

ROEHR

TOOL SOLUTIONS, INC.



*Providing Thread & Undercut Release
Solutions for the Plastics Industry
Since 1965*



A Little About Roehr Tool

Roehr Tool, now Roehr Tool Solutions, Inc., has been the industry leader in Collapsible Core technology since George Roehr, a graduate of the Massachusetts Institute of Technology (MIT), developed his first Collapsible Core in 1965.

Founded in 1968 to manufacture the product, Roehr Tool has continued to operate in Massachusetts in the towns of Waltham, Hudson and now Leominster.

Adding product lines through the years such as MiniCores in the mid 1980's, Expandable Cavities in the mid 1990's and the industry changing Dovetail Collapsible Cores in the late 2000's, Roehr Tool continues to be the leader in collapsing and expanding technology for the plastics industry.

Presently owned by industry veterans and longtime Roehr employees David Helenius and Keith Edwards, the company enjoys continued success with additional product development and an ever increasing emphasis on providing engineered solutions to undercut release in molded products.

Not only providing solutions, the company offers opportunities for its customers to gain advantages over their competitors with highly sophisticated, easy to use and precisely manufactured products that provide faster cycle times, less maintenance and simplified operation in the mold.

Roehr Tool Solutions, Inc. is dedicated to total customer support and satisfaction and looks forward to working with your company on all your thread and undercut release challenges.

Please contact us at : 978-562-4488 or www.roehrtool.com

Sincerely,

David Helenius
President/CEO
David.Helenius@roehrtool.com

Keith Edwards
Vice President/COO
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What your competition does not want you to know...

Molds with Roehr Tool products are less expensive than other methods including unscrewing or side action.

Unscrewing molds need additional components such as timing bars, gears, racks and the ever expensive hydraulic cylinders or servo motors. Side action molds require slides, gibs, locks, angle pins, etc.

None of these are required with the use of Roehr products in your molds as the collapse and eject sequence is generally run off of the machine knock outs.

Roehr products take up a smaller foot print and allow for higher cavitation in a smaller mold and smaller molding machine.

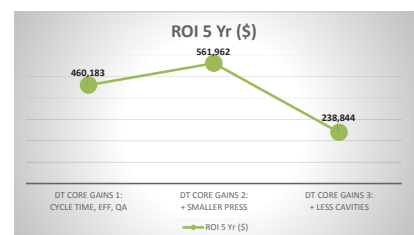
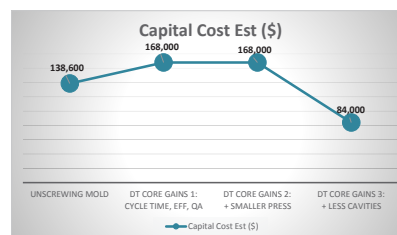
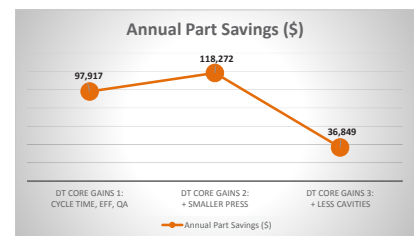
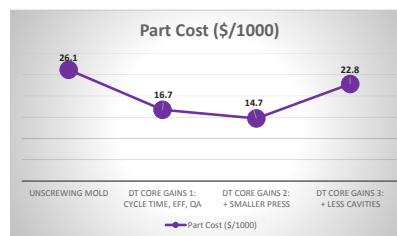
In addition Roehr products provide a 30% on average cycle time reduction!

The case study numbers to the right speak for themselves.

Roehr Tool has an ROI Calculator that you can use to determine just what your savings and ROI would be using our technology. The calculator can be downloaded from our website at: www.roehrtool.com/resource/dtcalc.htm or by contacting Roehr directly.

We would welcome the opportunity to “Do The Math” and run the numbers with you.

| Region: NA (\$/lb) | | | | |
|----------------------------|-----------------|--------------------------------------|----------------------------------|----------------------------------|
| MFG Costs and Capacity | | | | |
| | Unscrewing Mold | DT Core Gains 1: Cycle Time, Eff, QA | DT Core Gains 2: + Smaller Press | DT Core Gains 3: + Less Cavities |
| Part Cost: | | | | |
| Annual Volume | 10,000,000 | 10,000,000 | 10,000,000 | 10,000,000 |
| Resin Price (\$/lb) | 1 | 1 | 1 | 1 |
| Part Weight (g) | 2 | 2 | 2 | 2 |
| Molding: | | | | |
| Mold Type | Unscrew | DT Core | DT Core | DT Core |
| Cycle Time (s) | 12 | 7 | 7 | 7 |
| Cavitation | 16 | 16 | 16 | 8 |
| Productivity | 80% | 90% | 90% | 90% |
| Threaded Core Cost | \$750 | \$4,000 | \$4,000 | \$4,000 |
| Press Rate (\$/hr) | 50 | 50 | 40 | 40 |
| Maintenance Hrs/year | 84 | 42 | 42 | 42 |
| Quality, % defect | 1.0% | 0.5% | 0.5% | 0.5% |
| Assumptions: | | | | |
| Production Hrs per Week | 40 | 40 | 40 | 40 |
| Production Weeks per Year | 45 | 45 | 45 | 45 |
| Toolroom Rate | \$50 | \$50 | \$50 | \$50 |
| Overhead (% upcharge) | 25% | 25% | 25% | 25% |
| Molder's Profit Margin (%) | 20% | 20% | 20% | 20% |
| Result: | | | | |
| Part Cost (\$/1000) | \$26 | \$17 | \$15 | \$23 |
| Capital Cost Est (\$) | \$138,600 | \$168,000 | \$168,000 | \$84,000 |
| Capacity | 6,912,000 | 13,330,286 | 13,330,286 | 6,665,143 |
| Maint & QA Cost | \$6,814 | \$2,937 | \$2,835 | \$3,241 |
| Savings: | | | | |
| Annual Part Savings (\$) | | \$97,917 | \$118,272 | \$36,849 |
| ROI (1 Yr Savings) | | \$68,517 | \$88,872 | \$91,449 |
| ROI 5 Yr (\$) | | \$460,183 | \$561,962 | \$238,844 |
| Capacity Gain | | \$6,418,286 | \$6,418,286 | -\$246,857 |



Case Study: Mold-Rite Plastics

Mold-Rite Plastics, Inc. was evaluating whether to refurbish or replace an old 48-cavity unscrewing mold that was manufacturing a viable and in-demand 24mm cap.

After learning about DT Collapsible Cores, Mold-Rite was able to do the math and see the cost advantages of replacing the 20-year-old mold with one utilizing new technology that would run faster and simpler, with less maintenance and downtime. The results and cost savings were dramatic:

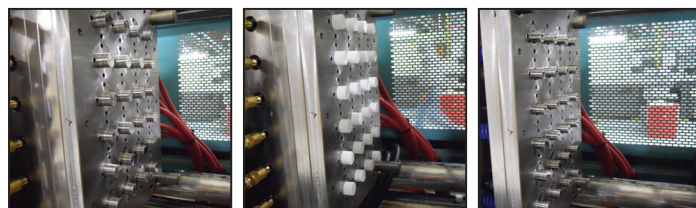
| Original Mold | New DT Core Mold |
|-----------------|------------------|
| 48 cavity | 24 cavity |
| 24-second cycle | 10-second cycle |
| 7,200 pcs/hr | 8,640 pcs/hr |
| 300 ton machine | 200 ton machine |

Roehr President Dave Helenius said, "Mold-Rite is able to run the mold faster and in a smaller machine, decreasing the cost per thousand parts by 30%. Additionally,

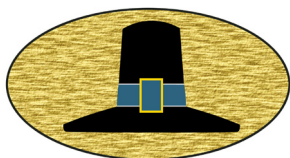
the cost of yearly maintenance and quality decreased 46% with the DT Core mold. This is significant."

"If we plug Mold-Rite's data into our online Cost Savings Calculator, capital cost savings are notable," Helenius adds. **"By converting to a simpler DT Core mold, Mold-Rite reduced their overall mold build costs by 60%."**

"The technical support was excellent" commented the senior design engineer and toolroom manager at Mold-Rite. "We learned proper handling, disassembly and assembly of the cores, as well as installation of the cores into the mold base. Everything went very smoothly and the overall results speak for themselves."



With DT Cores, no hydraulics or external core pull mechanisms are required.



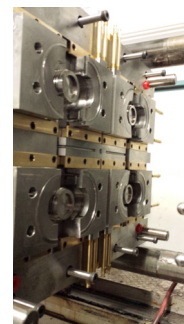
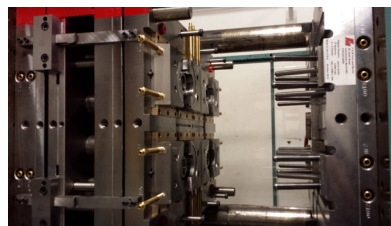
Case Study: Pilgrim Innovative Plastics, LLC

Pilgrim Innovative Plastics, LLC has worked with Roehr Tool over the last 10 to 12 years on several injection molds that would typically have required unscrewing actions. "We were able to design molds which ran cycles about 20% faster due to the fact that the thread undercuts cleared themselves with a single knockout stroke rather than the time to rotate a core to demold and reset in position, as well as the timing necessary to eject after unscrewing." says Pilgrims President, Joel Nickerson. "Set ups are also simpler as there are no hydraulics or electric motors required." added Joel.

"Recently, Roehr replaced two cores for a mold with 2" pipe threads, which were getting a little tired after producing 2 million parts over the last 10 years, and the threads look great. The life of the first set of cores exceeded our expectations with no maintenance except simple lubrication."

"We were also fortunate to have a design challenge remedied with one of the first of their Dovetail Collapsible Cores. The part had submerged cams in the moving half of the mold and we needed threads on the stationary "A" half. The mechanical Dovetail design allowed us to build a very robust mold which ran exceptionally well. We couldn't have built it reasonably any other way. Again Roehr Tool came through with a unique solution."

"Roehr's design assistance has been quite beneficial with our thread and undercut challenges and they have never let us down. I recommend Roehr Tool collapsible cores for any application they feel they can satisfy." concluded Joel.



Markets Served



Medical

Irrigation



Caps and Closures
(Packaging)

Plumbing



Industrial

Automotive



Benefits



Faster Cycle Times

Increased Profits

Less Maintenance

No Hydraulics

Smaller Molds

Smaller Presses

Lower Cost of Ownership

Simplified Operation

Quicker ROI

**Eliminates Secondary
Operations**

Balanced Layout

Energy Savings

Non-Round Shapes



COLLAPSIBLE CORES

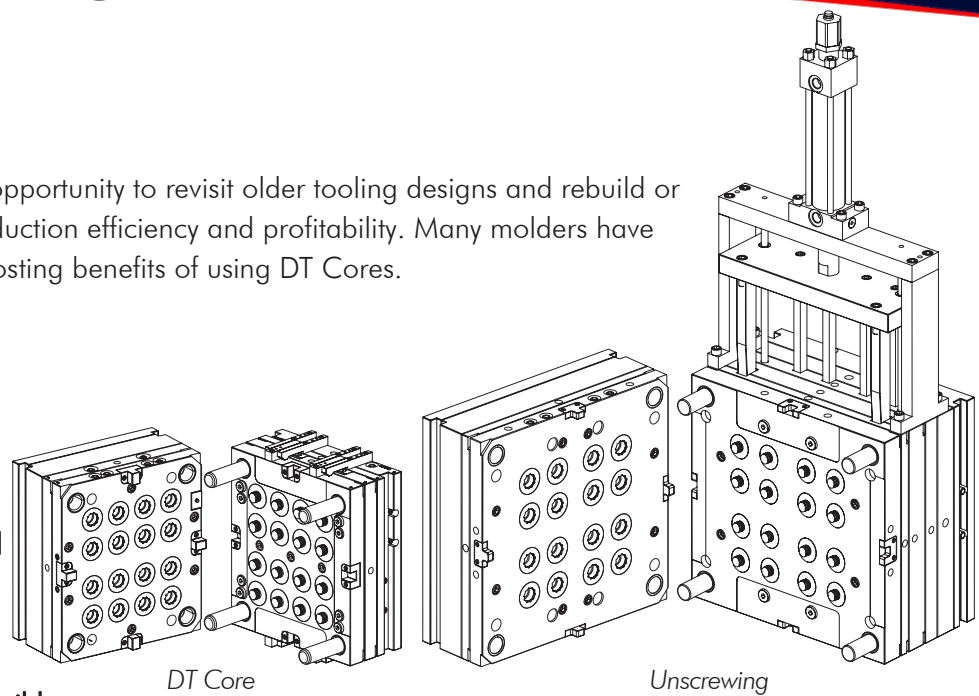
DOVETAIL "DT" SERIES

Increased Profits

DT Collapsible Cores offer a unique opportunity to revisit older tooling designs and rebuild or refurbish the molds for maximum production efficiency and profitability. Many molders have realized the cost-saving and profit-boosting benefits of using DT Cores.

DT Cores allow for:

- Simplified, smaller molds
- Faster cycle times
- Improved part quality
- Reduced mold maintenance
- Ability to rebuild existing tools and breathe new life into old unscrewing molds.
- Conversion to DT Cores through replacement mold or back half rebuild



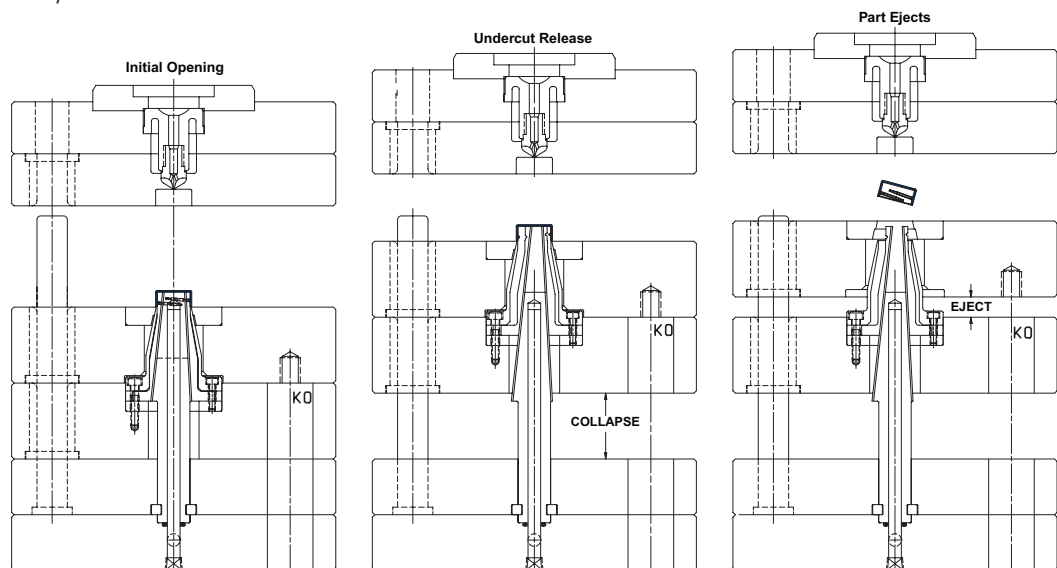
Do the Math... Let Roehr Tool help you calculate the ROI for your next project at www.roehrtool.com/resource/dtcalc.htm, or we would be happy to run the numbers on savings and calculate the ROI for you.

