time - Recent**
  - A separate counter that can be reset to zero for interime monitoring of cycles when pressed and held.

- **Removal Monitoring**
  - When the CVe Monitor is removed from the tool for any reason (i.e. cleaning) the pins on the back of the CVe Monitor will continue to alert the user until snoozed or the PM is ultimately recorded.

**Alert Mode**

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

**Preventive Maintenance**

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

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

**Low Battery**

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

**Retrofitting and Removal**

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

**Retrofit CVe for CounterView Tools**

During initialization, users can start the cycle count with the tool’s actual cycle count from an existing CounterView or known cycles from maintenance records. Once entered, the user can see the total cycles for the tool, which includes the count of the cycles from the counter and those run with the CVe Monitor. In the screen at right, the tool had 1,000,000 cycles on it originally, but ran 567,288 cycles after the CVe Monitor was installed.

**Preventive Maintenance**

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

**Replacement Parts**

- **CVe Monitor**
  - CVe Metric (with Mounting Block) Parting Line M4 x 25mm SHCS
  - CVe Inch (with Mounting Block) Parting Line #8-32 x 1" SHCS

- **CVe Metric (with 203mm rod) Extension (Includes 203mm rod) M4 x 25mm SHCS**

- **CVe Inch Parting Line #8-32 x 1" SHCS**

- **CVe Custom Mounting Block including 203mm rod M4 x 25mm SHCS**

- **CVe Metric (with Mounting Block) Parting Line M4 x 25mm SHCS**

- **CVe Inch Parting Line #8-32 x 1" SHCS**

**Retention of Data**

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

**Retrofit CVe for CounterView Tools**

During initialization, users can start the cycle count with the tool’s actual cycle count from an existing CounterView or known cycles from maintenance records. Once entered, the user can see the total cycles for the tool, which includes the count of the cycles from the counter and those run with the CVe Monitor. In the screen at right, the tool had 1,000,000 cycles on it originally, but ran 567,288 cycles after the CVe Monitor was installed.

**Preventive Maintenance**

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

**Replacement Parts**

- **CVe Monitor**
  - CVe Metric (with Mounting Block) Parting Line M4 x 25mm SHCS
  - CVe Inch (with Mounting Block) Parting Line #8-32 x 1" SHCS

- **CVe Metric (with 203mm rod) Extension (Includes 203mm rod) M4 x 25mm SHCS**

- **CVe Inch Parting Line #8-32 x 1" SHCS**

- **CVe Custom Mounting Block including 203mm rod M4 x 25mm SHCS**

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COUNTERVIEW® MOLD COUNTER

CVe Live

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

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

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

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

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

CVe On Demand

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

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

Program Watch™

OEMs and tool owners can view details and variances on their tools within a program by purchasing Program Watch from AST. For more information, contact your territory manager, customer service, or email AST directly at orderdesk@ast-tech.de.

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

CVe Monitor is a registered trademark of AST Technology. Patents granted and pending for AST Technology.
FasTie® Quick Ejector Tie-In System

Description & Use

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

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

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

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

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

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

Parts List

<table>
<thead>
<tr>
<th>Qty</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or 4</td>
<td>FasTie Pull Stud</td>
</tr>
<tr>
<td>2 or 4</td>
<td>FasTie Coupler</td>
</tr>
<tr>
<td>2 or 4</td>
<td>Fixed Length Ejector Bars or SpeedBar® Adjustable Length Bars</td>
</tr>
</tbody>
</table>

1 Air Manifold with tubing

FasTie® Couplers U.S. Patent No. 6,379,072

FasTie® Pull Studs Ideal for Center Knock-Out

FasTie® Quick Ejector Tie-In System Installation Examples

Typical Application - Couplers on Press Ejector Plate

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

Parts List

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

1 Air Manifold with tubing

FasTie® Quick Ejector Tie-In System Installation Examples

Couplers and Center Adapters on Press Ejector Plate

Couplers are installed next to the press ejector plate. Pull studs are placed at the end of the mold-mounted ejector bars for easy removal. Molds are changed quickly without accessing the back of the press ejector plate.

For example, a press with 4 ejector positions may be running molds using only the horizontal positions, but the next mold may need the 2 vertical ejector positions. Ejector housing shown is 1.062” thick. Air manifold supplies air to the mold side of the press ejector plate with the use of adapters.

Parts List

<table>
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</tr>
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<tbody>
<tr>
<td>2 or 4</td>
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</tr>
<tr>
<td>2 or 4</td>
<td>Center Adapters</td>
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<td>Fixed Length Ejector Bars or SpeedBar® Adjustable Length Bars</td>
</tr>
</tbody>
</table>

1 Air Manifold with tubing
FasTie®
Quick Ejector Tie-In System Installation Examples

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

Parts List
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FasTie Pull Stud</td>
</tr>
<tr>
<td>1</td>
<td>FasTie Coupler</td>
</tr>
<tr>
<td>1</td>
<td>Center Adapters</td>
</tr>
</tbody>
</table>

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

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

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

Parts List
<table>
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<td>1</td>
<td>Air Manifold with tubing</td>
</tr>
</tbody>
</table>

Specifications
- Maximum operating temp: 300°F (149°C)
- Air pressure range: 80–100 psi
- Pull stud material: Hardened Steel (58–62 Rc)
- Ejector bar and coupler material: High Strength Steel
- Threaded studs: B7 Alloy or Comparable
- Air manifold material: Aluminum
- Air tubing material: ⅛” OD Nylon

Press Requirements
- COUPLER SIZE
  - 1-inch
  - 1½-inch
  - 2-inch
  - Platen thru hole min.
    - 1-inch: ø27 mm
    - 1½-inch: ø36.8 mm
    - 2-inch: ø52.4 mm
  - Ejector plate thru hole min.
    - 1-inch: ø14 mm
    - 1½-inch: ø16.5 mm
    - 2-inch: ø19.4 mm
  - Ejector force per coupler max.
    - 2.5 tons
    - 5½ tons
    - 7½ tons

Recommended FasTie Size Per Press Size & Knockout Qty

Accessories
- Additional parts to aid installation and use:
  - SPEEDBAR® Adjustable Length Ejector Bar*: Changes length without tools ±1/8” in increments of .006”. Air passes through the bar for air hook-up at the back of the press ejector plate.
  - Fixed Length Ejector Bar: Provides an air passage to the back of the press ejector plate. Several lengths are stocked with one blank end for on-site finishing.
  - Center Ejector Bar and Center Adapter: Provides an air passage in front of the press ejector plate for center knockout. Also for use with multiple knockouts.
  - Air Manifold: Splits single air supply into four circuits to aid air connection. Comes with ⅛” diameter tubing and pneumatic connectors.

*1-inch, ½-13 threaded only

Contact DME for special thread sizes for Ejector Bars and Center Adapters

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

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

This setup is designed for captive molders, or shops with tools using a standard thickness ejector housing.

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This setup is designed for captive molders, or shops with tools using a standard thickness ejector housing.
FasTie®
Quick Ejector Tie-In System - 1-inch Couplers and Pull Studs

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

Standard FasTie Couplers and Pull Studs

High Strength FasTie Couplers and Pull Studs

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

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

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

Fixed Length Ejector Bar ½-13 threads

SPEEDBAR Adjustable Ejector Bar ½-13 threads

Adjusts +/- 1/2” from base height

Center Adapter

Center Bar (use with FTFHS-63 only)

Air Handling Parts

FTAM100 Air Manifold Assembly

FTPF2 Pneumatic Fitting

FTT125 Tubing ½"OD, nylon

Includes:

• Manifold
• (4) ¾” elbow pneumatic fittings
• (4) ¼” × 4ft tubing

Call DME for a quote on thread sizes not shown
**FasTie®**
Quick Ejector Tie-In System - 1-3/8 & 2-inch Couplers and Pull Studs

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

1-3/8" FasTie Coupler

- ITEM NUMBER: FTF1.4-63
  - LENGTH: ¾-11
- ITEM NUMBER: FTF1.4-75
  - LENGTH: ¾-10
- ITEM NUMBER: FTF1.4-M16
  - LENGTH: M16 x 2
- ITEM NUMBER: FTF1.4-M20
  - LENGTH: M20 x 2.5

1-3/8" FasTie Pull Stud

- ITEM NUMBER: FTF1.4-63
  - LENGTH: ¾-11
- ITEM NUMBER: FTF1.4-75
  - LENGTH: ¾-10
- ITEM NUMBER: FTF1.4-M16
  - LENGTH: M16 x 2
- ITEM NUMBER: FTF1.4-M20
  - LENGTH: M20 x 2.5

1-3/8" Center Adapter

- ITEM NUMBER: FTCA1.4-75
  - LENGTH: M16 x 2
- ITEM NUMBER: FTCA1.4-M16
  - LENGTH: M16 x 2
- ITEM NUMBER: FTCA1.4-M20
  - LENGTH: M20 x 2.5

### FasTie 2-Inch Components

1-3/8" FasTie Pull Stud

- ITEM NUMBER: FTF2-63
  - LENGTH: 5⁄8-11
- ITEM NUMBER: FTF2-75
  - LENGTH: ¾-10
- ITEM NUMBER: FTF2M16
  - LENGTH: M16 x 2
- ITEM NUMBER: FTF2M24
  - LENGTH: M24 x 2.5

2" FasTie Pull Stud

- ITEM NUMBER: FTF2-63
  - LENGTH: 5⁄8-11
- ITEM NUMBER: FTF2-75
  - LENGTH: ¾-10
- ITEM NUMBER: FTF2M16
  - LENGTH: M16 x 2
- ITEM NUMBER: FTF2M24
  - LENGTH: M24 x 2.5

2" Center Adapter

- ITEM NUMBER: FTCA2-75
  - LENGTH: M16 x 2
- ITEM NUMBER: FTCA2M16
  - LENGTH: M16 x 2
- ITEM NUMBER: FTCA2M20
  - LENGTH: M20 x 2.5

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

### Determine Ejector Bar Length

- Determine length of Solid Ejector Bar
- Select Connected FasTie length from table
- Subtract Connected FasTie length from Solid Ejector Bar length
- Subtract Center Adapter length if necessary
- Result is FasTie Ejector Bar length

### Connected FasTie Lengths

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>ITEM NUMBERS “X” LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard 1&quot; FasTie</td>
<td>FTF-xx and FTM-xx 3.062”/77.8mm</td>
</tr>
<tr>
<td>High Strength 1&quot; FasTie</td>
<td>FTFHS-xx and FTMHS-xx 3.162”/80.3mm</td>
</tr>
<tr>
<td>1 1/8&quot; FasTie</td>
<td>FTF14-xx and FTM 14-xx 4.300”/109.2mm</td>
</tr>
<tr>
<td>2&quot; FasTie</td>
<td>FTF2-xx and FTM2-xx 5.875”/149.2mm</td>
</tr>
</tbody>
</table>

### Maximum Installed Misalignment

Maximum center line misalignment per coupler size:

- 1" HS: +/- 3.5mm (/- .138”)
- 1-3/8": +/- 5mm (/- .197”)
- 2": +/- 6mm (/- .236”)

Ejector Bars for 1-1/8-inch and 2-inch FasTie’s are special orders. Contact DME Industrial Supplies for information.
**Quick Action Ejector Return Couplings for Presses with Hydraulic Ejection**

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

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

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

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

**NOTE:**
- Maximum operating temperature - 300°F (150°C)
- Temperature: Custom PPA resin with 8620 fastener
- Material: Custom PPA resin with 8620 fastener
- Thermal expansion or machining variances

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**DME Friction Pullers**

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

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

**Technical Data**

- **Material:** Custom PPA resin with 8620 fastener
- **Temperature:** Orientation operating temperature - 300°F (150°C)
- **Installation:** Only one unit required per injection molding machine. Do not use with quick-change molds.

**NOTE:**
- Recommended interference fit for Friction Pullers is 1 to .05mm larger than the receiving hole. To adjust, rotate the screw clockwise and measure bulge to achieve proper fit. Adjust further if necessary with ¼ turn increments, lining up the reference arrows on the fastener to the forward position (mold open).
General Description
Thinswitch® Liquid-Resistant Limit Switch is designed to verify ejector plate return in areas where occasional water or oil spray is present. The Thinswitch helps prevent accidental mold close in injection molding applications by providing a position switch that is tied to the injection molding machine control. The liquid resistant switch uses the same mounting hole locations as the original Thinswitch.

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

Features and Benefits

- Over 10 million cycle life
- 175°F (79.4°C) standard temperature rating
- 250°F (121°C) high-temperature unit for higher temperature needs
- Adjustable actuation between .187” and .250” from the base
- 3/16” thick design fits snugly behind the ejector plate in the space provided by the rest buttons
- Stripped and tinned 6 ft. wire leads
- Mounting screws and wire clips included

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

Specifications

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>T222LR &amp; HT291LR MODELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BODY</td>
<td>FIBERGLASS-REINFORCED NYLON</td>
</tr>
<tr>
<td>DOME</td>
<td>POLYURETHANE</td>
</tr>
<tr>
<td>BACK COVER</td>
<td>POLYESTER FILM</td>
</tr>
<tr>
<td>WIRE LEADS</td>
<td>22 GA STRANDED, 3-CONDUCTOR, SHIELDED POLYESTER FILM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ELECTRICAL</th>
<th>T222LR &amp; HT291LR MODELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATING TEMPERATURE:</td>
<td>T222LR STANDARD MODEL 175°F MAX (79.4°C MAX)</td>
</tr>
<tr>
<td></td>
<td>HT291LR HIGH TEMPERATURE MODEL 250°F MAX (121°C MAX)</td>
</tr>
<tr>
<td>SWITCHING:</td>
<td>SPDT</td>
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<tr>
<td>RATED CURRENT (RESISTIVE) VS. OPERATING STEEL TEMPERATURE:</td>
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</tr>
</tbody>
</table>

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

Thinswitch® Liquid-Resistant Limit Switch

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

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

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

- Prevents costly damage by ensuring the ejector assembly is fully returned
- Adjustable operating point allows actuation between .187” and .250” from the base
- 3/16” thick design fits snugly behind the ejector plate in the space provided by the rest buttons
- Included mounting hardware installs the Thinswitch Limit Switch easily
- Stripped and tinned 6 ft. wire leads make the switch ready to install without modification
- 175°F (79.4°C) standard temperature rating enables use for most molding applications
- 250°F (121°C) high temperature unit is available for higher temperature needs
- Quality tested over 10 million cycles to provide long, dependable service
- Linear adjustment set screw can be set within .005 to .0025
- Premature spring and switch failure may result by adjusting the operating point more than .020” (.5mm) before the end of the ejector plate stroke
- In stock to provide same-day delivery

References:

1. U.S. Patent No. 5,446,252
2. Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com
**Limit Switches**

**Thinswitch® Limit Switch**

- **Ejector Housing Base**
- **Spring**
- **Positioning**
- **Actuation Height**
- **Dimensions**

**Specifications**

- **Material**: Fiberglass-reinforced nylon
- **Color**: Black
- **Operating Temperature**: 176°F (80°C)
- **Contact Resistance**: 2.00Ω
- **Contacts**: Gold-plated
- **Switching**: SPDT
- **Amperage**: 2.0 amperes
- **Voltage**: 28VDC (sea level)

**Notes**

- Pressure required to activate the switch: 1 oz. min., 5 oz. max.
- Dimensions are in millimeters (mm).

**Ratings and Specifications**

<table>
<thead>
<tr>
<th>Temperature Model</th>
<th>Rated Current (Resistive)</th>
<th>°C</th>
<th>°F</th>
</tr>
</thead>
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<td>TSW2222</td>
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<tr>
<td>TSW2220</td>
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<td>250</td>
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**Schematic Diagram**

- Common (White)
- Normally Closed (DARK)
- Normally Open (Black)

**Common (White)**

- **Temporal Switches**
- **Thinswitch® Limit Switch**
- **Installation Instructions for Bracket**

**EU Standard**

- 3.2 - 4mm
- 3.2 - 4mm

**NA Standard**

- 3.2 - 4mm
- 3.2 - 4mm

**Dimensions**

- 3.2 - 4mm
- 3.2 - 4mm

**Rated Current (Inductive)**

- 2.0 amperes
- 2.0 amperes

**Notes**

- Dimensions are in millimeters (mm).
- Installation instructions for bracket.

**Contact Information**

- U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net  ■ store.milacron.com
## MOLD INTERLOCKS

### Table of Contents

- **IN2 Mold Interlocks**
  - Benefits .................................................. 186
  - IN2 Side Interlocks .................................... 187

- **Straight-Side Interlocks**
  - Interlock Dimensions .................................. 188

- **X-Style Interlocks**
  - Interlock Dimensions .................................. 189
  - Machining Pockets ........................................ 190

- **Parting Line and Tapered Interlocks**
  - Parting Line .................................................. 191-192
  - Tapered Round, INCH & Shoulder Plates .......... 193-194
  - Tapered Round, METRIC & Shoulder Plates ....... 195
  - Tapered Rectangular ....................................... 196

- **Black & Gold Mold Interlocks**
  - INCH Side .................................................... 197
  - INCH Top ..................................................... 198
  - METRIC Side .................................................. 199
  - METRIC Top ................................................... 200

- **Mold Straps** ................................................ 201

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

IN2 Side Interlocks

DME Side Interlocks provide:

• Accurate alignment of mold halves
• Easy installation
• Easy and cost-effective maintenance
• Industry-compatible sizes

Installation

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

Precision tolerancing, precision manufacturing means off-the-shelf interchangeability.

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

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

And now …

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

IN2 Side Interlocks

Mold Interlocks

IN2 Mold Interlock Benefits


Side Interlock Dimensions

<table>
<thead>
<tr>
<th>Width</th>
<th>A Height Male</th>
<th>B Height Female</th>
<th>C Interlock Height</th>
<th>D Interlock Width</th>
<th>E Thickness</th>
<th>F Radius</th>
<th>Screw Locations</th>
<th>Screw Size</th>
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<tbody>
<tr>
<td>1.500</td>
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<td>8-32 X .625</td>
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<td>.375</td>
<td>1.250</td>
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<td>.375</td>
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<td>.625</td>
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<td>1/4-20 X .88</td>
<td>.12</td>
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Side Interlock Ordering Information – SIS, SII

Material – Male Interlock: High-Speed Tool Steel
Hardness: 61-65 HRC

Material – Interlock Inserts: Graphitic Tool Steel
Hardness: 48-52 HRC

<table>
<thead>
<tr>
<th>Interlock Set*</th>
<th>Item Number</th>
<th>Replacement Interchangeable Interlocks**</th>
<th>Item Number</th>
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</table>

*Sets include one (1) female, one (1) male, two (2) inserts, four (4) SHCS.

**Replacement Interchangeable Inserts are sold as pairs.
MOLD INTERLOCKS

Straight-Side Interlocks

• Provides positive alignment for molds with interlocking cavities and cores.

X-Style Straight-Side Interlocks

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

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

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

Material: AISI 8620 Steel-Carburized, Hardened and Ground

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

NOTES:
1. Recommend four (4) per mold.
2. Mount an centerline on all four sides to avoid problems with heat expansion.

Straight-Side Interlocks – PLM, PLF

Material: 8620 Steel-Carburized, Hardened and Ground


<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A NOMINAL</th>
<th>B</th>
<th>C</th>
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<tbody>
<tr>
<td>PLM0001</td>
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<tr>
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<td>2.640</td>
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</table>

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

PLF

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A NOMINAL</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
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<td>PLF0005</td>
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<td>1.870</td>
<td>2.640</td>
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X-Style Straight-Side Interlocks – PLF, PLM

Material: AISI 8620 Steel-Carburized, Hardened and Ground


<table>
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<tr>
<th>ITEM NUMBER</th>
<th>X PLATE THICKNESS</th>
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<td>5.0000</td>
<td>1.870</td>
<td>2.640</td>
</tr>
</tbody>
</table>

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

Material:
- PLM: 8620 Steel-Carburized, Hardened and Ground
- PLF: 8620 Steel-Carburized, Hardened and Ground

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

45° TYP

NOTES:
1. Recommend four (4) per mold.
2. Mount an centerline on all four sides to avoid problems with heat expansion.
MOLD INTERLOCKS

X-Style Straight-Side Interlocks

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

Typical application is for use on a mold base with a stripper or mold bases, as well as other mold bases with floating plates.

NOTE:

– For accurate alignment between mold halves
– All machining can be done from the parting line ...
– saving set-up time and machining costs
– Components can be purchased individually

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

Material: 57 Steel, 80-85 HRC, Titanium Nitrided

See next page for right- and left-hand gibs for parting line interlocks.
DME Tapered Interlocks provide positive metal-to-metal mold registry to align mold halves, mold plates or individual cavities and cores. The larger sizes are generally used with large molds or plates. The 1⁄2 and 3⁄4 sizes are generally used with small molds or to align cavities and cores. At least two sets are recommended for small molds or inserts, four for medium-size molds and six or more for large molds.

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

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

There is stock allowance at the back of B0TH male and female details to permit fitting at assembly to match specific mold plate thicknesses and/or pocket depths.

See previous page for center male parting line interlock.

Notes:
1. Select center, right and left interlock components that are the same length (size) to make one set (e.g., PLL-1001, PLL-2002 and PLL-3003).
2. Four sets of interlocks should be used in each application. They must be installed on the center line of each side of the mold.
3. Each component includes two tapper head cap screws.

Material: H-13 steel, 40-45 HRC, melinite coated for wear and lubricity

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<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A WIDTH</th>
<th>B LENGTH</th>
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<th>E</th>
<th>F</th>
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<th>H</th>
<th>J</th>
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</tbody>
</table>

See previous page for center male parting line interlock.
Tapered Interlocks
MOLD INTERLOCKS
Tapered Interlocks (Round)

Female Tapered Interlocks – FT (Round)

Male Tapered Interlocks – MT (Round)

Shoulder Plates for Tapered Interlocks – AGS

Material: DIN 1.7131 58-62 HRC

Shoulder Plates – SP (Must be ordered separately)

AGS: Typical Application

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

Tapered Interlocks (Rectangular)

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

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

Installation Guidelines

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

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

The pocket lengths should be long enough to provide clearance.

Female Tapered Interlocks – FTR (Rectangular)

<table>
<thead>
<tr>
<th>Size</th>
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<th>A</th>
<th>L</th>
<th>Taper</th>
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NOTE: Male and female lengths must match.

Industry-Leading Interchangeability

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

DME Side Interlocks provide:

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

Installation

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

Black and Gold Side Interlocks – BGS

<table>
<thead>
<tr>
<th>Assembly</th>
<th>Male Item Number</th>
<th>Female Item Number</th>
<th>W</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Tapered Clearance</th>
<th>T</th>
<th>R Radius</th>
<th>S</th>
<th>Holes</th>
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<td>1.250</td>
<td>0.80</td>
<td>3.38</td>
<td>1⁄4-20</td>
<td>1⁄2-20</td>
</tr>
</tbody>
</table>

NOTE: Male and female lengths must match.
MOLD INTERLOCKS
Black and Gold Top Interlocks

DME Top Interlocks provide:

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

Installation

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

Black and Gold Top Interlocks – BGT

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

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

ITEM NUMBER                   MALE ITEM NUMBER                   FEMALE ITEM NUMBER
BGT0000F  BGT0000M  BGT0000F
BGT0250F  BGT0250M  BGT0250F
BGT0750F  BGT0750M  BGT0750F
BGT1000F  BGT1000M  BGT1000F
BGT1250F  BGT1250M  BGT1250F
BGT1500F  BGT1500M  BGT1500F
BGT2000F  BGT2000M  BGT2000F
BGT2500F  BGT2500M  BGT2500F
BGT3000F  BGT3000M  BGT3000F
BGT3500F  BGT3500M  BGT3500F

TAPE OUTSIDE RADIUS T
SKU=0000 FEMALE MALE
SKU=0250 FEMALE MALE
SKU=0750 FEMALE MALE
SKU=1000 FEMALE MALE
SKU=1250 FEMALE MALE
SKU=1500 FEMALE MALE
SKU=2000 FEMALE MALE
SKU=2500 FEMALE MALE
SKU=3000 FEMALE MALE
SKU=3500 FEMALE MALE

NOTE: To order an individual Male interlock, add the suffix “M” to the item number.
To order an individual Female interlock, add the suffix “F” to the item number.

MOLD INTERLOCKS
Black and Gold Side Interlocks – Metric

Industry-Leading Interchangeability

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

DME Side Interlocks provide:

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

Installation

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

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

ITEM NUMBER                   MALE ITEM NUMBER                   FEMALE ITEM NUMBER
BGS05016  BGS05016M  BGS05016F
BGS07519  BGS07519M  BGS07519F
BGS10019  BGS10019M  BGS10019F
BGS12525  BGS12525M  BGS12525F

TOOL OUTSIDE RADIUS T
SKU=05016 FEMALE MALE
SKU=07519 FEMALE MALE
SKU=10019 FEMALE MALE
SKU=12525 FEMALE MALE

NOTE: To order an individual Male interlock, add the suffix “M” to the item number.
To order an individual Female interlock, add the suffix “F” to the item number.

MOLD BASE WIDTH X LENGTH  RECOMMENDED TOP INTERLOCK
8X8 TO 8X12  BGT1000
8X12 TO 11X14  BGT1250 TO BGT2500
11X14 TO 14X18  BGT3000 TO BGT3500
14X18 TO 18X22  BGT4500 TO BGT5000

Black and Gold Side Interlocks – BGS

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

ITEM NUMBER                       MALE ITEM NUMBER                       FEMALE ITEM NUMBER
BG00005  BG00005M  BG00005F
BG01250  BG01250M  BG01250F
BG02510  BG02510M  BG02510F
BG03005  BG03005M  BG03005F
BG03750  BG03750M  BG03750F
BG05500  BG05500M  BG05500F
BG07500  BG07500M  BG07500F
BG10000  BG10000M  BG10000F
BG12500  BG12500M  BG12500F
BG15000  BG15000M  BG15000F
BG20000  BG20000M  BG20000F
BG25000  BG25000M  BG25000F
BG30000  BG30000M  BG30000F
BG35000  BG35000M  BG35000F
BG40000  BG40000M  BG40000F
BG50000  BG50000M  BG50000F
BG60000  BG60000M  BG60000F

NOTE: To order an individual Male interlock, add the suffix “M” to the item number.
To order an individual Female interlock, add the suffix “F” to the item number.
MOLD STRAPS
Mold Straps – Features and Benefits

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

DME Mold Straps – Features and Benefits

Black and Gold Top Interlocks – BGT

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

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

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

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

NOTE:
- To order an individual Male interlock, add the suffix “M” to the item number.
- To order an individual Female interlock, add the suffix “F” to the item number.
- *Part radius “R” is 1.00mm larger than recommended pocket radius.

