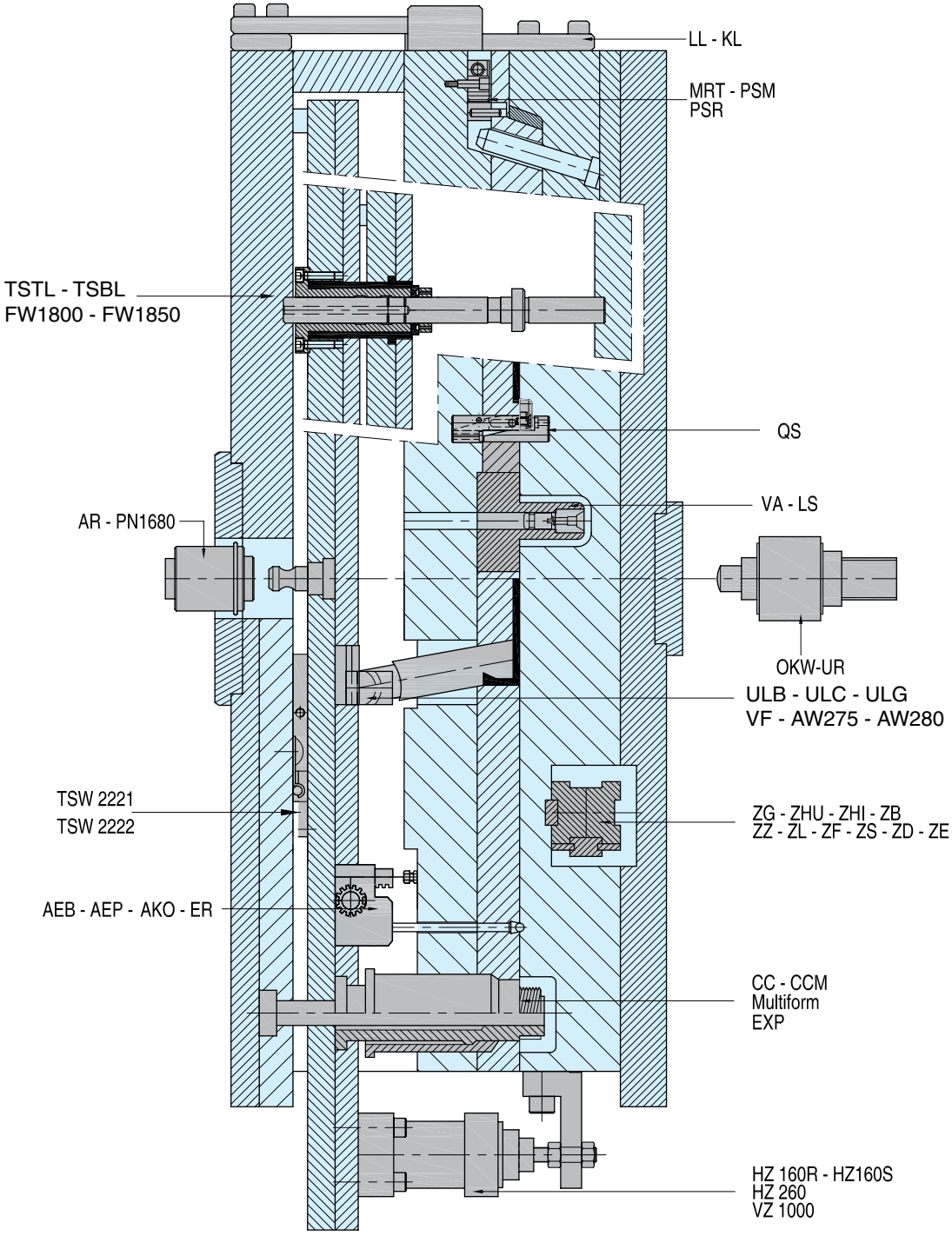
THREAD AND UNDERCUT RELEASE SOLUTIONS



CAD reference point

CAD reference point

COLLAPSIBLE CORES
COLLAPSIBLE CORES

Info CCM-CC

General description of the Collapsible Cores

It is over 30 years since DME first introduced the Collapsible Core and today it still continues to be a major influence for moulding plastic parts requiring internal threads, undercuts, cut-outs etc. During this time a lot of technical knowledge and experience has been gained from many applications tackled, some of which have been very complicated. This "Know how" has been constantly passed on to the user, either through new developments, application improvements or suggestions for new applications. One such development is the new range smaller diameters which complete the series of Collapsible Cores. The Collapsible Cores now range from 18 mm to 107 mm, for the outer diameters with the corresponding inner diameter ranging from 16 mm to 85 mm. The effective collapse ranges from 1.1 mm to 4,2 mm per side at the tip of the Core, depending on the diameter of the Core.

Operation

After cooling, the mould opens and the ejector plate assembly moves forward as far as the stop. This causes the core sleeve to move away from the centre pin and the positive collapsed sleeve to engage, which ensures that all segments have collapsed. However, the moulded part remains or hangs until the stripper plate is moved forward to eject the components. This is usually carried out by the activation of two double acting air cylinders mounted on the ejector plates and connected to the stripper plate on the outside of the mould. The stripper plate is then retracted using the two air cylinders before the mould is closed. When closing the mould, one has to ensure that the ejector plates are returned before the mould is fully closed. This can be achieved by the use of early ejector returns. The core sleeve is returned to the moulding position thus preventing damage to the Collapsible Cores. When the mould is fully closed the next cycle can begin. When using Collapsible Cores the designer has a product which offers many opportunities for producing many variations of moulded caps. The result is a mould which functions reliably and economically irrespective of whether it concerns a single or multiple cavity mould. Parts with internal protrusions, dimples, interrupted threads and cut-outs can be economically produced on a high or low volume basis. It should be noted that due to the design of the Mini Collapsible Core only interrupted threads and undercuts can be produced. The interruptions consist of three small slots with width "J" (See table), but in most cases this does not imply any technical disadvantages.

Design Procedure

The following steps are used to determine if a part can be moulded on the Mini or Standard Collapsible Core:

1. Calculate the expected actual shrinkage "S" = part Ø x shrinkage (%) "S1" = part length x shrinkage (%)
2. Determine that the part minor diameter "A" is not less than "A min" (See table and Fig 1)
3. Determine that the part major diameter "B" is not greater than "B max" (See table and Fig 1)
4. Determine that thread depth or part undercut at "L" does not exceed the calculated dimension "C" (see Table and Fig.1). The collapse available decreases from the front of the core at a rate of 0,02 mm/mm. When the amount of collapse "C" of the Mini or Standard Collapsible Cores is insufficient, Collapsible Cores of the same size but with a greater collapse can be obtained.

Type	CK Max.
CCM-0001	1.45 mm/side
CCM-0002	1.60 mm/side
CCM-0003	1.80 mm/side
CC125PC	0.80 mm/side
CC150PC	1.07 mm/side
CC175PC	1.20 mm/side
CC250PC	1.20 mm/side

Type	CK Max.
CC252PC	1.60 mm/side
CC352PC	2.10 mm/side
CC402PC	2.65 mm/side
CC502PC	3.20 mm/side
CC602PC	3.75 mm/side
CC652PC	4.06 mm/side
CC702PC	4.32 mm/side

CK = Collapse per side at top of core.

5. Determine that part depth "D" (Fig 1) does not exceed the value "D" given in the table. Dimension "K min" of the table must be equal to or larger than "K min".

Material and hardness

a) The centre pin is manufactured from high quality alloy steel 1.2436, hardened to 60-65 HRC. Centre pins for Standard as well as for Mini Collapsible Cores are fitted to a specific core and cannot be interchanged. This is due to the centre pin and core sleeve being assembled and ground together.

b) Core sleeves are manufactured in a 1.2363 steel (AISI 01) and hardened to 55-60 HRC. All centre pins and core sleeves carry a serial number. Always verify the serial number prior to grinding or final assembly.

c) The positive collapse sleeve is manufactured in tool steel and hardened to 55 ± 5 HRC. It is designed to function when the Collapsible Core fails to collapse independently upon withdrawal of the centre pin. Its aim is an additional and necessary safety factor.

What materials can be moulded?

All commonly used thermoplastic moulding resins. For many years filled and non-filled moulding resins have been successfully moulded. Special requirements have to be taken into consideration when PVC is processed. When using the Mini or Standard Collapsible Cores for processing this material it is recommended you contact **DME.**

CAD reference point

COLLAPSIBLE CORES
COLLAPSIBLE CORES

Info CCM-CC

Part design - special requirements

For successful operation the design of the part must fulfil the following requirements:

a) In contrast with the Standard Collapsible Core it is not possible to mould parts with full threads with the Mini Collapsible Core. The three remaining "marks" on the part result from the three interrupted areas with width "J" of the non-collapsing centre pin blades. Make sure that the top of the centre pin protrudes beyond the top of the core sleeve.

b) The centre pin must protrude beyond the core face by at least the distance "F". Protrusions down to "F min" are acceptable but "F max" is recommended. For "F min" and "F max" see Table or Collapsible Core dimensions leaflet. Radius "R" is most important. For "R min" and "R max" see Collapsible Core dimension drawing.

c) There must be no undercuts on the face of the core segments. This will prevent the Collapsible Core from functioning.

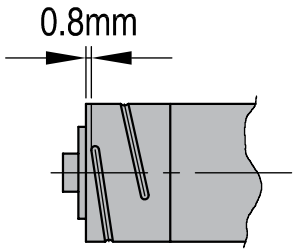
d) Undercuts on the face of the pin must not interfere with full radial movement of the core. They must be located either forward of the core face or within a diameter smaller than "G" (see Table, Fig 3; max 4 mm - see Collapsible Core dimension drawing). In no case should the undercuts be so deep that they come close to the cooling lines in the centre pin. For special requirements please contact **DME**.

e) The core face must have a draft of at least 3° starting no further than 0.8 mm from the top of the pin. A greater draft is desirable when "B" is near "B max" (ex. 4-5°).

f) All undercuts should be drafted. A minimum draft of 5° is required (see Table, fig 3), more is recommended. Interrupted undercuts also require a side draft of at last 5°.

g) Means must be provided for carrying the moulded part off of the collapsed core at the completion of the ejection stroke. This is normally done by providing a ring projection (0.25 x 0.25 mm) on the face of the stripper stroke. The part must not drag over the core (see detail Y on Collapsible Core dimensions leaflet).

h) As in conventional practice, sharp interior corners must be avoided to prevent stress concentration in the steel. Never permit a ground thread to run out through the face of the core. This leaves a knife edge of steel that will break off in time.