Simplified Mold Design

The DT Collapsible Core is a positive, mechanically actuated collapsible core that eliminates complex gear and rack approaches, resulting in a simpler mold and a faster cycle time.

The maintenance advantage is dramatic due to a patented quick-lock feature that allows removal and servicing of the core unit while the mold is still in the press.

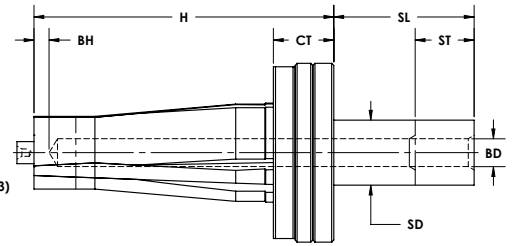
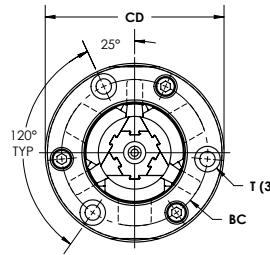
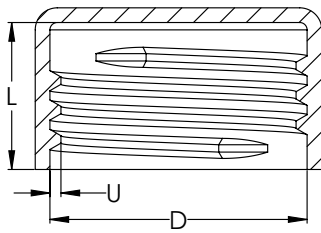
The DT Core's compact design allows for shorter stack height, tighter cavity spacing, and also creates opportunities for use in slides or on the stationary side of the mold.



DT Cores use a simple single stage collapse/eject sequence typically run by the machine KO.

COLLAPSIBLE CORES

DOVETAIL "DT" SERIES



| CATALOG NUMBER | D Maximum Outer Diameter | U Max Undercut | L Maximum Molding Length | ST Maximum Collapse Stroke | H Core Length | SD Shaft Diameter | BD Cooling Hole Diameter | BH Distance to Cooling Hole | SL Shaft Length | CD Carrier Diameter | CT Carrier Assembly Thickness | BC Mounting Screw Bolt Circle | T Mounting Screws (SHCS) |
|----------------|--------------------------------|-------------------|-----------------------------|-------------------------------|------------------|----------------------|-----------------------------|--------------------------------|--------------------|------------------------|----------------------------------|----------------------------------|-----------------------------|
| DT1010 | 10.00-10.99mm .394-.433in | .36mm .014in | 7.5mm .295in | 43.5mm 1.713in | 87mm 3.425in | 10.5mm .413in | 3mm .1in | 5mm .2in | 58mm 2.283in | 50mm 1.969in | 21mm .827in | 37mm 1.457in | M5 x 25 |
| DT1111 | 11.00-11.99mm .433-.472in | .41mm .016in | 8mm .315in | 44.5mm 1.752in | | | | | | | | | |
| DT1212 | 12.00-12.99mm .472-.511in | .46mm .018in | 8.5mm .335in | 45.5mm 1.791in | 87mm 3.425in | 12mm .472in | 4mm .2in | 5mm .2in | 59mm 2.323in | 52mm 2.047in | 21mm .827in | 38mm 1.496in | M6 x 35 |
| DT1313 | 13.00-13.99mm .512-.551in | .51mm .020in | 9mm .354in | 46.5mm 1.831in | | | | | | | | | |
| DT1414 | 14.00-14.99mm .551-.590in | .56mm .022in | 9.5mm .374in | 47mm 1.850in | 87mm 3.425in | 14mm .551in | 5mm .2in | 5mm .2in | 60mm 2.362in | 54mm 2.126in | 21mm .827in | 41mm 1.614in | M5x25 |
| DT1515 | 15.00-15.99mm .591-.630in | .61mm .024in | 10mm .394in | 47.5mm 1.870in | | | | | | | | | |
| DT1616 | 16.00-16.99mm .630-.669in | .66mm .026in | 10.5mm .413in | 48mm 1.890in | 87mm 3.425in | 15.5mm .610in | 6mm .2in | 5mm .2in | 62mm 2.441in | 56mm 2.205in | 21mm .827in | 43mm 1.693in | M5x25 |
| DT1717 | 17.00-17.99mm .669-.708in | .71mm .028in | 11mm .433in | 48.5mm 1.909in | | | | | | | | | |
| DT1819 | 18.00-19.99mm .709-.787in | .82mm .032in | 12mm .472in | 50mm 1.969in | 99mm 3.898in | 18mm .709in | 8mm .3in | 6mm .2in | 61mm 2.402in | 63mm 2.480in | 24mm .945in | 49mm 1.929in | M6x30 |
| DT2021 | 20.00-21.99mm .787-.866in | .92mm .036in | 12.5mm .492in | 55mm 2.165in | | | | | | | | | |
| DT2224 | 22.00-24.99mm .866-.984in | 1.04mm .041in | 13mm .512in | 59mm 2.323in | 109mm 4.291in | 22mm .866in | 10mm .4in | 6mm .2in | 64mm 2.520in | 69mm 2.717in | 24mm .945in | 55mm 2.165in | M6x30 |
| DT2527 | 25.00-27.99mm .984-1.102in | 1.20mm .047in | 15mm .591in | 66.5mm 2.618in | | | | | | | | | |
| DT2830 | 28.00-30.99mm 1.102-1.220in | 1.36mm .053in | 18mm .709in | 71mm 2.795in | 129mm 5.079in | 28mm 1.102in | 12mm .5in | 6mm .2in | 60mm 2.362in | 77mm 3.031in | 26mm 1.024in | 63mm 2.480in | M6x30 |
| DT3133 | 31.00-33.99mm 1.220-1.338in | 1.50mm .059in | 21mm .827in | 78mm 3.071in | | | | | | | | | |
| DT3436 | 34.00-36.99mm 1.339-1.456in | 1.73mm .068in | 22mm .866in | 79mm 3.110in | 139mm 5.472in | 34mm 1.339in | 14mm .6in | 6mm .2in | 64mm 2.520in | 93mm 3.661in | 27mm 1.063in | 75mm 2.953in | M8x30 |
| DT3739 | 37.00-39.99mm 1.457-1.574in | 1.88mm .074in | 24mm .945in | 85mm 3.346in | | | | | | | | | |
| DT4042 | 40.00-42.99mm 1.575-1.693in | 2.06mm .081in | 25mm .984in | 86mm 3.386in | 151mm 5.945in | 39mm 1.535in | 17mm .7in | 6mm .2in | 65mm 2.559in | 101mm 3.976in | 32mm 1.260in | 83mm 3.268in | M8x35 |
| DT4345 | 43.00-45.99mm 1.693-1.811in | 2.24mm .088in | 27mm 1.063in | 93mm 3.661in | | | | | | | | | |
| DT4648 | 46.00-48.99mm 1.811-1.929in | 2.42mm .095in | 28mm 1.102in | 94mm 3.701in | 161mm 6.339in | 42mm 1.654in | 20mm .8in | 6mm .2in | 69mm 2.717in | 110mm 4.331in | 32mm 1.260in | 90mm 3.543in | M8x35 |
| DT4951 | 49.00-51.99mm 1.929-2.047in | 2.57mm .101in | 31mm 1.220in | 99mm 3.898in | | | | | | | | | |
| DT5254 | 52.00-54.99mm 2.047-2.165in | 2.77mm .109in | 32mm 1.260in | 100mm 3.937in | 183mm 7.205in | 50mm 1.969in | 22mm .9in | 6mm .2in | 85mm 3.346in | 130mm 5.118in | 39mm 1.535in | 107mm 4.213in | M10x45 |
| DT5557 | 55.00-57.99mm 2.165-2.283in | 2.95mm .116in | 34mm 1.339in | 106mm 4.173in | | | | | | | | | |
| DT5860 | 58.00-60.99mm 2.283-2.401in | 3.10mm .122in | 36mm 1.417in | 111mm 4.370in | | | | | | | | | |

FOR SIZES LARGER THAN 60MM, CONTACT ROEHR DIRECTLY

COLLAPSIBLE CORES DT SERIES CONSTRUCTION

Collapsing Segments

M A-2 **H** 54-57 HRC

- Designed to mechanically collapse when the center pin is withdrawn.
- The fit between the segments is controlled to permit flash-free molding.

Center Pin

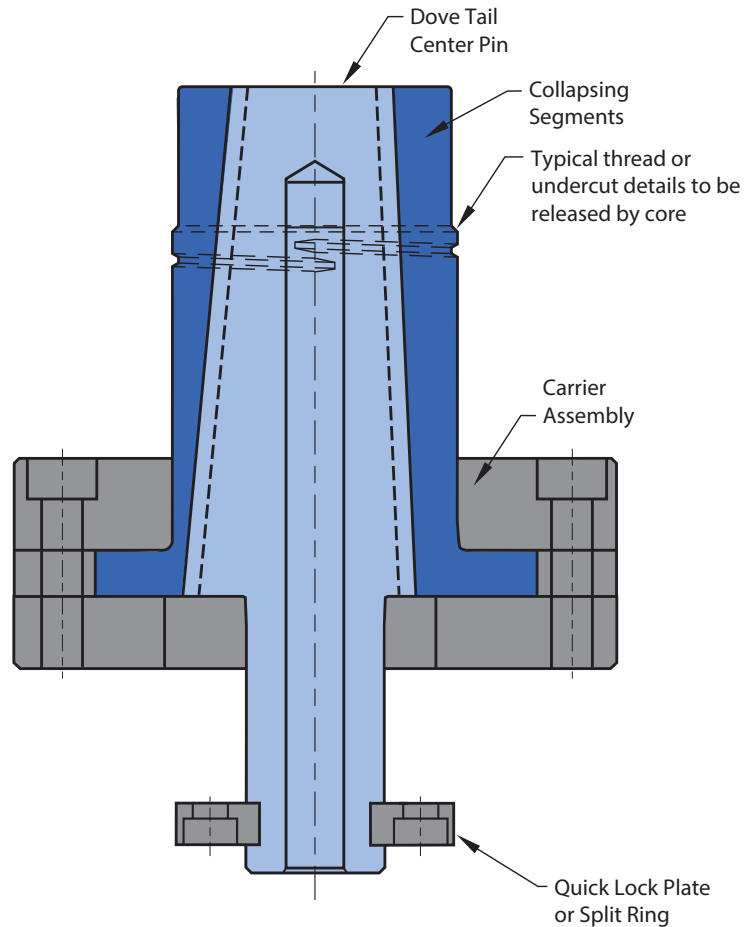
M D-2 **H** 60-62 HRC

- Serves to expand the segments of the core to their molding position
- The pin may be flush to the core face.

Carrier Assembly

M D-2 **H** 60-62 HRC

- Mounts DT Core assembly to the mold carrier plate.
- Provides guided and anti-rotational segment movement.



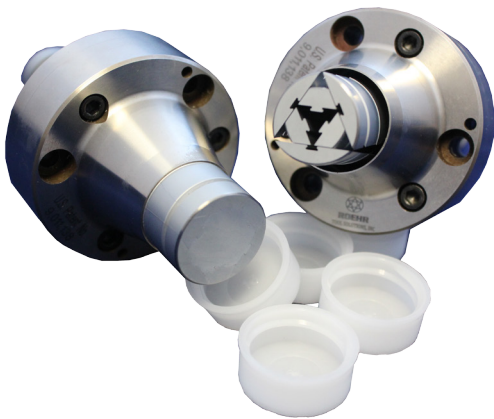
COLLAPSIBLE CORES SETRAL GREASE INFORMATION

Setral is a full synthetic, solid free non-migrating grease for long term lubrication that is used to coat the sliding surfaces between our segments and center pin. Roehr recommends this grease for all DT core applications. MSDS and technical data sheets are available from Roehr Tool.

Ordering Information:

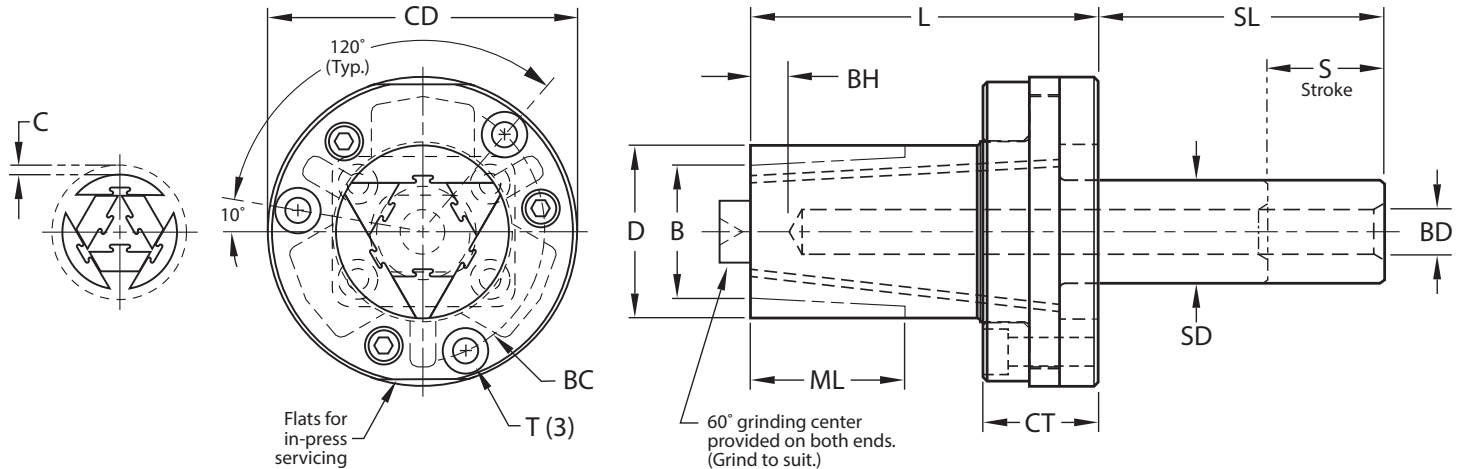
Catalog Number: DTG-100

Description: Setral INT/300 Grease : 100g Tube



COLLAPSIBLE CORES

DT ORIGINAL SERIES



| CATALOG NUMBER | D Maximum Outer Diameter | B Minimum Inner Diameter +3°/Side | ML Maximum Molding Length | C Maximum Collapse | CD Carrier Diameter +0.00 -0.05 | CT Carrier Assembly Thickness ± 0.05 | L Core Length +0.1 -0.0 | SL Shaft Length | SD Shaft Diameter +0.00 -0.02 | BD Cooling Hole Diameter | BH Distance to Cooling Hole | BC Mounting Screw Bolt Circle | T Mounting Screws | S Maximum Collapse Stroke |
|----------------|-----------------------------|---|------------------------------|-----------------------|--|--|----------------------------------|--------------------|--|-----------------------------|--------------------------------|----------------------------------|----------------------|------------------------------|
| DT18 | 21mm .827in | 17mm .669in | 22mm .866in | 1.1mm .043in | 53mm 2.087in | 21mm .827in | 60mm 2.362in | 60mm 2.362in | 16mm .630in | 6mm .236in | 6mm .236in | 40mm 1.575in | M5 x 25 | 34mm 1.339in |
| DT28 | 33mm 1.299in | 25mm .984in | 28mm 1.102in | 1.6mm .063in | 60mm 2.362in | 22mm .866in | 67mm 2.638in | 60mm 2.362in | 20mm .787in | 8mm .315in | 8mm .315in | 47mm 1.850in | M5 x 25 | 38mm 1.496in |
| DT38 | 42mm 1.654in | 33mm 1.299in | 43mm 1.693in | 2.1mm .083in | 76mm 2.992in | 28mm 1.102in | 85mm 3.346in | 60mm 2.362in | 25mm .984in | 10mm .394in | 10mm .394in | 60mm 2.362in | M6 x 35 | 54mm 2.126in |
| DT48 | 54mm 2.126in | 42mm 1.654in | 50mm 1.969in | 2.4mm .094in | 98mm 3.858in | 37mm 1.457in | 104mm 4.094in | 70mm 2.756in | 30mm 1.181in | 12mm .472in | 12mm .472in | 78mm 3.071in | M8 x 40 | 62mm 2.441in |