Black and Gold Top Interlocks – METRIC

<table>
<thead>
<tr>
<th>ITEM NO</th>
<th>T</th>
<th>W</th>
<th>+.00</th>
<th>-.05</th>
<th>A</th>
<th>+.00</th>
<th>-.05</th>
<th>B</th>
<th>+.00</th>
<th>-.05</th>
<th>C</th>
<th>+0.5</th>
<th>+0.2</th>
<th>D1</th>
<th>+0.005</th>
<th>+0.002</th>
<th>D2</th>
<th>-0.005</th>
<th>-0.002</th>
<th>R POCKET RADIUS</th>
<th>+0/-0.5</th>
<th>SHCS (F)</th>
<th>SHCS (M)</th>
</tr>
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<tbody>
<tr>
<td>BGT02020</td>
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<td>14.00</td>
<td>7.0</td>
<td>9.000</td>
<td>9.000</td>
<td>5.0</td>
<td>–</td>
<td>–</td>
<td>M4 × 12 LG</td>
<td>M4 × 25 LG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td>52.0</td>
<td>MS × 40 LG</td>
<td>MS × 25 LG</td>
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<td></td>
<td></td>
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<td>MS × 40 LG</td>
<td>MS × 25 LG</td>
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<tr>
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<td>41.0</td>
<td>40.000</td>
<td>40.000</td>
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<td>22.5</td>
<td>70.0</td>
<td>M10 × 65 LG</td>
<td>M10 × 25 LG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ProWeld Micro-Welding System

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

Standard Equipment

Complete ProWeld system includes:

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMW0001</td>
<td>Power pack with welding cord, grounding cord and plate, power cord, foot switch and all accessories listed below</td>
</tr>
<tr>
<td>P-501</td>
<td>Weld Cord</td>
</tr>
<tr>
<td>P-502</td>
<td>Ground Cord</td>
</tr>
<tr>
<td>UMW0002</td>
<td>N51–Standard SKH-51 steel powder (40 grams) (63 Rc; for D-2/M-2/S-7 steels)</td>
</tr>
<tr>
<td>UMW0003</td>
<td>N80–Standard NAK80 steel powder (40 grams) (38-40 Rc; for P-20/P-21 steels)</td>
</tr>
<tr>
<td>UMW0004</td>
<td>NAK80–Standard steel sheet 10 sheets, 0.1T x 5W x 100L (38-40 Rc; for P-20/P-21 steels)</td>
</tr>
<tr>
<td>UMW0005</td>
<td>NTA1–Ni Alloy sheet (10 sheets, 0.1T x 30W x 70L) (135HV; for all steels)</td>
</tr>
<tr>
<td>UMW0006</td>
<td>NTA2–Ni Alloy sheet (10 sheets, 0.2T x 30W x 70L) (135HV; for all steels)</td>
</tr>
<tr>
<td>UMW0009</td>
<td>NTA2–Ni Alloy sheet (10 sheets, 0.2T x 30W x 70L) (135HV; for all steels)</td>
</tr>
<tr>
<td>UMW0010</td>
<td>Magnet electrode (3 dia. x 50L)</td>
</tr>
<tr>
<td>UMW0011</td>
<td>Magnet electrode (4 dia. x 60L)</td>
</tr>
<tr>
<td>UMW0012</td>
<td>Magnet electrode (4 dia. x 50L)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMW0003</td>
<td>N80–Standard NAK80 steel powder (40 grams) (38-40 Rc; for P-20/P-21 steels)</td>
</tr>
<tr>
<td>UMW0009</td>
<td>NTA2–Ni Alloy sheet (10 sheets, 0.2T x 30W x 70L) (135HV; for all steels)</td>
</tr>
<tr>
<td>UMW0010</td>
<td>Magnet electrode (3 dia. x 50L)</td>
</tr>
<tr>
<td>UMW0011</td>
<td>Magnet electrode (4 dia. x 60L)</td>
</tr>
<tr>
<td>UMW0012</td>
<td>Magnet electrode (4 dia. x 50L)</td>
</tr>
<tr>
<td>UMW0013</td>
<td>Standard electrode (2 dia. x 50L)</td>
</tr>
<tr>
<td>UMW0014</td>
<td>Standard electrode (3 dia. x 50L)</td>
</tr>
<tr>
<td>UMW0015</td>
<td>Standard electrode (4 dia. x 50L)</td>
</tr>
<tr>
<td>UMW0016</td>
<td>Standard electrode (1.2T x 5W x 35L)</td>
</tr>
<tr>
<td>UMW0017</td>
<td>Standard electrode holder (black) (used with UMW0015)</td>
</tr>
<tr>
<td>UMW0018</td>
<td>Magnet electrode holder (brown) (used with UMW0011 and UMW0012)</td>
</tr>
<tr>
<td>UMW0019</td>
<td>Standard electrode holder (black) (used with UMW0016)</td>
</tr>
<tr>
<td>UMW0020</td>
<td>Standard electrode holder (black) (used with UMW0013)</td>
</tr>
<tr>
<td>UMW0021</td>
<td>Standard electrode holder (black) (used with UMW0014)</td>
</tr>
<tr>
<td>UMW0022</td>
<td>Magnet electrode holder (brown) (used with UMW0019 and UMW0010)</td>
</tr>
</tbody>
</table>

**NOTE:** Contact DME for replacement parts and additional welding materials.
CAVITY AND CORE COMPONENTS
Table of Contents

MOLD INSERTS
INDEXABLE & FRONT REMOVABLE DIMENSIONS, TOLERANCES AND REPLACEMENT SPRINGS ................. 206-207
HI-TEMPERATURE INSERT ........................................ 208-209
DUAL-RING INSERTS .............................................. 210
BLIND-HOLE APP INSERTS ........................................ 211
RESIN IDENTIFIERS ................................................ 212
FOOD & CONTAINER IDENTIFIERS .......................... 213
INSERT SPACERS .................................................. 213
RECYCLING INSERTS ............................................. 214
RECYCLING ELECTRODES ....................................... 215

SINTERED VENTS
FOR PLASTICS INJECTION MOLDING ......................... 216
FOR GRAVITY AND LOW-PRESSURE DIE CASTING ........ 217
VORTEX CORE PINS & PLUGS ................................ 218
AIR POPPET VALVES
APPLICATION INFORMATION ..................................... 219
INSTALLATION AND OPERATING INFORMATION ........ 220
RUNNER SHUT-OFF INSERTS
INSERT AND APPLICATION INFORMATION .............. 221
INSTALLATION, MACHINING AND OPERATING INFORMATION ...... 222
Cavity and Core Components
Indexable and Front Removable Mold Dating Inserts

**Indexable Inserts**

U.S. Patent No. 5,788,872

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

**Features of Indexable and Front Removable Inserts**

- Relied on bottom of insert will align insert into hole.
- An aluminum rod should be placed against the face of the insert with the red larger in diameter than the Outer Insert. The aluminum rod should be tapped with a hammer to move the insert to its flush position.
- Inner insert must be flush or below flush during installation.

**Installation and Machining for Both Insert Styles**

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

**Dimensions and Tolerances of Indexable and Front Removable Inserts**

<table>
<thead>
<tr>
<th>$D$ (mm)</th>
<th>TOLERANCE</th>
<th>$L$</th>
<th>$D/F$ INDEX</th>
<th>$D/F$ FRONT REMOVABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>+0.012 TS +0.026</td>
<td>0 to 0.05</td>
<td>2.4</td>
<td>2.5</td>
</tr>
<tr>
<td>8</td>
<td>+0.012 TS +0.035</td>
<td>0 to 0.05</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>10</td>
<td>+0.015 TS +0.035</td>
<td>0 to 0.05</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>12</td>
<td>+0.019 TS +0.035</td>
<td>0 to 0.05</td>
<td>5.3</td>
<td>5.3</td>
</tr>
<tr>
<td>14</td>
<td>+0.019 TS +0.035</td>
<td>0 to 0.05</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td>16</td>
<td>+0.019 TS +0.035</td>
<td>0 to 0.05</td>
<td>9.2</td>
<td>9.2</td>
</tr>
<tr>
<td>18</td>
<td>+0.019 TS +0.035</td>
<td>0 to 0.05</td>
<td>11.1</td>
<td>11.1</td>
</tr>
<tr>
<td>20</td>
<td>+0.019 TS +0.035</td>
<td>0 to 0.05</td>
<td>12.3</td>
<td>12.3</td>
</tr>
</tbody>
</table>

**Indexable and Front Removable Mold Dating Inserts**

**NOTE:** Indexable springs are built in.

**Front Removable Inserts**

- Numerals $G$ are 0.2mm deep.
- Arrow is adjustment slot.
- The aluminum rod should be tapped with a hammer to move the insert to its flush position.
- Inner insert must be flush or below flush during installation.

**Dimensions and Tolerances of Front Removable Inserts**

<table>
<thead>
<tr>
<th>$D$ (mm)</th>
<th>TOLERANCE</th>
<th>$L$</th>
<th>$D/F$ INDEX</th>
<th>$D/F$ FRONT REMOVABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>+0.012 TS +0.026</td>
<td>0 to 0.05</td>
<td>2.4</td>
<td>2.5</td>
</tr>
<tr>
<td>8</td>
<td>+0.012 TS +0.035</td>
<td>0 to 0.05</td>
<td>3.7</td>
<td>3.7</td>
</tr>
<tr>
<td>10</td>
<td>+0.012 TS +0.035</td>
<td>0 to 0.05</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>12</td>
<td>+0.012 TS +0.035</td>
<td>0 to 0.05</td>
<td>5.3</td>
<td>5.3</td>
</tr>
<tr>
<td>14</td>
<td>+0.012 TS +0.035</td>
<td>0 to 0.05</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td>16</td>
<td>+0.012 TS +0.035</td>
<td>0 to 0.05</td>
<td>9.2</td>
<td>9.2</td>
</tr>
<tr>
<td>18</td>
<td>+0.012 TS +0.035</td>
<td>0 to 0.05</td>
<td>11.1</td>
<td>11.1</td>
</tr>
<tr>
<td>20</td>
<td>+0.012 TS +0.035</td>
<td>0 to 0.05</td>
<td>12.3</td>
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**Front Removable Springs (package of 5)**

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<td>D009097</td>
<td>D009099</td>
<td>D009100</td>
</tr>
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<td>D009101</td>
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</tr>
<tr>
<td>D009107</td>
<td>D009108</td>
<td>D009109</td>
</tr>
</tbody>
</table>

**NOTE:** Springs are for Front Removable Inserts only.

**Complete Assemblies**

- Month (outer), Year and Arrow (inner)
- Month (outer), Arrow (inner)
- Indexable (outer), Front Removable (inner)
- Year and Arrow

**Notes:**

1. When ordering data-sensitive assemblies, add digits of engraved year requested, where asterisks (*) are shown in item number (e.g., 201210).
2. Availability of year-sensitive items will vary during last quarter of each calendar year. Order next year’s Mold Dating Inserts during October to beat the rush.

**CAVITY AND CORE COMPONENTS**

- Mold Dating Inserts – Ordering Information

- Mold Dating Inserts – Ordering Information

U.S. 800-626-6653 ■ Canada 800-387-6650 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com

U.S. 800-626-6653 ■ Canada 800-387-6650 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com
CAVITY AND CORE COMPONENTS
Mold Dating Inserts High-Temperature/Blind Hole

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

Dimensions and Tolerances of High-Temperature Inserts

Outer Insert

<table>
<thead>
<tr>
<th>Ø D (mm)</th>
<th>Ø F (h7)</th>
<th>L</th>
<th>K</th>
<th>Tolerances</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2.6</td>
<td>8</td>
<td>M1.8</td>
<td>+0.012 to +0.004, 0 to -0.012</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>8</td>
<td>M2.5</td>
<td>+0.012 to +0.004, 0 to -0.012</td>
</tr>
<tr>
<td>8</td>
<td>5.0</td>
<td>10</td>
<td>M3</td>
<td>+0.015 to +0.006, 0 to -0.015</td>
</tr>
<tr>
<td>10</td>
<td>6.3</td>
<td>12</td>
<td>M3</td>
<td>+0.015 to +0.006, 0 to -0.015</td>
</tr>
<tr>
<td>12</td>
<td>7.5</td>
<td>14</td>
<td>M4</td>
<td>+0.018 to +0.007, 0 to -0.018</td>
</tr>
<tr>
<td>16</td>
<td>11.0</td>
<td>14</td>
<td>M5</td>
<td>+0.018 to +0.007, 0 to -0.018</td>
</tr>
<tr>
<td>20</td>
<td>13.2</td>
<td>16</td>
<td>M5</td>
<td>+0.021 to +0.008, 0 to -0.021</td>
</tr>
</tbody>
</table>

Inner Insert

<table>
<thead>
<tr>
<th>Ø D (mm)</th>
<th>Ø F (h7)</th>
<th>L</th>
<th>K</th>
<th>Tolerances</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>2.6</td>
<td>8</td>
<td>M1.8</td>
<td>+0.012 to +0.004, 0 to -0.012</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>8</td>
<td>M2.5</td>
<td>+0.012 to +0.004, 0 to -0.012</td>
</tr>
<tr>
<td>8</td>
<td>5.0</td>
<td>10</td>
<td>M3</td>
<td>+0.015 to +0.006, 0 to -0.015</td>
</tr>
<tr>
<td>10</td>
<td>6.3</td>
<td>12</td>
<td>M3</td>
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</tr>
<tr>
<td>12</td>
<td>7.5</td>
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<td>M4</td>
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</tr>
<tr>
<td>16</td>
<td>11.0</td>
<td>14</td>
<td>M5</td>
<td>+0.018 to +0.007, 0 to -0.018</td>
</tr>
<tr>
<td>20</td>
<td>13.2</td>
<td>16</td>
<td>M5</td>
<td>+0.021 to +0.008, 0 to -0.021</td>
</tr>
</tbody>
</table>

Material: Stainless Steel
Hardness: 55-55 HRC
Max. Temp: 300°C (640°F)
Dimensions: All dimensions are in mm, except as noted

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

Complete Assemblies

<table>
<thead>
<tr>
<th>Description</th>
<th>Ø D (mm)</th>
<th>Item Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month (outer), Arrow (inner)</td>
<td>4 to 8</td>
<td>HTYA_<em><em>04 to HTYA</em></em>_08</td>
</tr>
<tr>
<td>9 to 12</td>
<td>HTYA_<em><em>09 to HTYA</em></em>_12</td>
<td></td>
</tr>
<tr>
<td>13 to 16</td>
<td>HTYA_<em><em>13 to HTYA</em></em>_16</td>
<td></td>
</tr>
<tr>
<td>Day (outer), Arrow (inner)</td>
<td>17</td>
<td>HTYD0017</td>
</tr>
<tr>
<td>18</td>
<td>HTYD0018</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>HTYD0019</td>
<td></td>
</tr>
<tr>
<td>Blank (outer), Arrow (inner)</td>
<td>20</td>
<td>HTYD0020</td>
</tr>
</tbody>
</table>

Year and Arrow

<table>
<thead>
<tr>
<th>Month and Arrow (inner)</th>
<th>Year and Arrow</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTOA_<em><em>04 to HTOA</em></em>_08</td>
<td>HTYA_<em><em>04 to HTYA</em></em>_08</td>
</tr>
<tr>
<td>HTOA_<em><em>09 to HTOA</em></em>_12</td>
<td>HTYA_<em><em>09 to HTYA</em></em>_12</td>
</tr>
<tr>
<td>HTOA_<em><em>13 to HTOA</em></em>_16</td>
<td>HTYA_<em><em>13 to HTYA</em></em>_16</td>
</tr>
<tr>
<td>HTUO0010 to HTUO0013</td>
<td>HTYO_<em><em>10 to HTYO</em></em>_13</td>
</tr>
<tr>
<td>HTUO0014 to HTUO0017</td>
<td>HTYO_<em><em>14 to HTYO</em></em>_17</td>
</tr>
<tr>
<td>HTUO0018 to HTUO0021</td>
<td>HTYO_<em><em>18 to HTYO</em></em>_21</td>
</tr>
<tr>
<td>HTUO0022 to HTUO0025</td>
<td>HTYO_<em><em>22 to HTYO</em></em>_25</td>
</tr>
</tbody>
</table>

NOTES:
1. When ordering date-sensitive assemblies, add digits of engraved year requested where asterisks (*) are shown in item number (e.g., 6HTYA010[05]).
2. Availability of year-sensitive items will vary during last quarter of each calendar year. Order next year’s Mold Dating Inserts during December to guarantee receipt.
CAVITY AND CORE COMPONENTS

Dual-Ring Mold Dating Insert

Offers the Ultimate in Date Insert Flexibility

- Patented indexable mold date insert technology
- Easy-to-use indexable insert
- Offers the Ultimate in Date Insert Flexibility

Features and Benefits

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

Installation and Machining

- Press-fit installation required
- Maintain a close tolerance press fit. Too loose a fit could allow the insert to move out of position, while too tight a press fit might prevent the inner insert and inner ring from rotating when required
- Accurately measure the Ø D for each part and machine hole to provide about 0.005mm (0002") press fit
- Pocket for installation (hold pocket depth as required by the application)

NOTES:

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

Dual-Ring Mold Dating Insert – MD

Dimensions and Assembly

- Patent pending
- Mandated mold date insert design
- Installs with insert’s captured screw in to the mold plate
- Thru hole not necessary for removal
- Changes and maintenance done with mold in the press
- Available in 8mm, 10mm and 16mm diameters (other sizes available)
- Compatible with standard Indexable DME inner inserts

CAVITY AND CORE COMPONENTS

Mold Dating Inserts Blind-Hole Applications

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø D (mm)</th>
<th>ITEM NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>URAY_**_10</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>UAY_**_10</td>
<td>16</td>
</tr>
</tbody>
</table>

CAVITY AND CORE COMPONENTS

Indexable Inner Inserts

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Ø D (mm)</th>
<th>ITEM NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>6</td>
<td>UUY1816</td>
</tr>
<tr>
<td>Arrow</td>
<td>10</td>
<td>UAY1816</td>
</tr>
<tr>
<td>6</td>
<td>UAY1816</td>
<td>16</td>
</tr>
</tbody>
</table>

CAVITY AND CORE COMPONENTS

Indexable Date Insert with Screw Type Fastener

Date Inserts – Material: SUS420 / SCM435
Screw Part – Material: SCM420 / SCM435
Hardness: 50-53 HRC / 32-39 HRC
Maximum operating temperature 150°C (300°F)

- D hole diameter
- Dia tolerance
- Length
- Bolt length (screw L)
- Bolt diameter
- Hexagon wrench size
- Screw pitch size

CAVITY AND CORE COMPONENTS

Cavity and Core Components

Dual-Ring Mold Dating Insert

- Patent pending
- Mandated mold date insert design
- Installs with insert’s captured screw in the mold plate
- Thru hole not necessary for removal
- Changes and maintenance done with mold in the press
- Available in 8mm, 10mm and 16mm diameters (other sizes available)
- Compatible with standard Indexable DME inner inserts

NOTES:

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

Resin Identifiers

Features of Resin Identifiers
• Solid triangle Resin Identifiers
• Designed to conform with ASTM International Designation D7611/D7611M-13
• Maximum operating temperature is 150°C (300°F)
• Easily interchangeable

<table>
<thead>
<tr>
<th>RESIN</th>
<th>A</th>
<th>B</th>
<th>M</th>
<th>ITEM NUMBER</th>
<th>RESIN IDENTIFICATION CODE - OPTION A</th>
<th>ITEM NUMBER</th>
<th>RESIN IDENTIFICATION CODE - OPTION B</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLY (ETHYLENE TEREPTHALATE)</td>
<td>10</td>
<td>12</td>
<td>5</td>
<td>RIC0101A</td>
<td><strong>1</strong> PVC</td>
<td>RIC0101B</td>
<td><strong>1</strong> PVC</td>
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<tr>
<td></td>
<td>16</td>
<td>14</td>
<td>6</td>
<td>RIC0201A</td>
<td><strong>2</strong> PE-HD</td>
<td>RIC0201B</td>
<td><strong>2</strong> PE-HD</td>
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<tr>
<td>HIGH DENSITY POLYETHYLENE</td>
<td>10</td>
<td>12</td>
<td>5</td>
<td>RIC0102A</td>
<td><strong>3</strong> HDPE</td>
<td>RIC0102B</td>
<td><strong>3</strong> HDPE</td>
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<tr>
<td></td>
<td>16</td>
<td>14</td>
<td>6</td>
<td>RIC0202A</td>
<td><strong>4</strong> PE-FL</td>
<td>RIC0202B</td>
<td><strong>4</strong> PE-FL</td>
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<td>POLY (VINYL CHLORIDE)</td>
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<td>RIC0103A</td>
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<td><strong>5</strong> PVC</td>
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<tr>
<td></td>
<td>16</td>
<td>14</td>
<td>6</td>
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<td><strong>6</strong> PS</td>
<td>RIC0203B</td>
<td><strong>6</strong> PS</td>
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<tr>
<td>LOW DENSITY POLYETHYLENE</td>
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<td>RIC0104A</td>
<td><strong>7</strong> PS</td>
<td>RIC0104B</td>
<td><strong>7</strong> PS</td>
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<tr>
<td></td>
<td>16</td>
<td>14</td>
<td>6</td>
<td>RIC0204A</td>
<td><strong>8</strong> PS</td>
<td>RIC0204B</td>
<td><strong>8</strong> PS</td>
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<tr>
<td>POLYPROPYLENE</td>
<td>10</td>
<td>12</td>
<td>5</td>
<td>RIC0105A</td>
<td><strong>9</strong> PS</td>
<td>RIC0105B</td>
<td><strong>9</strong> PS</td>
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<td></td>
<td>16</td>
<td>14</td>
<td>6</td>
<td>RIC0205A</td>
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<td>5</td>
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<td><strong>9</strong> PS</td>
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<td>OTHER RESINS</td>
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<td>5</td>
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<td>RIC0107B</td>
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<td><strong>9</strong> PS</td>
<td>RIC0207B</td>
<td><strong>9</strong> PS</td>
</tr>
</tbody>
</table>

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

Insert Spacers
Insert spacers from DME allow you to change to a shorter insert quickly and easily. Simply install the spacer in the existing hole and then install your insert right on top. The spacer is made to the exact specifications to make it just that easy.

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

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

Recycling Inserts (METRIC) – MRI

<table>
<thead>
<tr>
<th>REF</th>
<th>A</th>
<th>B</th>
<th>D</th>
<th>M</th>
<th>S</th>
<th>Identification</th>
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</thead>
<tbody>
<tr>
<td>MRI0101GE</td>
<td>10 12</td>
<td>M6  12</td>
<td>0.3</td>
<td>DME</td>
<td>8</td>
<td>Blank</td>
</tr>
<tr>
<td>MRI0301GE</td>
<td>20 16</td>
<td>M6  16</td>
<td>0.3</td>
<td>DME</td>
<td>8</td>
<td>High-density Polyethylene HDPE</td>
</tr>
<tr>
<td>MRI0104GE</td>
<td>10 12</td>
<td>M6  12</td>
<td>0.3</td>
<td>DME</td>
<td>8</td>
<td>Polypropylene PP</td>
</tr>
<tr>
<td>MRI0302GE</td>
<td>20 16</td>
<td>M6  16</td>
<td>0.3</td>
<td>DME</td>
<td>8</td>
<td>All other resins Other</td>
</tr>
</tbody>
</table>

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

NOTE: Additional material codes are available. Contact DME for quote.

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

Cavities and Core Components Recycling Inserts

Cavities and Core Components Recycling Electrodes

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

Recycling Electrodes (METRIC) – MRE

<table>
<thead>
<tr>
<th>REF</th>
<th>A</th>
<th>B</th>
<th>D</th>
<th>M</th>
<th>S</th>
<th>Identification</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRE0101GE</td>
<td>10 12</td>
<td>M6  12</td>
<td>0.3</td>
<td>DME</td>
<td>8</td>
<td>Blank</td>
</tr>
<tr>
<td>MRE0301GE</td>
<td>20 16</td>
<td>M6  16</td>
<td>0.3</td>
<td>DME</td>
<td>8</td>
<td>High-density Polyethylene HDPE</td>
</tr>
<tr>
<td>MRE0104GE</td>
<td>10 12</td>
<td>M6  12</td>
<td>0.3</td>
<td>DME</td>
<td>8</td>
<td>Polypropylene PP</td>
</tr>
<tr>
<td>MRE0302GE</td>
<td>20 16</td>
<td>M6  16</td>
<td>0.3</td>
<td>DME</td>
<td>8</td>
<td>All other resins Other</td>
</tr>
</tbody>
</table>

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

NOTE: Additional material codes are available. Contact DME for quote.
Cavity and Core Components
Sintered Vents – For Plastics Injection Molding

Features and Benefits of Sintered Vents – USV

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

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

Application Recommendations

Plastics Injection Molding

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

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

Ultrasonic Cleaning

Use ultrasonic cleaning to periodically clean pores in the sintered vent, as required.

Installation Information for All Sintered Vents

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

Sintered Vents - Gravity & Low-Pressure Die Casting

Ultrasonic Cleaning

Use ultrasonic cleaning to periodically clean pores in the sintered vent, as required.
CAVITY AND CORE COMPONENTS

Vortex™ Core Pins and Plugs

Porcerax II™

Porcerax II is a porous, sintered metal with a porosity of 20 to 30% by volume. With a series of interconnected pores averaging a diameter of 7 (0.0003”) or 20 (0.0008”) microns throughout, the primary function is the elimination of gas.

Vortex Pins and Plugs provide a location-specific method of venting gas. Due to its porosity volume, one fourth of the surface becomes a vent.

Vortex Pins & Plugs

- Pins are 3” long and are available in diameters of .250”, .375” and .500”
- Plugs are offered in .250”, .500” and 1.00” lengths in diameters of .250” and .375”
- Heat treated to 30–40 HRC [Hardness: HMV 300–400]
- Tensile strength: 74,000 lbs./sq.in.
- Thermal Linear Expansion Coefficient: (at 68°F - 302°F) 6.67-9.94 E-06 in/in/F˚
- Porosity: 20 to 30% air by volume
- Heat transfer co-efficient (at room temperature): 16.93–19.35 BTU/ft. hr. F˚
- Pore size: 7 to 20 microns

Porcerax II™

Vortex Core Pins and Plugs are made from Porcerax II.

Porcerax II is a porous, sintered metal with a porosity of 20 to 30% by volume. Due to its porosity volume, one fourth of the surface becomes a vent.

“Vortex Plug

“Porserax II® is a registered trademark of International Mold Steel, Inc. and SintoSteel.”

CAVITY AND CORE COMPONENTS

Air Poppet Valves – Applications

Air Poppet Valves – VA

Features and Benefits

- Prevents mold damage due to ejection problems with deep-draw or thin-walled parts
- More durable and precision-made than competitive units

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

Typical Application

Mold Closed

Mold Open

“Poppet Valve – VA

“Air Pressure: 58 PSI min. Operating Air Pressure: 87 PSI max. Dimensions: All dimensions are in mm.”

CAVITY AND CORE COMPONENTS

Vortex™ Core Pins and Plugs

Porcerax II™

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Vortex Pins and Plugs provide a location-specific method of venting gas. Due to its porosity volume, one fourth of the surface becomes a vent.

Vortex Pins & Plugs

- Pins are 3’ long and are available in diameters of .250”, .375” and .500”
- Plugs are offered in .250”, .500” and 1.00” lengths in diameters of .250” and .375”
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### CAVITY AND CORE COMPONENTS

#### Air Poppet Valves – Typical Installations –

**Typical Installations**

```
\[ \text{Diagram showing typical installations of air poppet valves} \]
```

**Pocket Machining Dimensions**

```
\[ \text{Diagram showing pocket machining dimensions} \]
```

**Installation Information**

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

**NOTES:**

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

---

### CAVITY AND CARE COMPONENTS

#### Runner Shut-Off Inserts – Applications

**Runner Shut-Off Inserts – MRS**

```
\[ \text{Table showing dimensions of runner shut-off inserts} \]
```

**NOTES:**

- Spring plunger in Runner Shut-Off Insert engages a locating groove in the center core. This holds the center core in position at each 90° rotation of the center core, thus providing several combinations of runner shut-off positions.

---

**NOTE:** Spring plunger in Runner Shut-Off Insert engages a locating groove in the center core. This holds the center core in position at each 90° rotation of the center core, thus providing several combinations of runner shut-off positions.

---

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

---

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

---

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

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

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

---

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

---

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

---

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

---

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

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

---

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

---

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

---

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

- Safer and more positive than the use of brass or ejector pins
- Saves material
- Reduces scrap and sorting
- Improves cycle time
### Dimensions for Machining Pocket for Runner Shut-off Inserts

- Pockets are typically bored in soft steel and jig ground in hardened steel
- Maintain a close tolerance press fit, as specified. Too loose a fit could allow the insert to move out of position, while too tight a press fit might prevent the center core from rotating when required

*When using a 7/8 thick plate with the MRS0013 or MRS0016 inserts, machine the .5118 or .6299 diameters through the plate. Inserts must seat against a supporting plate before any grinding or machining is done and during the molding process.*

### Dimensions for Machining Runners

<table>
<thead>
<tr>
<th>USE INSERT ITEM NUMBER</th>
<th>W MAX</th>
<th>C MAX</th>
<th>R RADIUS</th>
<th>EQUIV Ø</th>
<th>AREA SQ IN</th>
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<td>.187</td>
<td>.411</td>
<td>.133</td>
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</table>

**Note:** All runners should be machined along the center line of the insert and at 90° to the center line. If this is not done the runners will not align closely when rotated 90° or 180° to shut-off material flow to a cavity. All runners should be machined with inserts installed in the mold.

### Mold and Runner Machining/Installation Data

Additional machining and installation data available. Contact DME.

*All dimensions are in inches except for a few metric reference dimensions that are in millimeters and are shown in parentheses.*
MOLD COOLING

Jiffy-Tite® Delivers Trusted and Reliable Products

The Jiffy-Tite® line of mold cooling components is the industry’s most trusted and reliable product range in the injection molding industry. These highly durable and long-lasting components have been the industry benchmark for quality for injection molders for over five decades. It’s no surprise that the plastics industry has come to rely on Jiffy-Tite, whose vision and innovation led to the invention of the original ground-breaking face seal technology for quick disconnects more than half a century ago.

These premium products deliver superior quality, unique design, unmatched performance, and the tightest tolerances in the industry — all at a competitive cost. Highly engineered components include quick-disconnect connectors, male and female plugs, extension plugs, straight and spiral brass baffles, water and cascade water junctions, pressure plugs, coolant bridges, and seal removal replacement kits. The bottom line is that Jiffy-Tite components are highly reliable and leak-proof, ensuring the most consistent and efficient mold cooling operations.

Greater Value than the Rest

Jiffy-Tite components manufactured from high-quality brass are distinguished by a wide range of unique benefits that differentiate them from the competition. Jiffy-Tite’s quick-disconnect sockets feature a novel 0.005” to 0.015” step in the sealing surface of the socket to help prevent leaks. A Viton fluoroelastomer seal provides greater heat resistance and chemical resistance versus typically used silicone seals. Tight-tolerance manufacturing results in consistent pressure in the socket which ensures leak-free performance.

Also unique is the valve component design which eliminates the risk of reverse shut off. With competitive brands, valve components could become dislodged or disengaged causing the valve to shut or stay shut during operation. The internal socket and plug and valve component design eliminate this problem and promote excellent part mating capabilities to ensure smoother operation.

Jiffy-Tite’s thread sealant offers superior performance for plugs. Jiffy Seal is pliable, resists drying, and offers significantly better sealing compared to less expensive products that may flake off. The high-performance seal eliminates the need for TPFE tape, thus reducing cost and speeding up set-up times.

Jiffy-Tite components are manufactured under ISO 9000/9001 quality standards and undergo extensive leak and compression testing. Supported by leading-edge engineering and technology, they are the time-tested standard which gives injection molders the required confidence and performance to run highly efficient and smooth mold cooling operations.
Mold Cooling

**Jiffy-Tite® Connectors**

DME Jiffy-Tite plugs used with DME Jiffy-Tite (flow-thru type) Sockets and DME Jiffy-Matic (automatic shut-off type) Sockets are designed for use with plastics molds and die-cast dies in water, air or oil lines. They feature a combination brass and stainless steel leakproof construction, have a maximum rated capacity of 200 psi and withstand temperatures up to 400°F with supplied Viton seals. DME Jiffy-Tite and Jiffy-Matic Sockets can be used interchangeably with the same Jiffy-Tite Plugs already in your mold or die. Comparable sizes of both type sockets have the same O.D., permitting interchangeability even when the plugs are flush mounted.