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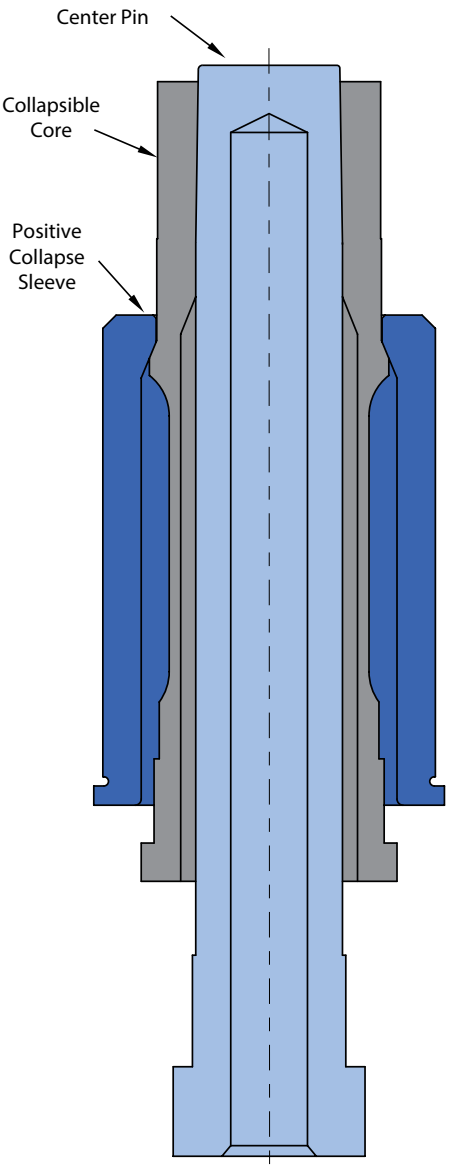
COLLAPSIBLE CORES CONSTRUCTION



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

Mat.: 1.2363 - Hardness: 54-57 HRC

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

Positive Collapse Sleeve

Mat.: 1.3505- Hardness: 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

Mat.: 1.2436 - Hardness: 60 -62 HRC

- Serves to expand the segments of the Collapsible Core to their moulding 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

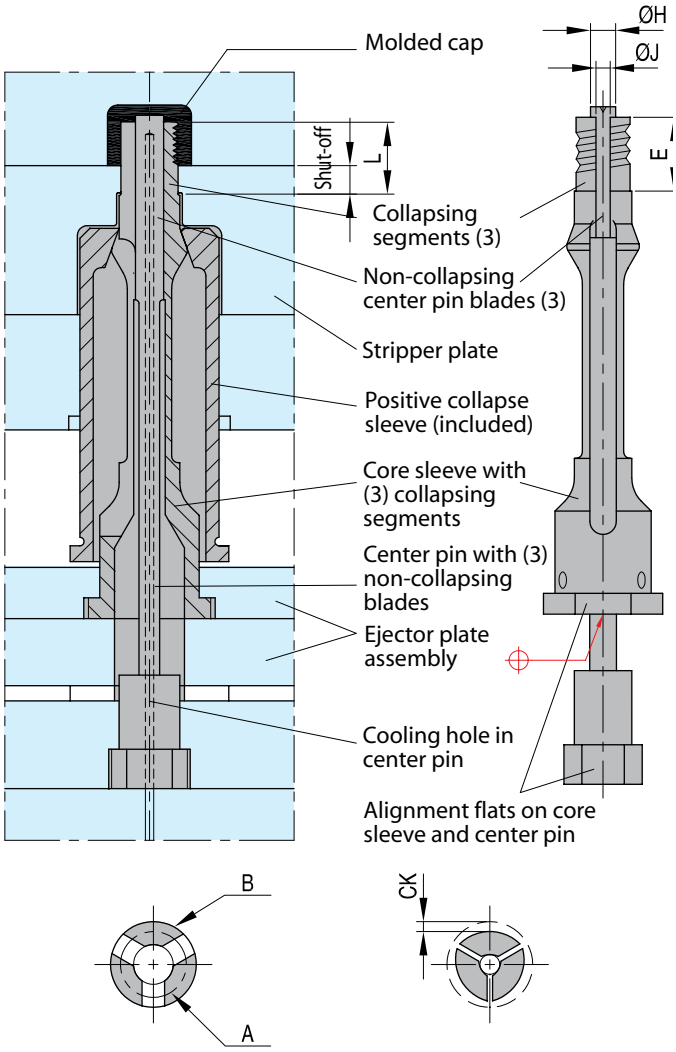
- Standard Collapsible Cores have a Max. OD ("A") of thread or configuration ranging from 18.29mm (.720") - 107.31mm (4.225") and offer complete 360° thread or undercut geometry.
- MiniCores have a Max. OD of thread or configuration ranging from 16.38mm(.645") - 24.51mm(.965") and offer up to 70% full thread or undercut geometry. (Internal geometry is interrupted in three places to allow core segments to collapse.)
- Moulded 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 DME for an application review and quotation.

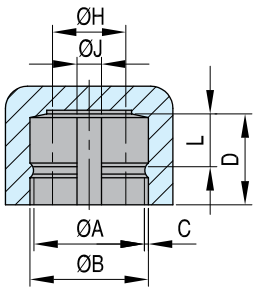
CAD reference point

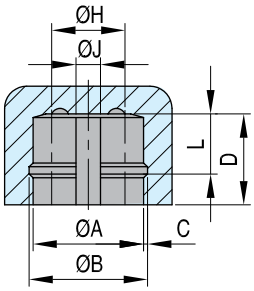
COLLAPSIBLE CORES
COLLAPSIBLE MINI-CORES

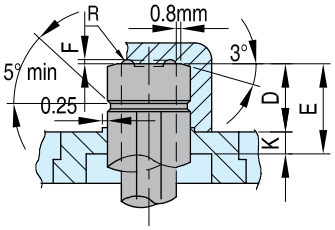
CCM

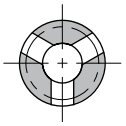
MiniCores broaden the applications of collapsible core moulds to parts as small as 10,80 mm. Due to the smaller diameters involved, these MiniCores employ three larger collapsing segments combined with three narrow, non-collapsing blades which are part of the center pin. As a result, the internal undercut 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 moulds can be successfully moulded. Three standard sizes of MiniCores are available with diameters from 10,80 to 24,51 mm.











REF	A	B	C	D	E	F	G	H	K	J	R	S
CCM 0001	10,80-S	16,38-S	1,32-(0,02L+0,5S)	21,60-S1-K	21,59	0,4 (0,8 max)	2,30	7,62	4,00	4	0,20	S= Shrinkage factor (%) x Part diameter (mm) S1= Shrinkage factor (%) x Part length (mm)
CCM 0002	14,22-S	20,45-S	1,45-(0,02L+0,5S)	21,60-S1-K	21,59	0,4 (0,8 max)	4,60	10,67	4,83	4	0,20	
CCM 0003	18,03-S	24,51-S	1,50-(0,02L+0,5S)	25,40-S1-K	25,40	0,4 (0,8 max)	7,90	14,22	5,08	4	0,20	

Build in instructions available upon request.

A Part minor Ø (min.)
B Part major Ø (max.)
C Max. part undercut at L
D Max. part depth
E Length of fitted surface on core
F Min. pin protrusion
G Inside diameter collapsed core (nominal)
H Pin diameter at face (nominal)
K Stripper bushing shut-off
J Width of non-collapsing
R Pin tip radius
S Material schrinkage

CAD reference point

COLLAPSIBLE CORES
COLLAPSIBLE CORES

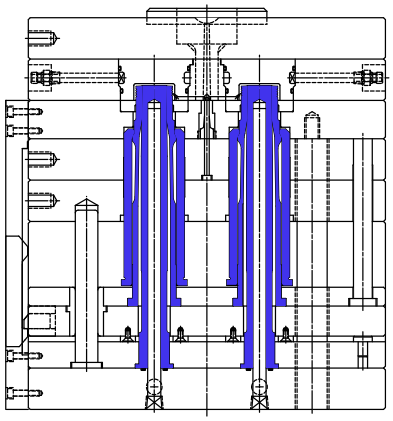
CC

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

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

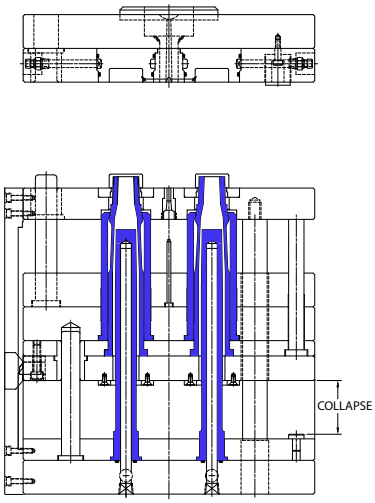
Standard diameters range from 13mm to 105mm.

MOULD CLOSED



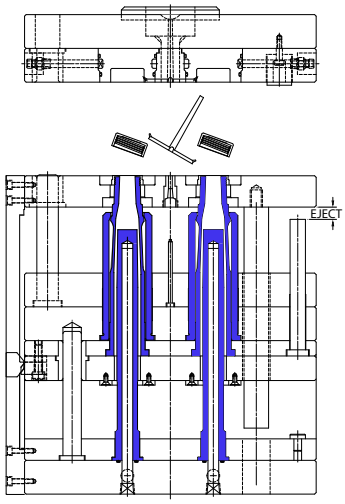
PART EJECTED

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



MOULD OPENED

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



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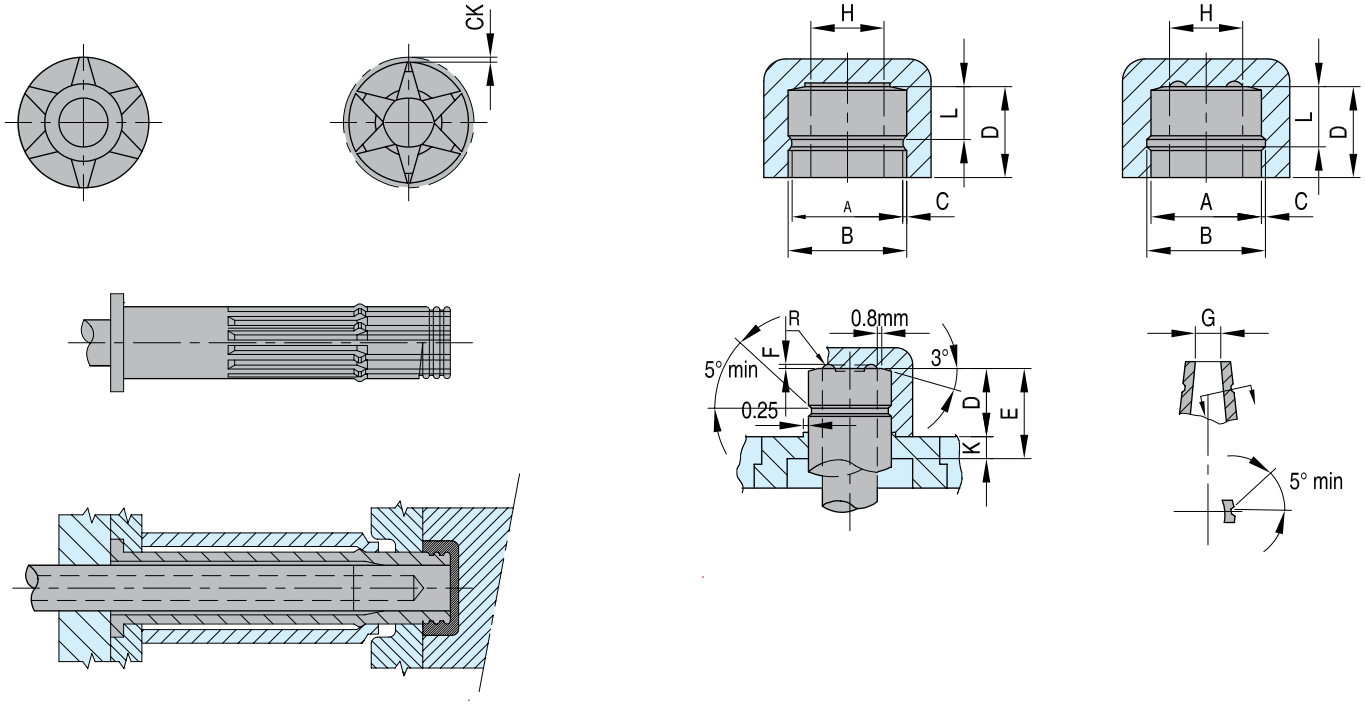
COLLAPSIBLE CORES
COLLAPSIBLE CORES