NOTE: Submit part geometry to information@roehrtool.com for quotes and application review.

COLLAPSIBLE CORES

DT SERIES GRINDING FIXTURES

Grinding Fixtures for DT Collapsible Cores securely hold the core segments in place against the center pin when grinding, high speed machining or EDM'ing details.

M A-2 **H** 54-57 HRC



Although normally Roehr would provide cores with finished molding details, grinding fixtures allow customers to machine their own details.

| CATALOG NUMBER | CORE SIZE |
|----------------|-----------|
| DTGF1011 | DT1011 |
| DTGF1213 | DT1213 |
| DTGF1415 | DT1415 |
| DTGF1617 | DT1617 |
| DTGF1821 | DT1821 |
| DTGF2227 | DT2227 |
| DTGF2833 | DT2833 |
| DTGF3439 | DT3439 |
| DTGF4045 | DT4045 |
| DTGF4651 | DT4651 |
| DTGF5260 | DT5260 |
| DTGF18 | DT18 |
| DTGF28 | DT28 |
| DTGF38 | DT38 |
| DTGF48 | DT48 |

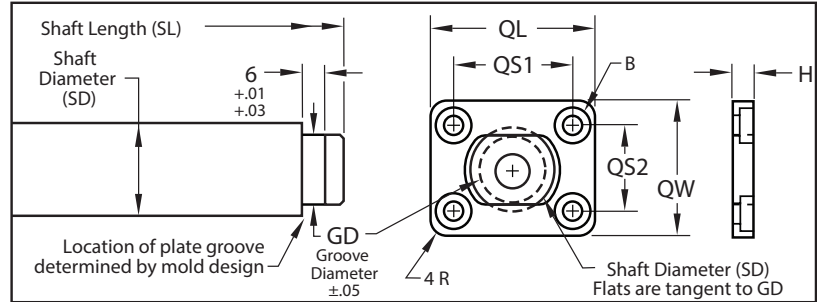
COLLAPSIBLE CORES

DT SERIES QUICK LOCK PLATE (OPTIONAL)

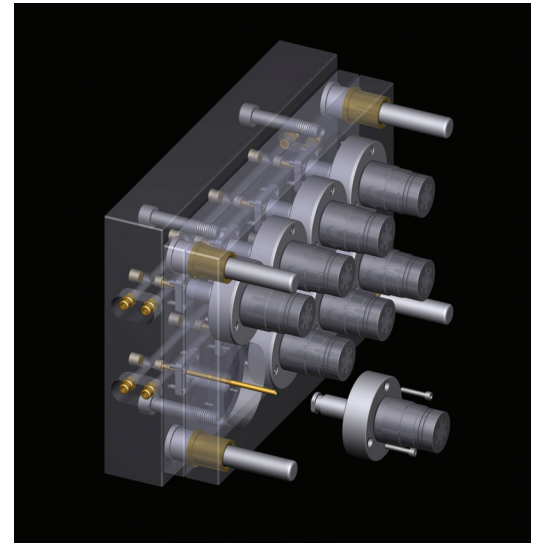
Quick Lock Feature

Plate Material: A-2, 54-57 HRC

Utilizing Roehr's exclusive Quick Lock mounting configuration, the DT Core can be removed and serviced while the mold remains in the press. This feature allows for a higher cavitation percentage and lower maintenance costs than other tool design approaches.

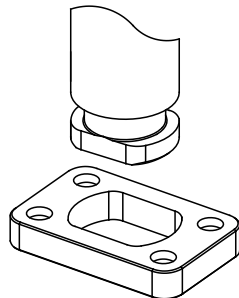


| DOVE TAIL CATALOG NUMBER | GD | QL +0.00 -0.05 | QW +0.00 -0.05 | QS1 | QS2 | H | B MOUNTING SCREWS |
|-----------------------------------|--------------------|----------------------|----------------------|--------------------|--------------------|-----------------|-------------------------|
| DT1011 | 7.43mm .93in | 26.01mm 1.024in | 18.01mm .709in | 17.50mm .689in | 9.50mm .374in | 4mm .1575in | M3 LHCS |
| DT1213 | 9.02mm .355in | 27.99mm 1.102in | 18.01mm .709in | 19.51mm .768in | 9.50mm .374in | 4mm .1575in | M3 LHCS |
| DT1415 | 9.81mm .386in | 30mm 1.181in | 19.99mm .787in | 21.49mm .846in | 11.51mm .453in | 5mm .1969in | M3 SHCS |
| DT1617 | 10.60mm .417in | 32mm 1.260in | 22mm .866in | 23.50mm .925in | 13.49mm .531in | 5mm .1969in | M3 SHCS |
| DT1821 | 12.99mm .511in | 35mm 1.378in | 24.99mm .984in | 24.99mm .984in | 15.01mm .591in | 6mm .2362in | M4 SHCS |
| DT2227 | 16.16mm .636in | 38mm 1.496in | 27.99mm 1.102in | 27.99mm 1.102in | 18.01mm .709in | 6mm .2362in | M4 SHCS |
| DT2833 | 21.72mm .855in | 43.99mm 1.732in | 32mm 1.260in | 34.01mm 1.339in | 22mm .866in | 6mm .2362in | M4 SHCS |
| DT3439 | 25.69mm 1.011in | 51.99mm 2.047in | 40.01mm 1.575in | 40.01mm 1.575in | 27.99mm 1.102in | 8mm .3150in | M5 SHCS |
| DT4045 | 30.45mm 1.199in | 56.01mm 2.205in | 43.99mm 1.732in | 43.99mm 1.732in | 32mm 1.260in | 8mm .3150in | M5 SHCS |
| DT4651 | 34.42mm 1.355in | 57.99mm 2.283in | 46mm 1.811in | 46mm 1.811in | 34.01mm 1.339in | 8mm .3150in | M5 SHCS |
| DT5260 | 39.18mm 1.543in | 65.99mm 2.598in | 54mm 2.126in | 53.01mm 2.087in | 41mm 1.614in | 10mm .3937in | M6 SHCS |
| DT18 | 12mm .472in | 35mm 1.378in | 22mm .866in | 25mm .984in | 12mm .472in | 6mm .236in | M4 SHCS |
| DT28 | 15mm .591in | 38mm 1.496in | 25mm .984in | 28mm 1.102in | 15mm .591in | 6mm .236in | M4 SHCS |
| DT38 | 19mm .748in | 41mm 1.614in | 31mm 1.220in | 30mm 1.181in | 20mm .787in | 6mm .236in | M4 SHCS |
| DT48 | 23mm .906in | 44mm 1.732in | 35mm 1.378in | 34mm 1.339in | 25mm .984in | 6mm .236in | M4 SHCS |

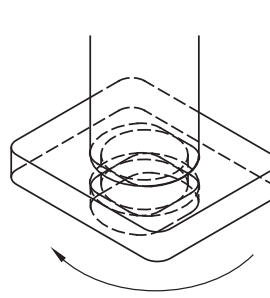


US PATENT NUMBER: 8,033,810

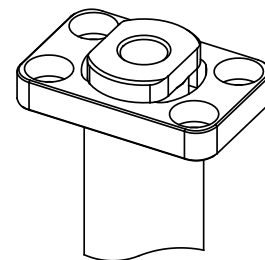
Align and push end of Center Pin through Quick Lock Plate.



Rotate Center Pin clockwise 90° to lock into place.



Bottom view of Center Pin and Quick Lock Plate in locked position.



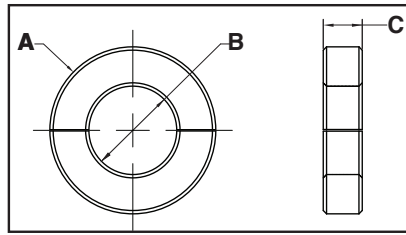
COLLAPSIBLE CORES

DT SERIES SPLIT RING

M A-2 H 54-57 HRC

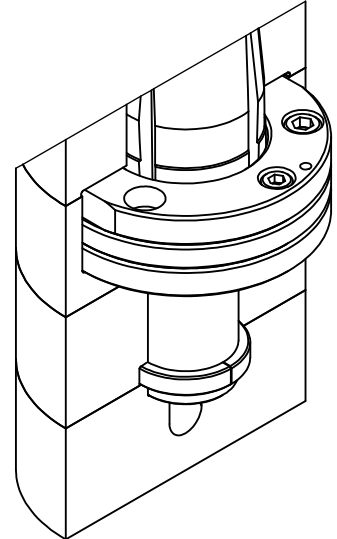
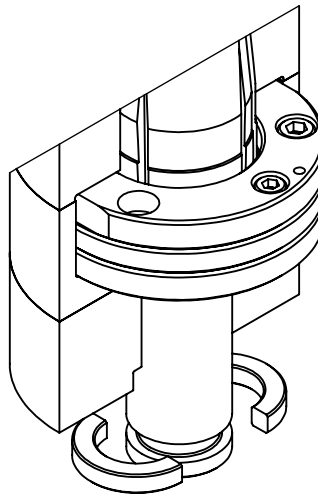
Utilizing Roehr's split ring allows for a simpler attachment method.

| CATALOG NUMBER | A Outer Diameter | B Inner Diameter | C THICKNESS |
|----------------|---------------------|---------------------|------------------|
| DTSR1011 | 16mm .63in | 7.95mm .313in | 3.99mm .157in |
| DTSR1213 | 17.53mm .69in | 9.53mm .375in | 3.99mm .157in |
| DTSR1415 | 20.32mm .80in | 10.31mm .406in | 5mm .197in |
| DTSR1617 | 21.08mm .83in | 11.13mm .438in | 5mm .197in |
| DTSR1821 | 25.40mm 1.00in | 13.49mm .531in | 5.99mm .236in |
| DTSR2227 | 28.70mm 1.13in | 16.66mm .656in | 5.99mm .236in |
| DTSR2833 | 34.29mm 1.35in | 22.23mm .875in | 5.99mm .236in |
| DTSR3439 | 42.16mm 1.66in | 26.19mm 1.031in | 8mm .315in |
| DTSR4045 | 46.99mm 1.85in | 30.96mm 1.219in | 8mm .315in |
| DTSR4651 | 50.80mm 2.00in | 34.93mm 1.375in | 8mm .315in |
| DTSR5260 | 59.69mm 2.35in | 39.70mm 1.563in | 9.98mm .393in |
| DTSR18 | 24.89mm .98in | 12.70mm .500in | 6.35mm .250in |
| DTSR28 | 27.94mm 1.10in | 15.88mm .625in | 6.35mm .250in |
| DTSR38 | 34.80mm 1.37in | 20.62mm .812in | 6.35mm .250in |
| DTSR48 | 37.59mm 1.48in | 25.40mm 1.000in | 6.35mm .250in |



Assemble Core into Mold.
Then collapse core to install
split ring

Push Center pin forward to
molding position and install
back plate

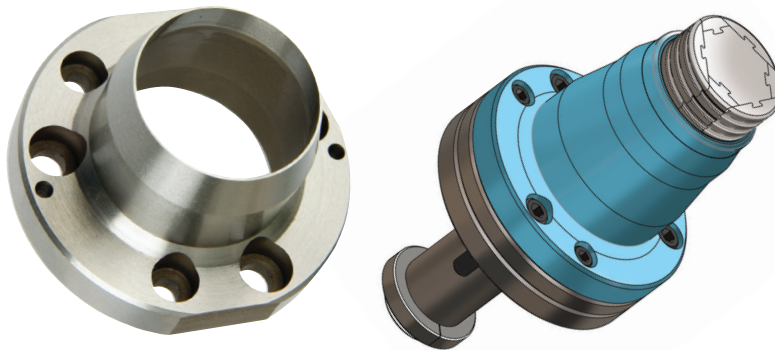


COLLAPSIBLE CORES DT SERIES RETENTION SLEEVE (OPTIONAL)

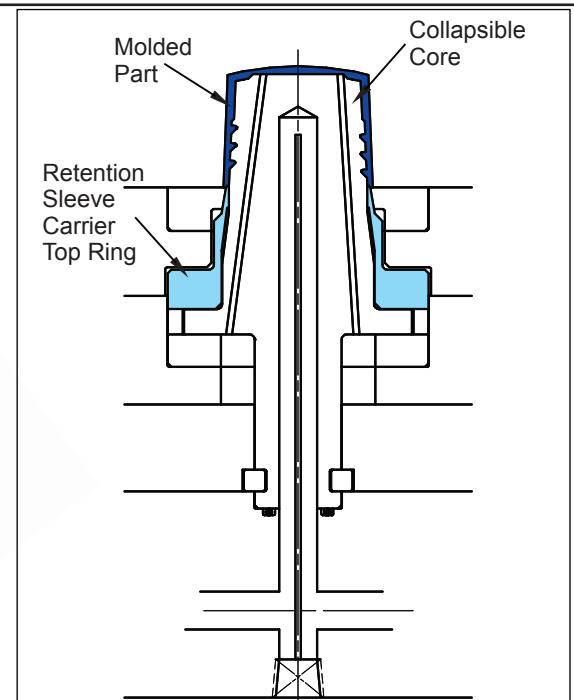
M D-2 H 60-62 HRC

Retention Sleeves for DoveTail Collapsible Cores assure the position of the molded part during core collapse and part ejection.