**Jiffy-Tite® Sockets – JS (Flow-Thru Type)**

DME Jiffy-Tite Sockets have a large thru hole to provide unrestricted flow. These quick-connection couplers are available with either straight, 45° or 90° hose stems, or standard female or male NPT threads.

DME Jiffy-Tite and Jiffy-Matic Sockets have the same O.D., permitting complete interchangeability with Jiffy-Tite Plugs installed in your mold or die. The Jiffy-Tite or Jiffy-Matic Sockets can be used with either male, female or extension plugs.

**Jiffy-Matic® Sockets – JS (Automatic Shut-Off Type)**

DME Jiffy-Matic Sockets open automatically when connected and shut off automatically when disconnected. Unlike most valve-type connectors, Jiffy-Matic Sockets are designed to keep flow restriction to a minimum.

**Mold Cooling**

**Jiffy-Tite® Plug and Extensions Plugs**

For Use with Jiffy-Tite or Jiffy-Matic Sockets (Including SV Series)

**Male Plug Mounting Information**

**Jiffy-Tite Male – JP and Female Plugs – JPF**

**Jiffy-Matic® Sockets – JS**

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</table>

**Jiffy-Tite® Extension Plugs® – JPB**

**For Use with Jiffy-Tite or Jiffy-Matic Sockets (Including SV Series)**

Threaded area with Jiffy-Seal™ Thread Sealant pre-applied.

**Pipe Plugs**

<table>
<thead>
<tr>
<th>PIPE THREAD</th>
<th>HEX SIZE</th>
<th>O.A.L.</th>
<th>ITEM NUMBER</th>
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<td>2-3/8</td>
<td>JS205(SV)</td>
<td>JS207(SV)</td>
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<td>1/4</td>
<td>2-3/8</td>
<td>JS206(SV)</td>
<td>JS208(SV)</td>
</tr>
</tbody>
</table>

**90° STEM**

**45° STEM**

**Female NPT Thread**

**Male NPT Thread**

**Mold Cooling**

**Jiffy-Tite® Plug and Extensions Plugs**

For Use with Jiffy-Tite or Jiffy-Matic Sockets (Including SV Series)

**Male Plug Mounting Information**

**Jiffy-Tite Male – JP and Female Plugs – JPF**

For Use with Jiffy-Tite or Jiffy-Matic Sockets (Including SV Series)

**Male Plug**

**Female Plug**

All Male Plugs (Including SV-Series) and Extension Plugs are now supplied with Jiffy-Seal™ thread sealant. Eliminating the initial need for joint tape or compound, the sealant will withstand temperatures up to 400°F and pressures up to 200 psi.

**Mold Cooling**

**Jiffy-Tite® Plug and Extensions Plugs**

For Use with Jiffy-Tite or Jiffy-Matic Sockets (Including SV Series)

**Male Plug Mounting Information**

**Jiffy-Tite Male – JP and Female Plugs – JPF**

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**Mold Cooling**

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For Use with Jiffy-Tite or Jiffy-Matic Sockets (Including SV Series)

**Male Plug Mounting Information**

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For Use with Jiffy-Tite or Jiffy-Matic Sockets (Including SV Series)

**Male Plug**

**Female Plug**

All Male Plugs (Including SV-Series) and Extension Plugs are now supplied with Jiffy-Seal™ thread sealant. Eliminating the initial need for joint tape or compound, the sealant will withstand temperatures up to 400°F and pressures up to 200 psi.
SV-Series Jiffy-Matic® Connectors

Two-Way Automatic Shut-Off Type

The DME line of SV-Series Jiffy-Matic Connectors features a male plug and socket, each with an automatic shut-off stemmed valve. These connectors are designed for use with stainless steel in a leakproof construction, have a maximum rated capacity of 200 psi and will withstand temperatures up to 400°F with supplied Viton seals.

The SV-Series Male Plugs feature an automatic shut-off at the mold, thereby minimizing coolant loss. The SV-Series Male Plugs can only be used with the SV-Series Male Sockets. All SV-Series Jiffy-Matic Male Plugs are supplied with Viton seals for use in water, air and heat transfer oil applications that do not exceed 400°F and 200 psi.

SV-Series Jiffy-Matic Male Plugs

(Automatic Shut-Off Type with Stemmed Valve)

SV-Series Jiffy-Matic Male Plugs are supplied with Jiffy Seal® thread sealant. Eliminating the need for joint tape or compound, the sealant will withstand temperatures up to 400°F and pressures up to 200 psi.

SV-Series Jiffy-Matic Male Plugs* – JS

SV-Series Jiffy-Matic Male Plugs (Automatic Shut-Off Type with Stemmed Valve)

The DME SV-Series Jiffy-Matic Male Plugs can only be used for two-way shut-offs and must be used with the SV-Series Jiffy-Matic Sockets.

The SV-Series Male Plugs are now supplied with Jiffy Tite® pipes closed. The SV-Series Male Plugs operate only with the SV-Series Male Sockets. All SV-Series Jiffy-Matic Male Plugs can ONLY be used with the SV-Series Jiffy-Matic Sockets.

SV-Series Jiffy-Matic Sockets

(Automatic Shut-Off Type with Stemmed Valve)

SV-Series Jiffy-Matic Sockets feature an automatic shut-off stemmed valve that is designed to keep flow restriction to a minimum and are available with either straight, 45° or 90° hose stems. The SV-Series Jiffy-Matic Sockets can be used with plastic molds and die-cast dies in water, air or heat transfer oil lines. They feature a combination of brass and stainless steel in a leakproof construction, have a maximum rated capacity of 200 psi and will withstand temperatures up to 400°F with supplied Viton seals.

SV-Series Jiffy-Matic Sockets – JS

These SV-Series SV -Series Male Plugs and Sockets can ONLY be used with the SV-Series Jiffy-Matic Male Plugs. All SV-Series Jiffy-Matic Male Plugs are supplied with Viton seals for use in water, air and heat transfer oil applications that do not exceed 400°F and 200 psi.

The SV-Series Jiffy-Matic Male Plugs feature an automatic shut-off stemmed valve. These connectors are designed for use with plastics molds and die-cast dies in water, air or heat transfer oil lines. They feature a combination of brass and stainless steel in a leakproof construction, have a maximum rated capacity of 200 psi and will withstand temperatures up to 400°F with supplied Viton seals.

The SV-Series Jiffy-Matic Male Plugs add the capability of automatic shut-off at the mold, thereby minimizing coolant loss.

SV-Series Male Plugs

(Automatic Shut-Off Type with Stemmed Valve)

SV-Series Male Plugs are supplied with Jiffy Tite® pipes closed. The SV-Series Male Plugs operate only with the SV-Series Male Sockets. All SV-Series Jiffy-Matic Male Plugs can ONLY be used with the SV-Series Jiffy-Matic Sockets.

SV-Series Male Plugs* – JS

SV-Series Male Plugs (Automatic Shut-Off Type with Stemmed Valve)

The DME SV-Series Jiffy-Matic Male Plugs feature an automatic shut-off stemmed valve. This plug design adds the capability of automatic shut-off at the mold. The SV-Series Male Plugs are flush-mounted.

The SV-Series Male Plugs are now supplied with Jiffy Tite® pipes closed. The SV-Series Male Plugs operate only with the SV-Series Male Sockets. All SV-Series Jiffy-Matic Male Plugs can ONLY be used with the SV-Series Jiffy-Matic Sockets.

SV-Series Male Sockets

(Automatic Shut-Off Type with Stemmed Valve)

SV-Series Male Sockets feature an automatic shut-off stemmed valve. These connectors are designed for use with plastics molds and die-cast dies in water, air or heat transfer oil lines. They feature a combination of brass and stainless steel in a leakproof construction, have a maximum rated capacity of 200 psi and will withstand temperatures up to 400°F with supplied Viton seals.

SV-Series Male Sockets – JS

These SV-Series SV -Series Male Plugs and Sockets can ONLY be used with the SV-Series Jiffy-Matic Male Plugs. All SV-Series Jiffy-Matic Male Plugs are supplied with Viton seals for use in water, air and heat transfer oil applications that do not exceed 400°F and 200 psi.

SV-Series Male Sockets are supplied with Viton seals for use in water, air and heat transfer oil applications that do not exceed 400°F and 200 psi.

SV-Series Male Sockets* – JS

SV-Series Male Sockets (Automatic Shut-Off Type with Stemmed Valve)

The DME SV-Series Jiffy-Matic Male Sockets feature an automatic shut-off stemmed valve. This plug design adds the capability of automatic shut-off at the mold. The SV-Series Male Plugs are flush-mounted.

The SV-Series Male Plugs are now supplied with Jiffy Tite® pipes closed. The SV-Series Male Plugs operate only with the SV-Series Male Sockets. All SV-Series Jiffy-Matic Male Plugs can ONLY be used with the SV-Series Jiffy-Matic Sockets.

SV-Series Male Sockets* – JS

SV-Series Male Sockets (Automatic Shut-Off Type with Stemmed Valve)

The DME SV-Series Jiffy-Matic Male Sockets feature an automatic shut-off stemmed valve. These connectors are designed for use with plastics molds and die-cast dies in water, air or heat transfer oil lines. They feature a combination of brass and stainless steel in a leakproof construction, have a maximum rated capacity of 200 psi and will withstand temperatures up to 400°F with supplied Viton seals.

The SV-Series Male Sockets are now supplied with Jiffy Tite® pipes closed. The SV-Series Male Sockets operate only with the SV-Series Male Plugs. All SV-Series Jiffy-Matic Male Sockets can ONLY be used with the SV-Series Jiffy-Matic Male Plugs.

SV-Series Male Sockets are supplied with Viton seals for use in water, air and heat transfer oil applications that do not exceed 400°F and 200 psi.

SV-Series Male Sockets* – JS

SV-Series Male Sockets (Automatic Shut-Off Type with Stemmed Valve)
### Mold Cooling

#### Jiffy-Lok Connector Sockets

**With Clampless Hose Stems for use with “Push-To-Lock” Type Hose**

- For use with “Push-to-lock” type hose only
- Saves set-up time by eliminating the need for hose clamps
- Hose stem barbs mate with “Push-to-lock” style rubber hose

**Socket connector seals are Viton**

- Leakproof brass and stainless steel construction
- Suitable for temperatures to 400°F, observe the temperature ratings of your “push-to-lock” hose. Most “push-to-lock” hoses have a temperature rating of 115°F or less. Never exceed 200°F.

**Mold Cooling with “Push-To-Lock” Type Hose**

### Jiffy-Lok Flow-Thru Style (Jiffy-Tite)

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### Jiffy-Lok One-Way Valve Style (Jiffy-Matic)

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### Mold Cooling

#### Mold Cooling with “Push-To-Lock” Type Hose

Jiffy-Tite® Connector Sockets

For Replacement in Either Jiffy-Tite or Jiffy-Matic Sockets

Jiffy-Tite and Jiffy-Matic Sockets are supplied with Viton seals for use with air, water or heat transfer applications that do not exceed 400°F and 200 psi. Seals should be replaced periodically as required to ensure leak-free connections.

### Jiffy-Tite® Seal Removal Tool Kit – JSTK

The Jiffy-Tite Seal Removal Tool Kit can be used for removal of connector seals from Jiffy-Matic Sockets (including SV Series). Can also be used with Jiffy-Tite Sockets to provide seal removal.

Includes handle, interchangeable tools for all socket sizes, seal pick and vinyl storage pouch.

### Jiffy-Tite® Wrenches – SJP

For Jiffy-Tite Male, Female and Extension Plugs and Jiffy-Matic SV Series Male Plugs

DME Jiffy-Tite wrenches are accurately made from selected alloy steel, heat-treated and chrome-plated. They are specially designed for servicing flush-mounted plugs.

### Jiffy-Lok® Connector Sockets, Seal Removal Tool Kits & Wrenches

**Maximum Operating Temperature (°F) or Pressure (psi)**

- Air, water or heat transfer oil
- VITON (GREEN)

<table>
<thead>
<tr>
<th>FTSD 1⁄4</th>
<th>FTSD 3⁄16</th>
<th>FTSD 3⁄8</th>
<th>FTSD 1⁄2</th>
<th>FTSD 3⁄4</th>
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<th>FTSD 11⁄4</th>
<th>FTSD 11⁄2</th>
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<tbody>
<tr>
<td>JPF008</td>
<td>JPS051</td>
<td>JPS052</td>
<td>JPS053</td>
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<td>JPS056</td>
<td>JPS058</td>
<td>JPS059</td>
<td>JPS061</td>
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<td>JPS058</td>
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<td>JPS061</td>
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*Sold in packs of 10

**For Male and Extension Plugs**

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<thead>
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<th>Hex Size</th>
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<th>FTSD Plugs</th>
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<td>JPS056, 254</td>
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<td>JPS058</td>
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**For Female Plugs**

<table>
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<th>Hex Size</th>
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<tr>
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<tr>
<td>1⁄4</td>
<td>1⁄4</td>
<td>JPS031F</td>
<td>JPS032F</td>
</tr>
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<td>JPS033F</td>
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</tr>
<tr>
<td>1⁄4</td>
<td>1⁄4</td>
<td>JPS035F</td>
<td>JPS036F</td>
</tr>
</tbody>
</table>

DME Molding Technology

Mold Cooling

Mold Cooling

Mold Cooling
Mold Cooling

For Compact Mold Connection of Adjacent Plugs Without Use of Conventional Hose Loop

- Provides more compact port-to-port connections than conventional hose methods
- Coolant Bridge socket adapters allow quick connections to Jiffy-Tite (flow thru) or Jiffy-Matic (one- or two-way shutoff) plugs
- Socket adapter marked with cut-line groove for quick sizing of brass tube length
- Leakproof socket adapters have replaceable seals and valves for long service life
- Socket connector seals and O-ring seals are Viton

Jiffy-Tite® and Jiffy-Matic® Coolant Bridges – JCB, JBT

-準確なポート位置の予定が可能
-360°のネジの位置が得られる

Notes:
1. Coolant Bridge consists of two socket adapters (including O-rings) and one charneled brass tube that are sold separately.
2. Tubes are 18” long. Cut to suit for specific application using cut-line grooves. Then, chamfer and deburr tube as indicated in installation data.
3. Coolant Bridge Jiffy-Matic socket adapters will provide one-way shutoff when used with standard male, female and extension plugs and two-way shutoff when used with SV-Series Male Plugs.
4. Maximum temperature rating is 400°F. Maximum PSI rating is 200.

Jiffy-Tite® Cascade Water Junctions

- Compact design
- 360° seal – leak proof
- Accurate predetermined of port locations
- Easy “one-piece” installation and removal
- For cascade-type cooling applications, the Jiffy-Tite Cascade Water Junctions provide the utmost in versatility and ease of use. Their compact design makes them ideal for piping inserted cores or split cooling in hard to reach areas of molds or dies. They can be rotated a full 360° without affecting their positive Jiffy-Tite seal and are easily connected and disconnected – even when installed internally.

Final location of the ports on the body of the Water Junction can be accurately predetermined, thus ensuring proper lateral alignment with pipe clearance holes. Waterlines may be connected to the same side or opposing sides of the Water Junction. A slot on the end of the Water Junction body indicates part position and can be turned with a screwdriver to align the ports with pipe clearance holes.

The brass tube has the rigidity to maintain uniform spacing inside the water channel and is threaded into the body for firm support.

Mold Cooling

Jiffy-Tite® and Jiffy-Matic® Coolant Bridges

Installation data available. Contact DME.

Jiffy-Tite® and Jiffy-Matic® Coolant Bridges – JCB, JBT

<table>
<thead>
<tr>
<th>STYLE</th>
<th>ITEM NUMBER</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>L</th>
<th>TUBE LENGTH</th>
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<tr>
<td>JCB001</td>
<td>JCB0000</td>
<td>1.74</td>
<td>1.47</td>
<td>1.20</td>
<td>18&quot; MAX</td>
<td>SUPPLIED LENGTH</td>
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<tr>
<td>JCB002</td>
<td>JCB0300</td>
<td>2.36</td>
<td>1.94</td>
<td>1.63</td>
<td>18&quot; MAX</td>
<td>SUPPLIED LENGTH</td>
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<tr>
<td>JCB003</td>
<td>JCB0300V</td>
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<td>1.94</td>
<td>1.63</td>
<td>18&quot; MAX</td>
<td>SUPPLIED LENGTH</td>
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</tbody>
</table>

*Vitron male plug must be used to obtain two-way shutoff.}

<table>
<thead>
<tr>
<th>REPLACEMENT O-RINGS FOR SOCKET ADAPTERS</th>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>JCB0011</td>
<td>VITON O-RING FOR 300 SERIES SOCKET ADAPTER</td>
<td>10/PKG.</td>
</tr>
<tr>
<td>JCB0013</td>
<td>VITON O-RING FOR 300 SERIES SOCKET ADAPTER</td>
<td>10/PKG.</td>
</tr>
</tbody>
</table>

**Notes:**
1. Bubbler Tubes may be used as replacements in Water Junctions above.
2. The 200, 300 and 500 Series Water Junctions are equipped with 200, 300 and 500 series Viton seals respectively, rated at 300 psi and suitable for temperatures up to 400°F.
MOLD COOLING
MoldBasics® Hose Connectors

DME plugs used with DME flow-thru type Sockets and DME Automatic Shut-Off Type Sockets are designed for plastics molds and die-cast dies in water, air or oil lines. They feature a combination brass and stainless steel leakproof construction, have a maximum rated capacity of 200 psi and withstand temperatures up to 400°F, with supplied Viton seals. DME Sockets can be used interchangeably with the same Plugs already in your mold or die. Comparable sizes of both sockets types have the same O.D., permitting interchangeability even when the plugs are flush mounted.

**Sockets (Flow-Thru Type)**

DME Flow-Thru Type Sockets have a large thru hole to provide unrestricted flow. These quick-connection couplers are available with either straight, 45° or 90° hose stems, or standard female or male NPT threads. DME Flow-Thru and Automatic Shut-Off Type Sockets have the same O.D., permitting complete interchangeability with Plugs installed in your mold or die. The Sockets can be used with either male, female or extension plugs.

**Sockets (Automatic Shut-Off Type)**

DME Automatic Shut-off Type Sockets open automatically when connected and shut off automatically when disconnected. Unlike most valve-type connectors, DME Sockets are designed to keep flow restriction to a minimum.

---

**Male and Female Plugs**

For use with Flow-Thru or Automatic Shut-Off Sockets (Including SV Series)

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>LENGTH L</th>
<th>PIPE THREAD</th>
<th>J HOLE</th>
<th>HEX SIZE</th>
<th>ITEM NUMBER</th>
<th>USED WITH SOCKETS</th>
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<tr>
<td>MALE PLUGS <strong>(BRASS)</strong></td>
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<td>3/8 NPT</td>
<td>3/8</td>
<td>7/8</td>
<td>NS506(V)</td>
<td>NS240(V)</td>
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<tr>
<td></td>
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<td>3/8</td>
<td>1</td>
<td>NS504(V)</td>
<td>NS240(V)</td>
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<td>3/8</td>
<td>1 1/16</td>
<td>NS516(V)</td>
<td>NS240(V)</td>
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<tr>
<td></td>
<td>1/4 NPT</td>
<td>3/8 NPT</td>
<td>3/8</td>
<td>1 1/4</td>
<td>NS526(V)</td>
<td>NS240(V)</td>
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<tr>
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<td>3/8 NPT</td>
<td>3/8</td>
<td>1 3/4</td>
<td>NS531(V)</td>
<td>NS240(V)</td>
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<tr>
<td></td>
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<td>3/8</td>
<td>2 1/8</td>
<td>NS536(V)</td>
<td>NS240(V)</td>
</tr>
<tr>
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<td>3/8 NPT</td>
<td>3/8</td>
<td>2 1/4</td>
<td>NS546(V)</td>
<td>NS240(V)</td>
</tr>
<tr>
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<td>3/8</td>
<td>2 3/4</td>
<td>NS551(V)</td>
<td>NS240(V)</td>
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<td>3/8 NPT</td>
<td>3/8</td>
<td>3</td>
<td>NS556(V)</td>
<td>NS240(V)</td>
</tr>
</tbody>
</table>

All Male Plugs (including SV-Series) and Extension Plugs are supplied with thread sealant. Eliminating the initial need for joint tape or compound, the sealant will withstand temperatures up to 400°F and pressures up to 200 psi.

---

**Plugs**

Male Plug Mounting Information

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>NPT</th>
<th>HEX SIZE</th>
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<th>B</th>
<th>C</th>
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<td>NS231(V)</td>
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<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
</tr>
<tr>
<td>NS313(V)</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
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<tr>
<td>NS313(V)</td>
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<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
</tr>
<tr>
<td>NS313(V)</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
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<tr>
<td>NS313(V)</td>
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<td>1/4</td>
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<td>NS313(V)</td>
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<td>NS313(V)</td>
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<td>1/4</td>
<td>1/4</td>
<td>1/4</td>
</tr>
</tbody>
</table>

Extension plugs can be found on page 227.
MOLDCOOLING

MoldBasics® SV-Series Hose Connectors

SV-Series Connectors – NS
Two-Way Automatic Shut-Off Type

The DME line of SV-Series Connectors features a male plug and socket, each with an automatic shut-off stemmed valve. These connectors are designed for use with plastics molds and die-cast dies in water, air or heat transfer oil lines. They feature a combination of brass and stainless steel in a leak-proof construction, have a maximum rated capacity of 200 psi and will withstand temperatures up to 400°F with supplied Viton seals.

The SV-Series Male Plugs add the capability of automatic shut-off at the mold, thereby minimizing coolant loss.

**SV-Series Male Plugs**
(Automatic Shut-Off Type with Stemmed Valve)

The DME SV-Series Male Plugs feature an automatic shut-off stemmed valve. This plug design adds the capability of automatic shut-off at the mold. The plug’s shut-off stemmed valve minimizes mold coolant loss, thereby decreasing clean-up time and the possibility of rust occurring on the mold surface. The SV-Series Male Plug can ONLY be used with the SV-Series Socket.

**SV-Series Sockets**
(Automatic Shut-Off Type with Stemmed Valve)

The DME SV-Series Sockets feature an automatic shut-off stemmed valve that is designed to work with the SV-Series Male Plugs, as well as the standard male, female and extension plugs. The sockets open automatically when connected and shut off automatically when disconnected. The SV-Series Sockets are designed to keep flow restriction to a minimum and are available with either straight, 45° or 90° hose stems.

Operating Combinations

**Two-Way Shut-Off**

- **SV-SERIES MALE PLUGS**
- **WITH**
- **SV SERIES SOCKETS (EQUIVALENT SIZE)**

**One-Way Shut-Off**

- **STD. MALE FEMALE OR EXTENSION PLUGS**
- **WITH**
- **SV SERIES SOCKETS (EQUIVALENT SIZE)**

SV-Series Male Plugs* – NS
(Automatic Shut-Off Type with Stemmed Valve)

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>Pipe Thread</th>
<th>Standard Male Female Or Extension Plugs</th>
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</thead>
<tbody>
<tr>
<td>MOLD COOLING</td>
<td>MoldBasics® SV-Series Hose Connectors</td>
<td>236 237</td>
<td>*The SV-Series Male Plugs can only be used for two-way shut-offs and must be used with the SV-Series Sockets.</td>
</tr>
</tbody>
</table>
**MoldBasics® Hose Connector Sockets and Replacement Connector Seals**

**Mold Cooling**

With Clamless Hose Stems for use with Push-To-Connect/Push-To-Lock Type Hose

- For use with push-to-connect/push-to-lock type hose only
- Saves set-up time by eliminating the need for hose clamps
- Hose stem barbs mate with “Push-to-Lock” style rubber hose
- Popular sizes for interchangeability with existing and SV Sockets
- More compact and consistently sized than competitive sockets

**Replacement Connector Seals**

Sockets are supplied with Viton seals for use with air, water or heat transfer oil applications that do not exceed 400°F and 200 psi. Seals should be replaced periodically as required to ensure leak-free connections.

**With Air, Water or Heat Transfer Oil**

**Valves**

- **Flow-Thru Style – PL**
  - **STRAIGHT STEM**
  - **90° STEM**
  - **45° STEM**

**One-Way Valve Style – VPL**

- **STRAIGHT STEM**
- **90° STEM**
- **45° STEM**

**Maximum Operating Temperatures/Pressures – 40°F to 300°F**

**Brass Diverting Plugs and Rods**

DME Brass Diverting Plugs and Rods are used to redirect water flow through waterlines drilled in a mold or die.

**Brass Diverting Plugs**

- Available in brass or 304 stainless steel

**Bubbler Tubes**

DME Bubbler Tubes are for using coolers in molds or dies. They are supplied threaded at both ends, thus permitting two threaded tubes to be cut from the 18” length supplied. They can be used as replacement tubes in Cascade Water Junctions.

**Bubbler Tubes – BT**

**304 Stainless Steel Bubbler Tubes – BTS**

**Brass Diverting Plugs**

**Brass Diverting Plugs – BF**

**Typical Applications**

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**Mold Cooling**

**Brass Diverting Plugs and Rod for Steam and Waterlines**

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**Channel**

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**Mold Cooling**

**Brass Diverting Plugs and Rod for Steam and Waterlines**

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**Mold Cooling**

**Brass Diverting Plugs and Rod for Steam and Waterlines**

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**Mold Cooling**

**Brass Diverting Plugs and Rod for Steam and Waterlines**

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**Mold Cooling**

**Brass Diverting Plugs and Rod for Steam and Waterlines**

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**Mold Cooling**

**Brass Diverting Plugs and Rod for Steam and Waterlines**

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**Mold Cooling**

**Brass Diverting Plugs and Rod for Steam and Waterlines**

**Bubbler Tubes, Brass Diverting Plugs and Rods**

**Mold Cooling**

**Brass Diverting Plugs and Rod for Steam and Waterlines**

**Bubbler Tubes, Brass Diverting Plugs and Rods**
MOLD COOLING

Cascade Water Junctions

DME Cascade Water Junctions are ideal for cooling plastic molds and die-cast dies where drilled waterlines through the block are not possible due to interference with ejector pins, sprue puller pins, etc.

The brass tube has the rigidity to maintain uniform spacing inside the water channel and is threaded into the body for firm support. Waterlines may be connected to the same side or opposing sides of the brass hexagonal body.

The Type Water Junction provides low-cost rigid installation. The 2” long pipe nipple can be replaced with a longer pipe nipple to suit the application.

The Jiffy-Tite Socket Type is more easily connected and disconnected when mold is set-up, transported or stored. The Jiffy-Tite Socket Type is equipped with internal Viton seals (P3008).

Note: Bubbler Tubes may be used as replacements in Water Junctions.

Typical Applications

**SPECIFICATIONS for DC136A (see drawing above):**

1. 5/16-24 UNF
2. 3/8 NPT x 2”
3. 5/16 O.D. - .040 WALL

MOLD COOLING

Brass Pressure Plugs

Threadless Brass Pressure Plugs (INCH) – TBP

- Seals even in rough or corroded holes
- No tapping required
- Withstands pressures up to 72 psi

DME Threadless Brass Pressure Plugs employ a time-saving expandable 0-ring design. As the plug’s socket head screw is tightened, the 0-ring expands to provide a positive seal. No tapping is required and installation or removal is quick and easy. The smaller diameters are ideal for use in cavity inserts or slide blocks where space is limited. (Not recommended for use in oil lines.)

**Threadless Brass Pressure Plugs (INCH) – TBP**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>TAP MOUNTING BASE</th>
<th>G.P.</th>
<th>HEX SIZE</th>
<th>QUALITY</th>
<th>THREAD TAP</th>
<th>TAP</th>
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<tbody>
<tr>
<td>TBP10</td>
<td>% 0.50 % 0.50 % 0.50</td>
<td>RCV000</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>TBP10OS</td>
<td>% 0.50 % 0.50 % 0.50</td>
<td>RCV000</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TBP20</td>
<td>% 0.50 % 0.50 % 0.50</td>
<td>RCV001</td>
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<tr>
<td>TBP20OS</td>
<td>% 0.50 % 0.50 % 0.50</td>
<td>RCV001</td>
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Note: O-ring material is suitable for use with temperatures up to 200°F.

**Brass Pressure Plugs (INCH) – BP**

- For steam, water or oil lines
- Positive tapered seal
- Withstands pressures up to 600 psi

DME Brass Pressure Plugs give a high-pressure seal through a deliberate difference of taper between the plug and the tapped hole. Flush seating is achieved through closer control of thread forms, sizes and taper.

**Brass Pressure Plugs (INCH) – BP**

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<th>ITEM NUMBER</th>
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<th>G.P.</th>
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Withstands pressures up to 600 psi

**Brass Pressure Plugs (Metric) – AN**

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Mold Cooling

Benefits of Turbulent Flow Plastic Baffles

Improve mold cooling performance over traditional brass baffles

Turbulent Flow Plastic Baffles Benefits

- Patented side wipers prevent coolant blow-by, ensuring coolant flow to the end of baffles
- Results in better cooling of targeted hot spots
- Dramatically improves cooling time
- Increases coolant flow velocity and lowers Delta T °C across mold surface
- Built-in ribs encourage turbulent flow and reduce stagnant laminar flow
- Turbulent flow dissipates about 3x the BTUs as compared to laminar flow
- Non-hygroscopic, glass-reinforced engineering thermoplastic (polypthalamide) excels under high heat, providing better temperature stabilization
- Pre-wrapped with TPFE tape
- Maximum coolant temperature recommended: 100°C (212°F)

- **Recommended: 100°C (212°F)**
- **Maximum coolant temperature**
- **Temperature stabilization**
- **Engineering thermoplastic** (polypthalamide)
- **Non-hygroscopic, glass-reinforced**
- **Turbulent flow excels under high heat**
- **Pressure drop and temperature stabilization** technologies

**Applications**

- **Typical Applications**

**How to Check Coolant Flow Rate**

1. **Remove the exit hose from a mold-cooling circuit.**
2. **Fill a 1- or 5-gallon container** while measuring the amount of time it takes to fill the container.
3. **Calculate the amount of coolant** that flowed through the exit hose into the container.