CC



REF	A	B	C	D	E	F	G	H	K	R	S
CC 125 PC	15,75-S	18,29-S	0,69 - (0,02L+0,5S)	E-K	20,32	0,4	5,3	12,32	4	0,20-0,25	S= Shrinkage factor (%) x Part diameter (mm) S1= Shrinkage factor (%) x Part length (mm)
CC 150 PC	17,78-S	21,59-S	0,94 - (0,02L+0,5S)	E-K	25,40	0,4	5,8	14,73	4	0,20-0,25	
CC 175 PC	19,30-S	24,64-S	1,09 - (0,02L+0,5S)	E-K	25,40	0,4	7,4	16,25	4	0,20-0,25	
CC 250 PC	23,10-S	32,25-S	1,09 - (0,02L+0,5S)	E-K	29,21	0,4 (1,9 max.)	10,2	19,93	4	0,20-0,25	
CC 252 PC	25,65-S	35,30-S	1,40 - (0,02L+0,5S)	E-K	29,21	0,4 (1,9 max.)	11,9	22,47	4	0,25-0,30	
CC 352 PC	32,26-S	44,19-S	1,73 - (0,02L+0,5S)	E-K	35,56	0,5 (1,9 max.)	15,0	28,06	4	0,25-0,35	
CC 402 PC	40,46-S	55,42-S	2,29 - (0,02+0,5S)	E-K	43,18	0,8 (1,9 max.)	18,4	35,25	5	0,30-0,35	
CC 502 PC	52,32-S	71,12-S	2,92 - (0,02L+0,5S)	E-K	48,26	0,9 (2 max.)	24,0	44,45	6 (min.4)	0,35-0,40	
CC 602 PC	66,29-S	89,78-S	3,55 - (0,02L+0,5S)	E-K	60,96	1,1 (2,0 max.)	30,5	55,24	6,5	0,50-0,60	
CC 652 PC	73,41-S	96,52-S	3,81 - (0,02L+0,5S)	E-K	60,96	1,5	34,3	62,23	7	0,60-0,70	
CC 702 PC	85,09-S	107,31-S	4,19 - (0,02L+0,5S)	E-K	60,96	1,5	41,9	70,86	7	0,60-0,70	

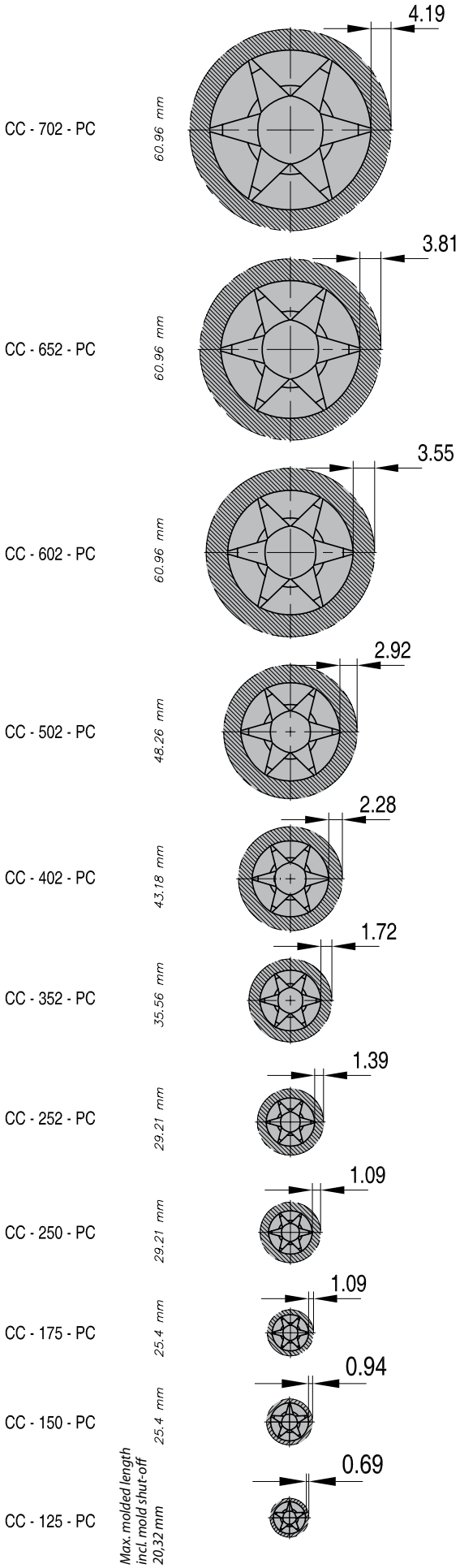
Build in instructions available upon request.

A Part minor Ø (min.)
B Part major Ø (max.)
C Max. part undercut at L
D Max. part depth
E Max. moulded length
F Min. pin protrusion
G Inside diameter collapsed core (nominal)
H Pin diameter at face (nominal)
K Stripper bushing shut-off
R Pin tip radius
S Material schrinkage

CAD reference point

COLLAPSIBLE CORES
COLLAPSIBLE CORES

CC



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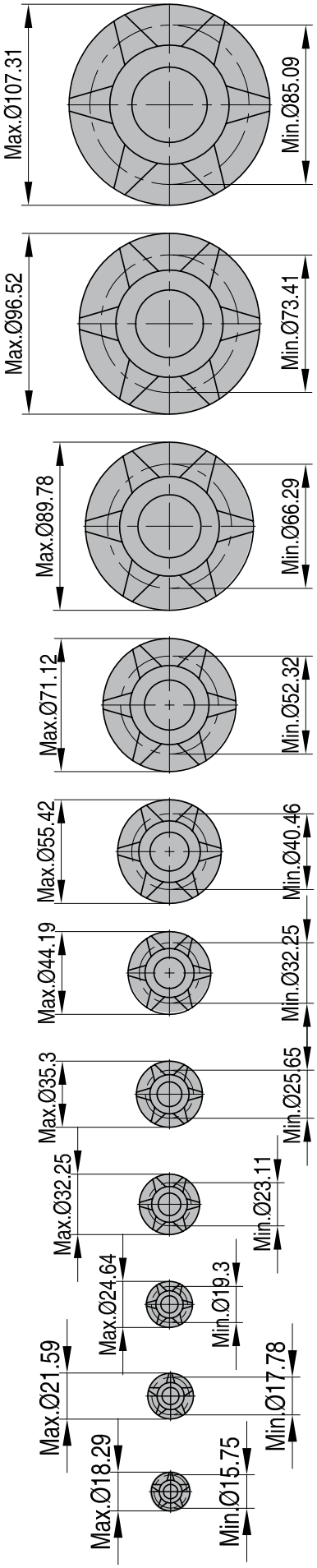
COLLAPSIBLE CORES
COLLAPSIBLE CORES

CC / CCM



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COLLAPSIBLE CORES
GRINDING RINGS

CC...GR

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.

Core grinding rings	
REF	**Core size (prefix cc)**
CC125GR	Grinding ring for CC125PC
CC150GR	Grinding ring for CC150/175PC
CC200GR	Grinding ring for CC250/252PC
CC300GR	Grinding ring for CC352PC
CC400GR	Grinding ring for CC402PC
CC500GR	Grinding ring for CC502PC
CC600GR	Grinding ring for CC602PC
CC650GR	Grinding ring for CC652PC
CC700GR	Grinding ring for CC702PC

Order examples:

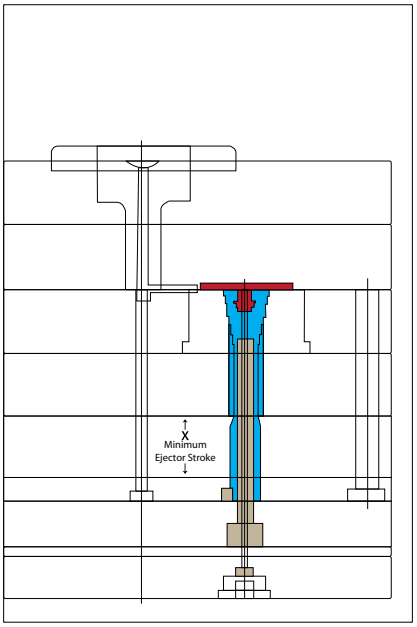
REF	
CC250PCEU	collapsible core incl. grinding ring
CC250PC	collapsible core excl. grinding ring
CC250GR	grinding ring

CAD reference point

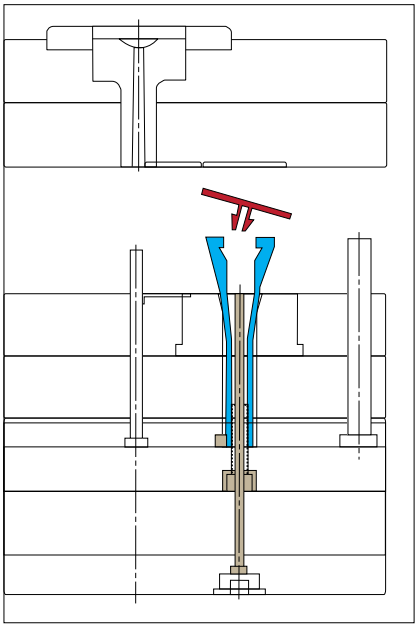
EXPANDABLE CAVITIES

EXCAV

Cost savings that maximize value:
Simplified mould design
Eliminates traditional slides; allows moulding of details once considered “un-mouldable”
Uses existing ejector system for actuation; either mould open or ejection stages the Expandable Cavity forward to release the moulded undercut
Reduces maintenance costs
Maximizes cavities per mould
Compact; often enabling more cavities in the mould and/or the use of a smaller mould base
Improved mould balance and flexibility in design
Easily accommodates family moulds
Reduces cycle time from staging plates forward during mould open
Can be ordered with the required moulding detail, eliminating the risk of machining errors or scrapping the unit, saving time and money
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) (~1.2363) and proprietary processing techniques to ensure long life and dependable performance

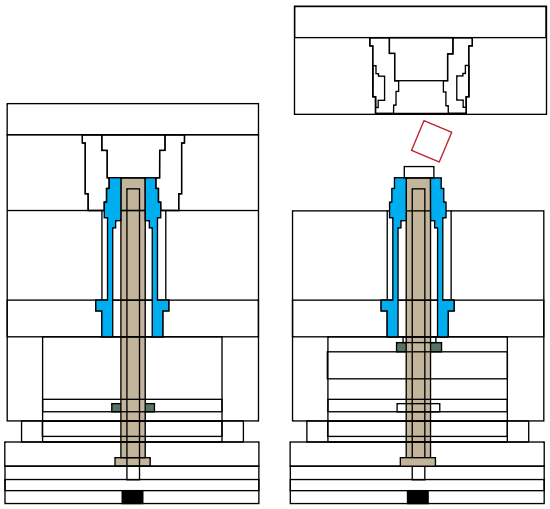


Mould Closed



Mould Open

Expandable Cavities simplify tooling design to effectively mould 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 moulds or higher mould cavitation.