E-mail information@roehrtool.com for more information.



US PATENT NUMBER: 9,011,138



COLLAPSIBLE CORES

SUB-10 DT CORE SERIES

The Sub-10 DT Cores make it possible to release very small threads and undercuts in molded caps, connectors and small medical parts.

- Allows molding of parts with 7-10mm ID.
- Simpler alternative to unscrewing molds.
- Reduces cycle time and maintenance requirements.

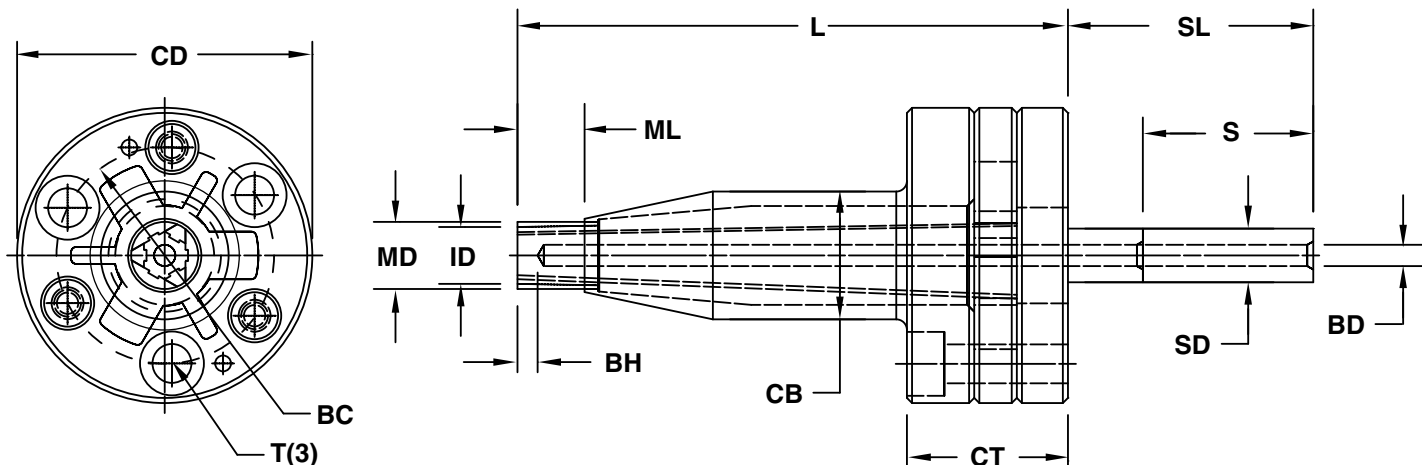
Application Guidelines:

- Maximum undercut depth is determined by final molding diameter from application review.
- Collapse stroke is determined by undercut depth from application review.
- Cores are supplied complete with machined molding details.



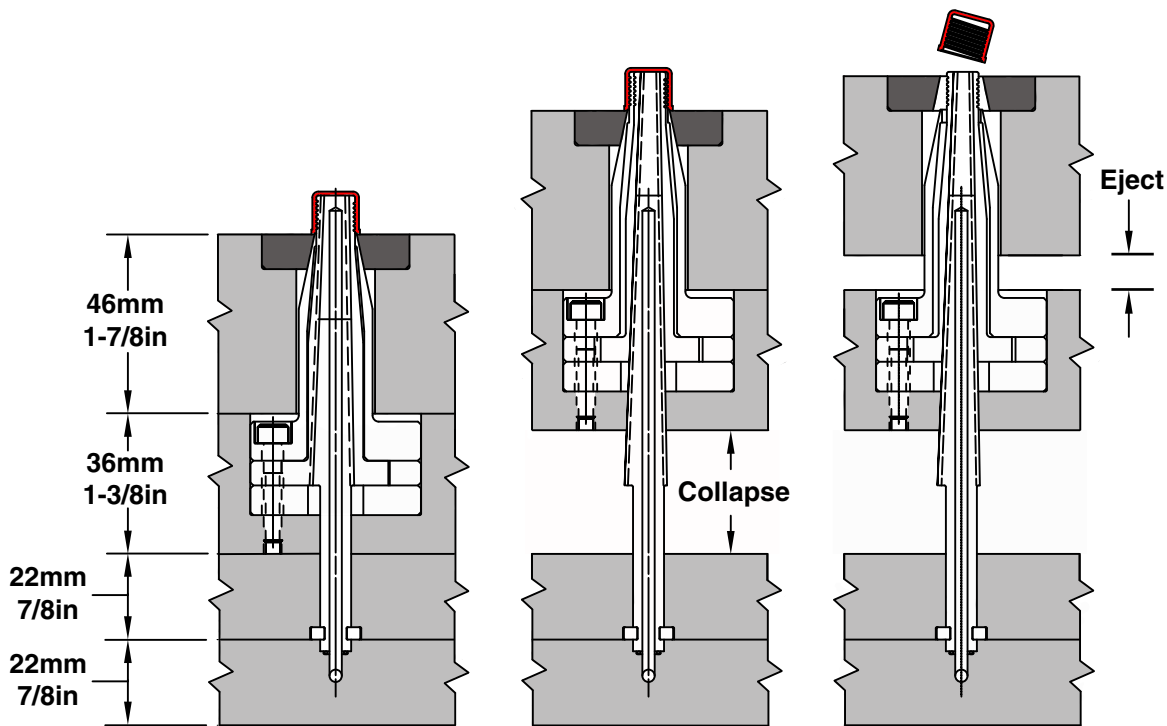
COLLAPSIBLE CORES

SUB-10 DT CORE SERIES



| CATALOG NUMBER | MD Maximum Molding Diameter | ID Minimum Molding Diameter | ML Maximum Molding Length | UC Maximum Undercut | CD Carrier Assembly Diameter | CB Carrier Assembly Body | CT Carrier Assembly Thickness | L Length | SL Shaft Length | SD Shaft Diameter | S Maximum Collapse Stroke | BD Cooling Hole Diameter | BH Cooling Hole Height | BC Mounting Bolt Circle | T Mounting Bolt (3) |
|----------------|--------------------------------|--------------------------------|------------------------------|------------------------|---------------------------------|-----------------------------|----------------------------------|-----------------|--------------------|----------------------|------------------------------|-----------------------------|---------------------------|----------------------------|------------------------|
| SUB-10 | 10mm .394in | 7mm .276in | 10mm .394in | .38mm .015in | 44mm 1.732in | 19mm .748in | 24mm .945in | 82mm 3.228in | 36mm 1.417in | 8mm .315in | 50mm 1.969in | 3mm .118in | 3mm .118in | 32mm 1.260in | M5x25 |

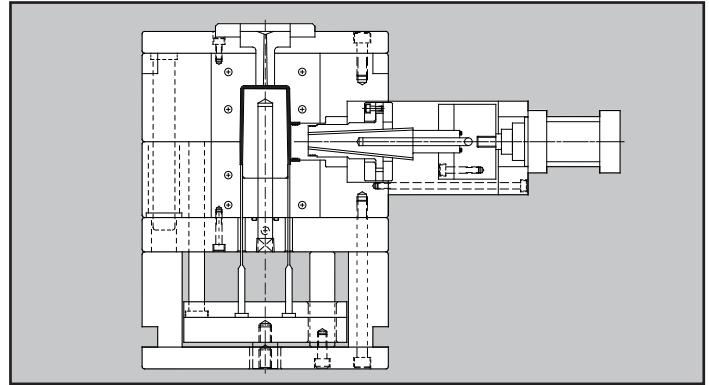
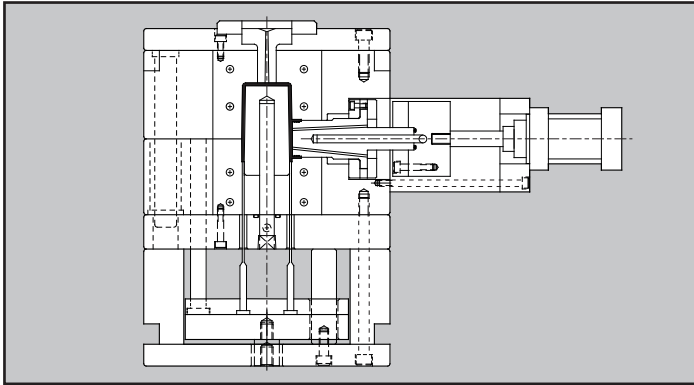
NOTE: Submit part geometry to information@roehrtool.com for quotes and application review.



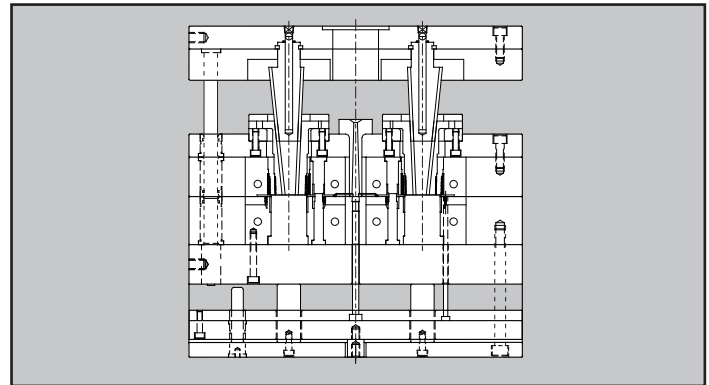
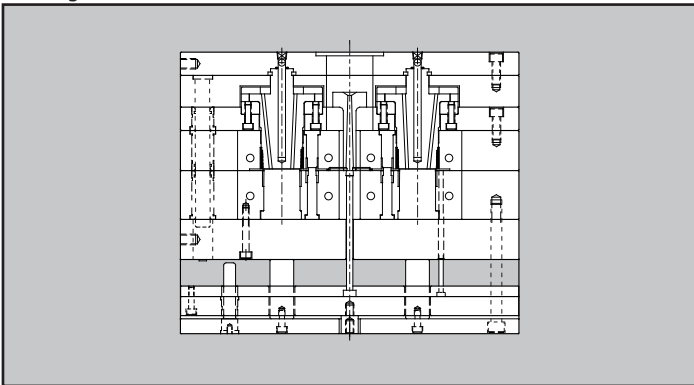
COLLAPSIBLE CORES

DT SERIES APPLICATIONS

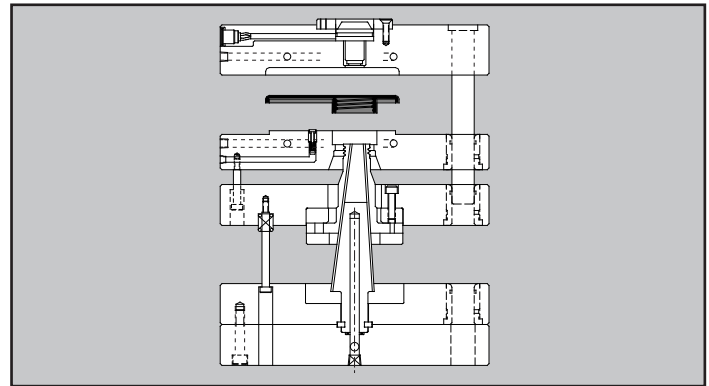
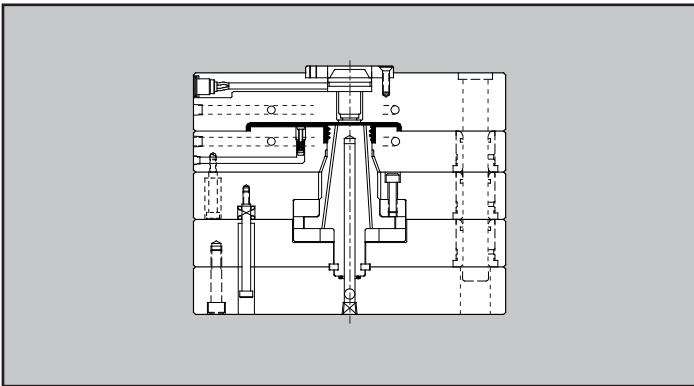
Side Action



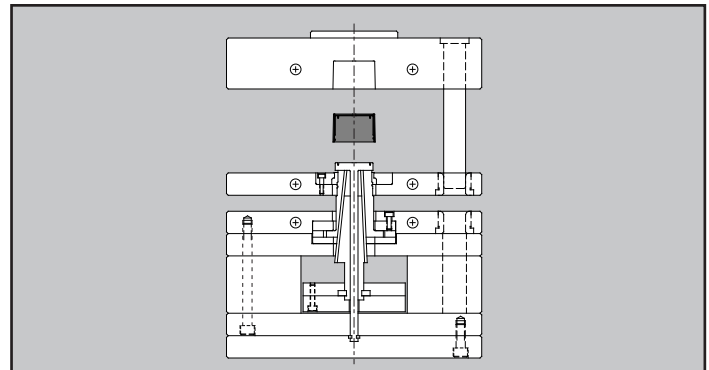
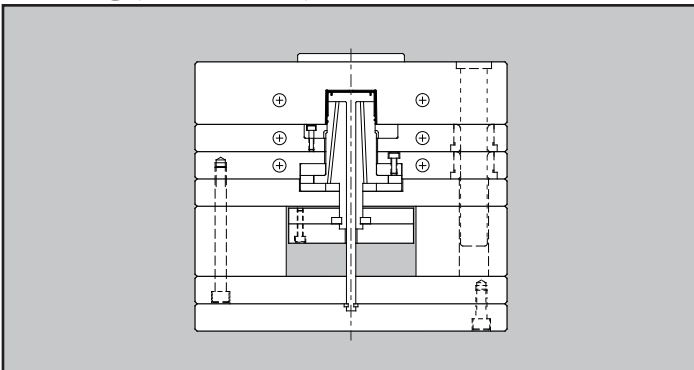
Cavity Side