   - For example, filling a 5-gallon container in 8 minutes is a flow rate of .625 gallons per minute (5 over 8 or 5/8 = .625).
   - .625 gallons per minute is a very good flow rate for a 1/4 NPT cooling channel. However, this would NOT be turbulent flow for a 3/8 NPT flow channel.
4. **Additionally, many other factors influence the cooling process**, including coolant channel placement, distance the cooling channels are from the cavity or core molding surface, distance between each cooling channel, and the number of cooling channels.
5. **Furthermore, if water deposits such as lime and other hard water mineral deposits are allowed to accumulate, the walls of the cooling channels will become insulated.** Turbulent flow is less beneficial under these conditions.
6. **Practice filtering the coolant along with regularly scheduled coolant channel maintenance to de-scale turbulent flow channels.**
7. **Mold materials also play a significant role in cooling time.** For example, replacing 420 Stainless Steel cores with a Copper Alloy such as Moldstar (as supplied by DME) can significantly reduce cycle time.
8. **Lastly, remember that regular cooling channel maintenance and turbulent water flow rates for the size of the cooling channels will have an enormous effect on the mold’s cooling capacity.**

**Guidelines to Efficient Water Cooling**

- Minimize restrictions within cooling channels.
- Use parallel cooling versus series cooling, as appropriate.
- Keep coolant channels clean and flow rates for the size of the cooling channels.
- Examine and clean the mold surface, distance between each cooling channel, and the number of cooling channels.
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- Examine and clean the mold surface, distance between each cooling channel, and the number of cooling channels.
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**Typical Applications**

- **Remove the exit hose from a mold-cooling channel and fill a 1- or 5-gallon container** while measuring the amount of time it takes to fill the container.
- **Calculate the amount of coolant** that flowed through the exit hose into the container.
- **For example, filling a 5-gallon container in 8 minutes is a flow rate of .625 gallons per minute (5 over 8 or 5/8 = .625).**
- .625 gallons per minute is a very good flow rate for a 1/4 NPT cooling channel. However, this would NOT be turbulent flow for a 3/8 NPT flow channel.
- **Additionally, many other factors influence the cooling process**, including coolant channel placement, distance the cooling channels are from the cavity or core molding surface, distance between each cooling channel, and the number of cooling channels.
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- **Lastly, remember that regular cooling channel maintenance and turbulent water flow rates for the size of the cooling channels will have an enormous effect on the mold’s cooling capacity.**

**Approximate Minimum Flow (in gallons per minute) required for turbulent flow in drilled water passages based on a Reynolds number of 4000.**

**Turbulent Flow Reference Table**

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Approximate Minimum Flow (in gallons per minute) required for turbulent flow in drilled water passages based on a Reynolds number of 4000.
MOLD COOLING
Straight Brass Plug Baffles

DME Brass Plug Baffles, available in both straight and spiral styles, are constructed entirely of high-quality brass with blades brazed to the plugs for long, dependable service. They provide a high-pressure seal through a deliberate difference of taper between the plug and the tapped hole.

The function of the baffle is to split the drilled waterline into two equal channels. As the heating or cooling medium enters, the baffle diverts the flow to travel up to and over the end of the baffle and down the other side.

Clearance must be provided between the end of the baffle and the end of the drilled channel to provide adequate flow. See Dimension “C” for approximate clearances.

Thread Size

Typical Applications

Note: A drilled hole (finish d1H13) is adequate. Don’t ream the hole.

Straight Brass Plug Baffles (METRIC) – BB

Spiral Baffles

Spiral baffles improve cooling balance by creating turbulent action in the channel, reducing laminar or straight-layered flow patterns and providing efficient coolant movement.

Typical Applications

Note: A drilled hole (finish d1H13) is adequate. Don’t ream the hole.

Spiral Brass Plug Baffles (METRIC) – BBS

Note: A drilled hole (finish d1H13) is adequate. Don’t ream the hole.
How and where heat pipes work

The DME Heat Pipe is a heat transfer device specifically designed for optimal performance in plastic injection molds. It consists of a vacuum-tight copper tube containing a wick and a non-toxic working fluid. One end of the heat pipe is an evaporator, the opposite end is a condenser. Thermal energy is gathered at the evaporator end, vaporizing the working fluid. This vapor then travels through the Heat Pipe to the condenser end. At the condenser end the vapor condensates back into a liquid, giving up its latent heat in the process. To complete the cycle the condensed liquid then travels along the wick, via capillary action, back to the evaporator section. This process repeats itself continuously, transferring heat many times faster than pure copper.

How heat pipes are used

Available in a variety of standard lengths and diameters, DME Heat Pipes are used in cores, core slides, cavities and other areas of a mold or die requiring cooling or controlled temperatures. Commonly used in place of bubblers, baffles, features, or blades, Heat Pipes transfer heat rapidly to the heated area. They are also used to transfer heat to a cooler portion of the mold (which serves as a heat sink) or to open air, thereby permitting cooling of otherwise inaccessible areas and eliminating potential coolant leakage.

Benefits of heat pipes

Cool Mold Faster and Reduce Cycle Time

The Heat Pipe’s ability to cool molds faster and thus reduce cycle time is a result of several factors. First, waterlines throughout the entire mold can be larger in diameter, permitting a higher coolant velocity, which transfers heat faster. Second, the larger volume of fluid flowing through the waterlines results in a lower overall coolant temperature rise, so that the last Heat Pipe in the system will transfer heat as efficiently as the first. Third, the extension of the Heat Pipe into the waterlines promotes turbulent flow, which transfers heat faster than laminar flow. Fourth, the ability to transfer heat away from inaccessible areas improves the overall cooling rate and reduces cycle time, even if extension into a remote waterline is impractical or impossible.

Improve Part Quality

As the Heat Pipe transfers heat to the coolant, air or mold component, it also dissipates heat evenly along its entire length. This isothermal action provides faster and more uniform cooling, thus eliminating hot spots, which cause sink marks, pulling and spotting.

Simplify Mold Design and Lower Costs

With Heat Pipes, waterline design is greatly simplified since coolant flow into the heated area of the mold is not required. In addition, the ability to locate heat conductors in areas inaccessible to other cooling devices can further simplify the overall mold design. In most cases, the machining and construction time required for the mold is reduced, lowering moldmaking costs.

Standard injection molding heat pipes

The standard line of Heat Pipes for injection molding includes both a low-temperature (TPL) and a high-temperature (TPH) series. The TPL Series works most efficiently between the temperatures of 40˚ and 200˚F with a coolant temperature of approximately 80˚ to 100˚F, and the TPH Series between 150˚ and 400˚F with a coolant temperature of approximately 90˚ to 110˚F, and sometimes higher. The graph illustrates how the Heat Pipe’s heat transfer capability is dependent upon its internal operating temperature. It is best to start with the coolant temperature high, then reduce it if necessary.

MOLD COOLING

Heat Pipes - Cooling Pins

Reduction in maintenance and operating costs

The increased waterline diameter, coolant velocity and heat capacity effectively eliminate scale formation, calcium deposits and the plugging up of small waterlines and ports. In addition, Heat Pipes operate in any coolant without corroding.

Upgrade existing molds and dies

Heat Pipes effectively solve cooling, cycle time or part quality problems in existing molds. They can be retrofitted as replacements for bubblers or baffles and to provide heat transfer in previously uncooled areas.

Salvage damaged molds and dies

In certain applications, Heat Pipes can even be used to salvage or repair molds that would otherwise have to be scrapped or extensively reworked.

Silver heat transfer compound* – HTC06S

Contains micronic particles of silver to provide a thermal resistance of 4.75˚C in/watt. The compound is supplied in a 5cc plastic syringe. (DME recommends the Silver Heat Transfer Compound because it has eight times lower thermal resistance than the copper equivalent.)

Copper heat transfer compound* – HTC30C

Contains micronic particles of copper to provide a thermal resistance of 38˚C in/watt. The compound is supplied in a 5cc plastic syringe.

End of page.
High-Temperature Insulator Sheets (HTIS) for Plastics Molds and Die-Cast Dies

- Asbestos-free material
- High compression strength
- Machinable with high-speed cutting tools

DME High-Temperature Insulator Sheets are used on molds and dies between the top clamping plate and the stationary plate, and between the bottom of the ejector housing and the movable plate. The thermal insulating properties of this unique asbestos-free, glass-reinforced polymeric composite inhibit heat transfer from the mold to the plate, or from the plate to the mold (depending on the application), which helps conserve energy and prolong machine life. These sheets have excellent non-deformation characteristics and a compressive strength, which is higher than asbestos and mica materials. Compression molded for high impact strength, they are supplied micro-finished top and bottom, parallel within ±.002.

Locating Rings (6541, 6544) for use with Insulator Sheets

These thicker Locating Rings are used with Insulator Sheets ¼ and ½ thick. They extend beyond the Insulator Sheet far enough to ensure more than ¼ pilot engagement with the locating hole in the machine platen.

General Data

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<th>16,000 PSI AT 400°F</th>
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Pre-Machined Insulator Sheets

- Can be used on both top and bottom of mold bases
- Use with locating rings 6541 and 6544

Pre-Machined Insulator Sheets

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Note: Special sizes and mounting available upon request. Send along these data sheets for a quote.
DME TruCool™ Conformal Cooling is a Revolutionary Technology

TruCool™ addresses the thermal management of the injection molding process. Through the use of metal 3D printing, we manufacture inserts, slides, lifters and more, that can now contain cooling channels previously unimaginable. This technology has been proven over several years of research and development all the while pushing the limits of plastic injection molding. In existing molds, TruCool™ inserts are typically able to reduce overall cycle time by an average of 25%, reduce warpage by nearly 35%, improves part quality through reduced thermal stress which results in material savings with less scrap and less press time while obtaining the same E.A.U. (Estimated Annual Usage) in comparison to conventional means. Typical R.O.I. (return on investment) is less than 3 months.

Should TruCool™ inserts be considered at the lead of a project, additional benefits would include a complete thermal control of the mold, additional part design and engineering flexibility, a reduced cavity count which directly relates to a smaller tool and a smaller press ultimately reducing overall cost while again, still producing the same E.A.U. as well as a superior end user product.

On the design side, DME uses Siemens NX CAD software. With DME’s extensive tooling background, we not only offer design work for our TruCool™ conformal cooling line of products, but we are additionally able to provide full mold design consultation. The Design Team is always available to support our clients starting at the initial stages of development, to supplying the mold base (through our manufacturing department), and everything in between. This sets customers at ease knowing they have over seven decades of engineering behind them. Companies of any size and global location can all benefit from the mold technology knowledge DME has developed. On the heating side of the process with hot runner manifolds and even conformal heating channels for dynamic thermal cycling, all the way to the cooling of the mold, we can help reduce delta on your part an increase the efficiency of your mold from beginning to end.

1. Annual maintenance required.
2. When all necessary information is provided by customer, failure would apply to a discount on future projects, requires DME review of mold in operation prior to and after conformal modification.
DME TruCool™ Printed Inserts

Wide range of materials available for TruCool™ conformal inserts:

- MS-1
- Aluminum
- CX Stainless
- P-20
- H-13
- 420SS

Capability of A-1 polish finish (using P-20, H-13 or 420SS)

Larger volumes:

- Sizes up to 35.4” (900mm) X 23.6” (600mm) X 19.6” (500mm)

Development of standardized “off the shelf” componentry for plug-n-play ease and cost savings

- Hot tip gate insert (2 major hot runner manufactures already on board)
- Cold sprue bushing
- Customizable pre-printed inserts
- Core pins
DME MOLD COMPONENTS – INCH
FEATURING HIGH-QUALITY GUIDE PINS, BUSHINGS, SUPPORT PILLARS, AND MORE
MOLD COMPONENTS – INCH

A comprehensive line of Standard Mold Components

Guide Pins – Hardened & Precision Ground........258,261

Shoulder Guide Pins – Hardened & Precision Ground.....259

Bushings – Shoulder & Straight......................... 260 - 261
Bushings – Self-Lubricating.................................. 262
Bushings – Bronze-Plated..................................... 263
Bushings – Solid Bronze....................................... 264

Guided Ejection Guide Pins.............................. 265
Guided Ejection Bushings................................. 266 - 267
Guided Ejection Systems..................................... 268 - 269

Mold Parts for 34R Series Mold Base..................... 270
Guide Pins and Bushings for Other Mold Assemblies.... 271

Support Pillars & Stop Pins............................. 272 - 273
Knock-Out Extension Pucks............................... 274-275

Sprue Bushings............................................. 276 to 277
Sprue Bushings – Performance............................. 278 to 279

Locating Rings for Plastic Molds......................... 280 to 282

3-Plate Extension Bushings............................. 283 to 284

Special Guide Pins............................................. 285
Special Guide Pins – Faxable Quote Form............. 286
Metric Equivalents and Conversions............................ 287
# Mold Components – Inch

## Guide Pins – GL

### Hardened and Precision Ground

**General Dimensions**

<table>
<thead>
<tr>
<th>NOMINAL</th>
<th>DIA</th>
<th>D × .005</th>
<th>D × .010</th>
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<td>.064</td>
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</table>

### Shoulder Guide Pins – A-GL, C-GL, D-GL

### Hardened and Precision Ground

DME Standard Shoulder Pins are precision made of high-quality steel and are hardened and finished ground to close tolerances. This combination enables moldmakers to line-bore the guide pin and bushing hole.

**General Dimensions**

<table>
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<tr>
<th>NOMINAL</th>
<th>DIA</th>
<th>D × .005</th>
<th>D × .010</th>
<th>K</th>
<th>D × .015</th>
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<td>.062</td>
<td>.060</td>
<td>.064</td>
<td>.001</td>
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## Shoulder Guide Pins

### DME Standard Shoulder Pins

- **Hardened and Precision Ground**
- All items in stock.

**NOTE:** Grooved guide pins also available on special order.

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<thead>
<tr>
<th>NUMBER</th>
<th>ITEM</th>
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<th>Ø D -.0005</th>
<th>LENGTH</th>
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**NOTE:** Grooved guide pins also available on special order. All items in stock.
# MOLD COMPONENTS – INCH

## Shoulder Bushings

**General Dimensions**

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<th>Ø D ± .0005</th>
<th>Ø D ± .0010</th>
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Surface Treatment: Case-hardened .030 to .040 deep

All items in stock.

## Guide Pins

**Guide Pins – GL**

Designed to satisfy the requirements of larger plastics molds and die-cast dies. They are made of the finest quality alloy steels and are hardened and precision ground.

**General Dimensions**

<table>
<thead>
<tr>
<th>NOMINAL DIA</th>
<th>Ø D x .0005</th>
<th>Ø D ± .0005</th>
<th>Ø D ± .0010</th>
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<td>0.4990</td>
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Surface Treatment: Case-hardened .030 to .040 deep

All items in stock.

## Shoulder Bushings

**Guide Pins and Shoulder Bushings**

**General Dimensions**

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<thead>
<tr>
<th>NOMINAL DIA</th>
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Surface Treatment: Case-hardened .030 to .040 deep

All items in stock.

## Straight Bushings

**Surface Treatment**

- Case-hardened .030 to .040 deep

**General Dimensions**

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All items in stock.
MOLD COMPONENTS – INCH
Self-Lubricating Bushings for Guide Pins

DME Self-Lubricating Bushings can save time and money in the design, construction and operation of injection molds. They are ideal for clean-room conditions or any applications where the parts being molded prohibit the use of external lubricants, such as medical, electronic and food-related products. Their built-in lubrication capability also makes them a good choice for fast-cycling, high-production molds.

Self-Lubricating Straight Bushings – GBS

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø D</th>
<th>Ø E</th>
<th>Ø H</th>
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Self-Lubricating Shoulder Bushings – GBS

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Bronze-Plated Shoulder and Straight Bushings

Bronze-Plated Shoulder Bushings – LBB

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Bronze-Plated Shoulder Bushings – STB

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All items in stock.

Mold Components – INCH

LUBRICATION BENEFITS

- Aluminum-bronze alloy with oil-impregnated graphite plugs
- Saves design and moldmaking costs for lubrication and fittings
- Reduces wear and galling
- Lowers maintenance and repair costs
- Eliminates contamination… ideal for “clean-room” environments

Bronze-Plated Shoulder and Straight Bushings

Bronze-Plated Shoulder Bushings – LBB

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All items in stock.

Mold Components – INCH
**MOLD COMPONENTS — INCH**

**Solid Bronze Shoulder Bushings — SBF**

**Precision Ground**

DME Standard Shoulder and Straight Bushings feature internal oil grooves and high-strength bronze for smooth, non-galling operation.

**General Dimensions**

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**Solid Bronze Straight Bushings — SBS**

**Precision Ground**

Guided Ejection Guide Pins

- Short press fit lengths for use in guided ejection applications
- Pins are hardened and precision ground

**System 1**

When pins are installed in the support plate, ejector housing can be removed from mold without removing ejector plates, permitting easy access to service the ejector system.

**System 2**

Pins installed in the ejector housing permit fast, low-cost installation. When ejector housing is removed from mold base, the complete ejector assembly is removed.

It is recommended that a minimum of four pins and bushings be installed. Size of the pins and bushings should be determined by the size of the mold. The Guided Ejection System is an inexpensive method to protect against wear and costly damage to a mold in production.

Properly installed, the DME Guided Ejection System holds the ejector assembly in alignment and supports the weight of the ejector bushing throughout the entire machine cycle. This greatly reduces wear on ejection components and prevents possible cocking of the ejector plates.

**Guided Ejection Guide Pins – GL**

- Select corresponding bronze-plated guide bushings or self-lubricating guided ejection bushings in proper diameter for the application.
- Additional information and prices, contact DME.

**NOTES:**

1. Select corresponding bronze-plated guided ejection bushings or self-lubricating guided ejection bushings in proper diameter for the application.

2. DME Guided Ejection Systems are available in standard mold bases. For additional information and prices, contact DME.

**U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@milacron.com ■ www.dme.net ■ store.milacron.com**
MOLD COMPONENTS – INCH

Guided Ejection Bushings

- Holds the ejector assembly in alignment
- Supports the weight of the ejector assembly throughout the entire cycle
- Reduces wear on ejection components
- Prevents cocking of the ejector plates

Bronze-Plated Guided Ejection Bushings – GEB

The Bronze-Plated Guided Ejection Bushings feature the strength of steel plus the nonscoring lubricity of bronze plating. Internal oil grooves and a lubrication hole help to ensure smoother mold operation.

It is recommended that a minimum of four bushings be installed. Bushing size should be determined by the size of the mold. The Guided Ejection System is inexpensive protection against wear and possible costly damage to a mold in production.

Self-Lubricating Guided Ejection Bushings – GBE

It is recommended that a minimum of four bushings be installed. Bushing size should be determined by the size of the mold. The Guided Ejection System is inexpensive protection against wear and possible costly damage to a mold in production.

DME Guided Ejection Systems are available installed in standard mold bases. For additional information and prices, contact DME.

NOTES:
1. Select corresponding guide pin in proper diameter and length for application.
2. These bushings are interchangeable with comparably sized DME bronze-plated and solid bronze-guided ejection bushings. They are available only in self-lubricating style.

Solid Bronze Guided Ejection Bushings – BEB

Solid Bronze Guided Ejection Bushings feature high-strength bronze and natural lubricity. Internal oil grooves and a lubrication hole help to ensure smoother mold operation.

It is recommended that a minimum of four bushings be installed. The size of the bushings should be determined by the size of the mold. The Guided Ejection System is inexpensive protection against wear and possible costly damage to a mold in production.

DME Guided Ejection Systems are available installed in standard mold bases. For additional information and prices, contact DME.

NOTES:
1. Select corresponding guide pin in proper diameter and length for application.
2. These bushings are interchangeable with comparably sized DME bronze-plated and solid bronze-guided ejection bushings. They are available only in self-lubricating style.

---

Canada 800-387-6600 ■ DME Guided Ejection Systems are available installed in standard mold bases. For additional information and prices, contact DME.

- Holds the ejector assembly in alignment
- Supports the weight of the ejector assembly throughout the entire cycle
- Reduces wear on ejection components
- Prevents cocking of the ejector plates

All items in stock.
Guided Ejection Systems hold the ejector assembly in alignment and support the weight of the ejector assembly throughout the molding cycle – greatly reducing wear on ejection components and preventing cocking of the ejector assembly.

**SYSTEM 1**
When pins are installed in the support plate, the ejector housing can be removed from the mold without removing ejector plates. This permits easy access to service the ejector system.

**SYSTEM 2**
Pins installed in the ejector housing permit fast installation. When the ejector housing is removed from the mold base, the complete ejector assembly is removed.

**Guided Ejection System Type**
- System 1
- System 2

**Guided Ejection Bushing Type**
- Bronze-Plated Steel Bushings
- Self-Lubricating Bushings

**Guided Ejection Position**
- STD
- Specify

Recommended position from table provided standard (see opposite page). If a different position is required, specify below.

GEx_________
GEy_________

**Diameter**
- STD
- Specify

Recommended diameter from table provided standard. If a different diameter is required, it will require a positioning change; specify below.

Available diameters:
- 0.750
- 0.875
- 1.000
- 1.250

**Guided Ejection Positions**

**“B” HALF OF MOLD FOR 88, 812 & 108 MOLD BASE SIZE ONLY**

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**“B” HALF OF MOLD FOR 1012 – 2435 BASES**

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Available diameters:
- 0.750
- 0.875
- 1.000
- 1.250
MOLD COMPONENTS – INCH
Mold Parts for 34R Mold Assemblies

Locating Rings
The large diameter of the locating ring is ground to close tolerances to mate with the platen of the Arburg C/4b Press.

Guide Pins and Shoulder Bushings
Designed specifically to suit the 34R Series Mold Base. They are made of the finest quality steels and are hardened and precision ground.

Adjustable Knock-Out Rods
for 34R Mold Bases
Hardened and precision ground to close tolerances.

Mold Components – INCH
Shoulder Guide Pins and Bushings for 45R, 56N, 58N, 56U, 58U and 68SH Mold Assemblies

Shoulder Guide Pins
Shoulder diameter is of the same size and tolerance to match with the O.D. of Standard DME Shoulder Bushings listed below.

Shoulder Bushings
Made of the finest quality steel, hardened and precision ground to reduce wear and give longer life.

Tubular Dowels – for 34R Mold Bases
Hardened and precision ground to close tolerances.
MOLD COMPONENTS – INCH
Support Pillars and Stop Pins

Support Pillars
S.A.E. 1040 Steel
Pillar height (C dimension) is finished flat and parallel.

Support pillars should be used liberally since they greatly increase the capacity of the mold to support the projected area of the cavities, runner and sprue. By providing additional support, they prevent deflection of the mold. The absolute necessity of using support pillars is demonstrated by the drawings below.

One row of support pillars increases the permissible cavity area 4 times.

Two rows of support pillars increase the permissible cavity area 9 times.

Notes:

- Support Pillars
- Threaded Locating Pin Applications
- Socket Set Screw Applications
- Cap Screw (S.H.C.S.) Applications

Material: S.A.E. 1040 Steel

Cap Screw Application

Socket Set Screw Application

Threaded Locating Pin Application

Support Pillars and Stop Pins

Support Pillars
Support pillars are universally adaptable for cap screw, threaded locating pin, or socket set screw applications.

Order pillars from chart at left and required "fasteners" as listed below.

Cap Screw (S.H.C.S.) Applications

3/16-16 or 5/6-11 socket head cap screws can be ordered in length required. Please reference page 364 for Socket Head Cap Screw information.

Threaded Locating Pin Applications

Locating pins unavailable for 3” and 4” diameter pillars.

Socket Set Screw Applications

Order pins and screws in package lots only.

Stop Pins
Dowel-type Stop Pins for special assemblies.

Order pins in package lots only.

Stop Discs
Supplied with (1) #10-24UN x 1/2 long FHCS

The absolute necessity of using support pillars is demonstrated by the drawings below.

No support pillars

One row of support pillars increases the permissible cavity area 4 times.

Two rows of support pillars increase the permissible cavity area 9 times.

NOTES:

- Order S.H.C.S. separately
- Please reference page 364 for Socket Head Cap Screw information.

Threaded Locating Pin Applications

Locating pins unavailable for 3” and 4” diameter pillars.

Socket Set Screw Applications

Order pins and screws in package lots only.

Stop Pins
Dowel-type Stop Pins for special assemblies.

Order pins in package lots only.

Stop Discs
Supplied with (1) #10-24UN x 1/2 long FHCS

The absolute necessity of using support pillars is demonstrated by the drawings below.

No support pillars

One row of support pillars increases the permissible cavity area 4 times.

Two rows of support pillars increase the permissible cavity area 9 times.

NOTES:

- Order S.H.C.S. separately
- Please reference page 364 for Socket Head Cap Screw information.

Threaded Locating Pin Applications

Locating pins unavailable for 3” and 4” diameter pillars.

Socket Set Screw Applications

Order pins and screws in package lots only.

Stop Pins
Dowel-type Stop Pins for special assemblies.

Order pins in package lots only.

Stop Discs
Supplied with (1) #10-24UN x 1/2 long FHCS

The absolute necessity of using support pillars is demonstrated by the drawings below.

No support pillars

One row of support pillars increases the permissible cavity area 4 times.

Two rows of support pillars increase the permissible cavity area 9 times.

NOTES:

- Order S.H.C.S. separately
- Please reference page 364 for Socket Head Cap Screw information.
MOLD COMPONENTS – INCH

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

**KO Extension Pucks**

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

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>THREAD 1 THRU</th>
<th>THREAD 2 H DEEP</th>
<th>H DIM</th>
<th>L DIM</th>
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<tr>
<td>BCPE103812</td>
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<td>BCPE101258</td>
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<td>3/4&quot;-10 UNC</td>
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</table>

(4) 1/4"-20 SHCS included

KO Extension Pucks standardize mold ejector systems by unifying press knock out rod lengths. Wide range of thread configurations available for many different press types.

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

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
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(4) 1/4"-20 SHCS included

* NT - No Thread, Mold Maker to Machine
MOLD COMPONENTS – INCH
Sprue Bushings

Sprue Bushings – A, B, LN and AR
S.A.E. 6145 Steel Hardened, Ground and Polished
(HRC 43-45, except “LN” Series – carburized 600-600 deep to HRC 60-62, drillable with carbide-tipped drill.)

Available with 0 %, 1/16, 3/32 or 3/64 R 1⁄16 or 1⁄8″

“A” Series

Available with:

- 0, 1⁄16, 3⁄32 or 1⁄8 R 1⁄16 or 1⁄8

“A” Series

Available with:

- 0, 1⁄16, 3⁄32 or 1⁄8 R 1⁄16 or 1⁄8

“B” Series

Available with:

- 0, 1⁄16, 3⁄32 or 1⁄8 R 1⁄16 or 1⁄8

“LN” Series

Available with:

- 0, 1⁄16, 3⁄32 or 1⁄8 R No spherical radius

“AR” Series

Available with:

- 0, 1⁄16, 3⁄32 or 1⁄8 R No spherical radius

MOLD COMPONENTS – INCH
Sprue Bushings

Sprue Bushings – U, UV, UR and L
S.A.E. 6145 Steel, HRC 43-45 Hardened, Ground and Polished

The wide range of Standard DME Sprue Bushings allows mold to be installed in a variety of injection molding machines. The accuracy and interchangeability permit easy replacement if the mold is being transferred to another machine. It’s wise to standardize… on DME Sprue Bushings.

NOTE: “UV” series sprue bushings (Watson-Stillman) available on special order. Other special sprue bushings will be quoted on request per your specifications.

“UV” Series – Van Dorn and Moslo

Available with

- 0 %, 1⁄16 or 3⁄64 R 1⁄8 or 1⁄4

“L” Series

Available with

- 0 %, 1⁄16 or 3⁄64 R 1⁄8 or 1⁄4

“UR” Series – Arburr

Available with

- 0 %, 1⁄16 or 3⁄64 R No spherical radius

HOW to order:
Specify Item Number Prefix with 0 numerator, and R numerator.
Include zeros where shown, but omit all denominators, slashes and NA.

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

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Rev. 2011-09
DME Sprue Bushings Information Guide
Mold Components – Inch

Performance Sprue Bushings®

High-conductivity, corrosion-resistant, copper-based alloy bushing body with hardened 420 stainless steel nozzle seat insert.