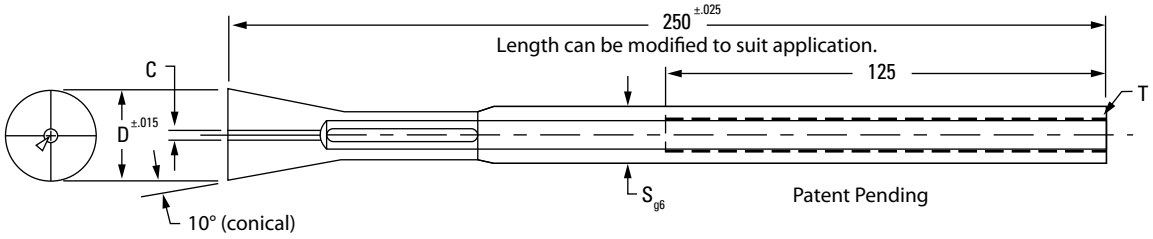


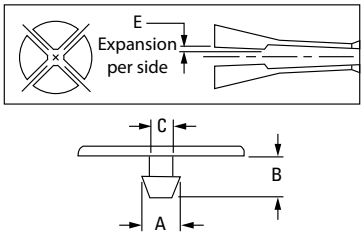
Technical Information:
Available in four standard sizes to satisfy a wide range of applications.
The Expandable Cavity expands along a conical shape; 10° per side.
Manufactured from ~1.2363 tool steel (54-57 HRC) for repeatable expansion. For optimal performance, the Expandable Cavity should ride against 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 moulding detail for a ‘mould ready’ component.

CAD reference point

EXPANDABLE CAVITIES
EX-CAV™-SYSTEM

EXCAV





REF	D	A -10°/side	B	C	E	F	S	T	X
EXCAV20	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	M18	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.

D Ex-cav diameter
A Max. part diameter
B Max. Moulding length
C Min. part inner diameter
E Expansion per side
F Min. wall thickness
S Body diameter
T Thread
X Min. ejection stroke (next page)

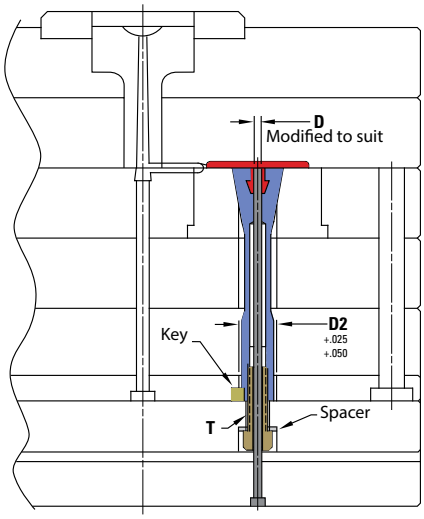
MOUNTING KITS

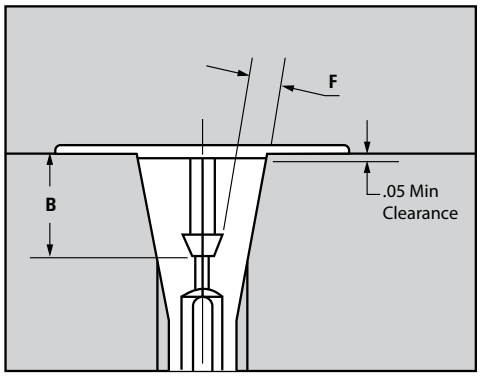
Hollow Bolt Mounting Kit Includes:

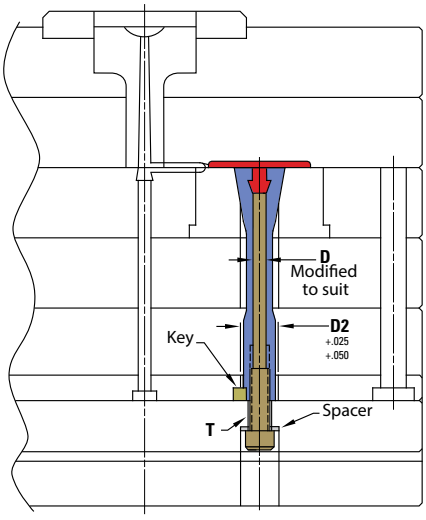
- Key (7 Thk. × 8 × 40)
- Hollow Bolt
- Standard DIN H-13(~1.2344) Ejector Pin (400mm long)
- Spacer

Pin Bolt Mounting Kit Includes:

- Key (7 Thk. × 8 × 40)
- Threaded Bolt/Pin (H-13 (~1.2344), 40-44 HRC, 280mm long)
- Spacer







REF Hollow Bolt Kit	D	T	S (ID × OD × Thk)	D2	For
EXC20BH	3,5	M8-1,25 × 40	8 × 22 × 4	14	**EXCAV20**
EXC26BH	4,0	M10-1,5 × 40	10 × 23 × 4	16	**EXCAV26**
EXC38BH	10,0	M18-2,5 × 50	19 × 33 × 6	27	**EXCAV38**
EXC50BH	14,0	M24-3 × 55	25 × 42 × 6	34	**EXCAV50**

REF Pin Bolt Kit	D	T	S (ID × OD × Thk)	D2	For
EXC20BP	6,0	M8-1,25	8 × 22 × 4	14	**EXCAV20**
EXC26BP	7,7	M10-1,5	10 × 23 × 4	16	**EXCAV26**
EXC38BP	14,5	M18-2,5	19 × 33 × 6	27	**EXCAV38**
EXC50BP	19,8	M24-3	25 × 42 × 6	34	**EXCAV50**

D Nominal pin diameter
T Bolt size
S Spacer size

CAD reference point

EXPANDABLE CAVITIES
EXPANDABLE CORES

EXP

Broad Range of Benefits
Simple Design
The revolutionary design and engineering of the Expandable Core saves steps and solves problems that have complicated plastics moulding for years. In addition to simplifying new tooling design, it can be retrofit to existing moulds.

More Reliable
Complete reliability of the Expandable Core is assured, not only by the simplicity of the design, but also by the use of superior materials and proven proprietary processing techniques. It has been field tested over several million cycles.

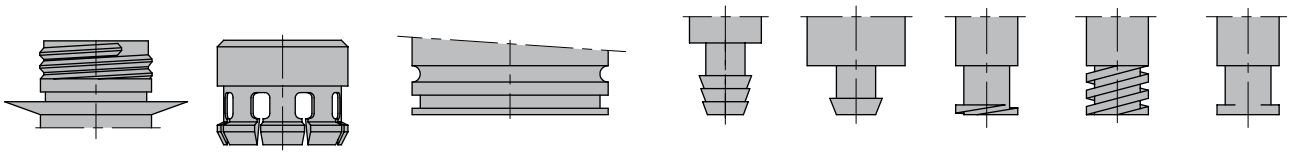
More Compact
Using the DME Expandable Core allows you to design more cavities in each mould.

Speeds Moulding Process
The Expandable Core concept completely eliminates the need for side-action mechanisms and the additional machining steps they require.

Speeds Development
The Expandable Core concept simplifies the engineering required to design and manufacture a new Core.

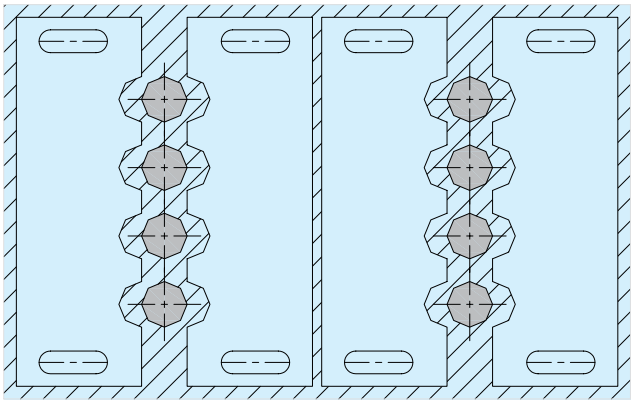
Lowers Development & Processing Costs
The Expandable Core saves money at every step from initial tooling to processing to maintenance. Items such as complex design details, core slides and required mechanical components.

TYPICAL APPLICATION

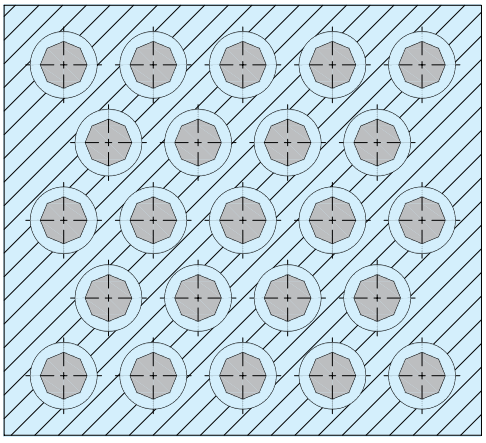


Bottle tops | Snap fit covers/lenses | O-ring grooves | Barb connections | Luer connections

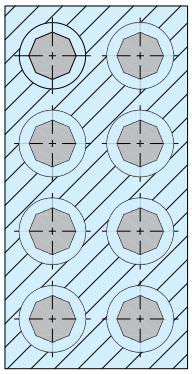
Go from this mould layout with conventional slide mould



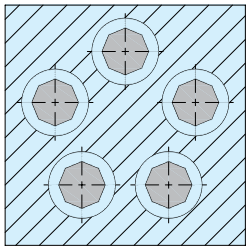
To nest mould layout with expandable cavity