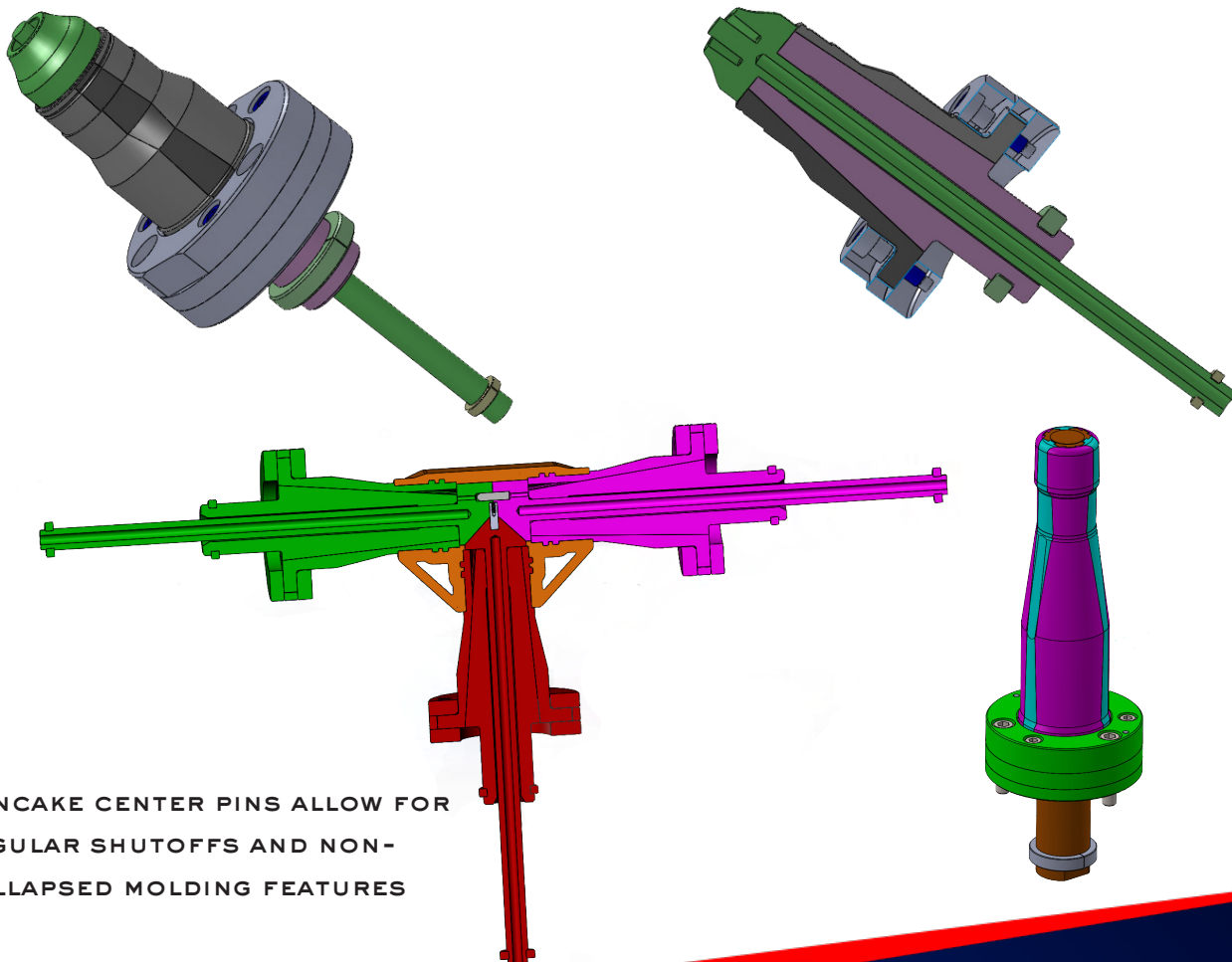
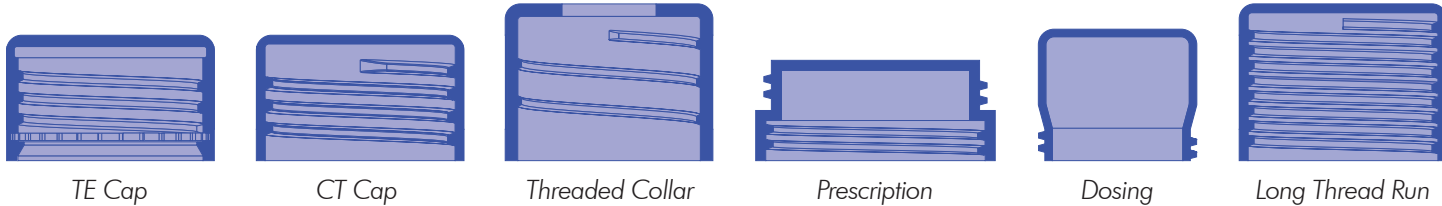
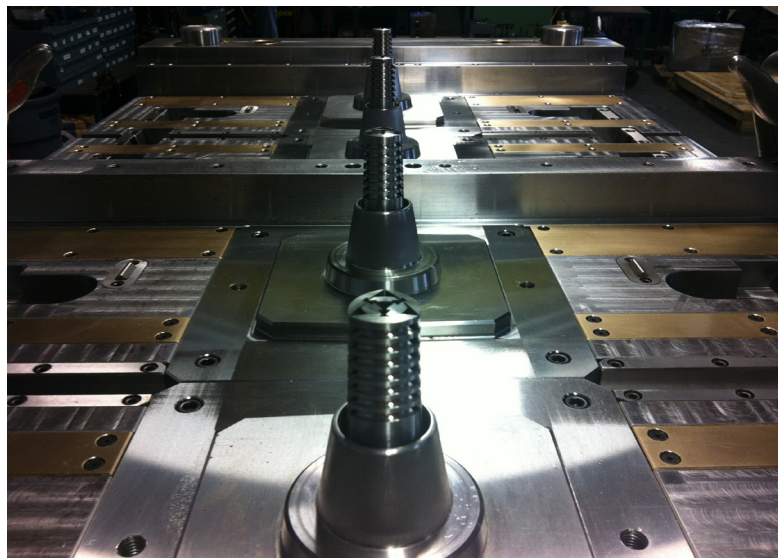
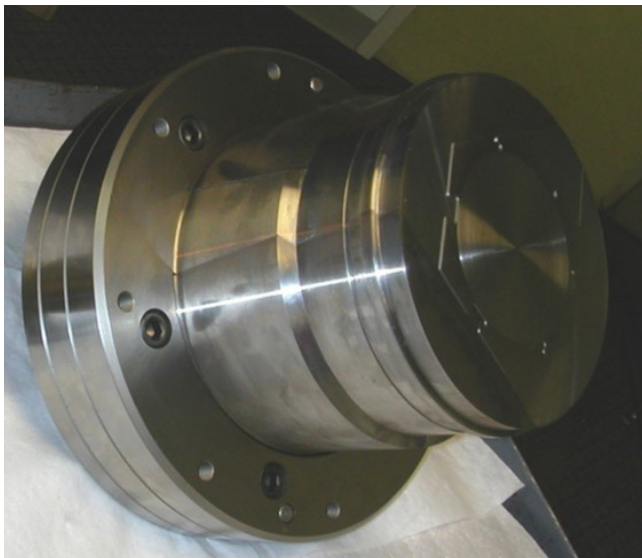
Boss Detail



Seal Ring (Pancake Pin)



COLLAPSIBLE CORES DT SERIES CUSTOM APPLICATIONS



PANCAKE CENTER PINS ALLOW FOR ANGULAR SHUTOFFS AND NON-COLLAPSED MOLDING FEATURES

COLLAPSIBLE CORES

RT SERIES

The RT Series Collapsible Cores (RT) are available in sizes to fit most inside detail applications. Whether molding threads or complex details, these cores can simplify design and production. Collapsible Cores allow for smaller molds to run faster cycles with less moving parts.

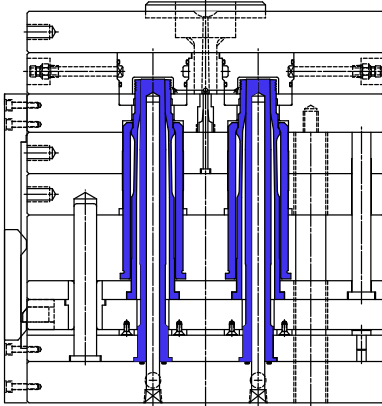
Standard diameters range from 13mm to 105mm.

Made from premium tool steels and heat treated using proprietary heat treating methods.



1

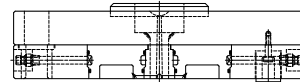
Mold Closed



2

Mold Open

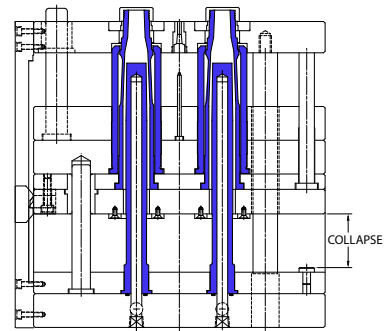
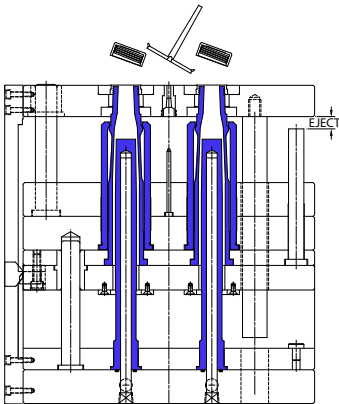
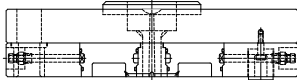
Ejector plate and stripper plate move forward, and the Collapsible Core is collapsed.



3

Part Ejected

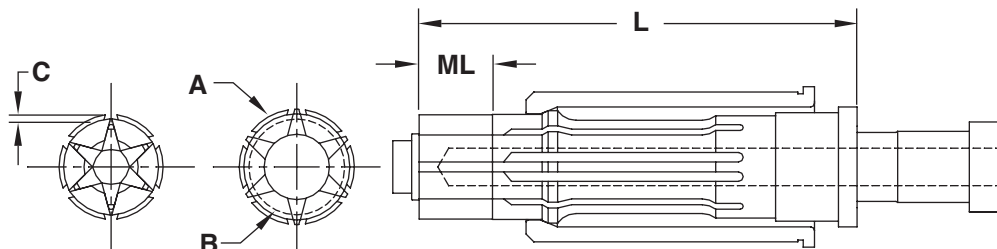
Machine pushes the stripper plate forward, ejecting the molded part.



Roehr Tool can provide Collapsible Cores with details machined complete. Contact an engineer at information@roehrtool.com for an application review and quotation.

COLLAPSIBLE CORES

RT SERIES



| CATALOG NUMBER | A Maximum Outer Diameter | | B Minimum Inner Diameter | | Center Pin Diameter (At top of Collapsible Core) | | ML Max. Molded Length (Including Mold Shut-Off) | | C Collapse per Side at Top of Core** (Range Shown) | | | | L Length of Collapsible Core | |
|----------------|-----------------------------|--------|-----------------------------|-------|---|-------|---|-------|---|------|------|------|---------------------------------|--------|
| | Inch | mm | Inch | mm | Inch | mm | Inch | mm | Inch | mm | Inch | mm | Inch | mm |
| CC-125-PC | .720 | 18.29 | .620 | 15.75 | .485 | 12.32 | .800 | 20.32 | .027 | .69 | .032 | .81 | 5.605 | 142.37 |
| CC-150-PC | .850 | 21.59 | .700 | 17.78 | .580 | 14.73 | 1.000 | 25.40 | .037 | .94 | .042 | 1.07 | 6.615 | 168.02 |
| CC-175-PC | .970 | 24.64 | .760 | 19.30 | .640 | 16.25 | 1.000 | 25.40 | .043 | 1.09 | .048 | 1.21 | 6.615 | 168.02 |
| CC-200-PC | 1.270 | 32.25 | .910 | 23.11 | .785 | 19.93 | 1.150 | 29.21 | .043 | 1.09 | .048 | 1.21 | 7.315 | 185.80 |
| CC-250-PC | 1.270 | 32.25 | .910 | 23.11 | .785 | 19.93 | 1.150 | 29.21 | .043 | 1.09 | .048 | 1.21 | 5.440 | 138.17 |
| CC-202-PC | 1.390 | 35.30 | 1.010 | 25.65 | .885 | 22.47 | 1.150 | 29.21 | .055 | 1.39 | .064 | 1.62 | 7.315 | 185.80 |
| CC-252-PC | 1.390 | 35.30 | 1.010 | 25.65 | .885 | 22.47 | 1.150 | 29.21 | .055 | 1.39 | .064 | 1.62 | 5.440 | 138.17 |
| CC-302-PC | 1.740 | 44.19 | 1.270 | 32.25 | 1.105 | 28.06 | 1.400 | 35.56 | .068 | 1.72 | .083 | 2.10 | 7.315 | 185.80 |
| CC-352-PC | 1.740 | 44.19 | 1.270 | 32.25 | 1.105 | 28.06 | 1.400 | 35.56 | .068 | 1.72 | .083 | 2.10 | 6.065 | 154.05 |
| CC-402-PC | 2.182 | 55.42 | 1.593 | 40.46 | 1.388 | 35.25 | 1.700 | 43.18 | .090 | 2.28 | .103 | 2.61 | 7.815 | 198.50 |
| CC-502-PC | 2.800 | 71.12 | 2.060 | 52.32 | 1.750 | 44.45 | 1.900 | 48.26 | .115 | 2.92 | .125 | 3.17 | 9.625 | 244.47 |
| CC-602-PC | 3.535 | 89.78 | 2.610 | 66.29 | 2.175 | 55.24 | 2.400 | 60.96 | .140 | 3.55 | .148 | 3.75 | 11.250 | 285.75 |
| CC-652-PC | 3.800 | 96.52 | 2.890 | 73.41 | 2.450 | 62.23 | 2.400 | 60.96 | .150 | 3.81 | .160 | 4.06 | 11.250 | 285.75 |
| CC-702-PC | 4.225 | 107.31 | 3.350 | 85.09 | 2.790 | 70.86 | 2.400 | 60.96 | .165 | 4.19 | .170 | 4.32 | 11.250 | 285.75 |

COLLAPSIBLE CORES

RT SERIES GRINDING RINGS

Grinding Rings for Collapsible Cores securely hold the core segments in place against the center pin when grinding, high speed machining or EDM'ing details.