- Reduces sprue cooling time and cycle time
- Helps prevent sprue sticking or break-off within bushing
- Stainless steel nozzle seat provides wear resistance and insulates to reduce transference of heat from machine nozzle to the sprue area
- PSB Series is directly interchangeable with existing DME “B” Series steel sprue bushings

“PSB” Series with a 1.000” Diameter Stem
(Interchangeable with DME “B” Series Sprue Bushings)

“PSU” Series with a .750” Diameter Stem
(Interchangeable with DME “U” Series Sprue Bushings)

ITEM NUMBER A L D R
PSB0891 429⁄32 525⁄32 9⁄32 1⁄2
PSB0871 429⁄32 525⁄32 7⁄32 1⁄2
PSB0693 329⁄32 425⁄32 9⁄32 3⁄4
PSB0673 329⁄32 425⁄32 7⁄32 3⁄4
PSB0651 329⁄32 425⁄32 5⁄32 1⁄2
PSB0491 229⁄32 325⁄32 9⁄32 1⁄2
PSB0473 229⁄32 325⁄32 7⁄32 3⁄4
PSB0471 229⁄32 325⁄32 7⁄32 1⁄2
PSB0453 229⁄32 325⁄32 5⁄32 3⁄4
PSB0293 129⁄32 225⁄32 9⁄32 3⁄4
PSB0273 129⁄32 225⁄32 7⁄32 3⁄4
PSB0271 129⁄32 225⁄32 7⁄32 1⁄2
PSB0253 129⁄32 225⁄32 5⁄32 3⁄4

ITEM NUMBER A L D R
PSU0871 429⁄32 525⁄32 7⁄32 1⁄2
PSU0853 429⁄32 525⁄32 5⁄32 3⁄4
PSU0851 429⁄32 525⁄32 5⁄32 1⁄2
PSU0693 329⁄32 425 9⁄32 3⁄4
PSU0691 329⁄32 425⁄32 9⁄32 1⁄2
PSU0673 329⁄32 425⁄32 7⁄32 3⁄4
PSU0671 329⁄32 425⁄32 7⁄32 1⁄2
PSU0653 329⁄32 425⁄32 5⁄32 3⁄4
PSU0651 329⁄32 425⁄32 5⁄32 1⁄2
PSU0493 229⁄32 325⁄32 9⁄32 3⁄4
PSU0491 229⁄32 325⁄32 9⁄32 1⁄2
PSU0471 229⁄32 325⁄32 7⁄32 3⁄4
PSU0453 229⁄32 325⁄32 5⁄32 3⁄4
PSU0451 229⁄32 325⁄32 5⁄32 1⁄2
PSU0293 129⁄32 225⁄32 9⁄32 3⁄4
PSU0291 129⁄32 225⁄32 9⁄32 1⁄2
PSU0273 129⁄32 225⁄32 7⁄32 3⁄4
PSU0271 129⁄32 225⁄32 7⁄32 1⁄2
PSU0253 129⁄32 225⁄32 5⁄32 3⁄4
PSU0251 129⁄32 225⁄32 5⁄32 1⁄2

When High Performance is Mandatory, Performance Sprue Bushings® are in the Mold

Consistently recommended by a wide range of resin manufacturers, molders, moldmakers, designers and engineers, Performance Sprue Bushings® have a long-standing reputation as a product that exceeds expectations. Many users are so pleased with the overall performance of this product that Performance Sprue Bushings are now specified in all of the molds they build.

Here are several benefits of the Performance Sprue Bushing that users rave about:

- Reduced sprue cooling and overall cycle time
- Helps prevent sprue sticking, break-off and corrosion
- Provides a more rigid sprue for robotic part removal
- Yields more rigid sprues with reduced sprue cool time for robotic removal of parts
- Molding problems caused by sprues are eliminated

Performance Sprue Bushings® are available in a number of popular standard sizes (see table on facing page), and as non-standards with quick delivery. Contact DME with your next application to reduce sprue cooling and cycle time.

Property Comparisons: Performance Sprue Bushings’ Copper Alloy and Steel Sprue Bushings Materials

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>THERMAL DIFFUSIVITY</th>
<th>THERMAL CONDUCTIVITY</th>
<th>AT 68°F BTU/(FT²_HR_°F)</th>
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<tr>
<td>P20 TOOL STEEL</td>
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<td>69</td>
<td>9.19</td>
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<tr>
<td>931 TOOL STEEL</td>
<td>17</td>
<td>20</td>
<td>8.31</td>
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</table>

Note: All details are specified in inches.
Locating Rings 6521 and 6524 are supplied with two 5⁄16-18 Socket Head Cap Screws. All other Locating Rings supplied with two 5⁄16-18 Flat Head Screws.

**Mold Components – Inch**

Locating Rings for Plastics Molds

Dimensions as mounted on standard molds

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø</th>
<th>D</th>
<th>DESCRIPTION</th>
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<tr>
<td>6501 LN</td>
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<td>STANDARD SERIES</td>
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<td>6502 LN</td>
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<td>6521 LN</td>
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<td>6522 LN</td>
<td>3.990</td>
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<td>3.990</td>
<td>CLAMP TYPE</td>
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<tr>
<td>6534**</td>
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<td>TOP AND BOTTOM RING</td>
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<tr>
<td>6535</td>
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<td>6536</td>
<td>4.331</td>
<td>TOP RING</td>
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<tr>
<td>6537</td>
<td>4.331</td>
<td>BOTTOM RING</td>
<td></td>
</tr>
</tbody>
</table>

* For use with high-temperature insulator sheets.

** For use with 3.5 x 3.75 Arburg Mold Bases. Details on page 228.
platenGUARD Locating Rings protect your mold bases and press platens for their entire life cycles. Available in two styles, platenGUARD Locating Rings are a hybrid innovation that is designed to maximize performance efficiencies by preventing forceful contact with platens that will cause nonparallel parting line faces. Flat platens minimize flash from non-planer mounting of the mold halves, reducing mold sampling and repair costs.

platenGUARD Locating Rings consistently excel at their core function of properly locating the mold in the press. Additionally, they create a hands-free mold setting procedure that reduces risk of technician injury and liability.

- Steel substrate effectively locates the mold in the press
- Resilient surfaces protect platen even when balancing is difficult
- Purging does not adhere to the resilient surface
- Prevents machine platen damage from impact during mold setting
- Increases productivity through improved setting procedure
- More sizes than competitive bushings to suit more applications
- Made from AISI 4140 steel, hardened to 28-32 HRC
- Steel substrate effectively locates the mold in the press
- Resilient surfaces protect platen even when balancing is difficult
- Purging does not adhere to the resilient surface
- Prevents machine platen damage from impact during mold setting
- Increases productivity through improved setting procedure
- More sizes than competitive bushings to suit more applications
- Made from AISI 4140 steel, hardened to 28-32 HRC

For use with “T-Series” 3-Plate Mold Bases

- Reduces sprue length to save material, reduce cycle time and aid in the ejection of the runner from the mold
- Easier, faster installation than competitive bushings … all grinding for final fit is on flat surfaces with no I.D. or O.D. angles to grind
- More sizes than competitive bushings to suit more applications
- Made from AISI 4140 steel, hardened to 28-32 HRC

Mold Components – INCH
3-Plate Extension Bushings

ITEM NUMBER  Ø D DESCRIPTION
TEB0001  3.990 Standard
TEB0002 thru TEB0005  #10-24 x 1 1/2 long S.H.C.S. (2) included
TEB0006 thru TEB0011  5/16-18 x 7/8 long S.H.C.S. (2) included

ITEM NUMBER  Ø B Ø C Ø E Ø F Ø G Ø H Ø J Ø K
TEB0001  2.045 1.927 2.251 1.903
TEB0002  2.045 1.927 2.251 1.903
TEB0003  2.245 2.227 2.551 2.203
TEB0004  2.245 2.227 2.551 2.203
TEB0005  2.345 2.327 2.631 2.303
TEB0006  2.345 2.327 2.631 2.303
TEB0007  2.345 2.327 2.631 2.303
TEB0008  2.345 2.327 2.631 2.303
TEB0009  2.345 2.327 2.631 2.303
TEB0010  2.345 2.327 2.631 2.303
TEB0011  2.345 2.327 2.631 2.303

ITEM NUMBER  Ø A Ø B Ø C Ø D Ø E Ø F Ø G Ø H Ø J Ø K
TEB0001  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0002  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0003  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0004  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0005  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0006  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0007  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0008  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0009  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0010  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015
TEB0011  4.405 4.310 4.310 3.75 1.205 1.277 1.875 3.015

For use with “T-Series” 3-Plate Mold Bases

These 3-plate extension bushings can save material, reduce cycle time and help prevent runner hang-ups in 3-plate molds.

- Reduces sprue length to save material, reduce cycle time and aid in the ejection of the runner from the mold
- Easier, faster installation than competitive bushings … all grinding for final fit is on flat surfaces with no I.D. or O.D. angles to grind
- More sizes than competitive bushings to suit more applications
- Made from AISI 4140 steel, hardened to 28-32 HRC

Made in the U.S.A.
Completely retrofittable with standard locating rings
Increases productivity through improved setting procedure
Prevents machine platen damage from impact during mold setting
Purgings do not adhere to the resilient surface
Resilient surfaces protect platen even when balancing is difficult
Steel substrate effectively locates the mold in the press
Resilient surfaces protect platen even when balancing is difficult
Purging does not adhere to the resilient surface
Prevents machine platen damage from impact during mold setting
Increases productivity through improved setting procedure
Completely retrofittable with standard locating rings
Made in the U.S.A.
Suggested Mold Base Machining Dimensions

Typical Installations

For Runner Stripper Plate Bushing
TEB0001 in X-1 Stripper Plate

- Ø2.7500 *
- ±.001 ±.001
- 1.625
- .06 x 45° CHAMF

For Extension Nozzle Bushings in “A” Clamping Plate (A.C.P.)

TEB0006 thru TEB0011

- Ø4.492 ±.001 ±.001
- ±.001
- ±.001
- ±.001
- ±.001
- ±.001
- ±.001
- ±.001
- ±.001
- ±.001
- ±.001

Guide Pins for Special Mold Tooling Needs

Mold Components – Inch

DME Special Straight and Shoulder Guide Pins can be custom-ordered in a wide range of diameters and lengths to suit almost any mold tooling requirement. Made with case-hardened steel for dependable performance and long service life, DME Special Guide Pins feature:

- Diameters up to 3”
- Lengths up to 33-1/2”
- Case-hardened steel (HRC 58-64)
- Close tolerances of .0005” on critical diameters

DME operates a state-of-the-art manufacturing facility to ensure that your quality and delivery goals are met. Extensive resources and efficient processes provide rapid order fulfillment. Advanced manufacturing techniques and trained, dedicated personnel ensure quality.

Contact DME for your special guide pin needs. We can quote your application and process your order immediately (see faxable quote form on next page).

Guide Pins feature:

- Made with case-hardened steel for dependable performance and long service life, DME Special Guide Pins are manufactured to exacting standards to meet the most demanding applications.
- Close tolerances of .0005” on critical diameters provide for precise fit and performance.
- Guide Pins are available in a wide range of diameters and lengths to suit almost any mold tooling requirement.

Guide Pins for Special Mold Tooling Needs

Straight Guide Pins

Shoulder Guide Pins

Guide Pins are manufactured to exacting standards to meet the most demanding applications. They are made with case-hardened steel for dependable performance and long service life. Close tolerances of .0005” on critical diameters provide for precise fit and performance. Guide Pins are available in a wide range of diameters and lengths to suit almost any mold tooling requirement.
**Mold Components – INCH**

Special Guide Pins – Faxable Quote Form

United States 888-808-4363 • Canada 800-461-9965 • International 248-389-7394

Company name: DME account #: Shipping method:

Contact name: P.O. #: UPS Ground

Phone: UPS 2nd Day Air

Address: UPS Next Day

E-mail: FedEx

City: State/Province: Other:

ZIP/Postal Code: Country:

---

**Shoulder Guide Pins**

**Straight Guide Pins**

**Metric Equivalents and Conversions**

**Equivalents:** Inch, fraction, decimal, millimeter

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<thead>
<tr>
<th>INCHES</th>
<th>MILLIMETERS</th>
<th>INCHES</th>
<th>MILLIMETERS</th>
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<td>0.8000</td>
<td>Ø 0.0625</td>
<td>1.6000</td>
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**Measurement conversions**

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<th>TO</th>
<th>FROM</th>
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---

*All requested dimensions must be specified for quoting.*

**Quantity:** Pieces

---

*All requested dimensions must be specified for quoting.*

**Quantity:** Pieces
MOLD COMPONENTS – METRIC
A comprehensive line of Euro-Series Mold Components

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<thead>
<tr>
<th>Component</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guide Pins</td>
<td>291 to 294, 296 to 297</td>
</tr>
<tr>
<td>Angle Pins</td>
<td>295</td>
</tr>
<tr>
<td>Guide Pin Bushings</td>
<td>298 to 300</td>
</tr>
<tr>
<td>Centering Bushing (Locating Sleeve) &amp; Tubular Dowels</td>
<td>301</td>
</tr>
<tr>
<td>Locating Rings</td>
<td>302</td>
</tr>
<tr>
<td>Sprue Bushings</td>
<td>303</td>
</tr>
<tr>
<td>Support Pillars</td>
<td>304</td>
</tr>
<tr>
<td>Dowel Pins</td>
<td>305</td>
</tr>
<tr>
<td>Socket Head Cap Screws &amp; Lock Washers</td>
<td>306</td>
</tr>
<tr>
<td>Stop Disks &amp; Screws</td>
<td>307</td>
</tr>
<tr>
<td>Gate Cutters</td>
<td>308</td>
</tr>
</tbody>
</table>
MOLD COMPONENTS — METRIC
Guide Pins (with Collar)
Guide Pins (with Collar) – GDP-EC
Pernos guía con collar | Guias principais | Colonnes de guidage (avec épaulement) | Führungsbolzen (mit Bund)

INFORMATION KEY:
D = Pin Body Diameter
E = Shoulder Diameter
H = Head Diameter
K = Head Thickness
N = Pin Body Length
S = Shoulder Length
T = Collar Length

Standard: Euro-Series
Material: 1.7131 (AISI 5115 Type) Steel
Surface Treatment: Case Hardened
Dimensions: Shown in Millimeters (mm)

Dimensions:
Shown in Millimeters (mm)

INFORMATION KEY:
D = Pin Body Diameter
E = Shoulder Diameter
H = Head Diameter
K = Head Thickness
N = Pin Body Length
S = Shoulder Length
T = Collar Length

Standard: Euro-Series
Material: 1.7131 (AISI 5115 Type) Steel
Surface Treatment: Case Hardened
Dimensions: Shown in Millimeters (mm)

HOW TO ORDER:
Specify Item Number with prefix, D diameter, S length, and N length. Include zeros and dashes but omit decimals, as shown.

Prefix D S N
GDP-EC GDP-EC-14-066-055

Example:
Prefix D S N
GDP-EC GDP-EC-14-066-055

KEY TO CHART
Items in stock
2-3 week delivery
Contact DME for quote

* "TR02" is only a cross-reference to current DME Europe Catalog item prefix numbers.

HOW TO ORDER:
Specify Item Number with prefix, D diameter, S length, and N length. Include zeros and dashes but omit decimals, as shown.

Prefix D S N
GDP-EC GDP-EC-18-056-035

Example:
Prefix D S N
GDP-EC GDP-EC-18-056-035

KEY TO CHART
Items in stock
2-3 week delivery
Contact DME for quote

* "TR02" is only a cross-reference to current DME Europe Catalog item prefix numbers.
**MOLD COMPONENTS – METRIC**

Guide Pins (with Collar) – GDP-EC

**INFORMATION KEY:**
- D = Pin Body Diameter
- E = Shoulder Diameter
- H = Head Diameter
- K = Head Thickness
- N = Pin Body Length
- S = Shoulder Length
- T = Color Length

**Standard:** Euro-Series

**Material:** 1.7131 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**HOW TO ORDER:**
Specify Item Number with prefix, D diameter, S length, and N length. Include zeros and dashes but omit decimals, as shown.

**Example:**
Prefix D S N
GDP-EC-42-246-245

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PREFIX D</th>
<th>E</th>
<th>H</th>
<th>K</th>
<th>N</th>
<th>S</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP-EC (G02)*</td>
<td>40</td>
<td>47</td>
<td>5</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP-EC (G02)*</td>
<td>40</td>
<td>47</td>
<td>5</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* "（G02)" is only a cross-reference to current DME Europe Catalog item prefix numbers.

**KEY TO CHART**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

---

**MOLD COMPONENTS – METRIC**

Angle Pins

**INFORMATION KEY:**
- D = Pin Body Diameter
- H = Head Diameter
- K = Head Thickness
- N = Pin Body Length
- S = Shoulder Length
- T = Color Length

**Standard:** DIN Type

**Material:** 1.7131 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**HOW TO ORDER:**
Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

**Example:**
Prefix D L
APD 10 40

**KEY TO CHART**
- Items in stock
- 2-3 week delivery
- Contact DME for quote
**INFORMATION KEY:**
- **D**: Pin Body Diameter
- **E**: Shoulder Diameter
- **H**: Head Diameter
- **K**: Head Thickness
- **N**: Pin Body Length
- **S**: Shoulder Length

**Standard**: Euro-Series

**Material**: 1.7131 (AISI 5115 Type) Steel

**Surface Treatment**: Case Hardened

**Dimensions**: Shown in Millimeters (mm)

**MOLD COMPONENTS – METRIC**

Guide Pins (without Collar) – GDP-ES

**HOW TO ORDER**: Specify Item Number with prefix, D diameter, S length, and N length. Include zeros and dashes but omit decimals, as shown.

<table>
<thead>
<tr>
<th>ITEM PREFIX</th>
<th>D</th>
<th>S</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP-ES</td>
<td>08</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>GDP-ES</td>
<td>16</td>
<td>20</td>
<td>23</td>
</tr>
<tr>
<td>GDP-ES</td>
<td>18</td>
<td>26</td>
<td>21</td>
</tr>
</tbody>
</table>

**KEY TO CHART**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

**GUIDE PINS (without Collar)**

Pernos guia | Guias | Colonnes de guidage (sans épaulement) | Führungsbolzen (ohne Bund)

**HOW TO ORDER**: Specify Item Number with prefix, D diameter, S length, and N length. Include zeros and dashes but omit decimals, as shown.

<table>
<thead>
<tr>
<th>ITEM PREFIX</th>
<th>D</th>
<th>S</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP-ES</td>
<td>22</td>
<td>38</td>
<td>51</td>
</tr>
<tr>
<td>GDP-ES</td>
<td>30</td>
<td>42</td>
<td>67</td>
</tr>
<tr>
<td>GDP-ES</td>
<td>32</td>
<td>44</td>
<td>69</td>
</tr>
<tr>
<td>GDP-ES</td>
<td>42</td>
<td>54</td>
<td>80</td>
</tr>
</tbody>
</table>

**KEY TO CHART**
- Items in stock
- 2-3 week delivery
- Contact DME for quote
MOLD COMPONENTS – METRIC
Guide Pin Bushings (with Collar) – GDB-ECL
Bujes guía con collar | Casquilhos | Douilles de guidage (avec épaulement) | Führungsbuchse (mit Bund)

**INFORMATION KEY:**
D = Inside Diameter
E = Outside Diameter
H = Head Diameter
K = Head Thickness
N = Bushing Length from Head
T = Collar Length

**Standard:** Euro-Series

**Surface Treatment:**
- Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**HOW TO ORDER:** Specify Item Number with prefix, D diameter, and N length. Include zeros and dashes for quote.

**KEY TO CHART:**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

---

**Self-Lube Guide Pin Bushings (with Collar) – GDB-ECL**
Bujes guia lubricados, con collar | Casquilhos auto-lubricantes con guiamento | Douilles de guidage auto-lubrifiantes à épaulette | Selbstschmierende Führungsbuchsen (mit Bund)

**INFORMATION KEY:**
D = Inside Diameter
E = Outside Diameter
H = Head Diameter
K = Head Thickness
N = Bushing Length from Head
T = Collar Length

**Standard:** Euro-Series

**Surface Treatment:**
- Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**HOW TO ORDER:** Specify Item Number with prefix, D diameter, and N length. Include zeros and dashes for quote.

**KEY TO CHART:**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

---

**Bronze-Plated Shoulder Bushings, Ejection Bushings, & Self Lubricating Guided Ejection Bushings – Metric**
Bronze-ground steel with exclusive bronze plating, these are the only bushings that have oil grooves and a true bushing surface that extends the full length of the bushing. DME Bronze bushings perform smoother and longer than plain steel bushings. Selected lubricant is distributed throughout the bearing surface by the figure-8 oil groove system. The bronze surface will not gall.

**HOW TO ORDER:** Specify Item Number with prefix, D diameter, and N length. Include zeros and dashes for quote.

**KEY TO CHART:**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

---

**Note:**
1. Select corresponding guide pin in proper diameter and length for application.
2. These bushings are interchangeable with comparably sized DME bronze-plated and solid bronze guided ejection bushings.

---

**TRENDS:**
- Self lubricating
- Consistent quality control
- Resists abrasion
- Excellent wear characteristics

All items in stock.

---

**Contact:**
- DME | 800-626-6653
- Canada | 800-387-6600
- dme@dme.net | www.dme.net | estore.milacron.com

---

**KEY TO CHART:**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

---

**GENERAL DIMENSIONS**

**NOMINAL D1 D2 D3**

**NOMINAL**

**D1** | **D2** | **D3**
--- | --- | ---
25 | 26.013 | 30.013
30 | 32.013 | 36.013
40 | 40.013 | 50.013
50 | 50.013 | 60.013
60 | 60.013 | 70.013
70 | 70.013 | 80.013
80 | 80.013 | 90.013
90 | 90.013 | 100.013
100 | 100.013 | 110.013
110 | 110.013 | 120.013
120 | 120.013 | 130.013
130 | 130.013 | 140.013
140 | 140.013 | 150.013
150 | 150.013 | 160.013

---

**KEY TO CHART:**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

---

**CONTACT:**
- DME
- U.S. 800-626-6653
- Canada 800-387-6600
- dme@dme.net
- www.dme.net
- estore.milacron.com
MOLD COMPONENTS – METRIC
Guide Pins Bushings (without Collar) – GDB-ESS

<table>
<thead>
<tr>
<th>Self-Lube Guide Pin Bushings (without Collar) – GDB-ESL</th>
</tr>
</thead>
</table>

**INFORMATION KEY:**
- **D** = Inside Diameter
- **E** = Outside Diameter
- **N** = Head Diameter
- **K** = Head Thickness
- **L** = Bushing Length

**Standard:** Euro-Series
**Material:** 1.7131 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**Prefix**
- **GDB-ESS:**
- **GDB-ESL:**

**SIZES:**
- **R03:**
- **R09:**

- **R03W:**

<table>
<thead>
<tr>
<th>ITEM NUMBER D E H K</th>
<th>14 16 18 20 24 30 32 42 47 60 80 100 120 140 160 180 200 240 300</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D</strong></td>
<td>14 16 18 20 24 30 32 42 47 60 80 100 120 140 160 180 200 240 300</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>6 8 6 8 10 12 12 17 17 17 17 17 17 17 17 17 17 17 17</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800</td>
</tr>
<tr>
<td><strong>K</strong></td>
<td>0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8</td>
</tr>
</tbody>
</table>

**Contact DME**
- **2-3 week delivery**
- **Items in stock**

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

MOLD COMPONENTS – METRIC
Centering Bushing – Locating Sleeves

**Centering Bushing (Locating Sleeves) – R05**

**INFORMATION KEY:**
- **D** = Outside Diameter
- **F** = Inside Diameter
- **G** = Inside Clearance Diameter
- **L** = Length
- **N** = Inside Length

**Standard:** Euro-Series
**Material:** 1.7131 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**Prefix**
- **GDB-ESS-09-022:**
- **GDB-ESL-32-136:**

<table>
<thead>
<tr>
<th>ITEM NUMBER D E H K</th>
<th>12 14 18 20 24 30 32 42 47 60 80 100 120 140 160 180 200 240 300</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D</strong></td>
<td>12 14 18 20 24 30 32 42 47 60 80 100 120 140 160 180 200 240 300</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>6 8 6 8 10 12 12 17 17 17 17 17 17 17 17 17 17 17 17</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800</td>
</tr>
<tr>
<td><strong>K</strong></td>
<td>0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8</td>
</tr>
</tbody>
</table>

**Contact DME**
- **2-3 week delivery**
- **Items in stock**

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

**KEY TO CHART:**
- **Items in stock**
- **2-3 week delivery**
- **Contact DME for quote**

**Tubular Dowels – R09**

**INFORMATION KEY:**
- **D** = Outside Diameter
- **S** = Inside Diameter
- **N** = Inside Clearance Diameter
- **K** = Thickness

**Standard:** Euro-Series
**Material:** 2.0975 with Graphite Plugs 200HB

**Surface Treatment:**
- **Case Hardened**
- **1.7131 (AISI 5115 Type) Steel**

**Dimensions:**
- **Showed in Millimeters (mm)**

**Prefix**
- **GDB-ESS:**
- **GDB-ESL-09-022:**

<table>
<thead>
<tr>
<th>ITEM NUMBER D E H K</th>
<th>14 16 18 20 24 30 32 42 47 60 80 100 120 140 160 180 200 240 300</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D</strong></td>
<td>14 16 18 20 24 30 32 42 47 60 80 100 120 140 160 180 200 240 300</td>
</tr>
<tr>
<td><strong>E</strong></td>
<td>6 8 6 8 10 12 12 17 17 17 17 17 17 17 17 17 17 17 17</td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800 800</td>
</tr>
<tr>
<td><strong>K</strong></td>
<td>0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8</td>
</tr>
</tbody>
</table>

**Contact DME**
- **2-3 week delivery**
- **Items in stock**

**U.S. 800-626-6653 ■ Canada 800-387-6600 ■ dme@dme.net ■ www.dme.net ■ estore.milacron.com**
MOLD COMPONENTS – METRIC

Locating Ring with Mounting Holes – DHR21

Anillo centrador | Anés de centramiento | Rondelles de placement | Centriﬄansche

INFORMATION KEY:
D = Platen-Side Diameter
F = Insode Diameter
G = Mold-Side Diameter
H = Overall Height
T = Mold-Side Stop Height
Standard: Euro-Serie
Material: 1.1730 Steel
Dimensions: Shown in Millimeters (mm)

 Locating Ring (Solid) – R20
Anillo centrador | Anés de centramiento | Rondelles de placement | Centriﬄansche

INFORMATION KEY:
D = Platen-Side Diameter
G = Mold-Side Diameter
H = Overall Height
T = Mold-Side Stop Height
Standard: Euro-Serie
Material: 1.1730 Steel
Dimensions: Shown in Millimeters (mm)

How to Order:
- Specify item number with prefix, D diameter, and H height.
- Include zeros where shown, but omit all spaces (spaces are only shown for easier reading).

Prefix
G D

R20
060 19
120 15

Example:
Prefix D H
R20 100 15
R20 120 19

Mold Components – Metric

Locating Rings

Mold Components – Metric

Sprue Bushings – Hardened

INFORMATION KEY:
D = Outside Diameter of Stem
H = Head Diameter
K = Head Thickness
N = Stem Length
O = Sprue Orifice Diameter
Standard: Euro-Serie
Material: 1.2826 Steel
Surface Treatment: None (Through Hardened)
Dimensions: Shown in Millimeters (mm)

R = No Radius – DHR74
Material: 1.2826 Steel Hardness: ~54 HRC

How to Order:
- Specify item number with prefix, D diameter, N length, and O diameter.
- Include zeros and commas where shown, but omit all spaces (spaces are only shown here for easier reading).

Prefix D N O

Example:
Prefix D N O
DHR74 12 022 2,5
DHR74 18 056 3

R = 15.5mm Radius – DHR76
Material: 1.2826 Steel Hardness: ~54 HRC

How to Order:
- Specify item number with prefix, D diameter, N length, O diameter, and R radius = 15.

Prefix D N O R

Example:
Prefix D N O R
DHR76 12 027 3,5
DHR76 18 056 4,0

R = 40.0mm Radius – DHR78
Material: 1.2826 Steel Hardness: ~54 HRC

How to Order:
- Specify item number with prefix, D diameter, N length, O diameter, and R radius = 40.

Prefix D N O R

Example:
Prefix D N O R
DHR78 12 027 3,5
DHR78 18 056 4,0
**Support Pillars with Drilled & Countered Holes – FW28**

- No support pillars
- No pilares de apoyo
- Sem colunas de suporte
- Ohne Stützbolzen

**Support Pillars with Tapped Hole and for Dowel – FW29**

- One row of support pillars increases the permissible cavity area 4 times.
- Una fila de pilares de apoyo aumenta el área permitida de la cavidad cuatro veces.
- Una fila de colunas de soporte aumenta el área de cavidad permitido.
- Uma fileira de colunas de apoio aumenta 4 vezes a área de cavidade permitida.

**Dowel Pins – DP**

- Clavija | Cavilha | Goupille cylindrique | Zylinderstift

**Dowel Pins with Internal Thread (Pull Dowels) – WZ7005**

- Clavija con cuerda interna | Cavilha | Goupilles cylindriques | Zylinderstift
MOLD COMPONENTS – METRIC
Socket Head Cap Screws – Lock Washers

Socket Head Cap Screws – M

Tornillos cabeza allen | Parafuso de cabeza sextavada | Vis 6-pans tête cylindrique | Zylinderkopfschrauben

INFORMATION KEY:
D = Thread Diameter
H = Head Diameter
K = Head Height
L = Length
T = Hex Socket Size (Across Flats)
Standard: DIN 912-12.9
Material: Per DIN Specification
Dimensions: Shown in Millimeters (mm)

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>D</th>
<th>H</th>
<th>K</th>
<th>T</th>
<th>N</th>
<th>Ø</th>
<th>Ø</th>
<th>Ø</th>
<th>L</th>
</tr>
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<tbody>
<tr>
<td>R54 08</td>
<td>8</td>
<td>2</td>
<td>0.8</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>10</td>
<td>12.7</td>
<td>2.0</td>
</tr>
<tr>
<td>R54 10</td>
<td>10</td>
<td>2.5</td>
<td>1.0</td>
<td>2.5</td>
<td>3</td>
<td>10</td>
<td>12.7</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>R54 12</td>
<td>12</td>
<td>2.5</td>
<td>1.2</td>
<td>2.5</td>
<td>3</td>
<td>12</td>
<td>12.7</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>R54 16</td>
<td>16</td>
<td>3</td>
<td>1.6</td>
<td>3</td>
<td>3.5</td>
<td>16</td>
<td>17</td>
<td>20.6</td>
<td></td>
</tr>
<tr>
<td>R54 20</td>
<td>20</td>
<td>4</td>
<td>2.0</td>
<td>4</td>
<td>4.5</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

HOW TO ORDER: Specify Item Number. Include zeros and commas but omit decimals and all spaces (spaces are only shown in table above for easier reading).