Reduced mould side
with expandable cavity



Radial mould layout with
expandable cavity

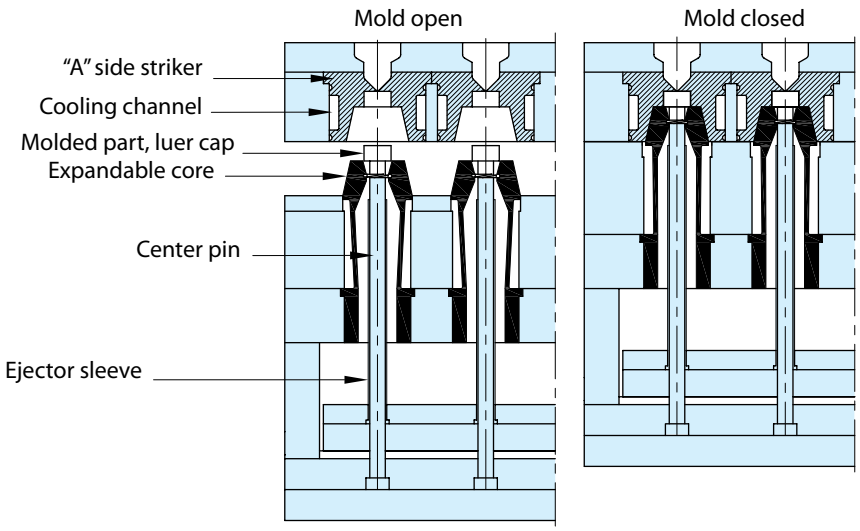


CAD reference point

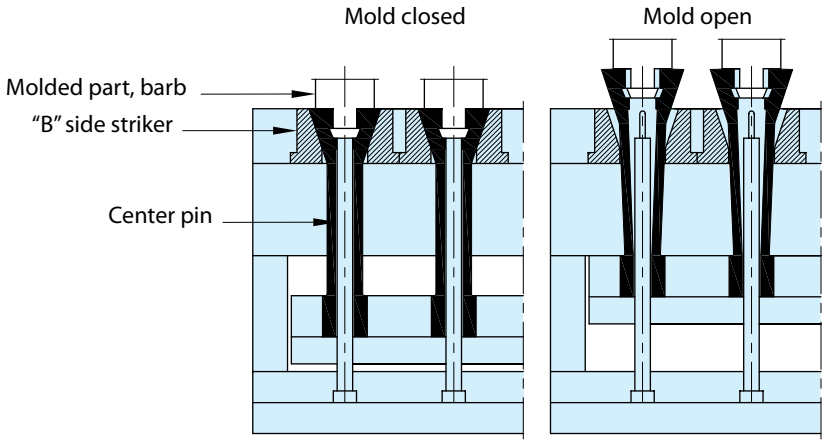
EXPANDABLE CAVITIES COLLAPSIBLE CORES

EXP

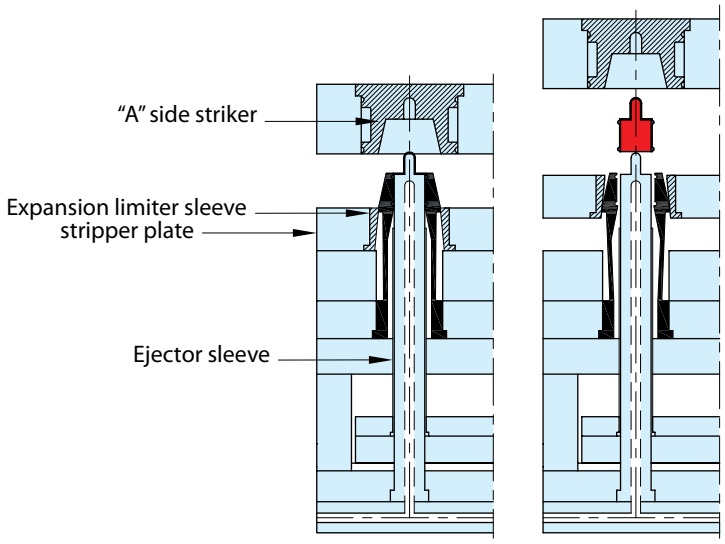
Typical application with"A" side striker insert



Typical application with "B" side striker insert



With "A" striker insert and expansion limiter sleeve



Expandable Core
The Expandable Core is typically made of 1.2363 tool steel, hardened to 54-58 HRC. The typical tool has 4 segments.

Striker Insert
The Striker Insert is made from different types of tool steel. It is hardened to 32-45 HRC scale, depending on the application. The Striker Insert has a lower hardness than the Expandable Core to ensure the eventual wear will occur on the Striker Insert. Depending on the part configuration, the Striker Insert can be used in the "A" or "B" side of the mould.(See figure 1 and 2 for details). The Striker Insert must be closely fit to the Expandable Core to ensure that in the mould closed position the segments are completely sealed against one another. The tolerance on this fit must be held to ± 0.013 mm. This will ensure flash free moulding. When the mould is closed, the exterior of the Expandable Core must be supported by the Striker Insert at least 7/8 of the moulded length plus the shut-off, to ensure no flash conditions. Allow for 5 mm of shut-off length below the moulding length, any more is excessive.

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 Core.

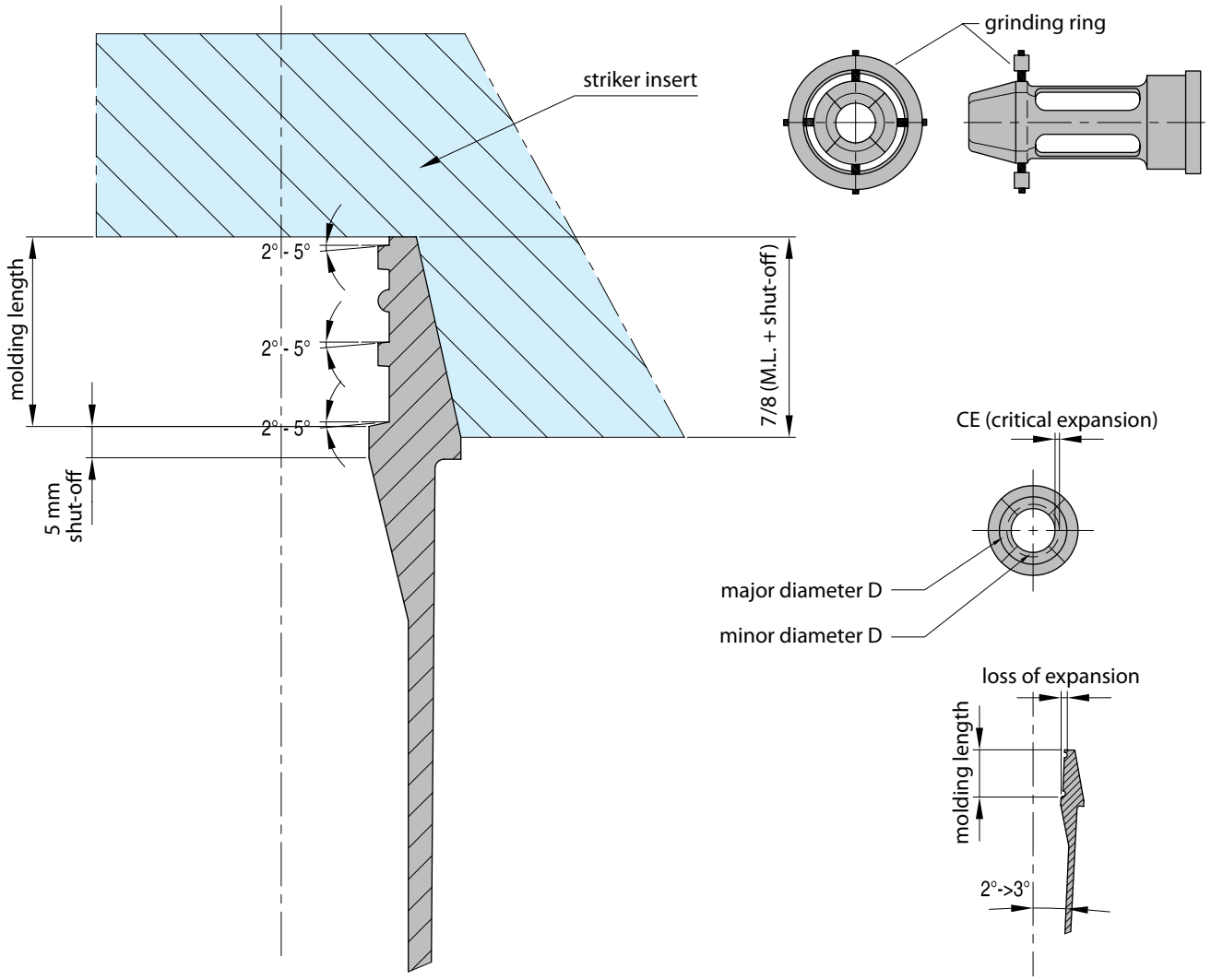
CAD reference point

EXPANDABLE CAVITIES
EXPANDABLE CORE AND STRIKER INSERT DESIGN

EXP

The Expandable Core can mould a full 360° around. The most common configuration is 4 segments that mould 90° apiece. The Expandable Core can also be designed as asymmetrical, such as two segments that mould 90° apiece and 3 segments that mould 60° apiece. The amount of expansion varies according to the part requirements, and clearances needed.
The critical expansion needed to release the undercut is not the radial difference between major diameter (D) and minor diameter (d).
Most Expandable Cores are usually ground or EDM'd. It is important when grinding to flood tool with suitable coolant for hardened tool steels. (Dress wheel frequently). The wheel must be of a soft grade. When grinding make sure the Expandable Core 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 Core to prevent adhesion of any metal particles that might find their way into the Core during moulding.

Note : DME does not provide the part configuration detailing or machining.



CAD reference point

EXPANDABLE CAVITIES
QUOTE REQUEST FORM

Company name:..... DME account #:.....

Contact name:..... P.O. #:.....

Phone:..... FAX:.....

Address:..... E-mail:.....

City:..... State/Province:.....

ZIP/Postal Code:..... Country:.....

Shipping method:

❑ UPS Ground ❑ UPS 2nd Day Air ❑ UPS Next Day ❑ FedEx ❑ Other .....

Expandable Cavity Requirements

I. POLYMER SPECIFICATIONS:

A. What is the material to be moulded? .....

B. What is the process temperature? .....

❑ Filled ❑ Unfilled ❑ Glass ❑ Mineral

II. DIMENSIONS OF EXPANDABLE CAVITY: (Part print is required)

A. Specify largest diameter to be moulded .....

B. Specify smallest diameter to be moulded .....

C. Specify major diameter of undercut or thread .....

D. Specify minor diameter of undercut or thread .....

III. MouldED PART LENGTH:

A. Moulding Length: .....(Within the Expandable Cavity)

B. Mould Shut-off: .....200..... (Shut-off land below part)

IV. EXPANSION REQUIREMENTS: (See Expandable Cavity and Striker Insert Design)

A. Critical Expansion per side: .....

B. Loss of expansion (.050in/in): .....

Multiply moulding length (Distance from top of Expandable Cavity to bottom of last undercut) by .050in