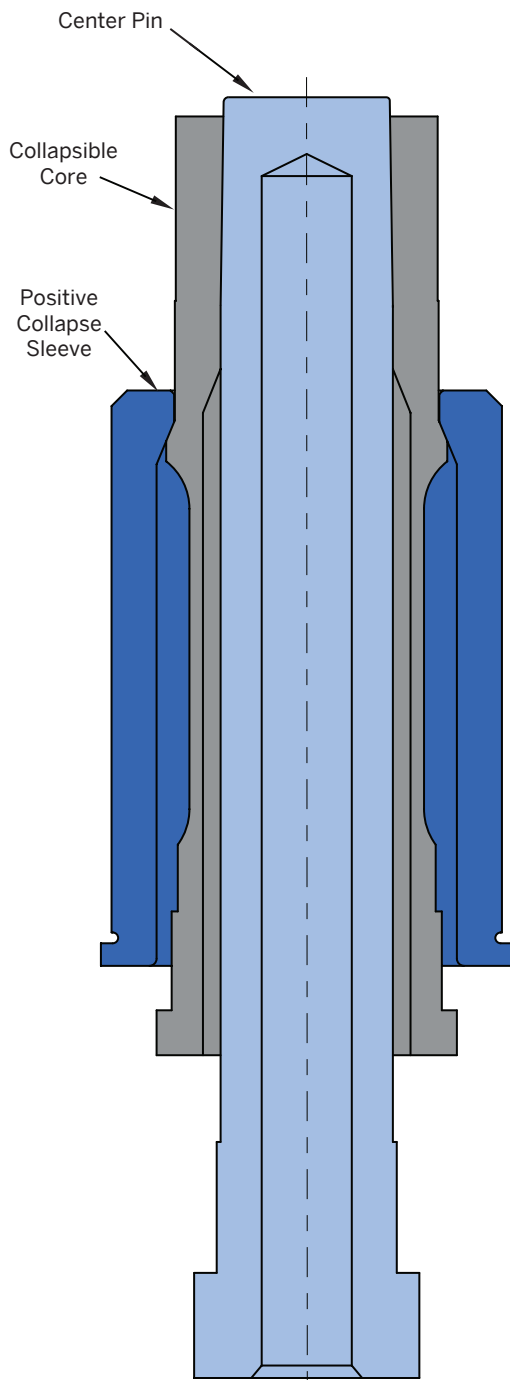
| RT CORE GRINDING RINGS | |
|------------------------|--------------------------|
| CATALOG NUMBER | CORE SIZE (PREFIX CC) |
| RTGR125 | 125 |
| RTGR150 | 150/175 |
| RTGR200 | 175/200/202/250/252 |
| RTGR300 | 302/352 |
| RTGR400 | 402 |
| RTGR500 | 502 |
| RTGR600 | 602 |
| RTGR650 | 652 |
| RTGR700 | 702 |

COLLAPSIBLE CORES

RT & MINICORE® SERIES CONSTRUCTION

Description of Components and Basic Operation

Both styles of the Collapsible Cores (Standard and MiniCores®) are three-part assemblies, designed for simplicity of installation, reliability in operation, and long life. The three parts include a Collapsible Core, a Positive Collapse Sleeve, and a Center Pin.



Collapsible Core

M A-2 **H** 54-57 HRC

- Designed to collapse independently when the center pin is withdrawn.
- The fit between segments is controlled to permit flash-free molding.

Positive Collapse Sleeve

M 52100 **H** 54-57 HRC

- Designed to function if the Collapsible Core should fail to collapse independently. In normal operation, the PC Sleeve is not functioning. It is essential to have such a unit for maximum safety and reliability in automatic and semi-automatic operation.

Center Pin

M D-2 **H** 60-62 HRC

- Serves to expand the segments of the Collapsible Core to their molding position.
- The pin must protrude beyond the face of the collapsing core segments, and it must have a radius around its top edge to operate properly.

Application Guidelines

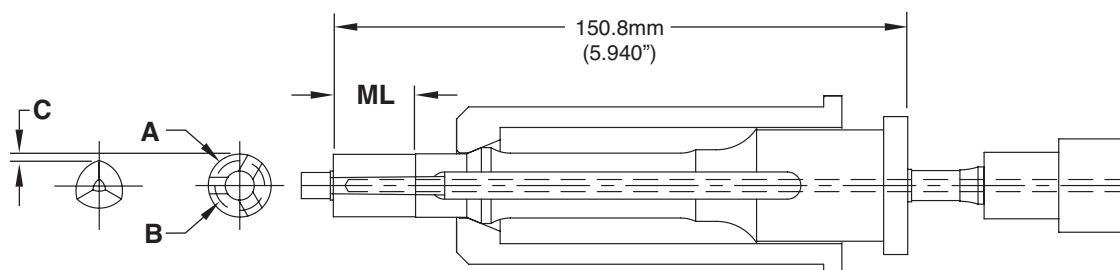
- Standard Collapsible Cores have a Max. OD ("A") of thread or configuration ranging from .720" (18.29mm) - 4.225" (107.31mm) and offer complete 360° thread or undercut geometry.
- MiniCores have a Max. OD of thread or configuration ranging from .645" (16.38mm) - .965" (24.51mm) and offer up to 70% full thread or undercut geometry. (Internal geometry is interrupted in three places to allow core segments to collapse.)
- Molded parts do not need to be closed at one end. They can be partially or completely open. Also, undercuts do not need to be continuous.
- Cores are capable of operating without benefit of lubrication, however, treating the Collapsible Core with an additional treatment for wear reduction or corrosion resistance is beneficial.
- Custom cores with size requirements that fall outside of the standard Collapsible Core and MiniCore ranges are available. In addition, finished cores with machined, EDM'd, or ground details can be supplied. Contact Roehr Tool at information@roehrtool.com for an application review and quotation.

MINICORES

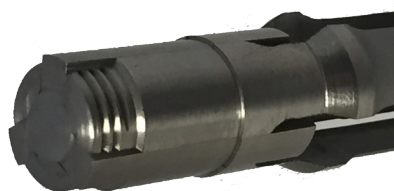
MINICORE® SERIES

Roehr's MiniCores broaden the applications of collapsible core molds to parts as small as 0.425 inches. Due to the smaller diameters involved, these MiniCores employ three larger collapsing segments combined with three narrow, non-collapsing blades which are part of the center pin. As a result, the internal undercut geometry is not 360 degrees around but instead interrupted in three places. The 3-blade design allows for more collapse which means a deeper undercut feature can be released.

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 MiniCores are available with diameters from 0.425 to 0.965 inches.



| CATALOG NUMBER | For Closure Diameter Range | A Maximum Outer Diameter | | B Minimum Inner Diameter | | Center Pin Dia. (At top of Collapsible Core) | | Width of (3) Non-Collapsing Center Pin Blades (At Top of Core) | | ML Max. Molded Length (Including Mold Shut-Off) | | C Collapse per Side at Top of Core | |
|----------------|----------------------------|-----------------------------|-------|-----------------------------|-------|---|-------|--|------|---|-------|--|------|
| | | mm | Inch | mm | Inch | mm | Inch | mm | Inch | mm | Inch | mm | Inch |
| CCM-0001 | 13-16 | .645 | 16.38 | .425 | 10.80 | .300 | 7.62 | .170 | 4.32 | .850 | 21.59 | .052 | 1.32 |
| CCM-0002 | 17-20 | .805 | 20.45 | .560 | 14.22 | .420 | 10.67 | .190 | 4.83 | .850 | 21.59 | .057 | 1.45 |
| CCM-0003 | 21-24 | .965 | 24.51 | .710 | 18.03 | .560 | 14.22 | .200 | 5.08 | 1.000 | 25.40 | .059 | 1.50 |



EXPANDABLE CAVITIES

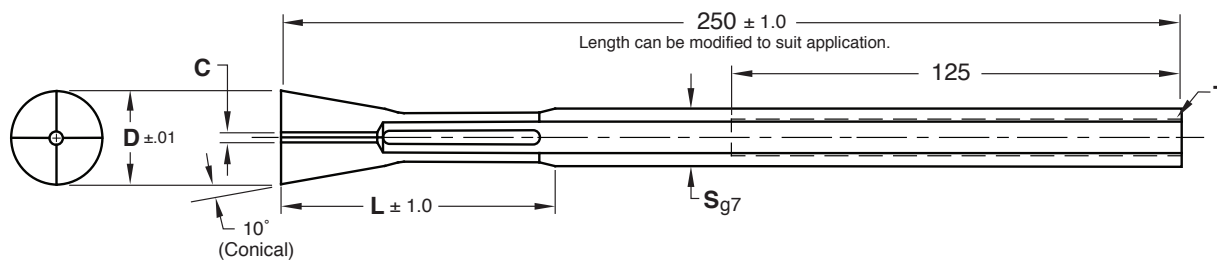
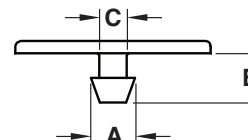
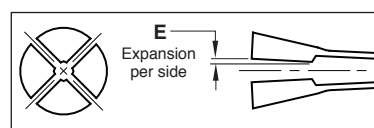
EX-CAV® SYSTEM

Expandable Cavities (Ex-Cavs) mold undercuts such as threads, dimples, and protrusions.

The patented Ex-Cav design eliminates the engineering, maintenance, and machining required for side action mechanisms which results in smaller molds or higher mold cavitation.

Technical Information:

- Four sizes offered to satisfy a wide range of parts.
- The Ex-Cav expands along a conical shape, 10° per side.
- Manufactured from A-2, 54-57 HRC material for repeatable expansion. For optimal performance, the Ex-Cavs should ride against a hardened striker insert which can be manufactured by Roehr or customer supplied.
- Maximum temperature: 260°C / 500° F
- Expandable Cavities generally operate without lubrication.
- Ex-Cavs can be ordered with molding detail for a 'mold ready' component.
- Ex-Cav Fixtures for machining details in house are also available.
- Custom Ex-Cavs are available. Also, when an entire part is formed within the cavity, an A-Series Ex-Cav can be provided.



M A-2 **H** 54-57 HRC

| CATALOG NUMBER | D Ex-Cav Diameter | A Maximum Part Diameter -10° per side | B Maximum Molding Length | C Minimum Part Inner Diameter | E Expansion Per Side | F Min. Wall Thickness | L Expansion Length | S Body Diameter | T Thread | X Minimum Ejection Stroke (Prev. page) |
|----------------|----------------------|---|-----------------------------|----------------------------------|-------------------------|--------------------------|-----------------------|--------------------|-------------|--|
| EXCAV20 | 20mm .787in | 14mm .551in | 13mm .512in | 2.5mm .098in | 1.6mm .063in | 3mm .118in | 59mm 2.323in | 14mm .551in | M8 | 15mm .591in |
| EXCAV26 | 26mm 1.024in | 18mm .709in | 20mm .787in | 3.5mm .138in | 2.5mm .098in | 4mm .157in | 76mm 2.992in | 16mm .630in | M10 | 15mm .591in |
| EXCAV38 | 38mm 1.496in | 30mm 1.181in | 27mm 1.063in | 4mm .157in | 3mm .118in | 4mm .157in | 89mm 3.504in | 27mm 1.063in | M18 | 20mm .787in |
| EXCAV50 | 50mm 1.969in | 40mm 1.575in | 39mm 1.535in | 5.5mm .217in | 3.5mm .138in | 5mm .197in | 101mm 3.976in | 34mm 1.339in | M24 | 20mm .787in |

Custom Ex-Cavs are available for molded parts up to and beyond 500mm.
Ex-Cav sizes outside of this chart are available as customs.

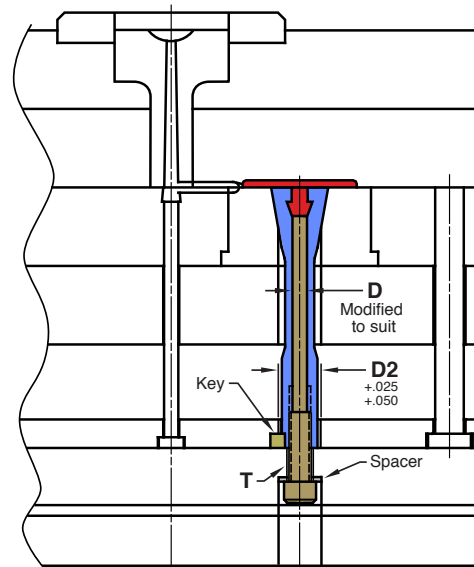
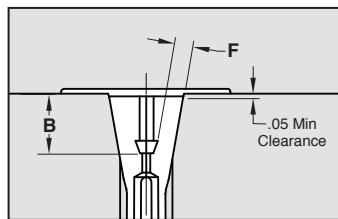
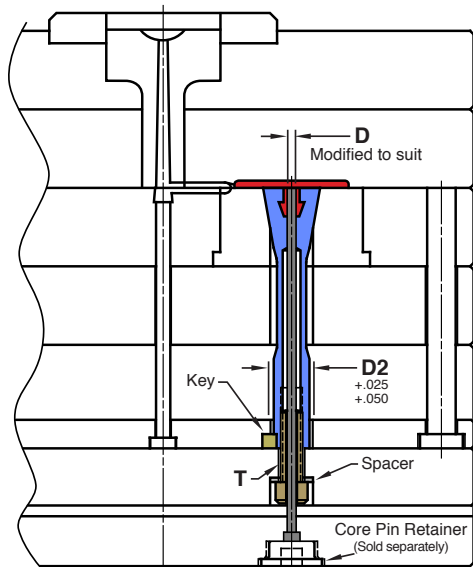
MOUNTING KITS & MACHINING SPECS

Hollow Bolt Mounting Kit Includes:

- Key (7 Thk. x 8 x 40)
- Hollowed Bolt
- Standard DIN H-13 Ejector Pin (400mm Long)
- Spacer

Pin Bolt Mounting Kit Includes:

- Key (7 Thk. x 8 x 40)
- Threaded Bolt/Pin (H-13, 40-44 HRC, 280mm Long)
- Spacer



| EX-CAV NUMBER | D Nominal Pin Diameter | T Bolt Size | Spacer Size (ODxThk) | D2 | HOLLOW BOLT KIT NUMBER |
|---------------|---------------------------|----------------|-------------------------|-----------------|------------------------|
| EXCAV20 | 3.5mm .138in | M8-1.25 x 40 | 22x4mm .866x.157in | 14mm .551in | EXC20BH |
| EXCAV26 | 4mm .157in | M10-1.5 x 40 | 23x4mm .906x.157in | 16mm .630in | EXC26BH |
| EXCAV38 | 10mm .394in | M18-2.5 x 50 | 33x6mm 1.299x.236in | 27mm 1.063in | EXC38BH |
| EXCAV50 | 14mm .551in | M24-3 x 55 | 42x6mm 1.654x.236in | 34mm 1.339in | EXC50BH |

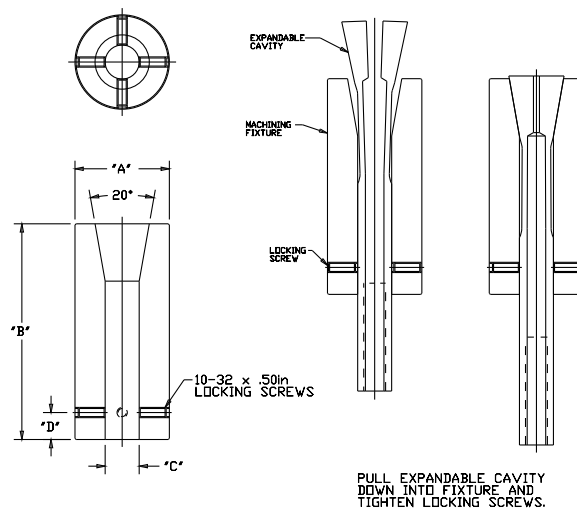
| EX-CAV NUMBER | D Pin Diam. ± .05 | T Bolt Thread | Spacer Size (ODxThk) | D2 | PIN BOLT KIT NUMBER |
|---------------|-------------------------|------------------|-------------------------|-----------------|---------------------|
| EXCAV20 | 6.0mm .236in | M8-1.25 | 22x4mm .866x.157in | 14mm .551in | EXC20BP |
| EXCAV26 | 7.7mm .303in | M10-1.5 | 23x4mm .906x.157in | 16mm .630in | EXC26BP |
| EXCAV38 | 14.5mm .571in | M18-2.5 | 33x6mm 1.299x.236in | 27mm 1.063in | EXC38BP |
| EXCAV50 | 19.8mm .780in | M24-3 | 42x6mm 1.654x.236in | 34mm 1.339in | EXC50BP |

US PATENT NUMBER: 8,038,433

EX-CAV MACHINING FIXTURES

Machining Fixtures for ExCavs securely hold the expanding segments in place when grinding, high speed machining or EDM'ing details.