Use with SM4 8 Flat Head Screw (M4 thread x 8mm long) which must be purchased separately. See Flat Head Screws above.

Lock Washers (Spring Washers) – R54

Rondanas de Presión | Freios | Rondelles de retenue | Sicherungsscheibe (Federscheibe)

INFORMATION KEY:
D = For Screw Diameter
F = Inside Diameter
P = Outside Diameter
T = Thickness
Standard: DIN 7980
Material: Per DIN Specification
Dimensions: Shown in Millimeters (mm)

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>D</th>
<th>F</th>
<th>P</th>
<th>H</th>
<th>K</th>
<th>T</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM3 6</td>
<td>6</td>
<td>2.5</td>
<td>1.7</td>
<td>M3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM4 8</td>
<td>8</td>
<td>3</td>
<td>2.3</td>
<td>M4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM5 10</td>
<td>10</td>
<td>4</td>
<td>3</td>
<td>M5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM6 12</td>
<td>12</td>
<td>5</td>
<td>3.5</td>
<td>M6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM8 16</td>
<td>16</td>
<td>6</td>
<td>4.4</td>
<td>M8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM10 20</td>
<td>20</td>
<td>8</td>
<td>5.5</td>
<td>M10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM12 24</td>
<td>24</td>
<td>10</td>
<td>6.5</td>
<td>M12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HOW TO ORDER: Specify Item Number with prefix and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Stop Disk for Ejector Plates – R18

Arandela de Tope | Anilhas de encosto | Repos d’épaisseur pour plaques d’éjection | Distanzscheibe für Auswerferplatte

INFORMATION KEY:
Standard: Euro-Series
Material: 1.1191 (AISI 1045 Type) Steel
Dimensions: Shown in Millimeters (mm)

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

HOW TO ORDER: Specify Item Number. Omit spaces (spaces are only shown in table above for easier reading).

Use with SM8 8 Flat Head Screw (M8 thread x 8mm long) which must be purchased separately. See Flat Head Screws above.
Selecting the Correct Gate Cutter for Your Application:
To ensure a quality finished product, it is important to choose the proper gate cutter. Consider the following when selecting a cutter...

- Contour of the back of the blade
- Blade length
- Blade opening
- Handle length

The blade characteristics should match the part at the area of de-gating.

Blade Contour

Flat Face:
For general purpose cutting where the sprue is fully accessible or proud of the cutting surface.

Nipper Type (slightly rounded):
For sprue cutting where access to the sprue may be slightly recessed

Angle Heads:
For recessed sprue cutting and access to internal cavities.

Convex/Concave:
For special applications where the sprue is recessed.

Blade Stop

When cutting hard or brittle material it is recommended to use a cutter with a blade stop. Adjusting the stop so the blades stop short of hitting each other will extend the life of the blades.

Handles

How much pressure an operator must exert when cutting a sprue or gate is determined by the length of the cutter handle. A handle that is too long for the operator’s hand is difficult to grip while a handle that is too short causes excessive strain. Match the cutter with the operator’s hand and the sprue being cut. Ergonomic handles are an effective way to reduce operator fatigue and decrease the risk of carpal tunnel syndrome. Have a left handed operator? We have left handed gate cutters.

Quantity Discounts

Standard Gate Cutters -
12-23 pairs - less 3%
24-74 pairs - less 7%
75-99 pairs - less 10%
100+ pairs - less 13%

Premium & Specialized Gate Cutters -
20-39 pairs - less 3%
40-69 pairs - less 6%
70-99 pairs - less 9%
100+ pairs - less 12%

Visit store.milacron.com and search Gate Cutters for additional details and quick, easy online shopping
DME INCH PINS, SLEEVES, BLADES

FEATURING HIGH-QUALITY EJECTOR PINS, SLEEVES, BLADES, CORE PINS, RETURN PINS, AND SPRUE PULLER PINS
INCH PINS, SLEEVES, BLADES
A comprehensive line of INCH Ejector Products

Ejector Pins
Nitried, Through-Hardened, Close Tolerance........... 314-319

Shoulder Ejector Pins
Nitried, Through-Hardened, Close Tolerance............. 315

Keyed Ejector Pins........................................... 316, 318

Ejector Sleeves
Thin Wall Sleeves & Sleeve Extensions .................... 320
Nitried O.D., Nitried O.D. & I.D. ....................... 321-322

Ejector Blades M2............................................... 323-324

Core Pins
Standard, High-Hardness, Performance............... 325-329

Core Pin Retainers........................................... 330

Return Pins..................................................... 331

Sprue Puller Pins............................................... 332

Visit store.milacron.com for the latest pricing, product availability and online ordering.
### INCH Ejector Pins – EX

**INCH Pins, Sleeves and Blades**

- Precision made of superior quality H13 type thermal shock resisting hotwork die steel
- Hot-forged heads provide uniform grain flow, higher tensile strength
- Core hardness 40-45 HRC
- Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear
- Heads annealed for easy machining
- Centerless ground D diameter

#### EX - Nitrided

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<th>Ø D Pin Dia TOL</th>
<th>Ø H Head Dia</th>
<th>Head TKN</th>
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**HOW TO ORDER**: Specify Item Number by combining Item Number Prefix with the length (L dimension) desired. Omit spaces and dashes, as shown.

Add “OS” at end of Item Number for .005” oversize diameters.

**NOTE**: NS suffix shown in chart for No Shoulder for items EX3M through EX8M. Examples: EX3M6NS, EX7M10NS
INCH PINS, SLEEVES, BLADES

Keyed EX Ejector Pins

• Precision-machined flat on head keeps pin from rotating
• Made from superior quality thermal shock-resistant hotwork steel
• Hot-forged heads provide uniform grain flow, higher tensile strength
• Core hardness 40-45 HRC
• Outside diameter nitrided to 66-74 HRC (.001-.007 case depth)
• Heads annealed for easy machining
• Centerless ground D diameter

INCH High-Hardness Ejector Pins – THX

• Higher core hardness makes the THX pins ideal for use in die cast dies or other high temperature applications
• Core hardness of 50-55 HRC minimizes nicking, dishing and bending
• Non-chipping surface treatment of 65-74 HRC alleviates flashing
• Annealed and finished heads permit easy machining
• Centerless ground D diameter
• Final finish minimizes wear and prolongs pin life

INFORMATION KEY:

D = Pin Diameter
H = Head Diameter
K = Head Thickness
L = Length

Material: H-13 / 1.2344 / SKD61
Surface Treatment: Nitrided
Surface Hardness: 65-74 HRC
Core Hardness: 40-45 HRC

Keyed Ejector Pins – EXK

For use with all DME Pins, Sleeves & Blades
Econo-Spray® Pin Lube & Grease 46010
A white lithium grease that protects equipment by reducing the friction and sticking that can cause premature wear and hinder productivity. Pin Lube & Grease is ideal for knock-out pins where part marking could be a problem. A heavy-duty grease, it is water resistant, protects against corrosion and works at a wide range of temperatures. Operating temperature: -20°F to 400°F. Net wt. 11 oz.

INCH PINS, SLEEVES, BLADES

INCH High-Hardness Ejector Pins – H13 Nitrided – Straight

For use with all DME Pins, Sleeves & Blades
Econo-Spray® Pin Lube & Grease 46010
A white lithium grease that protects equipment by reducing the friction and sticking that can cause premature wear and hinder productivity. Pin Lube & Grease is ideal for knock-out pins where part marking could be a problem. A heavy-duty grease, it is water resistant, protects against corrosion and works at a wide range of temperatures. Operating temperature: -20°F to 400°F. Net wt. 11 oz.

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INFORMATION KEY:

D = Pin Diameter
H = Head Diameter
K = Head Thickness
L = Length

Material: H-13 / 1.2344 / SKD61
Surface Treatment: Nitrided
Surface Hardness: 65-74 HRC
Core Hardness: 40-45 HRC

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INFORMATION KEY:

D = Pin Diameter
H = Head Diameter
K = Head Thickness
L = Length

Material: H-13 / 1.2344 / SKD61
Surface Treatment: Nitrided
Surface Hardness: 65-74 HRC
Core Hardness: 40-45 HRC

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INCH PINS, SLEEVES, BLADES

INCH High-Hardness Ejector Pins – H13 Nitrided – Straight

For use with all DME Pins, Sleeves & Blades
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INFORMATION KEY:

D = Pin Diameter
H = Head Diameter
K = Head Thickness
L = Length

Material: H-13 / 1.2344 / SKD61
Surface Treatment: Nitrided
Surface Hardness: 65-74 HRC
Core Hardness: 40-45 HRC

Keyed Ejector Pins – EXK

For use with all DME Pins, Sleeves & Blades
Econo-Spray® Pin Lube & Grease 46010
A white lithium grease that protects equipment by reducing the friction and sticking that can cause premature wear and hinder productivity. Pin Lube & Grease is ideal for knock-out pins where part marking could be a problem. A heavy-duty grease, it is water resistant, protects against corrosion and works at a wide range of temperatures. Operating temperature: -20°F to 400°F. Net wt. 11 oz.
### INCH Pins, Sleeves, and Blades

#### Keyed THX Ejector Pins

- Precision-machined flat on head keeps pin from rotating
- Made from superior quality thermal shock-resistant hotwork steel
- Core hardness of 50-55 HRC makes these pins ideal for use in die-cast dies or other high-temperature applications
- Annealed hot-forged heads provide uniform grain flow while allowing for easier machining

#### INCH Pins, Sleeves, and Blades

#### Keyed Ejector Pins – THXK

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#### THXK45

- Diameter: 7/8" (0.8750)
- Head: 1.125"
- Length: 1.250"

#### Information Key:

- D = Pin Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length
- S = Shoulder Length

#### Tolerance on D:

- -0.003" to 0.005"

#### Material: M2 / 1.3343 / SKD61

#### Heat Treat: Hardened 56-62 HRC

#### Surface Treatment: None (Through-Hard)

---

### Close Tolerance M-2 Through-Hardened Ejector Pins

#### INFORMATION KEY:

- D = Pin Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length
- S = Shoulder Length

#### Tolerance on D:

- -0.000" to 0.0002"

#### Material: M2 / 1.3343 / SKD61

#### Heat Treat: Hardened 58-62 HRC

#### Surface Treatment: None (Through-Hard)

---

### Straight Ejector Pins – EJP-IMH

- **How to Order**: Specify Item Number by adding L length in inches (06 or 10) after Item Number Prefix.

- **Examples**: EJP-IMH-0062-06-200; EJP-IMH-0093-06-200

- Items in stock

---

### 2" Shoulder Ejector Pins – EJP-IMH

- **How to Order**: Specify Item Number including zone and dashes, as shown. Examples: EJP-IMH-0622-06-200; EJP-IMH-0125-10; EJP-IMH-0625-10

- Items in stock

---

All dimensions are specified in inches.
INCH PINS, SLEEVES, BLADES
Thin Wall Ejector Sleeves and Sleeve Extensions

Thin Wall Sleeves
DME Standard Thin Wall Sleeves reduce cost by replacing the need to buy expensive custom ejector sleeves or to machine steps in standard sleeves.

Electroless nickel coated 3000 – 6000° F thick or 50 – 62 HRC To achieve longer lengths, use Sleeve Extensions.

Sleeve Extensions
Compatible with all industry-standard sleeves. DME Sleeve Extensions.

INCH Pins, Sleeves, Blades
INCH Ejector Sleeves – Nitrided O.D.

Ejector sleeve applications
Fig. A shows a typical Ejector Sleeve application for plastics molding or die casting where the sleeve is used to eject the piece part.

Fig. B shows an application where the sleeve serves as a bushing for the ejector pin. This allows replacement without machining if wear occurs. This practice is also desirable where the ejector pin is located between cavity inserts. Using a sleeve as a bushing provides a full bearing diameter for the pin.

INCH Ejector Sleeves – S

Table of Dimensions

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<td>TWS21M_6</td>
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<td>.250</td>
<td>.3125</td>
<td>.375</td>
<td>.500</td>
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<td>.275</td>
<td>.2188</td>
<td>.1563</td>
<td>.1875</td>
<td>.1875</td>
<td>.1875</td>
</tr>
</tbody>
</table>

**Key to Chart**
- In stock
- Non-stocked - Call for lead time
- Special Order

**Special Offer**
*HOW TO ORDER: Combine Item Prefix and the length (L dimension) desired.*

- INCH Pins, Sleeves, Blades
- INCH Ejector Sleeves – Nitrided O.D.

**How to Order**
- Combine Item Prefix and the length (L dimension) desired.

**Dimensions and Tolerances**
- Precision made of superior quality thermal shock resisting hotwork die steel
- Hard forged heads provide uniform grain flow, higher tensile strength
- Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear
- Centerless ground and polished outer diameter
- Inside bearing diameter is 30-35 HRC hardness and finished honed
- Load-in taper designed to allow interference-free entry of the ejector pin into the sleeve.
**Ejector Sleeves** - Nitrided O.D. & I.D.

INCH Ejector Sleeves – Nitrided O.D. & I.D.

• Precision made of superior quality thermal shock resisting hotwork die steel
• Hot-forged heads provide uniform grain flow, higher tensile strength
• Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear
• Centerless ground and polished outer diameter

**INCH Ejector Sleeves – SND**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>HEAD DIA (D)</th>
<th>END THICKNESS (B)</th>
<th>HEAD THICKNESS (K)</th>
<th>L = LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>SND03_01</td>
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<td>0.0437</td>
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<td>SND03_01</td>
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<td>0.1313</td>
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<tr>
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<td>5/64</td>
<td>0.0625</td>
<td>0.1000</td>
<td>0.375</td>
</tr>
<tr>
<td>SND05_01</td>
<td>3/32</td>
<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
</tr>
<tr>
<td>SND05_01</td>
<td>7/32</td>
<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
</tr>
<tr>
<td>SND05_01</td>
<td>3/16</td>
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<td>0.2812</td>
<td>0.375</td>
</tr>
<tr>
<td>SND06_01</td>
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<td>0.2812</td>
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<tr>
<td>SND06_01</td>
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<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
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<td>SND06_01</td>
<td>7/32</td>
<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
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<td>SND08_01</td>
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<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
</tr>
<tr>
<td>SND10_01</td>
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<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
</tr>
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<td>7/32</td>
<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
</tr>
<tr>
<td>SND10_01</td>
<td>1/2</td>
<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
</tr>
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<td>0.375</td>
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<td>0.2812</td>
<td>0.375</td>
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<td>0.2812</td>
<td>0.375</td>
</tr>
<tr>
<td>SND16_01</td>
<td>7/32</td>
<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
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<tr>
<td>SND18_01</td>
<td>1/2</td>
<td>0.1778</td>
<td>0.2812</td>
<td>0.375</td>
</tr>
</tbody>
</table>

**INCH Ejector Blades – EJB-IMH**

- Blade thickness and width are held to close tolerance: ±0.000 - 0.003
- Precision made of superior quality M2 high-speed tool steel
- Through-hardened to 58-62 HRC for superior wear resistance
- Heads annealed for easy machining
- One-piece construction for increased strength and rigidity

**INFORMATION KEY:**
- D = Shoulder Diameter
- H = Head Diameter
- K = Head Thickness
- L = Overall Length
- T = Blade Thickness
- W = Blade Width
- Material: M2 / 1.3343 / SKH51
- Surface Treatment: None (Through-Hard)

**KEY TO CHART:**

- In stock
- Special Order
- Non-stock - Call for lead time
- Non-stocked - Call for lead time
- In stock
- Approximate 1º/side
- Generous lead-in
- + .015
- Ø –.0010
- Ø +.0000
- +.0005
- Ø –.0008
- Ø –.0003
- Ø +.0003
- ± .02 x 45º CHAMFER
- .031 R MAXIMUM
- TOL = .0005
- M2 / 1.3343 / SKH51

**Surface Treatment:**
-Nitride: 58-62 HRC
-Through-Hardened: 65-74 HRC
### INCH Pins, Sleeves, Blades

#### INCH Ejector Blades

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>BLADE NUMBER</th>
<th>Ø INCH PIN DIA</th>
<th>Ø INCH SLEEVE DIA</th>
<th>Ø INCH HEAD DIAMETER</th>
<th>Ø INCH HEAD THICKNESS</th>
<th>L OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJB-IMH-046-296-065</td>
<td>0.4600</td>
<td>0.2960</td>
<td>0.3125</td>
<td>0.5000</td>
<td>0.2500</td>
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<td>0.2960</td>
<td>0.3125</td>
<td>0.5000</td>
<td>0.2500</td>
<td>7.50</td>
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<tr>
<td>EJB-IMH-046-296-085</td>
<td>0.4600</td>
<td>0.2960</td>
<td>0.3125</td>
<td>0.5000</td>
<td>0.2500</td>
<td>8.50</td>
</tr>
</tbody>
</table>

#### INCH Core Pins – H13 – Standard Medium Hardness

- **Precision made of superior quality hotwork die steel standard hardness 30-35 HRC**
- **Heads are hot-forged for uniform grain flow, higher tensile strength, then annealed to permit easier machining and stamping**
- **+0.0005/-0.0005” tolerance on pin diameter ensures a close fit for mating purposes**
- **Pin body and head are finish ground**
- **Centerless ground and polished outer diameter**

#### Typical application

- **Hardness checking guidelines**
  - If checking hardness of core pins, do not use method “NO” above, it will provide an inaccurately low reading. The preferred method is to stand the pin on its head and check the cut end using the A scale, 60 Kg. load as shown above.

#### Precautions

- **The cut end must be parallel to head end, with stem length of 2” minimum. Use cutting fluid to avoid overheating and localized annealing. Position indentation in middle of pin diameter.**

- **Note to order:** Combine Item Number Prefix and the length (L dimension) desired. Examples: C3M-3, C33M-10

- **Centerless ground and polished outer diameter**

#### Contact DME for quote

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

---

**INCH PINS, SLEEVES, BLADES**

**INCH Core Pins – C**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>Ø INCH PIN DIA</th>
<th>Ø INCH HEAD DIAMETER</th>
<th>Ø INCH HEAD THICKNESS</th>
<th>L OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3M-2</td>
<td>3/32 (0.0937)</td>
<td>0.250</td>
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<td></td>
</tr>
<tr>
<td>C3M-3</td>
<td>7/64 (0.1136)</td>
<td>0.250</td>
<td>0.125</td>
<td></td>
</tr>
<tr>
<td>C3M-4</td>
<td>1/8 (0.1562)</td>
<td>0.250</td>
<td>0.125</td>
<td></td>
</tr>
<tr>
<td>C3M-5</td>
<td>9/64 (0.1406)</td>
<td>0.250</td>
<td>0.125</td>
<td></td>
</tr>
<tr>
<td>C3M-6</td>
<td>5/32 (0.1562)</td>
<td>0.3125</td>
<td>0.1875</td>
<td></td>
</tr>
<tr>
<td>C3M-7</td>
<td>11/64 (0.1718)</td>
<td>0.375</td>
<td>0.1875</td>
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</tr>
<tr>
<td>C3M-8</td>
<td>1/4 (0.3125)</td>
<td>0.4375</td>
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<tr>
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<td>0.250</td>
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<tr>
<td>C3M-10</td>
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<td>0.625</td>
<td>0.250</td>
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<tr>
<td>C3M-11</td>
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<td>0.6875</td>
<td>0.250</td>
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<tr>
<td>C3M-12</td>
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<td>1.0000</td>
<td>0.250</td>
<td></td>
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</table>

---

*Heads of 3”-length pins are not annealed. If annealed heads on 3”-length pins are required, they must be special ordered. (Alternately, you may purchase 6” pins and cut to required length.)*

*Note to Order:** Combine Item Number Prefix and the length (L dimension) desired. Examples: C3M-3, C33M-10
Inch Pins, Sleeves and Blades

INCH PINS, SLEEVES, BLADES

INCH Core Pins – High Hardness

- Precision made of superior quality hotwork die steel in high hardness 50-55 HRC
- Heads are hot-forged for uniform grain flow, higher tensile strength, then annealed to permit easier machining and stamping
- ±.006” +/- .003” tolerance on pin diameter ensures a close fit for coining purposes
- Pin body and head are finish ground
- Centerless ground and liquid polished

INCH Core Pins – CX

- Heads are hot-forged for uniform grain flow, higher tensile strength, then annealed to permit easier machining and stamping
- ±.006” +/- .003” tolerance on pin diameter ensures a close fit for coining purposes
- Pin body and head are finish ground
- Centerless ground and liquid polished

INCH PINS, SLEEVES, BLADES

Porcerax II™

Porcerax II™ Core Pins and Plugs are made from Porcerax II. Porcerax II is a porous, sintered metal with a porosity of 20 to 30% by volume. With a series of interconnected pores averaging a diameter of .0003” or 0.008” microns throughout, the primary function is the elimination of gas.

Vortex Pins and Plugs provide a location-specific method of venting gas. Due to its porosity volume, one fourth of the surface becomes a vent.

Vortex Core Pins

- Pins are 3” long and are available in diameters of .250”, .375” and .500”
- Plugs are offered in .250”, .500” and 1.00” lengths in diameters of .250” and .375”
- Heat treated to 30–40 HRC [Hardness: HMV 300–400]
- Tensile strength: 74,000 lbs/sq.in.
- Thermal Linear Expansion Coefficient: (at 68˚F – 320˚F) 6.67-6.94 E-06 in/in/˚F
- Porosity: 20 to 30% air by volume
- Heat transfer coefficient (at room temperature): 16.93–19.35 BTU/ft2/hr.˚F

Porcerax II™

Porcerax II™ has a high porosity of 20–30% allowing for excellent gas elimination. Its high thermal conductivity provides superior heat transfer. Its low thermal expansion characteristics make it an ideal candidate for many unique applications.

Porcerax II™ is a porous, sintered metal with a porosity of 20 to 30% by volume. With a series of interconnected pores averaging a diameter of .0003” or 0.008” microns throughout, the primary function is the elimination of gas.

Porcerax II™ is unique in its ability to vent gas at all stages of the manufacturing process. The porosity results in total workability, support, and dimensional stability. Porcerax II™ is the ideal solution for molders who demand reliable, consistent core pin and plug performance.

Specials available. See “Special Pins and Sleeves.”

Vortex Core Pins

- Heads are hot-forged for uniform grain flow, higher tensile strength, then annealed to permit easier machining and stamping
- ±.006” +/- .003” tolerance on pin diameter ensures a close fit for coining purposes
- Pin body and head are finish ground
- Centerless ground and liquid polished
**INCH Pins, Sleeves and Blades**

Performance Core Pins® – High Conductivity Pins

- Reduces cycle times
- Ten times better conductivity than steel
- Beryllium-free copper-based alloy
- Hardness of 90-98 Rockwell B
- Available in 18 diameters and four lengths

DME’s Performance Core Pins® are precision made using a high-strength, beryllium-free copper alloy, rather than traditional steels used in core pins. This alloy provides several advantages, including better conductivity, increased strength, reduced wear and resistance to rusting. Performance Core Pins are ideal for use in high-volume applications where part quality, fit and finish are critical.

**Reduced cycle time**

It is often difficult or expensive to adequately cool the area surrounding the core pin in a mold, especially when molding thick-walled parts. Depending on the design of the mold, it may even be impossible to run water lines near the pin, thus greatly increasing cycle times.

The copper-based alloy used in Performance Core Pins can significantly reduce mold cycle times by increasing the rate of heat transfer. The Performance Core Pin, when used in place of traditional C- or CX-type pins, will provide up to 10 times the rate of heat transfer. Heat is transferred at twice the rate of pins made of a beryllium-copper alloy.

In addition, the low-adhesion characteristics of the pins make part ejection faster and easier. All of these advantages combine to reduce the overall cycle time and increase productivity.

**Improved part quality**

The excellent thermal diffusivity of the pins provide a homogenous temperature profile throughout the core surface. Uniform temperatures result in reduced post-mold shrinkage and warpage, improving the quality of the part. Also, because of the low-adhesion characteristics of the pin, parts are not damaged by adhesion to the pin during part ejection.

**Lower machining costs**

The high thermal conductivity of Performance Core Pins reduces the need for complex cooling designs that can require hours of additional machining. Plus, the pins require no additional heat treatment and can be machined using conventional methods or EDM.

**Longer service life**

Performance Core Pins have a high resistance to thermal stress, wear and abrasion. This assures long life under virtually any molding conditions. With appropriate alteration to pin diameter, they can be used in conjunction with standard ejector sleeves. The dissimilar metals and compatible coefficient of friction will reduce metal-to-metal pick up and wear.

**Wide range of sizes**

Performance Core Pins are available in 18 pin diameters from 3/32- to 3/4- and 3-, 6-, 14- or 20-inch lengths.

**Typical Mold**

As shown in the pie chart, mold cooling comprises the largest part of the mold cycle. Performance Core Pins can significantly reduce this mold cooling portion to reduce overall cycle time.


**KEY TO CHART**

- **PCL Performance Core Pins – PCL**

---

**PCL Performance Core Pins – PCL**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PREFIX</th>
<th>Ø D</th>
<th>Ø H</th>
<th>K</th>
<th>L = LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL12</td>
<td>3/32 (0.0937)</td>
<td>250</td>
<td>125</td>
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</tr>
<tr>
<td>PCL11</td>
<td>1/4 (0.2500)</td>
<td>250</td>
<td>125</td>
<td></td>
<td></td>
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<tr>
<td>PCL10</td>
<td>5/32 (0.1562)</td>
<td>281</td>
<td>156</td>
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<td>PCL9</td>
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<td>PCL8</td>
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<td>PCL7</td>
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<td>PCL2</td>
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<td>PCL0</td>
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<td>750</td>
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</table>

*HOW TO ORDER: Combine item number and the length is dimensioned desired.

**Examples:** PCL14_PCL17, PCL07_PCL20
INCH PINS, SLEEVES, BLADES
Core Pin Retainers

DME Standard Core Pin Retainers offer better performance than a set screw and allow the core pin to float within the counter-bore. Conveniently machined in the same setup and location as the corresponding pin hole, Core Pin Retainers eliminate labor costs to make individual backup plates.

INCH PINS, SLEEVES, BLADES

Core Pin retainers

DME Standard Core Pin Retainers eliminate labor costs to correspond to the pin hole. Core Pin Retainers are the same setup and location as the corresponding pin. Conveniently machined in the same setup and location as the pin hole, Core Pin Retainers offer better performance than a set screw. Core Pin Retainers are designed to eliminate labor costs to make individual backup plates.

INCH Standard

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>A (Bushing)</th>
<th>B (Hex)</th>
<th>Ø D (Pin Dia)</th>
<th>Ø H (Head Dia)</th>
<th>THREAD</th>
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<tr>
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<td>.750</td>
<td>.35</td>
<td>1⁄4-20</td>
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<td>.25</td>
<td>1.000</td>
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<td>3⁄8-14</td>
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</table>

METRIC Standard

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<th>A (Bushing)</th>
<th>B (Hex)</th>
<th>Ø D (Pin Dia)</th>
<th>Ø H (Head Dia)</th>
<th>THREAD</th>
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</thead>
<tbody>
<tr>
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<td>4</td>
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<td>9.00</td>
<td>M10-1.5</td>
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</tbody>
</table>

AISI 12L14 (165 Brinell)

Black oxide

For use with all DME Pins, Sleeves & Blades

INCH Pins, Sleeves, Blades

DuPont™ Performance Lubricants
Extreme conditions. Extreme performance.
For use with all DME Pins, Sleeves & Blades

DuPont® Krytox™ TMT grease is specifically designed for the lubrication of segmented molds, both electrically and steam-heated. This lubricant eliminates carbon residue buildup on the molds associated with hydrocarbon and hydrocarbon-based synthetic greases. It exhibits excellent adhesion, allowing the operator to significantly increase production by extending lubrication intervals. The TMT will not bleed out to the parting line due to high heat tolerance and will last in excess of 5000 cycles, based on average curing times, without relubrication.

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

In excess of 5000 cycles, based on average curing times, without relubrication.

The TMT will not bleed out to the parting line due to high heat tolerance and will last in excess of 5000 cycles, based on average curing times, without relubrication.

For use with all DME Pins, Sleeves & Blades

DuPont® Krytox™ TMT grease is specifically designed for the lubrication of segmented molds, both electrically and steam-heated. This lubricant eliminates carbon residue buildup on the molds associated with hydrocarbon and hydrocarbon-based synthetic greases. It exhibits excellent adhesion, allowing the operator to significantly increase production by extending lubrication intervals. The TMT will not bleed out to the parting line due to high heat tolerance and will last in excess of 5000 cycles, based on average curing times, without relubrication.

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

Typical Properties of DuPont® Krytox® TMT

- Standard ISO Penetration Grade: #0
- Estimation Useful Temperature Range: -22 to 196 °C (-6 to 385 °F)
- Pour Point, °C (°F): -24 (-9.8)
- Base Oil Viscosity, cSt: 1,750
- Oil Volatility, % in 22 hr: 46
- Appearance: Creamy consistency
- Specific Gravity: 2.0

For use with all DME Pins, Sleeves & Blades

DuPont® Krytox™ TMT grease is specifically designed for the lubrication of segmented molds, both electrically and steam-heated. This lubricant eliminates carbon residue buildup on the molds associated with hydrocarbon and hydrocarbon-based synthetic greases. It exhibits excellent adhesion, allowing the operator to significantly increase production by extending lubrication intervals. The TMT will not bleed out to the parting line due to high heat tolerance and will last in excess of 5000 cycles, based on average curing times, without relubrication.