C. Clearance (Air) between plastic and steel upon expansion: .....005.....

V. Mould LAYOUT

A. Distance from gate (center to center): .....

B. Number of cavities: .....

❑ Retrofit ❑ New Mould

CAD reference point

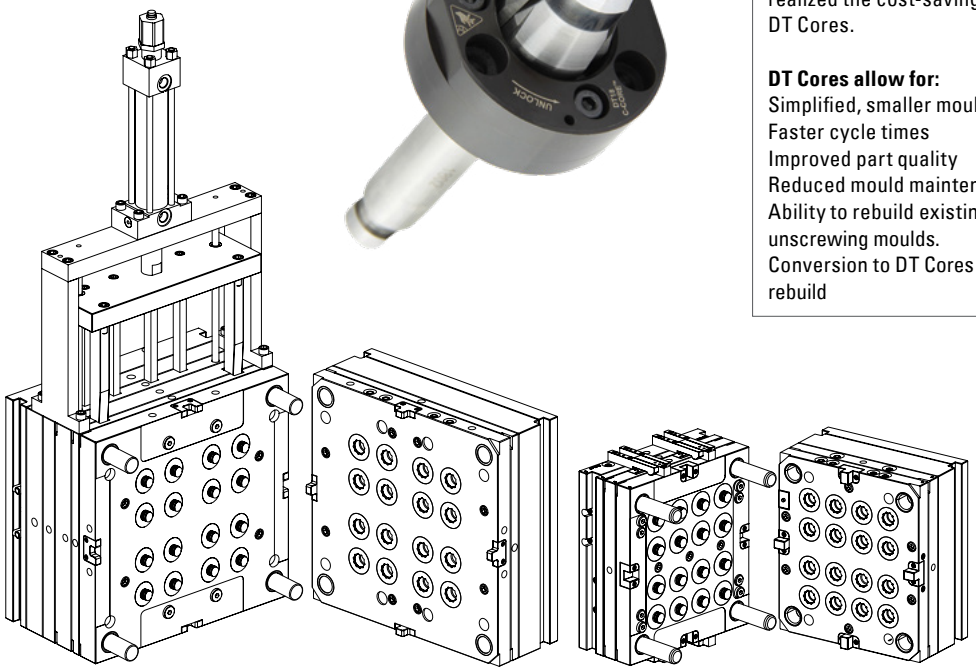
Send to: DMEEU_specialprojects@dme.net

DT SERIES COLLAPSIBLE CORES
DT SERIES

DT

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

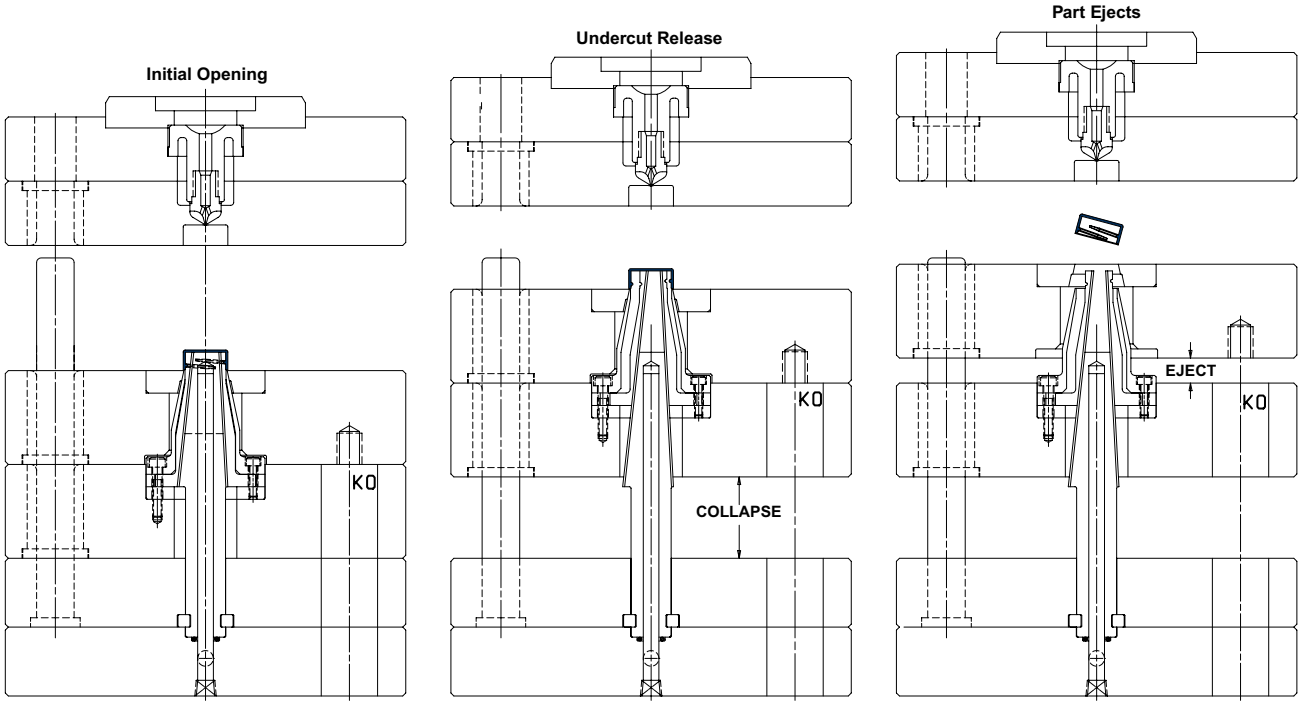
DT Cores allow for:
Simplified, smaller moulds
Faster cycle times
Improved part quality
Reduced mould maintenance
Ability to rebuild existing tools and breathe new life into old unscrewing moulds.
Conversion to DT Cores through replacement mould or back half rebuild



Unscrewing DT Core

Simplified Mould Design
The DT Collapsible Core is a positive, mechanically actuated collapsible core that eliminates complex gear and rack approaches, resulting in a simpler mould 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 mould 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 mould.

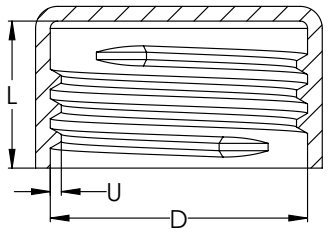


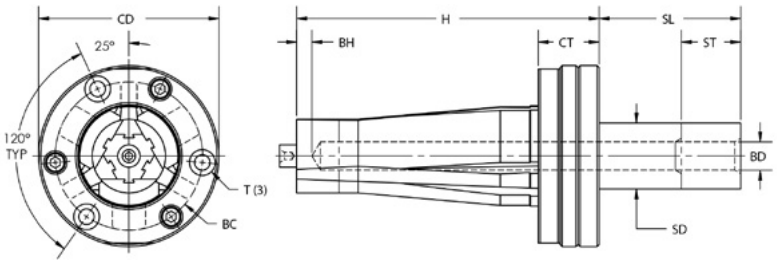
DT Cores use a simple single stage collapse/eject sequence typically run by the machine KO.

CAD reference point

DT SERIES COLLAPSIBLE CORES
DT SERIES

DT





REF	D	U	L	ST	H	SD	BD	BH	SL	CD	CT	BC	T
DT1010	10,00-10,99mm	0,36mm	7,5mm	43,5mm	87mm	10,5mm	3mm	5mm	58mm	50mm	21mm	37mm	M5 x 25
DT1111	11,00-11,99mm	0,41mm	8mm	44,5mm									
DT1212	12,00-12,99mm	0,46mm	8,5mm	45,5mm	87mm	12mm	4mm	5mm	59mm	52mm	21mm	38mm	M6 x 35
DT1313	13,00-13,99mm	0,51mm	9mm	46,5mm									
DT1414	14,00-14,99mm	0,56mm	9,5mm	47mm	87mm	14mm	5mm	5mm	60mm	54mm	21mm	41mm	M5x25
DT1515	15,00-15,99mm	0,61mm	10mm	47,5mm									
DT1616	16,00-16,99mm	0,66mm	10,5mm	48mm	87mm	15,5mm	6mm	5mm	62mm	56mm	21mm	43mm	M5x25
DT1717	17,00-17,99mm	0,71mm	11mm	48,5mm									
DT1819	18,00-19,99mm	0,82mm	12mm	50mm	99mm	18mm	8mm	6mm	61mm	63mm	24mm	49mm	M6x30
DT2021	20,00-21,99mm	0,92mm	12,5mm	55mm									
DT2224	22,00-24,99mm	1,04mm	13mm	59mm	109mm	22mm	10mm	6mm	64mm	69mm	24mm	55mm	M6x30
DT2527	25,00-27,99mm	1,20mm	15mm	66,5mm									
DT2830	28,00-30,99mm	1,36mm	18mm	71mm	129mm	28mm	12mm	6mm	60mm	77mm	26mm	63mm	M6x30
DT3133	31,00-33,99mm	1,50mm	21mm	78mm									
DT3436	34,00-36,99mm	1,73mm	22mm	79mm	139mm	34mm	14mm	6mm	64mm	93mm	27mm	75mm	M8x30
DT3739	37,00-39,99mm	1,88mm	24mm	85mm									
DT4042	40,00-42,99mm	2,06mm	25mm	86mm	151mm	39mm	17mm	6mm	65mm	101mm	32mm	83mm	M8x35
DT4345	43,00-45,99mm	2,24mm	27mm	93mm									
DT4648	46,00-48,99mm	2,42mm	28mm	94mm	161mm	42mm	20mm	6mm	69mm	110mm	32mm	90mm	M8x35
DT4951	49,00-51,99mm	2,57mm	31mm	99mm									
DT5254	52,00-54,99mm	2,77mm	32mm	100mm	183mm	50mm	22mm	6mm	85mm	130mm	39mm	107mm	M10x45
DT5557	55,00-57,99mm	2,95mm	34mm	106mm									
DT5860	58,00-60,99mm	3,10mm	36mm	111mm									

D Max. outer diameter
U Min. undercut
L Max. moulding length
ST Max. collapse stroke
H Core lenght
SD Shaft diameter
BD Cooling hole diameter

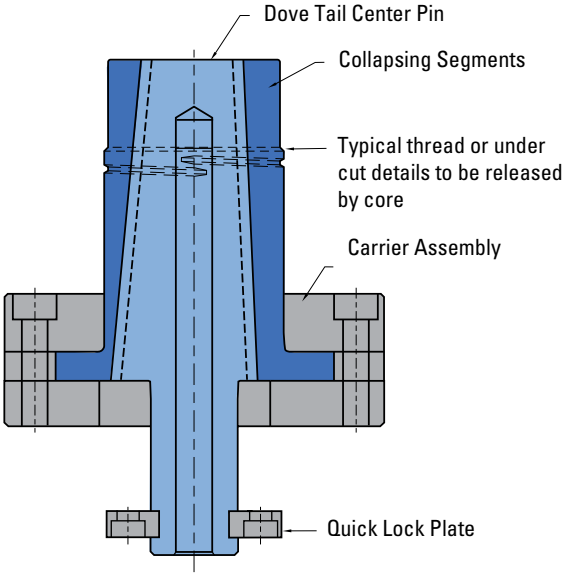
BH Distance to cooling hole
SL Shaft length
CD Carrier diameter
CT Carrier assembly thickness
BC Mounting screw bolt circle
T Mounting screws (SHCS)

For sizes larger than 60 mm, contact DME directly.
Build in instructions available upon request.

CAD reference point

DT SERIES COLLAPSIBLE CORES CONSTRUCTION

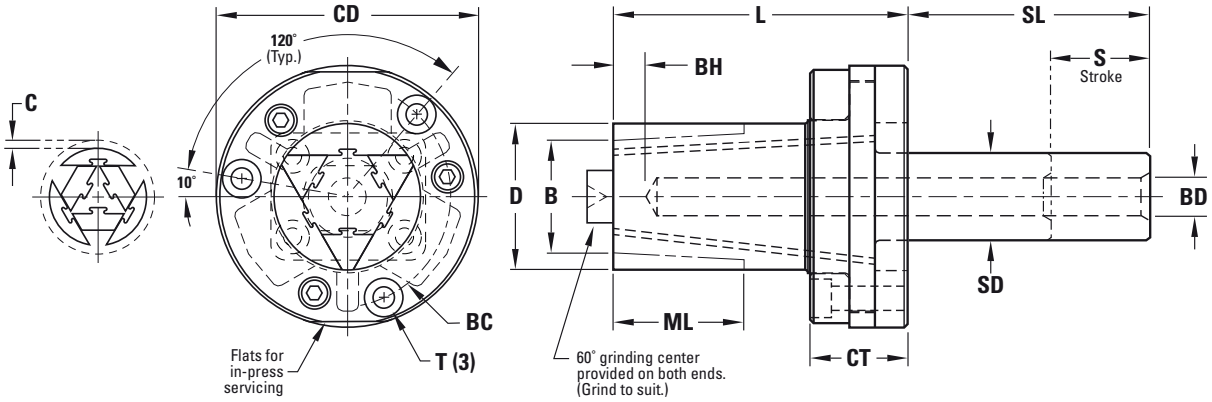
DT



Collapsing Segments
Mat.: 1.2363- Hardness: 54 -57 HRC
- Designed to mechanically collapse when the center pin is withdrawn.
- The fit between the segments is controlled to permit flash-free moulding.