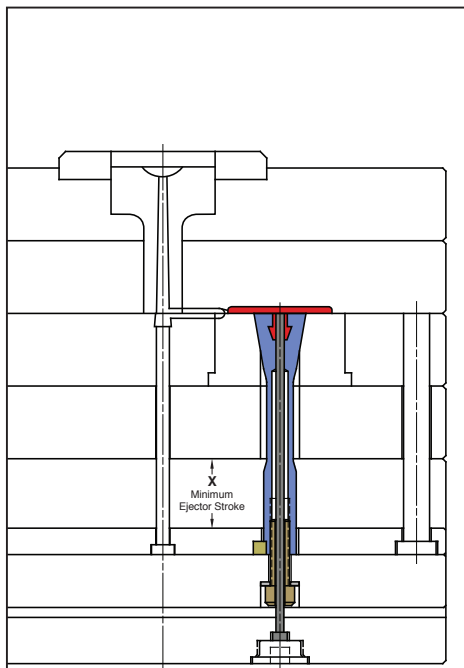
| CATALOG NUMBER | EXCAV SIZE | "A" | "B" | "C" | "D" | Locking Screws |
|----------------|------------|--------------------|---------------------|--------------------|-------------------|----------------|
| EXCMF20 | EXCAV20 | 41.28mm 1.625in | 76.20mm 3.000in | 14.03mm .552in | 12.70mm .500in | 10-32 x .50" |
| EXCMF26 | EXCAV26 | 44.25mm 1.750in | 101.60mm 4.000in | 16.03mm .631in | 12.70mm .500in | 10-32 x .50" |
| EXCMF38 | EXCAV38 | 53.98mm 2.125in | 127.00mm 5.000in | 27.03mm 1.064in | 12.70mm .500in | 10-32 x .50" |
| EXCMF50 | EXCAV50 | 66.68mm 2.625in | 152.40mm 6.000in | 34.03mm 1.340in | 12.70mm .500in | 10-32 x .50" |



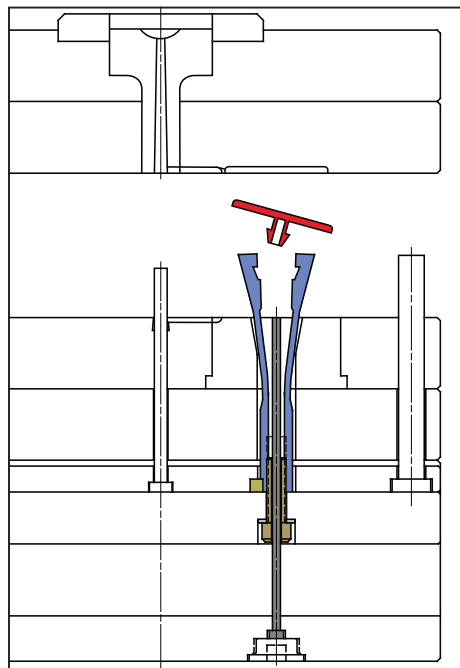
Roehr can also supply Ex-Cavs with fully machined molding details upon request.

EXPANDABLE CAVITIES

EX-CAV[®] SEQUENCE

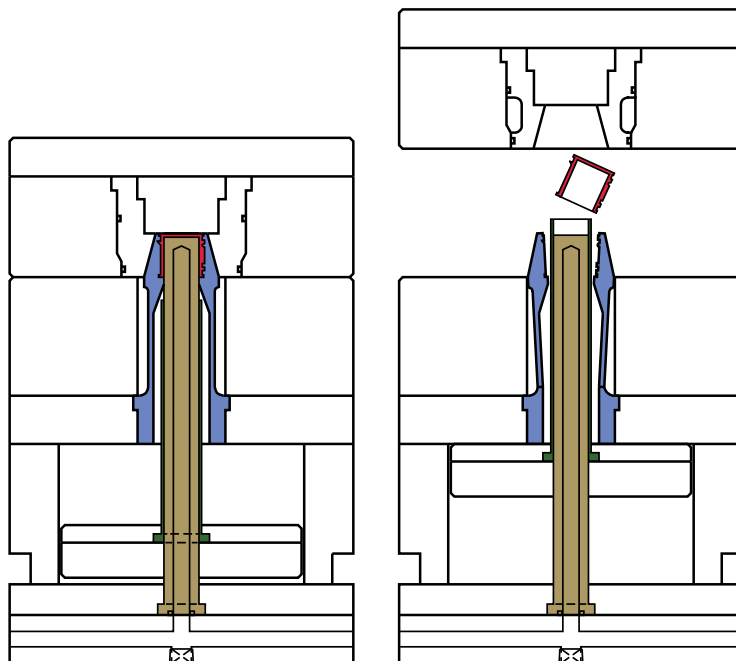


Mold Closed-B Series



Mold Open-B Series

B-Side Expandable Cavities are anchored into the ejector plates and actuated during the machine knock-out sequence. Often times a 2nd ejector plate set is used for final part ejection with an ejector pin or sleeve. Runners may go across the top of the EXCAV and the molded parts edge gated as long as this does not interfere with the EXCAV expansion.



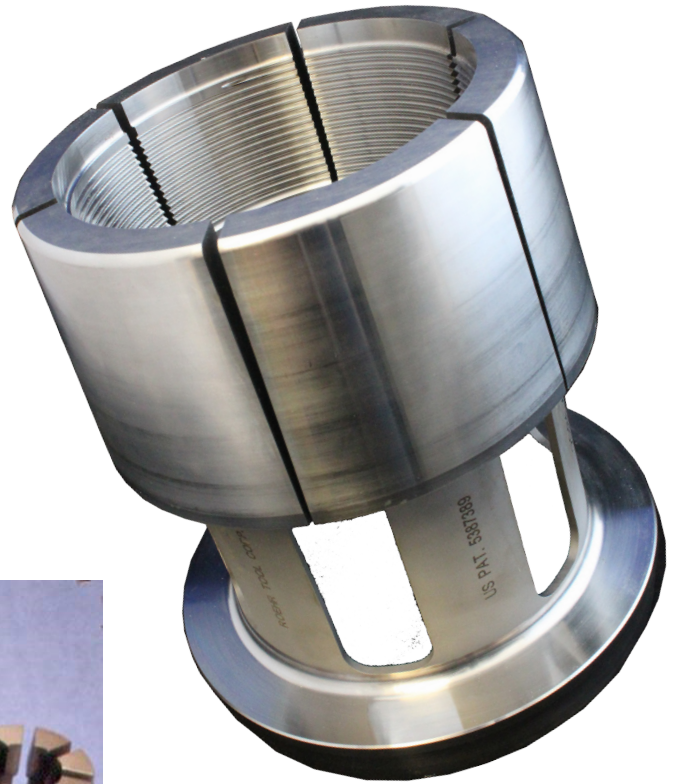
Mold Closed-A Series

Mold Open-A Series

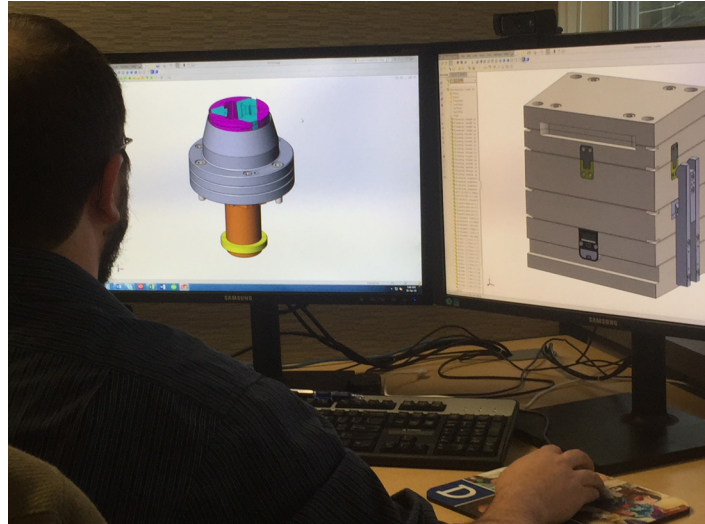
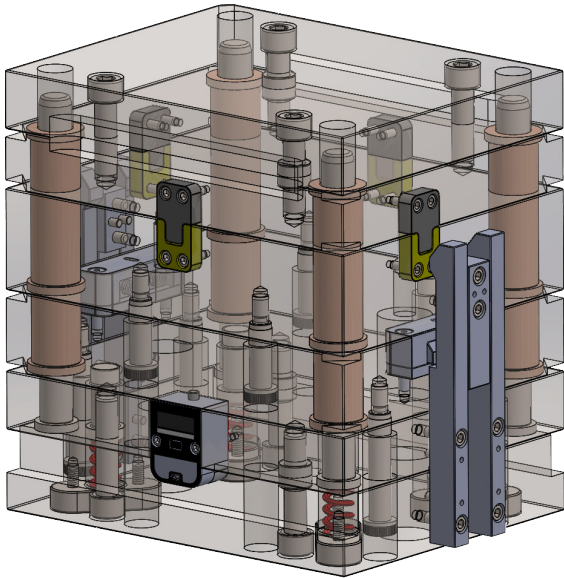
A-Side Expandable Cavities are anchored between the mold "B" plate and support plate and actuated immediately during mold open/close at the main parting line by the cavity insert. The molded parts are then generally ejected with an ejector pin or sleeve. Because there is airspace around the A-Side EXCAV at the parting line, the molded parts must be top gated with a 3-plate cold runner or hot tip.

EXPANDABLE CAVITIES

EX-CAV® CUSTOMS



ENGINEERING SERVICES



All standard Roehr Tool products are supported with 3d models, pre-engineered moldbase specifications and technical data pages. These can be found on our web-site or by calling Roehr Tool directly.

For custom engineered and manufactured product, Roehr Tool will provide all moldbase and installation information required as it relates to our product. This includes 2d and 3d product CAD data, mold base plate thicknesses, sequencing requirements, bore and pocket details etc.

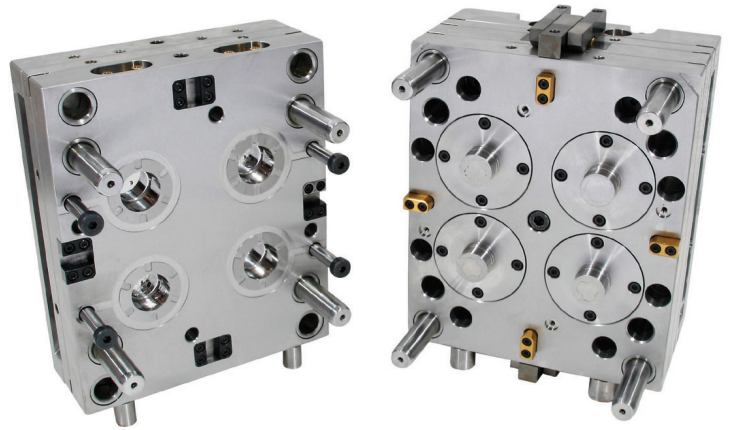
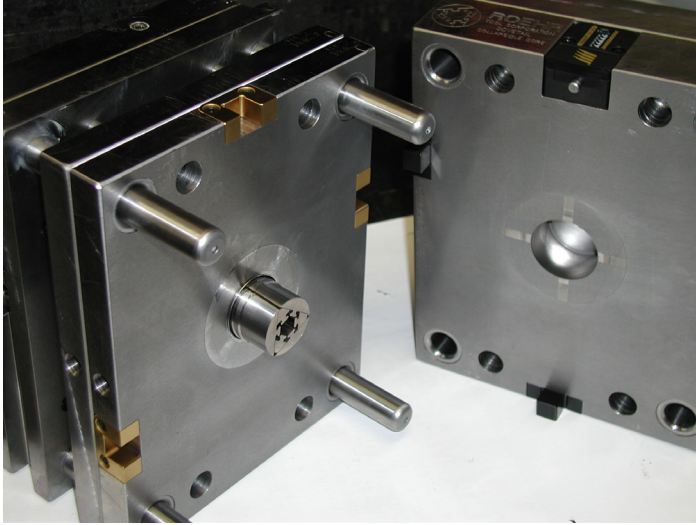
Our goal is to avoid your mold designers wasting time wondering how something is going to fit, function or install into your mold.

Some additional services offered by the Roehr Tool Engineering Team are:

- Molded Product Design Reviews.
- Mold Design Reviews.
- Molded Product Design. (DFM)
- Complete or Partial Mold Designs.
- Virtual and On-Site Maintenance Training.
- Mold Retrofit Designs. (Unscrewing to Collapsible Core)

To whatever extent your engineering requirements are from simple molded part change recommendations to complete mold designs, the Roehr Tool Engineering Team is here to support you all the way, resulting in a successful and profitable experience for you and your customers.