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

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INCH PINS, SLEEVES, BLADES

INCH Sprue Puller Pins

- Precision made of superior quality thermal shock resisting hotwork die steel
- Hot-forged heads provide uniform grain flow, higher tensile strength
- Outside diameter nitrided to 65-74 HRC hardness and finished to minimize wear
- Heads annealed for easy machining
- Centerless ground and polished outer diameter

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>D-6 PIN DIA</th>
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<th>K HEAD THICK</th>
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<td>.393</td>
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For longer lengths, use EX17 Ejector Pins.

USE ITEM NUMBER IN CHARTS ABOVE FOR ORDERING. ALL ITEMS IN STOCK.

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<tr>
<th>ITEM NUMBER</th>
<th>D-6 PIN DIA</th>
<th>D-6 HEAD DIA</th>
<th>K HEAD THICK</th>
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<td>7112</td>
<td>.375</td>
<td>.030</td>
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</table>

For longer lengths, use EX25 Ejector Pins.

INCH PINS, SLEEVES, BLADES

Custom Pins and Sleeves – Faxable Quote Form

**QUOTE FAX HOTLINES AVAILABLE or visit www.dme.net**

United States: 888-808-4363 • Canada: 800-461-9965 • International: 248-398-7394

**Custom Pins**

- **Quantity:**
- **Choose a pin type:**
  - EX (35 - 43 HRC core hardness with 65 - 70 HRC case hardness)
  - THK (50 HRC - 55 HRC core hardness with 65 - 70 HRC case hardness)
  - CX (50 - 55 HRC through hard)
  - C (30 - 35 HRC through hard)
- **Material H-13**
- **Other**
  - **Hardness**
  - Nitrided Yes ☐ No ☐
  - Comments ___________________

**Custom Sleeves**

- **Quantity:**
- **Nitride on OD (S)**
- **Nitride on OD + ID (SND)**
- **Material H-13**
- **Other**
  - **Hardness**
  - Nitrided Yes ☐ No ☐
  - Comments ___________________

**Company name:** __________________________

**DME account #:** __________________________

**Shipping method:**
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

**Contact name:** __________________________

**P.O.#:** __________________________

**Phone:** __________________________

**FAX:** __________________________

**E-mail:** __________________________

**Address:** __________________________

**State/Province:** __________________________

**City:** __________________________

**ZIP/Postal Code:** __________________________

**Country:** __________________________

U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com
### INCH PINS, SLEEVES, BLADES

**Comparison Chart**

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>DIAMETER</th>
<th>MATERIAL</th>
<th>HARDNESS</th>
<th>BODY CONDITION</th>
<th>HEAD CONDITION</th>
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<tbody>
<tr>
<td>EX Ejector Pins EX93 (1/32) through EX98 (1/32) lengths – 6’ through 18’</td>
<td>-0003</td>
<td>H13</td>
<td>Surface 65-74 HRC Core 45-65 HRC</td>
<td>Nitrided</td>
<td>Minimum .001 deep</td>
</tr>
<tr>
<td>EX Ejector Pins EX93 (1/32) through EX98 (1/32) lengths – 6’ through 18’</td>
<td>-0006</td>
<td>H13</td>
<td>Surface 65-74 HRC Core 45-65 HRC</td>
<td>Nitrided</td>
<td>Minimum .001 deep</td>
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<td>EX Ejector Pins EX93 (1/32) through EX98 (1/32) lengths – 6’ through 18’</td>
<td>-0008</td>
<td>H13</td>
<td>Surface 65-74 HRC Core 45-65 HRC</td>
<td>Nitrided</td>
<td>Minimum .001 deep</td>
</tr>
<tr>
<td>THX Ejector Pins TX1103 (1/84) through TX1106 (1/84) lengths – 6’ through 18’</td>
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</tr>
<tr>
<td>EX Ejector Pins EX929 (1/32) through EX932 (1/32) lengths – 6’ through 18’</td>
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<td>H13</td>
<td>Surface 65-74 HRC Core 50-55 HRC</td>
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<td>Ejector Blades</td>
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<td>Core 58-62 HRC</td>
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<td>Core 65 HRC MIN 45-45 HRC</td>
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<td>65-74 HRC</td>
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<td>Minimum .001 deep</td>
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<tr>
<td>H13</td>
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<td>I.D.</td>
<td>50-55 HRC</td>
<td>Nitrided</td>
<td>Minimum .001 deep</td>
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<tr>
<td>C Core Pins</td>
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<td>M2</td>
<td>Core 30-35 HRC</td>
<td>Through Hardened</td>
<td>2” length – Hard E’+4” lengths – Annealed</td>
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<td>CX High Hardness Core Pins</td>
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<td>Core 50-55 HRC</td>
<td>Through Hardened</td>
<td>2” length – Hard E’+4” lengths – Annealed</td>
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</tbody>
</table>

#### PCL Performance High Conductivity Core Pins

- **Molten In/Out® Beryllium-Free, Copper-based alloy (C10000)**
  - 90-88 HRB
  - not applicable
  - not applicable

#### Return Pins

- **Surface 65-74 HRC Core 45-45 HRC**
  - Nitrided
  - Minimum .001 deep
  - Annealed

#### Sprue Puller Pins

- **Surface 65-74 HRC Core 45-45 HRC**
  - Nitrided
  - Minimum .001 deep
  - Annealed

---

**INCH PINS, SLEEVES, BLADES**

**Hardness Conversion Table and DME Hardness Data**

<table>
<thead>
<tr>
<th>INCH PINS, SLEEVES, BLADES</th>
<th>HARDNESS RANGE</th>
<th>B</th>
<th>ROCKWELL</th>
<th>C</th>
<th>DME SCLERO-SCOPE</th>
<th>THERMAL</th>
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**DME Contact Information**

- **Canada 800-387-6600**
- **dme@milacron.com**
- **www.dme.net**
- **store.milacron.com**

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**U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com**
DIN Pins, Sleeves, Blades

A Comprehensive Line of DIN Ejector Products

Table of Contents

**Ejector Pins**
- EJP-EHN (Nitrided) ................................................ 337
- EJP-ELH (Hardened) ............................................... 338

**Shoulder Ejector Pins**
- EJP-EHN (Nitrided) ................................................ 339
- EJP-ELH (Hardened) ............................................... 340

**Ejector Sleeves**
- EJS-EHN (Nitrided) ................................................ 341
- EJS-ELH (Hardened) ............................................... 342

**Ejector Blades**
- EJB-EHN (Nitrided) ............................................... 343
- EJB-ELH (Hardened) ............................................... 344

**Core Pins**
- CRP-EHH (Hardened) .............................................. 345
- CRP-ECS (Performance) ........................................... 346

**FAX ORDER FORM – SPECIAL DIN PINS & SLEEVES**

**INFORMATION KEY:**
- D = Pin Body Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length

**Material:** 1.2344 (AISI H13 Type) Steel

**Surface Treatment:** Nitrided

**Max. Temp.:** 500˚-550˚C (932˚-1022˚F)

**Dimensions:** Shown in Millimeters (mm)

---

### DIN Ejector Pins – EJP-EHN

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* "EA" is only a cross-reference to current DME Europe Catalog item prefix numbers.

HOW TO ORDER: Specify Item Number with prefix, D diameter, and L length. Include zeros and dashes but omit decimals, as shown.

**Contact DME for quote**

---

### DIN Ejector Pins – EJP-ELH

**Core Pins**
- CRP-EHH (Hardened) .............................................. 345
- CRP-ECS (Performance) ........................................... 346

**Faxable Quote Request Form** .................................. 347

Contact DME for quotes

---

### DIN Pins, Sleeves and Blades

DME DIN Pins, Sleeves, Blades

A Comprehensive Line of DIN Ejector Products

---

**INFORMATION KEY:**
- D = Pin Body Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length

**Material:** 1.2344 (AISI H13 Type) Steel

**Surface Treatment:** Nitrided

**Max. Temp.:** 500˚-550˚C (932˚-1022˚F)

**Dimensions:** Shown in Millimeters (mm)
DIN Pins, Sleeves and Blades

**DIN Ejector Pins – EJP-EHN**

Expulsores | Extractores | Ejecteurs | Epingles | Auswerferstifte

**Shoulder Ejector Pins – Nitrided**

Expulsores con hombro | Extractores | Ejecteurs epingles | Auswerferstifte

**Information Key:**
- **D**: Pin Body Diameter
- **H**: Head Diameter
- **K**: Head Thickness
- **L**: Length

**Material:**
1.2344 (AISI H13 Type) Steel

**Surface Treatment:**
Nitrided

**Max. Temp.:**
500˚-550˚C (932˚-1022˚F)

**Dimensions:**
Shown in Millimeters (mm)

**DIN Shoulder Ejector Pins – EJP-EHN**

Expulsores con hombro | Extractores | Ejecteurs epingles | Auswerferstifte

**Information Key:**
- **D**: Pin Body Diameter
- **E**: Shoulder Diameter
- **H**: Head Diameter
- **K**: Head Thickness
- **L**: Length
- **S**: Shoulder Length

**Material:**
1.2344 (AISI H13 Type) Steel

**Surface Treatment:**
Nitrided

**Max. Temp.:**
500˚-550˚C (932˚-1022˚F)

**Dimensions:**
Shown in Millimeters (mm)

---

**How to Order:**
Specify Item Number with prefix, D diameter, and L length. Include zeros and dashes but omit decimals, as shown.

**Example:**
Prefix  | D   | H   | K   | L   |
-------|-----|-----|-----|-----|
EJP-EHN | 015 | 3   | 1.5|     |

**Key to Chart:**
- **S**: Items in stock
- **Contact DME for quote**

---

**Contact DME for quote**
DIN PINS, SLEEVES, BLADES
DIN Shoulder Ejector Pins – Hardened

DIN Shoulder Ejector Pins – EJP-ELH
Expulsores con hombro | Extractores | Ejecteurs epingles | Auswerferstifte

DIN Shoulder Ejector Pins – EJP-EHN
Mangas expulsoras | Extractores tubulares | Ejecteurs tubulaires | Auswerferhülsen

**INFORMATION KEY:**
- **D** = Pin Body Diameter
- **E** = Shoulder Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length
- **S** = Shoulder Length
- **Standard:** = DIN/ISO Type
- **Material:** = 1.2344 (AISI H13 Type) Steel
- **Surface Treatment:** = Nitrided
- **Max. Temp.:** = 250˚C (482˚F)
- **Dimensions:** Shown in Millimeters (mm)

**DIN Shoulder Ejector Pins – EJP-ELH**

<table>
<thead>
<tr>
<th>ITEM PREFIX</th>
<th>D</th>
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<th>H</th>
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**EJP-ELH (CH)**

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**DIN Shoulder Ejector Pins – EJP-EHN**

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**EJS-EHN (5")**

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</table>

**INFORMATION KEY:**
- **D** = Inside Diameter
- **E** = Outside Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length
- **N** = Bearing Length
- **Standard:** = DIN/ISO Type
- **Material:** = 1.2344 (AISI H13 Type) Steel
- **Surface Treatment:** = Nitrided
- **Max. Temp.:** = 500°-550°C (932°-1022°F)
- **Dimensions:** Shown in Millimeters (mm)

**How to Order:** Specify Item Number with prefix, D diameter, L length and S length. Include zeros and dashes but omit decimals, as shown.

**Example:**

Prefix: EJP-EHN-008-0100-0035

**Contact DME for quote**
### DIN Ejector Sleeves – EJS-ELH

**Mangas expulsoras | Extractores tubulares | Ejecteurs tubulaires | Auswerferhülsen**

**INFORMATION KEY:**

- **D** = Inside Diameter
- **E** = Outside Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length
- **N** = Bearing Length

**Standard:** DIN/ISO Type

**Material:** 1.2210 (AISI L2 Type) Steel

**Surface Treatment:** None (Through-Hardened)

**Max. Temp.:** 250°C (482°F)

**Dimensions:** Shown in Millimeters (mm)

* "(KS)" is only a cross-reference to current DME Europe Catalog item prefix numbers.

**HOW TO ORDER:** Specify from Chart with prefix, D, E, H, K, and L length. Include zeros and dashes but omit decimals, as shown.

**Example:**

- **Prefix:** EJS-ELH
- **D:** 10.0
- **E:** 10.0
- **H:** 3.0
- **K:** 4.0
- **L:** 50.0

---

### DIN Ejector Blades – EJB-EHN

**Expulsores planos | Extractores laminares | Ejecteurs lames | Auswerferklingen**

**INFORMATION KEY:**

- **D** = Shoulder Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length
- **S** = Shoulder Length
- **T** = Blade Thickness
- **W** = Blade Width

**Standard:** DIN/ISO Type

**Material:** 1.2344 (AISI H13 Type) Steel

**Surface Treatment:** Nitrided

**Max. Temp.:** 500°-550°C (932°-1022°F)

**Dimensions:** Shown in Millimeters (mm)

* "(FW)" is only a cross-reference to current DME Europe Catalog item prefix numbers.

**HOW TO ORDER:** Specify from Chart with prefix, T, W, S, and L length. Include zeros and dashes but omit decimals, as shown.

**Example:**

- **Prefix:** EJB-EHN
- **T:** 01.2
- **W:** 03.5
- **S:** 4.0
- **L:** 10.0

---

### DIN Pins, Sleeves, Blades

**DIN Pins, Sleeves and Blades**

**DIN Ejector Sleeves – Hardened**

**DIN Ejector Blades – Nitrided**

**DIN Ejector Blades – EJB-EHN**

**DIN Ejector Blades – EJP-EHN**
## DIN Pins, Sleeves, Blades

### DIN Ejector Blades – EJB-ELH

**Expulsores planos | Extractores laminares | Ejecteurs lames | Auswerferklingen**

**INFORMATION KEY:**
- **D** = Shoulder Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length
- **S** = Shoulder Length
- **T** = Blade Thickness
- **W** = Blade Width

**Standard:** DIN/ISO Type
**Material:** 1.2210 (AISI L2 Type) Steel
**Surface Treatment:** None (Through-Hardened)
**Max. Temp.:** 250°C (482°F)
**Dimensions:** Shown in Millimeters (mm)

**Prefix**

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</tbody>
</table>

* "(FK)" is only a cross-reference to current DME Europe Catalog item prefix numbers.

**HOW TO ORDER:** Specify Item Number with prefix, **T** thickness, **W** width, and **L** length. Include zeros and dashes but omit decimals, as shown.

**Example:**

- Prefix: **EJP-ELH**
- **T**: 02.0
- **W**: 03.5
- **L**: 4

** items in stock

**KEY TO CHART**

<table>
<thead>
<tr>
<th>Prefix</th>
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</tbody>
</table>

**Contact DME for quote**

---

### DIN Core Pins – CRP-EHH

**Pernos moldeadores | Pernos moldantes | Epingles au centre | Kernstifte**

**INFORMATION KEY:**
- **D** = Pin Body Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length

**Standard:** DIN/ISO Type
**Material:** 1.2344 (AISI H13 Type) Steel
**Surface Treatment:** None (Through-Hardened)
**Max. Temp.:** 500°-550°C (932°-1022°F)
**Dimensions:** Shown in Millimeters (mm)

**Prefix**

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* "(AHX)" is only a cross-reference to current DME Europe Catalog item prefix numbers.

**HOW TO ORDER:** Specify Item Number with prefix, **D** diameter, and **L** length. Include zeros and dashes but omit decimals, as shown.

**Example:**

- Prefix: **CRP-EHH**
- **D**: 01.0
- **L**: 4

** items in stock

**KEY TO CHART**

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**Contact DME for quote**

---

### DIN Pins, Sleeves, Blades – EJB-ELH

**Expulsores planos | Extractores laminares | Ejecteurs lames | Auswerferklingen**

**INFORMATION KEY:**
- **D** = Shoulder Diameter
- **H** = Head Diameter
- **K** = Head Thickness
- **L** = Length

**Standard:** DIN/ISO Type
**Material:** 1.2210 (AISI L2 Type) Steel
**Surface Treatment:** None (Through-Hardened)
**Max. Temp.:** 250°C (482°F)
**Dimensions:** Shown in Millimeters (mm)

**Prefix**

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* "(FK)" is only a cross-reference to current DME Europe Catalog item prefix numbers.

**HOW TO ORDER:** Specify Item Number with prefix, **T** thickness, **W** width, and **L** length. Include zeros and dashes but omit decimals, as shown.

**Example:**

- Prefix: **EJB-ELH**
- **T**: 02.0
- **W**: 03.5
- **L**: 4

** items in stock

**KEY TO CHART**

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**Contact DME for quote"
DIN Core Pins – CRP-ECS

**CRP-ECS (PCM)**

<table>
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</table>

**INFORMATION KEY:**
- D = Pin Body Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length
- Ø = Diameter
- H Ø D = Head Diameter x Diameter x Diameter
- CRP-ECS: DIN/ISO Type
- Material: Beryllium-free Copper based alloy
- Surface Treatment: None
- Max. Temp.: 350°C (662°F)
- Dimensions: Shown in Millimeters (mm)

**High Thermal Conductivity Pins**

Advantages:
- Reduced cycle time
- 5 times better conductivity than steel
- Improved part quality
- Lower machining costs
- Longer service life

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United States: 888-808-4363 • Canada: 800-461-9965 • International: 248-398-7394

**Special Pins**

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**Hardness:**
- Standard (as specified by item prefix)
- Other (specify on drawing)

**Desired Delivery:**
- As indicated in item drawing
- Other (specify on drawing)

**Tolerances:**
- Heads are Annealed (unless otherwise specified)

**Step Pins**

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**Hardness:**
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- Other (specify on drawing)

**Desired Delivery:**
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**Tolerances:**
- Heads are Annealed (unless otherwise specified)

**Special Sleeves**

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**Hardness:**
- Standard (as specified by item prefix)
- Other (specify on drawing)

**Desired Delivery:**
- As indicated in item drawing
- Other (specify on drawing)

**Tolerances:**
- Head is Annealed (unless otherwise specified)

**DME account #:**

**Shipping method:**
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- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other

**Company name:**

**DME account #:**

**ZIP/Postal Code:**

**Contact name:**

**Phone:**

**Address:**

**City:**

**State/Province:**

**Country:**

**P.O. #:**

**E-mail:**

**U.S. 800-626-6653 • Canada 800-387-6600 • dme@milacron.com • www.dme.net • store.milacron.com**
### JIS Ejector Pins – JFX

#### Key

- **Ø**: Pin Body Diameter
- **H**: Head Diameter
- **K**: Head Thickness
- **L**: Length

#### Standard: JIS

- **Material**: SKD61 (H-13)
- **Surface Treatment**: Nitrided
- **Surface Hardness**: 70-72 Rc (HV 1000 ± 100)
- **Core Hardness**: 40 HRC±2

#### Key to Chart

- Items in stock
- SLS (Ejector Sleeves, Blades)
- SLS (Ejector Pins, Sleeves and Blades)

### Table of Contents

- **JIS EJECTOR PINS**
  - Straight Ejector Pins.................................349
  - Ejector Blades........................................350
- **JIS EJECTOR SLEEVES**
  - Ejector Sleeves.......................................351-353

### JIS Ejector Pins – Straight

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### HOW TO ORDER

Use Item Number in charts above for ordering.

HOW TO ORDER: Use Item Number in charts above for ordering.

U.S. 800-626-6653 • Canada 800-387-6660 • dme@milacron.com • www.dme.net • store.milacron.com
# JIS PINS, SLEEVES, BLADES

## JIS Ejector Blades – JEB

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## JIS Ejector Sleeves – JES

### INFORMATION KEY:
- **D**: Pin Body Diameter
- **H**: Head Diameter
- **K**: Head Thickness
- **L**: Length
- **N**: ID Bearing Length

**Material**: SK5/51

**Surface Treatment**: Nitrided

**Surface Hardness**: 86 HRC

**Core Hardness**: 38-42 HRC

**Head Thickness**: 58 HRC ±2

**T**: Length

**TOLERANCE**

- N: TOL ±0.01
- D: TOL ±0.01

**HOW TO ORDER**: Use Item Number in chart above for ordering.

**JES Sleeve availability ranges from same-day shipment to 3-week lead time.**

---

**NOTE**: All dimensions are in mm.

**Core Hardness**: 38-42 HRC

**Surface Hardness**: 86 HRC

**Head Thickness**: 58 HRC ±2
### JIS PINS, SLEEVES, BLADES

#### JIS Ejector Sleeves – JES

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</tbody>
</table>

### INFORMATION KEY:
- D = Pin Inner Diameter
- E = Pin Body Diameter
- H = Head Diameter
- K = Head Thickness
- L = Length
- N = Bearing Length

Standard: JIS
Material: SKX01
Surface Treatment: Nitrided
Core Hardness: 55-60 HRc

**NOTE:** All dimensions are in mm.

**HOW TO ORDER:** Use Item Number in table for ordering.

### Pins, Sleeves and Blades

**JIS Sleeve availability ranges from same-day shipment to 3-week lead time.**

**DIM TOLERANCE:**

<table>
<thead>
<tr>
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</tr>
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<td>Ø 10.0</td>
<td>±0.015</td>
</tr>
</tbody>
</table>

**How to order:** Use Item Number in table for ordering. JIS Sleeve availability ranges from same-day shipment to 3-week lead time.
Every day, challenging new applications and materials are forcing moldmakers to develop creative new tooling solutions. DME is here to help, with comprehensive capabilities for manufacturing special pins and sleeves – quickly and cost-effectively. We offer a wide range of special features, including:

- Special diameters (up to 3”) and lengths (up to 72”)
- Steps
- Profiles
- Special shoulders
- O-ring grooves
- Non-standard core hardness
- Flats
- Threaded I.D. or O.D.
- Non-standard materials (non H-13)
- Surface coatings – more than 100 available, including titanium nitriding, chromium, etc.
- And many other options

If your needs are more complex, contact DME for a quote. Even when you select special pins or sleeves, you still get the industry’s fastest pricing and delivery at a competitive price.

**Industry-leading delivery lead times**

You can count on DME delivery for your special pin and sleeve needs. Your DME representative can provide you with a precise completion date for your project.
Special Pins and Sleeves – Faxable Quote Form

**Special Pins**
- **Quantity:**
- **Material H-13**
- **Comments:**

**Step Pin**
- **Quantity:**
- **Material H-13**
- **Comments:**

**Sleeve**
- **Quantity:**
- **Material H-13**
- **Comments:**

**Step Sleeve**
- **Quantity:**
- **Material H-13**
- **Comments:**

Company name: ______________________
DME account #: ______________________

Shipping method:
- UPS Ground
- UPS 2nd Day Air
- UPS Next Day
- FedEx
- Other ______________________

Contact name: ______________________
P.O. #: ______________________

Phone: ______________________
Fax: ______________________

Address: ______________________
E-mail: ______________________

City: ______________________
State/Province: ______________________

ZIP/Postal Code: ______________________
Country: ______________________

**Straight Pin**
- **Step Sleeve**
- **Sleeve**
- **Step Pin**
- **Special Pins**
- **Sleeves**
- **Step Sleeves**

**REFERENCE**
DME Ejector and Core Pin Diameters Table

<table>
<thead>
<tr>
<th>PIN DIA</th>
<th>FRACTION</th>
<th>METRIC</th>
<th>NUMBER</th>
<th>ITEM LENGTHS (inch or mm)</th>
<th>STANDARD LENGTHS (inch or mm)</th>
<th>ITEM NUMBER</th>
<th>CORE</th>
<th>FRACTION</th>
<th>METRIC</th>
<th>NUMBER</th>
<th>ITEM LENGTHS (inch or mm)</th>
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<td>.0800</td>
<td>.0800</td>
<td>.0800</td>
<td>EX10 - 3.2 (SH)</td>
<td>100, 125, 160, 200</td>
<td>—</td>
</tr>
</tbody>
</table>

**QUOTE FAX HOTLINES AVAILABLE or visit www.dme.net**
United States: 888-808-4363 • Canada: 800-461-9965 • International: 248-398-7394

Special Pins and Sleeves – Faxable Quote Form

THX07 OS 6, 10 — —
356 357
Special Pins and Sleeves – Faxable Quote Form

THX07 OS 6, 10 — —
356 357
**Ejector and Core Pin Diameter Table**

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<td>1/8 X 0.125</td>
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<tr>
<td>1/8</td>
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<td>1/8 X 0.063</td>
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</tbody>
</table>

**REFERENCE**

DME Ejector and Core Pin Diameters Table

Pins, Sleeves and Blades

**REFERENCE**

DME Ejector and Core Pin Diameters Table

Pins, Sleeves and Blades
MOLD SERVICE TABLES

This new generation of Mold Service Table is specifically designed to:

- Quickly and safely open molds
- Providing access to all parts of the mold for assembly and fitting of components, repair, maintenance, cleaning and production preparation
- Allows the mold to be opened and rotated without the use of cranes
- Rotates 360° for easy access to each mold half with indexing every 90°

Features:

- 1.5, 2, 3 and 6 ton weight capacity
- Provides a working height of 850mm (33.46”)
- Tables include: Pivot Plates, Platform & Tool Plate
- Optional accessories- Mechanical Brackets, Magnetic Brackets and Drawer Units
Table of Contents

Flat Head Screw .... 368
Dowel Pins......372-373
Socket Head Stripper Bolts .366-367
Shackles Hoist Rings & Eyebolts...........380-388
Set Screw with Spring Loaded Plunger........369-370
Ball Plunger.............................370
Tubular Dowels..............374
Lock Washers/Spring Washers..................365
Socket Head Cap Screws..........................364-365

BOLTS, SCREWS & LOCK WASHERS
 SOCKET HEAD CAP SCREWS – INCH .................. 364
 SOCKET HEAD CAP SCREW – METRIC ................. 365
 LOCK WASHER (SPRING WASHER) – METRIC ......... 365
 SOCKET HEAD STRIPPER BOLTS – INCH ............ 366
 SHOULDER BOLTS (STRIPPER BOLTS) – METRIC ....... 367
 FLAT HEAD SCREWS – METRIC ........................................ 368
 STOP DISK (FOR EJECTOR PLATES) – METRIC ........... 368

KEYS & KEY KITS
 KEYS AND KEY KITS – INCH .................. 366
 METRIC KEYS .................................................. 367

SET SCREWS
 SET SCREWS WITH SPRING LOADED PLUNGER – METRIC .......... 369
 SET SCREWS WITH SPRING LOADED BALL PLUNGER (REGULAR) – METRIC ................. 370
 SET SCREWS WITH SPRING LOADED BALL PLUNGER (HIGH TEMPERATURE) – METRIC .............. 370
 SET SCREWS WITH FLAT POINT (GRUB SCREWS) – METRIC ........................................ 371
 SET SCREWS WITH DOG POINT (ALLEN HEAD) – METRIC ........................................ 371

TUBULAR DOWELS & DOWELS
 DOWEL PINS – INCH ........................................ 372
 TUBULAR DOWELS – INCH.......................... 372
 DOWEL PINS – METRIC ........................................ 373
 DOWEL PINS WITH INTERNAL THREAD ........... 373
 TUBULAR DOWELS - METRIC .................. 374
 WASHER/TUBULAR DOWEL – METRIC ................. 374

SPRINGS
 MOLD AND DIE SPRINGS – MEDIUM DUTY ...... 375
 MOLD AND DIE SPRINGS – MEDIUM HEAVY DUTY ... 376
 MOLD AND DIE SPRINGS – HEAVY DUTY ........... 377
 MOLD AND DIE SPRINGS – EXTRA HEAVY DUTY ...... 378

BELLEVILLE WASHERS
 BELLEVILLE WASHERS (DISC SPRINGS) – METRIC .......... 379

HOIST RINGS & LIFTING HOLES
 SHACKLES, HOIST RINGS, & EYEBOLTS ............. 380-388
 MAGNETIC LIFTERS ........................................ 389
 LIFTING CHAINS ........................................ 390
 LIFTING HOLES ........................................ 391

APPENDICES
 MIN. RECOMMENDED ADDITIONAL SHCS...........392-393
MOLD ASSEMBLY
Socket Head Cap Screws – INCH

Up to 12” Long

High-grade alloy steel, heat treated to 38-45 HRC. Tensile strength: 180,000 psi minimum.

Socket Head Cap Screws – INCH

= in stock

HRC. Tensile strength: 180,000 psi minimum.

Up to 12” Long

Socket Head Cap Screws – METRIC

Lock Washers/Spring Washers – R54

Rondanas de Presion | Freios | Rondelles de retenue | Sicherungsscheibe (Federscheiben)

HOW TO ORDER: Specify D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Example:

D L
M6 30
M20 200

D = Diameter
L = Length
F = Flat Screw Diameter
P = Pouch Diameter
T = Thickness

Standard: DIN 7960

Material: Per DIN Specification

Dimensions: Shown in Millimeters (mm)

INFORMATION KEY:

D = Diameter
N = Number
H = Head Diameter
L = Length
K = Thickness
T = Tolerance

Items in stock

2-3 week delivery

Contact DME for quote

Contact DME for quote

HOW TO ORDER: Specify Item Number. Include zeros and commas but omit decimals and all spaces (spaces are only shown here for easier reading).

Example:

M6 30
M20 200

ITEM NUMBER D P T AVAILABILITY

HOW TO ORDER: Specify Item Number. Include zeros and commas but omit decimals and all spaces (spaces are only shown here for easier reading).