Center Pin
Mat.: 1.2379- Hardness: 60-62 HRC
- Serves to expand the segments of the core to their moulding position
- The pin may be flush to the core face.

Carrier Assembly
Mat.: 1.2379- Hardness: 60-62 HRC
- Mounts DT Core assembly to the mould carrier plate.
- Provides guided and anti-rotational segment movement.



All dimensions and tolerances are in milimeters.

REF	D	B +3°/Side	ML	C	CD	CT ± 0,05	L +0,1 -0,0	SL	SD +0,00 -0,02	BD	BH	BC	T	S
DT18	21	17	22	1,1	53	21	60	60	16	6	6	40	M5 x 25	34
DT28	33	25	28	1,6	60	22	67	60	20	8	8	47	M5 x 25	38
DT38	42	33	43	2,1	76	28	85	60	25	10	10	60	M6 x 35	54
DT48	54	42	50	2,4	98	37	104	70	30	12	12	78	M8 x 40	62

D Max. outer diameter
B Min. inner diameter
ML Max. moulding length
C Maximum collapse
CD Carrier diameter
CT Carrier assembly thickness
L Core length
SL Shaft length
SD Shaft diameter
BD Cooling hole diameter
BH Distance to cooling hole
BC Mounting screw bolt circle
T Mounting screws
S Maximum collapse stroke

DT SERIES COLLAPSIBLE CORES SETRAL GREASE

DTG100

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.
DME recommends this grease for all DT core applications. MSDS and technical data sheets are available from DME.

Description: Setral INT/300 Grease : 100g Tube

CAD reference point

DT SERIES COLLAPSIBLE CORES GRINDING FIXTURES

DTGF...

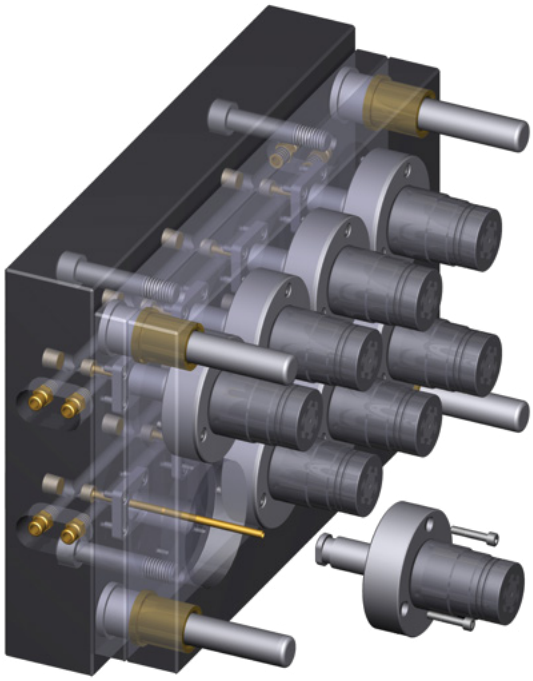
Grinding Fixtures for DT Collapsible Cores securely hold the core segments in place against the center pin when grinding, high speed machining or EDM'ing details.
Although normally DME would provide cores with finished moulding details, grinding fixtures allow customers to machine their own details.

REF	Core size
DTGF1011	Grinding fixtures for DT1010 - DT1111
DTGF1213	Grinding fixtures for DT1212 - DT1313
DTGF1415	Grinding fixtures for DT1414 - DT1515
DTGF1617	Grinding fixtures for DT1616 - DT1717
DTGF1821	Grinding fixtures for DT1819 - DT2021
DTGF2227	Grinding fixtures for DT2224 - DT2527
DTGF2833	Grinding fixtures for DT2830 - DT3133
DTGF3439	Grinding fixtures for DT3436 - DT3739

REF	Core size
DTGF4045	Grinding fixtures for DT4042 - DT4345
DTGF4651	Grinding fixtures for DT4648 - DT4951
DTGF5260	Grinding fixtures for DT5254-DT5557-DT5860
DTGF18	Grinding fixtures for DT18
DTGF28	Grinding fixtures for DT28
DTGF38	Grinding fixtures for DT38
DTGF48	Grinding fixtures for DT48

DT SERIES COLLAPSIBLE CORES QUICK LOCK PLATE (OPTIONAL)

DT...



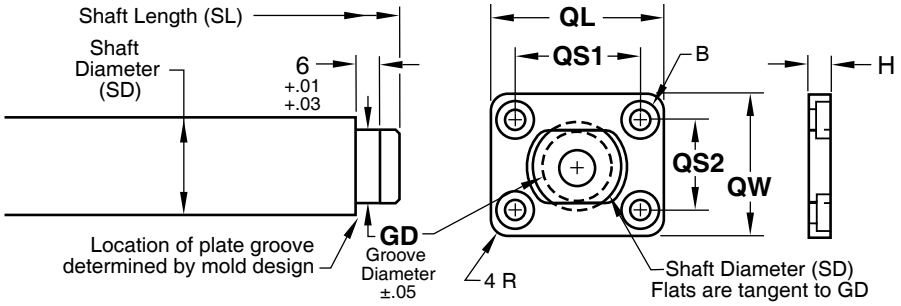
Features:
Plate Material: 54-57 HRC

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

CAD reference point

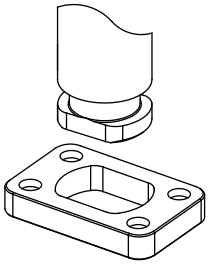
DT SERIES COLLAPSIBLE CORES
QUICK LOCK PLATE (OPTIONAL)

DTQL...

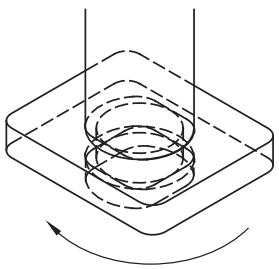


REF	For	gd	QL +0.00 -0.05	QW +0.00 -0.05	qs1	qs2	h	B MOUNTING SCREWS
DTQL1011	Quick Lock plate for DT1010 - DT1111	7.43mm .93in	26.01mm 1.024in	18.01mm .709in	17.50mm .689in	9.50mm .374in	4mm .1575in	M3 LHCS
DTQL1213	Quick Lock plate for DT1212 - DT1313	9.02mm 355in	27.99mm 1.102in	18.01mm .709in	19.51mm .768in	9.50mm .374in	4mm .1575in	M3 LHCS
DTQL1415	Quick Lock plate for DT1414 - DT1515	9.81mm 386in	30mm 1.181in	19.99mm .787in	21.49mm .846in	11.51mm .453in	5mm .1969in	M3 SHCS
DTQL1617	Quick Lock plate for DT1616 - DT1717	10.60mm .417in	32mm 1.260in	22mm .866in	23.50mm .925in	13.49mm .531in	5mm .1969in	M3 SHCS
DTQL1821	Quick Lock plate for DT1819 - DT2021	12.99mm .511in	35mm 1.378in	24.99mm .984in	24.99mm .984in	15.01mm .591in	6mm .2362in	M4 SHCS
DTQL2227	Quick Lock plate for DT2224 - DT2527	16.16mm .636in	38mm 1.496in	27.99mm 1.102in	27.99mm 1.102in	18.01mm .709in	6mm .2362in	M4 SHCS
DTQL2833	Quick Lock plate for DT2830 - DT3133	21.72mm .855in	43.99mm 1.732in	32mm 1.260in	34.01mm 1.339in	22mm .866in	6mm .2362in	M4 SHCS
DTQL3439	Quick Lock plate for DT3436 - DT3739	25.69mm 1.011in	51.99mm 2.047in	40.01mm 1.575in	40.01mm 1.575in	27.99mm 1.102in	8mm .3150in	M5 SHCS
DTQL4045	Quick Lock plate for DT4042 - DT4345	30.45mm 1.199in	56.01mm 2.205in	43.99mm 1.732in	43.99mm 1.732in	32mm 1.260in	8mm .3150in	M5 SHCS
DTQL4651	Quick Lock plate for DT4648 - DT4951	34.42mm 1.355in	57.99mm 2.283in	46mm 1.811in	46mm 1.811in	34.01mm 1.339in	8mm .3150in	M5 SHCS
DTQL5260	Quick Lock plate forDT5254-DT5557-DT5860	39.18mm 1.543in	65.99mm 2.598in	54mm 2.126in	53.01mm 2.087in	41mm 1.614in	10mm ..3937in	M6 SHCS
DTQL18	Quick Lock plate for DT18	12mm .472in	35mm 1.378in	22mm .866in	25mm .984in	12mm .472in	6mm .236in	M4 SHCS
DTQL28	Quick Lock plate for DT28	15mm .591in	38mm .1.496in	25mm .984in	28mm 1.102in	15mm .591in	6mm .236in	M4 SHCS
DTQL38	Quick Lock plate for DT38	19mm .748in	41mm 1.614in	31mm 1.220in	30mm 1.181in	20mm .787in	6mm .236in	M4 SHCS
DTQL48	Quick Lock plate for DT48	23mm .906in	44mm 1.732in	35mm 1.378in	34mm 1.339in	25mm .984in	6mm .236in	M4 SHCS

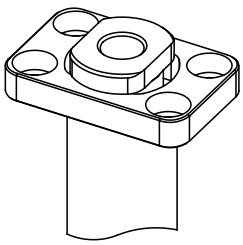
Align and push end of Center Pin through Quick Lock Plate.



Rotate Center Pin clockwise 90° to lock into place.



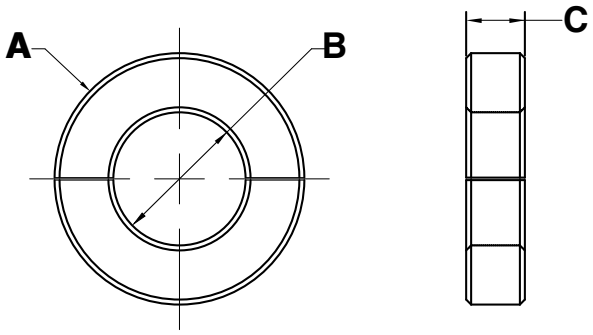
Bottom view of Center Pin and Quick Lock Plate in locked position.



CAD reference point

DT SERIES COLLAPSIBLE CORES
SPLIT RING

DTSR...