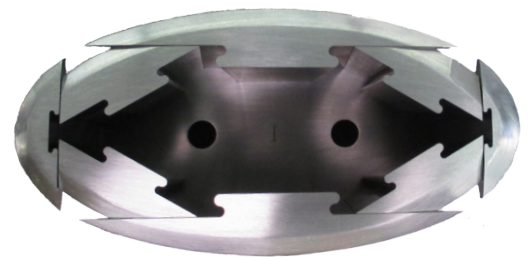
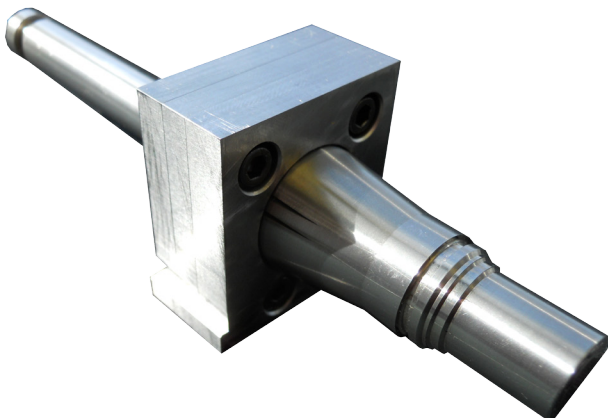
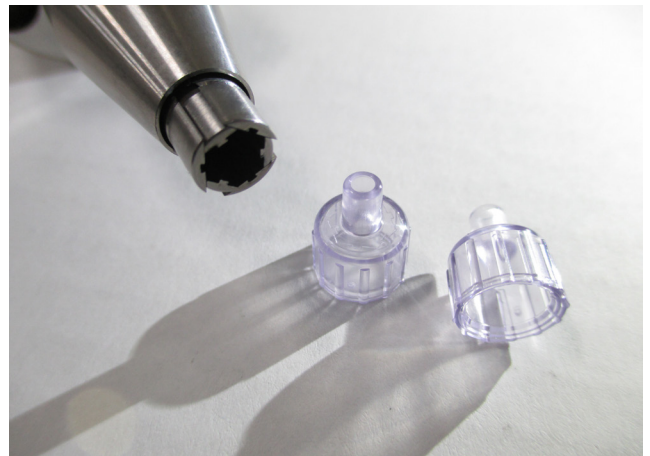
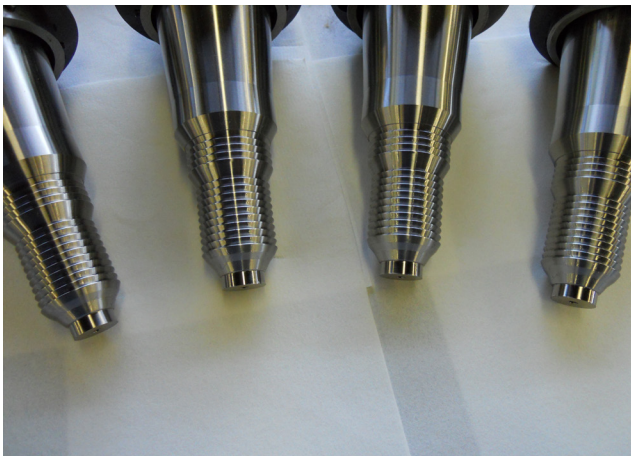
PROTOTYPING AND PRODUCT DEVELOPMENT



Roehr Tool Solutions owns many different mold bases that accept our Collapsible Cores and Expandable Cavities.

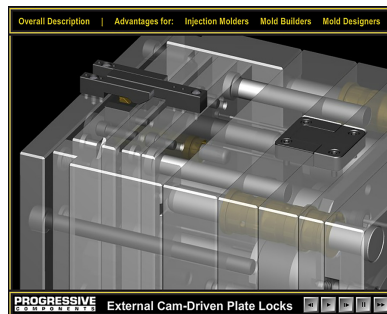
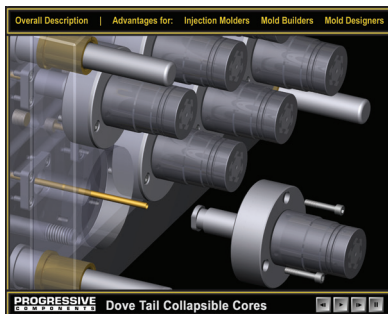
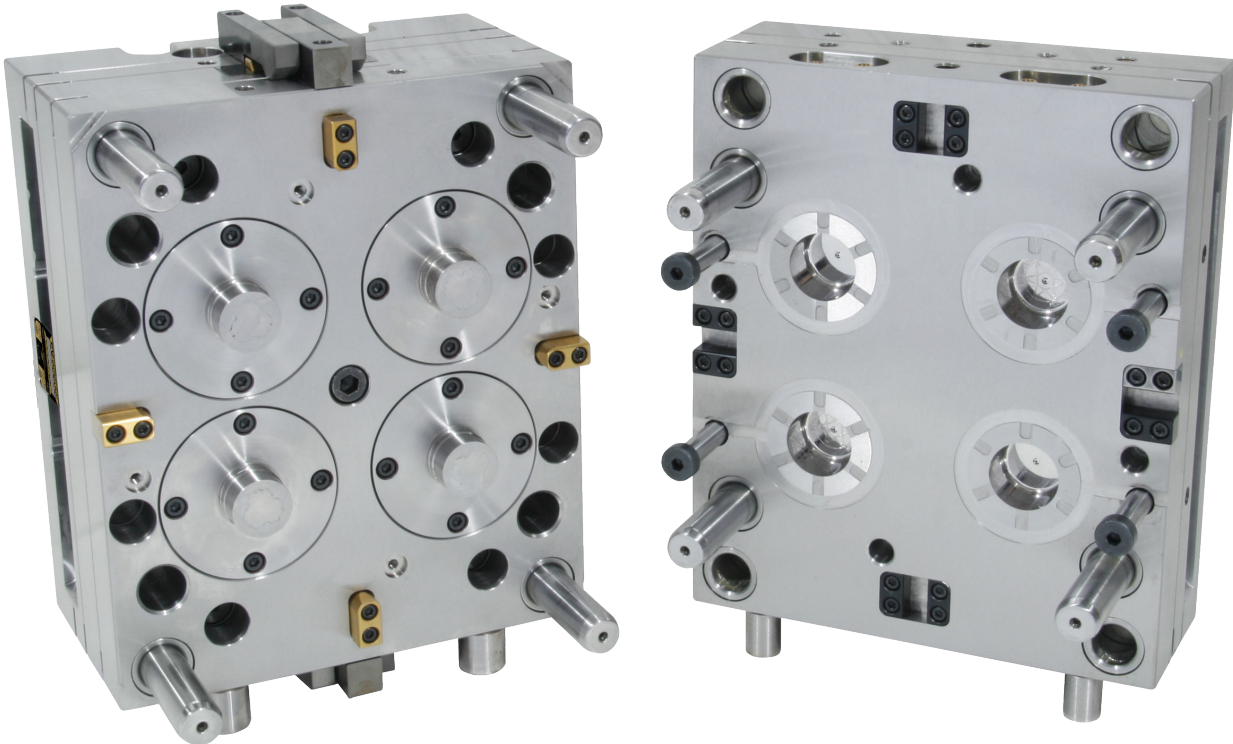
These bases are available for customer use for prototyping or product development generally at a very low or no cost at all depending on project scope. The availability of these bases has allowed some customers to save considerable time and money during the product development period of their programs.

To see if Roehr Tool has a mold base fit for your product development or prototype, contact Roehr Engineering at information@roehrtool.com



Companion Products from **PROGRESSIVE** C O M P O N E N T S

Roehr Tool products are built for long mold life at high productivity. To ensure optimum performance, Roehr recommends the following products from Progressive Components for proper mold alignment, sequence and maintenance.

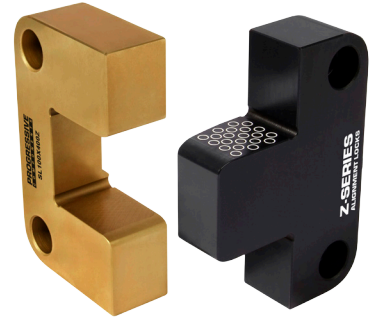


For more information, visit www.procomps.com/Demo or contact tech@procomps.com

Companion Products from **PROGRESSIVE COMPONENTS**

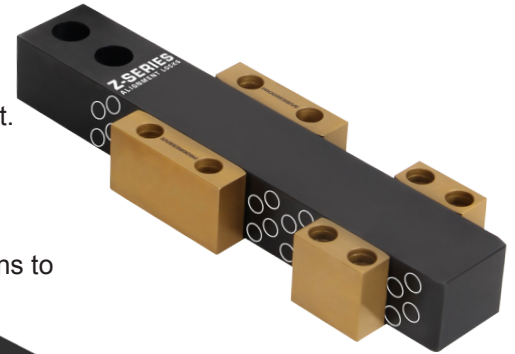
Z-Series Alignment Locks

Protecting the mold parting line is crucial to keeping the mold running smooth, consistent and in good alignment, as well as to prevent premature wear between the moving components. Progressive's Z-Series Alignment Locks have been engineered to do just that, and have been tested and proven to outperform other locks on the market. This level of performance is achieved through a combination of engagement geometry and particulate capturing, as well as materials and treatments, and now comes complete with a lifetime guarantee. With Progressive's Z-Series Locks, part quality can be assured while gaining cost savings through mold efficiency and less maintenance.



Z-Series Bar Locks

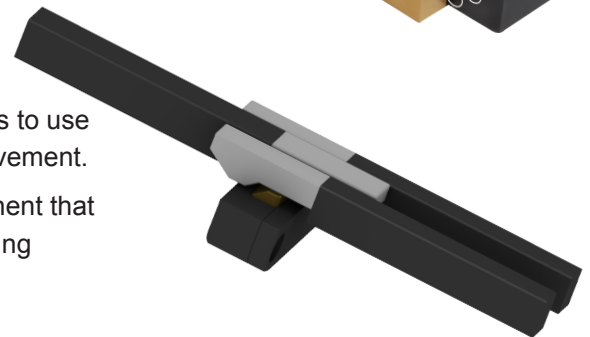
Most Collapsible Core molds sequence as two stage ejection which means extending large plates of steel away from the platens, leaving them with less support. One solution to keep a Collapsible Core mold in alignment is to utilize bar locks that extend across the mold providing support to mold sections when extended away from the platen. The bars are mounted along the side of the mold, guided by wear plates in each plate section. They also assist in taking the weight off of the leader pins to precisely align plates to shutoffs or to align the two halves of large molds.



External Plate Locks

The simplest method for consistent plate staging with Collapsible Core molds is to use the press KO to drive plates and use a secondary latch to control the plate movement.

Progressive Components' External Plate Locks are a mechanical latch component that mounts to the outside of the mold and works off of the press knock outs, enabling easier set-up, and more reliable plate sequencing.



CVe® Monitor

Roehr Tool product molds achieve their best performance when run with a consistent process, while adhering to defined maintenance standards, thereby preventing premature wear or failure.

To assist, Progressive's CVe Monitor is recommended on each tool, to monitor and track cycle time and mold efficiency. The CVe Monitor comes with free software so you can plug in your mold and download data on mold performance versus a predetermined standard. There is also an option to track and document mold maintenance intervals, and more.



Frequently Asked Questions (FAQ's)

Where are Roehr products manufactured?

All of Roehr products are designed manufactured in the USA with our home base location just out side of Boston Massachusetts.

What are Roehr products made from?

Typically a combination of A2 and D2 Tool steels. A2 is used mainly for the flexing steel products for its combination of hardness, toughness and flexing properties. D2 is generally used for center pins and DT Core Carrier Assemblies. The combination of A2 and D2 together exhibit phenomenal wear resistant and long life expectancy together.

Are coatings recommended for Roehr products?

Coatings are available and great for wear resistance, corrosion resistance and overall ease of cleaning Roehr components, but are generally not necessary unless running a material such as PVC.

All of Roehr products are made from the highest quality tool steels and hardened between 54rc and 62rc depending on the component providing a long life in an uncoated form.

How big and how small can the molded parts be when using Roehr products?

For collapsible cores, the size range is typically from 7mm to 400mm although we can design and manufacture both smaller and larger sizes in some instances. For Expandable Cavities, the size range is unlimited.

How many cycles can we expect out of a Roehr product?

With proper care and maintenance, Roehr products are engineered to last the life of the mold. Our flexing steel products are engineered with infinite spring life and will not fatigue. Our mechanical products are engineered for minimal wear contact areas and there are tools in the industry with well over 5 million cycles on them.

Do you guarantee the number of cycles the tools will provide?

Because we do not have control over the environment in which our tools are used, it is impossible for us to guarantee a number of cycles. We do guarantee that our products are manufactured with the highest quality and are dimensionally within publicized or agreed upon specifications. Proper care and maintenance is critical to the life of our products as with any mechanical action in an injection mold.

What is maintenance like with Roehr products?

For Expandable Cavities, maintenance is very simple as they are constructed out of one piece of steel. When out of the mold the ExCavs are in the expanded position and easily cleaned including in-between the segments using traditional methods. For Collapsible Cores, the units should be disassembled and then cleaned with traditional methods. The use of an ultrasonic bath makes maintenance even easier but with ALL Roehr products, care should be taken when handling the many exposed sharp edges when out of the mold.

Does Roehr provide maintenance training?

Yes, the Roehr team can provide maintenance training in many ways including presentations, webinars and even on-site depending on the project. We realize that for a customer to have a most pleasant experience with our products, they must be properly trained and educated on not only the function but care and maintenance of the product.

We have never used Roehr products before. what can we expect in terms of technical support?

Roehr's engineering team will provide you with as much or as little technical assistance as you require. From simple question answering to mold base pocket and bore information, all the way to complete mold designs are available from the team. We recommend that you get the Roehr Engineering Team involved early on in the product or mold design phases of your project.

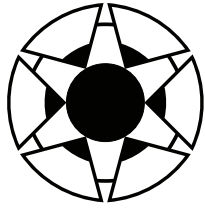
How do I know if my molded part will work with a Roehr Tool product?

The easiest way to see if you have a fit for Roehr products is to send you a part drawing or model to Roehr for a review. We have Application Engineers on staff who review part geometry every day. We often tell customers not to spend too much time searching through catalog data as we can turn around a review and recommendation very quickly.

How do I contact Roehr Tool Solutions, Inc.?

Contact us at information@roehrtool.com, visit our web-site at www.roehrtool.com or call 1-978-562-4488

NOTES



ROEHR
TOOL SOLUTIONS, INC.



No Racks, No Gears, Just Profits!

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