INFORMATION KEY:

D = Diameter
P = Pitch
T = Tolerance

Items in stock

2-3 week delivery

Contact DME for quote
Mold Assembly

Socket Head Stripper Bolts – INCH Keys and Key Kits – INCH

**Socket Head Stripper Bolts**

These Socket Head Stripper Bolts (Shoulder Screws) are made from high-grade alloy steel, heat treated to 36 HRC minimum. Tensile strength: 160,000 psi.

- **Keys and Key Kits – KK, LAK**
  - 1/2 to 3/4 keys are sold individually as detailed at right.
  - The .050 to 3/8 keys are sold in a 13-piece kit; Keys and Key Kits – KK, LAK
  - **Material:** 50 CrV4 – DIN 911

**Material:** 50 CrV4 – DIN 911

**In stock**

**How to Build an Item Number:** Diameter + Shoulder Length + SB (Stripper Bolt)

**Examples:**

- **5/8” diameter x 4-3/4” long Stripper Bolt** = 58434SB
- **5/16” diameter x 2” long Stripper Bolt** = 5162SB
- **1/4” diameter x 1” long Stripper Bolt** = 141SB

**Examples:**

- **HOW TO BUILD AN ITEM NUMBER:** Diameter + Shoulder Length + SB (Stripper Bolt)
  - **Example:**
    - **HOW TO ORDER:** Specify Item Number with prefix and S length. Include zeros as shown.
  - **KEY TO CHART**
    - **Mold Assembly**
    - **Socket Head Stripper Bolts**
    - **INCH Keys and Key Kits**

**How to order:** Specify Item Number with prefix and S length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

**Key to Chart**

- **Items in stock**
- **2-3 week delivery**
- **Contact DME for quote**

**Tolerance of Ø G is -.002 -.004 .005” T.I.R.**

**Keys – METRIC Shoulder Bolts (Stripper Bolts) – METRIC**

**Keys – METRIC Shoulder Bolts (Stripper Bolts) – METRIC**

- **Sechskant-Stiftschlüssel, Lange Ausführung – chromatisiert**
- **Clés mâles coudées pour vis à six pans creux longues – chromées**
- **Extra lange inbussleutels – verchroomd**

**Información Key:**

- **Prefix**
- **H**
- **K**
- **N**
- **J**
- **F**
- **S**
- **T**
- **S**

**Prefix**

- **Example:**
  - **Prefix S**
    - **Example:**
      - **Prefix S**
**MOLD ASSEMBLY**

**Flat Head Screws – METRIC**

*Flat Head Screws – SM*

Tornillo de cabeza plana avellanada | Parafusos de cabeza cónica | Vis creuses | Senkkopfschrauben

**INFORMATION KEY:**

- **D** = Thread Diameter
- **H** = Head Diameter
- **K** = Head Height
- **L** = Length
- **T** = Hex Socket Size (Across Flat)

*Standard: DIN 7991-10.9
Material: Per DIN Specification
Dimensions: Shown in Millimeters (mm)*

---

**Stop Disk for Ejector Plates – R18**

Arandela de tope | Anilhas de encosto | Repos épaissure pour plaques d’éjection | Distanzscheibe für Auswerferplatte

**INFORMATION KEY:**

*Standard: Euro-Series
Material: 1.1191 (AISI 1045 Type) Steel
Dimensions: Shown in Millimeters (mm)*

---

**HOW TO ORDER:** Specify Item Number with prefix and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

**HOW TO ORDER:** Specify Item Number. Omit spaces (spaces are only shown here for easier reading).

---

**INFORMATION KEY:**

- **D** = Thread Diameter
- **T** = Plunger End Diameter
- **L** = Body Length
- **N** = Plunger Maximum Travel
- **F** = Initial End Force (Force in Newtons)
- **F2** = Final End Force (Force in Newtons)

*Material: 1.0716 Steel
Max. Temp.: 250°C (482°F)
Dimensions: Other metric units of measure*

---

**KEY TO CHART**

- Items in stock
- 2-3 week delivery
- Contact DME for quote

---

**Set Screws with Spring Loaded Plunger – FM**

Tornillos de presión con resorte (embolo) | Pernos roscados de cilindro | Butées à ressort | Federnde Druckstifte

**INFORMATION KEY:**

- **F1** = Initial End Force (Force in Newtons)
- **F2** = Final End Force (Force in Newtons)

*Material: 1.0716 Steel
Max. Temp.: 250°C (482°F)*

---

**HOW TO ORDER:** Specify Item Number. Omit spaces (spaces are only shown here for easier reading).
MOLD ASSEMBLY

Set Screws with Spring Loaded Ball Plunger (Regular and High Temperature) – METRIC

Set Screws with Spring Loaded Ball Plunger – FDV

Set Screws with Spring Loaded Ball Plunger (High Temperature) – FDV

Set Screws with Dog Point (Grub Screws) – GS919

HOW TO ORDER: Specify Item Number. Omit spaces (spaces are only shown here for easier reading).

Contact DME for quote
2-3 week delivery
Items in stock

HOW TO ORDER: Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Prefix D L Example: Prefix D L
GS919 GS919 M08 016
GS915 GS915 M12 050

MOLD ASSEMBLY

Set Screws with Flat Point (Grub Screws) – METRIC Set Screws with Dog Point (Allen Head) – METRIC

Set Screws with Flat Point (Grub Screws) – GS913

Tornillos sin cabeza | Pernos roscados | Vis de réglage sans tête | Gewindestifte

Tornillo sin cabeza | Parafusos de regulagem – cabeça Allen | Vis de réglage sans tête | Gewindestifte mit Zapfen

HOW TO ORDER: Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

Prefix D L Example: Prefix D L
GS913 GS913 M08 016
GS915 GS915 M12 050

Contact DME for quote
2-3 week delivery
Items in stock
**MOLD ASSEMBLY**

**Dowel Pins**

DME Dowel Pins are made from high-grade alloy steel, hardened and precision ground.

**Tubular Dowels**

DME Tubular Dowels are hardened and precision ground. They are used in DME mold base assemblies to accurately align the "B" plate, support plate and the ejector housing.

The use of DME Tubular Dowels allows more room for waterlines by superimposing the dowel pin and cap screw as shown at the right.

**HOW TO ORDER**

Prefix: D = Pin Outside Diameter  L = Length

<table>
<thead>
<tr>
<th>D</th>
<th>L</th>
<th>Example:</th>
</tr>
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<tbody>
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<td>2 8</td>
<td>DP 2 8</td>
</tr>
<tr>
<td>DP</td>
<td>4 10</td>
<td>DP 4 10</td>
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</table>

**TUBULAR DOWEL ASSEMBLY**

**AS USED IN MOLD BASE ASSEMBLIES**

**MOLD ASSEMBLY**

**Dowel Pins – METRIC**

Dowel Pins with Internal Thread/Pull Dowels – WZ7005

Clavija con cuerda interna | Cavilhas | Goupilles cylindriques | Zylinderstifte

**INFORMATION KEY:**

D = Pin Outside Diameter  L = Length

Standard: DIN 6325, ISO 8734

Material: Per DIN and ISO Specifications

Dimensions: Shown in Millimeters (mm)

**HOW TO ORDER:** Specify Item Number with prefix, D diameter and L length. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

**KEY TO CHART**

- Items in stock
- 2-3 week delivery
- Contact DME for quote

**Prefix**

<table>
<thead>
<tr>
<th>WZ7005</th>
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<th>Example:</th>
</tr>
</thead>
<tbody>
<tr>
<td>D L</td>
<td>WZ7005 06 020</td>
<td>WZ7005 12 040</td>
</tr>
</tbody>
</table>
**Tubular Dowels – R09**

**Registo tubular** | **Cavilha tubular** | **Douaures tubulaires** | **Paßhülsen**

**Information Key:**
- D = Outside Diameter
- G = Inside Diameter
- L = Length

**Standard:** Euro-Serie

**Material:** 1.1713 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**HOW TO ORDER:** Specify Item Number with prefix, D diameter and L length. Include zeros as shown.

**Example:**
- D:
  - R09 10 040
- L:
  - R09 20 180

**KEY TO CHART**
- Items in stock
- 2-3 week delivery
- Contact DME for quote

**Mold Assembly**

**Tubular Dowels; Washer/Tubular Dowel (Disk for Tubular Dowels) – Metric**

**Washer/Tubular Dowel (Disk for Tubular Dowels) – R091**

**Arandelas – Registro tubular | Anilhas – para cavilha tubular**

**Cachetage cylindrique – Douaures tubulaires | Scheibe – Paßhülsen**

**Information Key:**
- D = Outside Diameter
- G = Inside Diameter

**Standard:** Euro-Series

**Material:** 1.1713 (AISI 5115 Type) Steel

**Surface Treatment:** Case Hardened

**Dimensions:** Shown in Millimeters (mm)

**HOW TO ORDER:** Specify Item Number. Include zeros as shown, but omit all spaces (spaces are only shown here for easier reading).

**Example:**
- D:
  - R091 14 003
- K:
  - 40 008

**KEY TO CHART**
- Items in stock

**Mold and Die Springs Medium Duty (Color-Coded Blue)**

**Medium Duty Mold and Die Springs (Blue) – SMD**

**Maximum Deflection:** 56% of Free Length

**Efficient Operating Range:** 25% to 35% of Free Length

Manufactured by Raymand® from a special rectangular-shaped, round-cornered chromium alloy. Provides high resistance to shock loads, increased deflection, wider operating temperatures and longer life. Color-coded by work range to simplify selection and specification.
The word “RAYMOND” and the gold, red, green and blue color coding of mold and die springs in the heavy duty, medium heavy duty, extra heavy duty and medium duty load ranges, respectively, are registered trademarks of the Barnes Group, Inc.
MOLD ASSEMBLY
Mold and Die Springs Extra Heavy Duty (Color-Coded Green)

Maximum Deflection: 25% of Free Length
Efficient Operating Range: 15% of Free Length

Manufactured by Raymond® from a special rectangular-shaped, round-cornered chromium alloy. Provides high resistance to shock loads, increased deflection, wider operating temperatures and longer life. Color-coded by work range to simplify selection and specification.

**Mold and Die Springs Extra Heavy Duty**

- Color-coded Green – SEH
- Extra Heavy Duty Mold and Die Springs

**Specifications**

- Maximum Deflection: 25% of Free Length
- Color Coding of Mold and Die Springs in the Heavy Duty, Medium Heavy Duty, Extra Heavy Duty, and Medium Duty load ranges, respectively, are registered trademarks of the Raymond Group.

---

### Belleville Washers (Disc Springs) – METRIC

#### Belleville Washers (Disc Springs) – WZ8050

Rondelas Belevile | Rondelles Belleville

Anilhas Bellevile | Tellerfedern

**Informations Key**

- D = Overall Diameter
- F = Load Force in Newtons (at specified "S" Deflections)
- G = Inside Diameter
- H = Overall Height of one unloaded washer
- J = Maximum Theoretical Deflection to Flat
- S = Deflection (shown for % of Maximum Theoretical Deflection J)
- T = Thickness

**Material:** DIN 2093

**Max. Temp.:** 300°C (572°F)

**Dimensions:** Shown in Millimeters (mm)

**Spring Load versus Deflection Data**

### UNIVERSITY CATALOG 1984-1985

**Contents**

- Key to Chart
- Belleville Washers (Disc Springs)
- Specifications
- Applications
- Chart

---

### Belleville Washers (Disc Springs)

#### Belleville Washers (Disc Springs) – WZ8050

**Specifications**

- **Belleville Washers (Disc Springs) – WZ8050**

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<th>Ø G</th>
<th>T</th>
<th>H</th>
<th>J</th>
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**Specifications**

- **Belleville Washers (Disc Springs)**

- **Specifications**

**Applications**

- **Applications**

**Chart**

**Key to Chart**

- WZ8050 160 082 090 16.0 08.2 0.90 1.25 0.35
- WZ8050 180 102 110 20.0 10.2 1.10 1.50 0.45
- WZ8050 200 124 135 40.0 20.4 2.25 3.15 0.90
- WZ8050 254 300 50.0 25.4 3.00 4.10 1.10

**How to Order:** Specify Item Number. Omit spaces (spaces are only shown here for easier reading).
**MOLD ASSEMBLY**

**Codipro SEB Swivel Eyebolts**

- Swivels under the load
- Equipped with an automatic position recovery system
- Tightens with Allen Wrench
- High WVL in all directions
- Optimizes orientation in the direction of the sling
- Standard in Metric and Inch
- Adaptor, centering feature and special thread options available as special order

---

**PART NUMBER**

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<tr>
<th>Threads</th>
<th>Diameter</th>
<th>15</th>
<th>16</th>
<th>30</th>
<th>30</th>
<th>38</th>
<th>27</th>
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<th>53</th>
<th>9.5</th>
<th>0.3</th>
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<td>0.40</td>
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<td>20</td>
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<td>34</td>
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<td>57</td>
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<tr>
<td>SEB1/2UP</td>
<td>M4 x 0.7</td>
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<td>0.70</td>
<td>17</td>
<td>10</td>
<td>30</td>
<td>6</td>
<td>30</td>
<td>34</td>
<td>60</td>
<td>57</td>
</tr>
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<td>15</td>
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<tr>
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<td>20</td>
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<td>168</td>
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</table>

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**MOLD ASSEMBLY**

**Codipro DSR Double Swivel Shackles**

Specially Designed for Lifting and Turning Under Heavy Load

- Swivels under the load
- Designed for loads in rotation with Axial Shackle
- Two ways of tightening; open-ended spanner or allen key
- Axial shackle position
- Standard in Metric and Inch
- Stainless steel, adaptor, centering feature and special thread options available as special order

---

**PART NUMBER**

<table>
<thead>
<tr>
<th>Threads</th>
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</table>

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**MOLD ASSEMBLY**

**Codipro SEB Swivel Eyebolts**

- Swivels under the load
- Equipped with an automatic position recovery system
- Tightens with Allen Wrench
- High WVL in all directions
- Optimizes orientation in the direction of the sling
- Standard in Metric and Inch
- Adaptor, centering feature and special thread options available as special order

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</table>
MOLD ASSEMBLY
Codipro DSS Double Swivel Shackles

Specially Designed for Lifting and Turning Under Heavy Load

- Large shackle for easy secure connection directly to crane hook
- Compact and Ergonomic; requires less clearance
- Tightens with allen wrench
- Double articulation allows perfect alignment with the sling
- Standard in Metric and Inch
- Stainless Steel, adaptor and special thread options available as special order

---

MOLD ASSEMBLY
Codipro MEGADSS Double Swivel Shackles

Specially Designed for Lifting and Turning Under Heavy Load

- Large shackle for easy secure connection directly to crane hook
- Compact and Ergonomic; requires less clearance
- Tightens with allen wrench
- Double articulation allows perfect alignment with the sling
- Standard in Metric and Inch
- Stainless Steel, adaptor and special thread options available as special order
MOLD ASSEMBLY
Codipro DSS Double Swivel Shackle

Specially Designed for Lifting and Turning Loads up to metric 55 tons

- Large eye on the shackle for easy connections
- Compact and Ergonomic base; requires less clearance
- Easy to attach and use
- Individual engraving
- Delivered with a certificate of conformity for each shackle

Drilling and screw specifications DIN912-12.9

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>ØL</th>
<th>M</th>
<th>N</th>
<th>USEFUL MAX. THREAD DEPTH</th>
<th>QTY</th>
<th>THREAD</th>
<th>LENGTH</th>
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MOLD ASSEMBLY
Hoist Rings – INCH

Whether you’re hoisting an 800-pound mold base or a 15,000-pound piece of molding room equipment, DME Hoist Rings can add a margin of performance and convenience to the job at hand. The inherent danger posed by conventional static eyebolts (side-load breakage and hook disengagement) combined with stricter safety regulations make DME Hoist Rings an important addition to any mold shop or molding plant. Unlike eyebolts, these Hoist Rings will not yield to heavy side loads within their rated capacity and can pivot 180° and swivel 360° to compensate for pitch, roll and sway when lifting heavy, unbalanced loads. As with all mechanical devices, regular inspection for wear, and strict adherence to installation and operating guidelines is necessary to prevent failure due to misuse.

- Safer and stronger than conventional eyebolts
- Pivots and swivels to compensate for pitch, roll and sway when lifting heavy or unbalanced loads
- Prevents accidents caused by eyebolt breakage or lifting hook disengagement
- Will not yield to heavy side loads when used in accordance with manufacturer’s instructions
- Manufactured from high-quality alloy steel (certified heat treatment)
- Meets or exceeds MIL-STD-1365 (OR-11) and MIL-STD-209C
- Seven sizes to handle loads from 800 to 15,000 pounds
- Safety factor is 5 times the rated load capacity in any direction

See what happens when heavy side loads are applied to a conventional eyebolt.

The same load applied to a DME Hoist Ring is translated into a primary tension load at the bolt and normal to the bolt axis.

EXCESSIVE SIDE LOADS CAN CAUSE BOLT FAILURE.

HIGH TENSION LOADS ARE WELL WITHIN THE DESIGNED SAFETY LIMITS OF THE STRESSED HOIST RING.
MOLD ASSEMBLY

Hoist Rings – INCH Installation and Ordering Information

**Installation Data**

Tap workpiece for hoist ring bolt with axis vertical to mounting surface. Work surface should be flat and smooth to provide full 360° flush seating for the bushing flange. For installation in ferrous materials, the screw should be tightened to the full torque loading recommended in column TL below, +25% – 0%.

(SAFETY NOTE: Some loosening may be required for prolonged service in a permanent installation. It is advisable to periodically retighten the mounting bolt to maintain the specified torque value.) For maximum safety with soft metal workpieces such as aluminum, use extra length bolts with minimum effective thread engagement of 2 times thread diameter. The use of free fit spacers between the bushing flange and mounting surface is not recommended, as this will reduce the safe load rating on angularly loaded, Hoist rings must be free to swivel 360° and pivot 180° at all times.

**Hoist Rings – SHR** (includes bolt and retaining ring)

**Features**

- Intended for use with softer metals.
- Pivots and swivels to compensate for pitch, roll and yaw.
- Total load rating in any direction.
- Standard tolerance ± 0.8mm.
- Maximum operating temperature 200°C (392°F).
- Reuseable, no need to replace entire mounting assembly.
- Non-adjustable, may be secured with a retaining ring.
- Not adjustable, may be secured with a retaining ring.
- Allgemeine Toleranzen ± 0.8mm.
- Kontrolle Korrosionsbeständiger Oberflächen.
- Keine Abweichung nach der Exzentrizität.
- Koeffizient de sécurité 5:1 quelle que soit l’orientation de la charge.
- E = Effective Thread Projection

**NOTES:**

- E = Effective Thread Projection
- *Bolts not marked with an asterisk (*) are identical to those supplied with hoist rings. Bolts marked with an asterisk are longer, to provide thread projection between the bushing bolt diameters.

**Replacement Bolt Kits – SHK** (includes bolt and retaining ring)

**Features**

- Intended for use with softer metals.
- Pivots and swivels to compensate for pitch, roll and yaw.
- Total load rating in any direction.
- Standard tolerance ± 0.8mm.

**NOTES:**

- E = Effective Thread Projection
- *Bolts not marked with an asterisk (*) are identical to those supplied with hoist rings. Bolts marked with an asterisk are longer, to provide thread projection between the bushing bolt diameters.**
MOLD ASSEMBLY

Forged Eyebolts

- High-quality U.S. forged eye bolts
- Shoulder design
- Shows full engagement
- Huge savings, always in stock!

Material: C1030 steel, forged, heat-treated, quenched and drawn
Tensile strength: 65,000 PSI min.
Yield strength: 50,000 PSI min.
Elongation: 30% min.
Reduction of area: 60% min.

Warning: Rated capacity is substantially reduced when loading at any angle greater than 45° from bolt centerline. At an angle of 45°, rated capacity is reduced to 1/4 of shown rating.

Bunting® MagLift Permanent Magnetic Lifters are powered by blocks of high-energy neodymium magnetic material. Switching is achieved by making one of these blocks reversible. In the “on” position, the reversible block is in parallel with the static blocks so that a concentrated magnetic field is produced at the pole feet for lifting. In the “off” position, the reversible block is rotated through 180° to provide a total magnetic short circuit within the lifter body.

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<thead>
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<th>U.S. Thread (UNC-2A)</th>
<th>A-B-C-D (refer to photo)</th>
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<td>EB1750</td>
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Metric Sizes A-B-C-D (refer to photo)

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<td>EBM48</td>
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</tbody>
</table>

Material: C1030 steel, forged, heat-treated, quenched and drawn
Tensile strength: 65,000 PSI min.
Yield strength: 50,000 PSI min.
Elongation: 30% min.
Reduction of area: 60% min.

Warning: Rated capacity is substantially reduced when loading at any angle greater than 45° from bolt centerline. At an angle of 45°, rated capacity is reduced to 1/4 of shown rating.

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

MOLD ASSEMBLY

Permanent Magnetic Lifters

<table>
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<tr>
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The maximum stated length is not the maximum diameter. (Shows work within the stated Safe Work Load) Above values are based on cold-rolled mild steel.
**MOLD ASSEMBLY**

- Sling Hooks & Self Locking Hooks available
- Grade 100 chain slings tagged with sling type, Grade, size and working load limit
- Tested and CE certified before shipment

**Single Leg Chain Sling with Adjuster & Hooks**

<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>SIZE</th>
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<th>WLL 45°</th>
<th>WLL 30°</th>
<th>DESCRIPTION</th>
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<td>3/4&quot;</td>
<td>91,500LBS</td>
<td>74,900LBS</td>
<td>53,000LBS</td>
<td>TRIPLE LEG 3/4&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<tr>
<td>ATOSL58X5</td>
<td>5/8&quot;</td>
<td>39,100LBS</td>
<td>32,000LBS</td>
<td>22,600LBS</td>
<td>TRIPLE LEG 5/8&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
</tr>
<tr>
<td>ATOSL12X5</td>
<td>1/2&quot;</td>
<td>26,000LBS</td>
<td>21,200LBS</td>
<td>15,000LBS</td>
<td>TRIPLE LEG 1/2&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<tr>
<td>ATOSL38X5</td>
<td>3/8&quot;</td>
<td>15,200LBS</td>
<td>12,400LBS</td>
<td>8,800LBS</td>
<td>TRIPLE LEG 3/8&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<tr>
<td>ASOS932X5</td>
<td>9/32&quot;</td>
<td>4,300LBS</td>
<td>3,400LBS</td>
<td>2,300LBS</td>
<td>SINGLE LEG 9/32&quot; W/ ADJ &amp; SLING HOOKS</td>
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**DOUBLE Leg Chain Sling with Adjuster & Hooks**

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<th>ITEM NUMBER</th>
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<th>WLL 45°</th>
<th>WLL 30°</th>
<th>DESCRIPTION</th>
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<td>74,900LBS</td>
<td>53,000LBS</td>
<td>TRIPLE LEG 3/4&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<tr>
<td>ATOSL58X5</td>
<td>5/8&quot;</td>
<td>39,100LBS</td>
<td>32,000LBS</td>
<td>22,600LBS</td>
<td>TRIPLE LEG 5/8&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
</tr>
<tr>
<td>ATOSL12X5</td>
<td>1/2&quot;</td>
<td>26,000LBS</td>
<td>21,200LBS</td>
<td>15,000LBS</td>
<td>TRIPLE LEG 1/2&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
</tr>
<tr>
<td>ATOSL38X5</td>
<td>3/8&quot;</td>
<td>15,200LBS</td>
<td>12,400LBS</td>
<td>8,800LBS</td>
<td>TRIPLE LEG 3/8&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<td>ASOS932X5</td>
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<td>4,300LBS</td>
<td>3,400LBS</td>
<td>2,300LBS</td>
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**Triple Leg Chain Sling with Adjuster & Hooks**

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<th>ITEM NUMBER</th>
<th>SIZE</th>
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<th>WLL 45°</th>
<th>WLL 30°</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>ATOSL34X5</td>
<td>3/4&quot;</td>
<td>91,500LBS</td>
<td>74,900LBS</td>
<td>53,000LBS</td>
<td>TRIPLE LEG 3/4&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
</tr>
<tr>
<td>ATOSL58X5</td>
<td>5/8&quot;</td>
<td>39,100LBS</td>
<td>32,000LBS</td>
<td>22,600LBS</td>
<td>TRIPLE LEG 5/8&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
</tr>
<tr>
<td>ATOSL12X5</td>
<td>1/2&quot;</td>
<td>26,000LBS</td>
<td>21,200LBS</td>
<td>15,000LBS</td>
<td>TRIPLE LEG 1/2&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
</tr>
<tr>
<td>ATOSL38X5</td>
<td>3/8&quot;</td>
<td>15,200LBS</td>
<td>12,400LBS</td>
<td>8,800LBS</td>
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<tr>
<td>ASOS34X5</td>
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<td>35,000LBS</td>
<td>27,500LBS</td>
<td>18,800LBS</td>
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<tr>
<td>ASOS58X5</td>
<td>5/8&quot;</td>
<td>22,600LBS</td>
<td>17,400LBS</td>
<td>11,900LBS</td>
<td>SINGLE LEG 5/8&quot; W/ ADJ &amp; SLING HOOKS</td>
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<tr>
<td>ASOS12X5</td>
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<td>15,000LBS</td>
<td>11,800LBS</td>
<td>8,300LBS</td>
<td>SINGLE LEG 1/2&quot; W/ ADJ &amp; SLING HOOKS</td>
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<tr>
<td>ASOS38X5</td>
<td>3/8&quot;</td>
<td>8,800LBS</td>
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<td>4,700LBS</td>
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**Quad Leg Chain Sling with Adjuster & Hooks**

<table>
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<tr>
<th>ITEM NUMBER</th>
<th>SIZE</th>
<th>WLL 60°</th>
<th>WLL 45°</th>
<th>WLL 30°</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>ATOSL34X5</td>
<td>3/4&quot;</td>
<td>91,500LBS</td>
<td>74,900LBS</td>
<td>53,000LBS</td>
<td>TRIPLE LEG 3/4&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<tr>
<td>ATOSL58X5</td>
<td>5/8&quot;</td>
<td>39,100LBS</td>
<td>32,000LBS</td>
<td>22,600LBS</td>
<td>TRIPLE LEG 5/8&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<tr>
<td>ATOSL12X5</td>
<td>1/2&quot;</td>
<td>26,000LBS</td>
<td>21,200LBS</td>
<td>15,000LBS</td>
<td>TRIPLE LEG 1/2&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
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<tr>
<td>ATOSL38X5</td>
<td>3/8&quot;</td>
<td>15,200LBS</td>
<td>12,400LBS</td>
<td>8,800LBS</td>
<td>TRIPLE LEG 3/8&quot; W/ ADJ &amp; SELF LOCKING HOOKS</td>
</tr>
</tbody>
</table>

**FOR QUOTING OR ORDERING, SPECIFY:**

- **Lifting Holes**
  - Lifting holes can be selected up to three per plate edge. They are available in top clamp plate, A-plate, B-plate, support plate, and bottom clamp plate.
  - Note that for safety reasons, only the recommended hole diameters (or larger) shown in the table are offered.
  - Diameter ________
  - Quantity in each plate ________
  - Plates with lift holes ________

**MOLD ASSEMBLY**

Lifting Holes can be used to install hoist rings for ease of handling. Mold base can be configured only with Lifting Holes which are appropriate for the specific mold base size. Refer to the preceding pages for a comprehensive selection of hoist rings.

**Lifting Hole Diameters**

<table>
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<th>BASE SIZE</th>
<th>PLATE THICKNESS</th>
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<tr>
<td>Ø 6-13&quot;</td>
<td>1.60 1.60</td>
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<tr>
<td>Ø 13-18&quot;</td>
<td>1.40 1.40</td>
</tr>
<tr>
<td>Ø 18-28&quot;</td>
<td>1.25 1.25</td>
</tr>
</tbody>
</table>

**Lifting Holes**

- Thread Size
  - S: ___________  T: ___________

- Plates with lift holes ________

- (Prints required if not on center)

**Lifting Holes**

- Lifting Holes can be selected up to three per plate edge. They are available in top clamp plate, A-plate, B-plate, support plate, and bottom clamp plate.

- Note that for safety reasons, only the recommended hole diameters (or larger) shown in the table are offered.

- Diameter ________

- Quantity in each plate ________

- Plates with lift holes ________

- (Prints required if not on center)
MOLD ASSEMBLY
Minimum Recommended Additional Assembly SHCS

### MOLD ASSEMBLY
Minimum Recommended Additional Assembly SHCS

#### Notes:
1. Blue color configurations require additional assembly screws.
2. Numbers of additional assembly screws suggested are minimum required.
3. No safety factor considered. The moldmaker is entirely responsible for the chosen configuration.

#### Key:
- N/A: Not available/not recommended
- ±: No additional assembly screws required
- +: Add screws as noted (+)
- =: Not available/not recommended

#### Mold Assembly
Minimum Recommended Additional Assembly SHCS

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**NOTES:**
1. Blue color configurations require additional assembly screws.
2. Numbers of additional assembly screws suggested are minimum required.
3. No safety factor considered. The moldmaker is entirely responsible for the chosen configuration.

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MUD® Quick-Change frames and companion insert mold series are available with a full range of components. These components permit tailoring MUD frames and insert molds to every injection molding machine up to 500 tons. This makes the cost-saving benefits and time-saving advantages of the Master Unit Die Concept available to virtually every mold maker and plastic molder in the industry.

See the MUD Quick-Change Systems catalog for all of the standard parts installed in the MUD basic Quick-Change frames and companion insert molds. U, H and Double H frame components include sprue bushings, locating rings and guide posts. Components for T style and standard style insert molds include leader pins and bushings, ejector plates and ear plates.
DME MOLD COMPONENTS

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