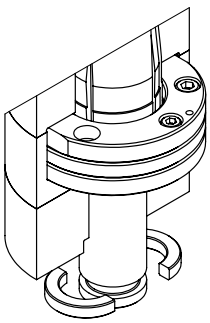


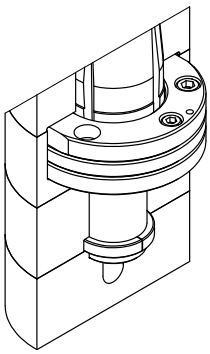
Utilizing DME's split ring allows for a simpler attachment method.

REF	For	A (mm)	B (mm)	C (mm)
DTSR1011	Split ring for fixing DT1010 - DT1111	16	7,95	3,99
DTSR1213	Split ring for fixing DT1212 - DT1313	17,53	9,53	3,99
DTSR1415	Split ring for fixing DT1414 - DT1515	20,32	10,31	5
DTSR1617	Split ring for fixing DT1616 - DT1717	21,08	11,13	5
DTSR1821	Split ring for fixing DT1819 - DT2021	25,40	13,49	5,99
DTSR2227	Split ring for fixing DT2224 - DT2527	28,70	16,66	5,99
DTSR2833	Split ring for fixing DT2830 - DT3133	34,29	22,23	5,99
DTSR3439	Split ring for fixing DT3436 - DT3739	42,16	26,19	8

REF	For	A (mm)	B (mm)	C (mm)
DTSR4045	Split ring for fixing DT4042 - DT4345	46,99	30,96	8
DTSR4651	Split ring for fixing DT4648 - DT4951	50,80	34,93	8
DTSR5260	Split ring to fix DT5254-DT5557-DT5860	59,69	39,70	9,98
DTSR18	Split ring for fixing DT18	24,89	12,70	6,35
DTSR28	Split ring for fixing DT28	27,94	15,88	6,35
DTSR38	Split ring for fixing DT38	34,80	20,62	6,35
DTSR48	Split ring for fixing DT48	37,59	25,40	6,35

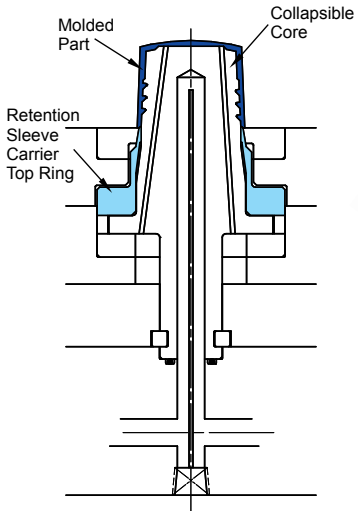
Assemble Core into Mould.
Then collapse core to install split ring

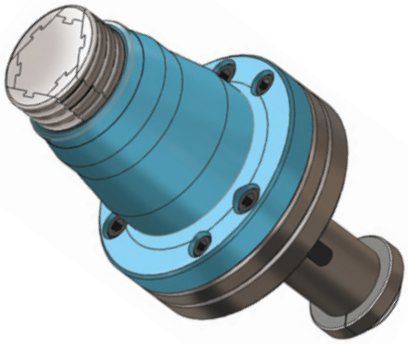




Push Center pin forward to moulding position and install back plate

RETENTION SLEEVE (OPTIONAL)





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

E-mail DMEEU_specialprojects@dme.net for more information.

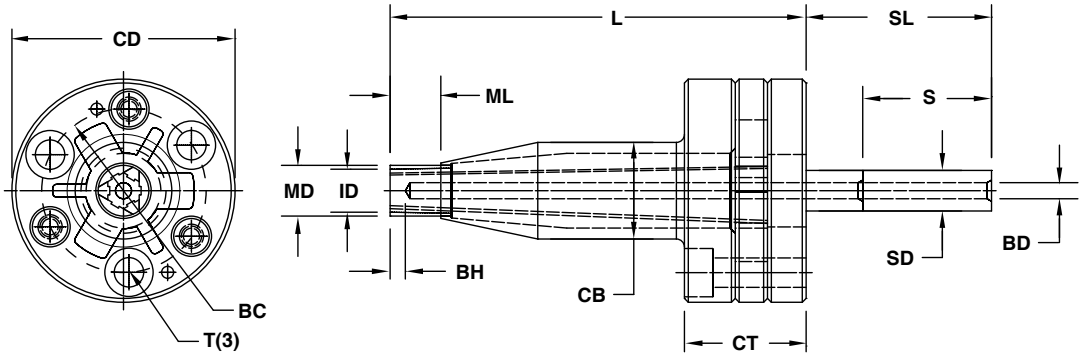
CAD reference point

DT SERIES COLLAPSIBLE CORES
SUB-10 DT CORE SERIES

DTSUB10

The Sub-10 DT Cores make it possible to release very small threads and undercuts in moulded caps, connectors and small medical parts.
Allows moulding of parts with 7-10mm ID.
Simpler alternative to unscrewing moulds.
Reduces cycle time and maintenance requirements.

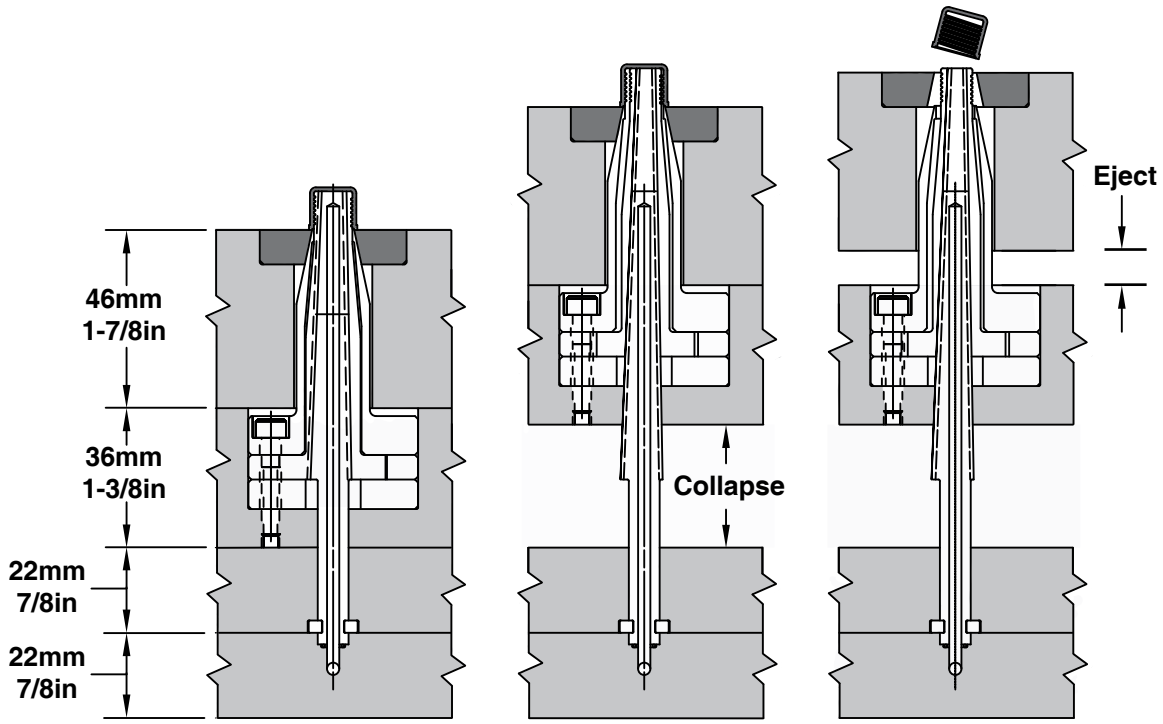
Application Guidelines:
Maximum undercut depth is determined by final moulding diameter from application review.
Collapse stroke is determined by undercut depth from application review.
Cores are supplied complete with machined moulding details.



REF	MD	ID	ML	UC	CD	CB	CT	L	SL	SD	S	BD	BH	BC	T
DTSUB10	10mm	7mm	10mm	0,38mm	44mm	19mm	24mm	82mm	36mm	8mm	50mm	3mm	3mm	32mm	M5x25

MD	Max. moulding diameter	CB	Carrier assembly body	S	Maximum collapse stroke
ID	Min. moulding diameter	CT	Carrier assembly thickness	BD	Cooling hole diameter
ML	Max. moulding length	L	Length	BH	Cooling hole height
UC	Maximum undercut	SL	Shaft length	BC	Mounting bolt circle
CD	Carrier assembly diameter	SD	Shaft diameter	T	Mounting bolt (3)

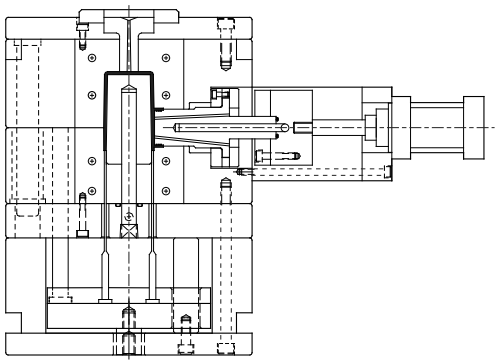
NOTE: Submit part geometry to DMEEU_specialprojects@dme.net for quotes and application review.

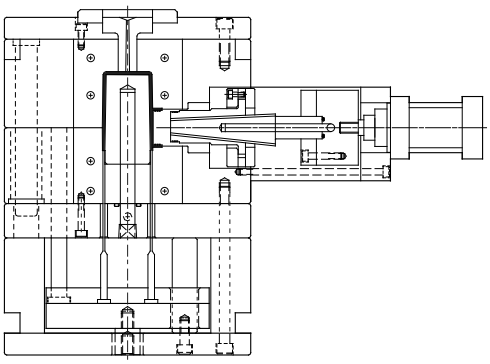


CAD reference point

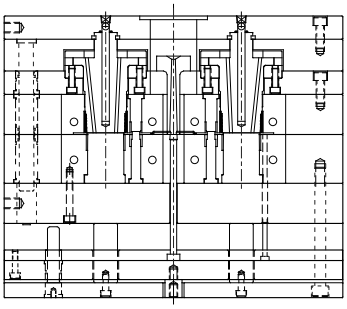
DT SERIES COLLAPSIBLE CORES
DT SERIES APPLICATIONS

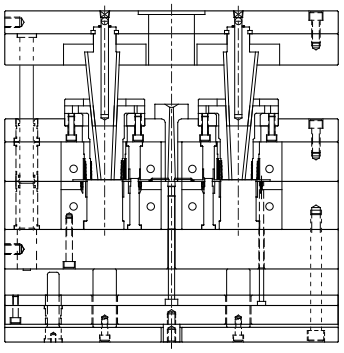
SIDE ACTION



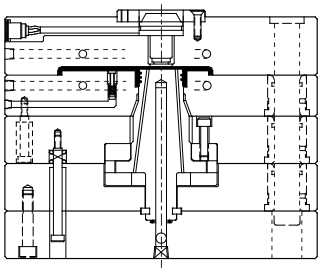


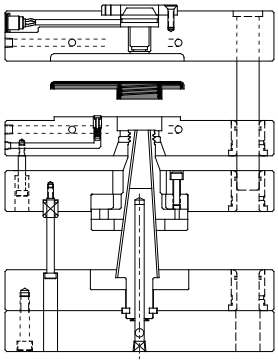
CAVITY SIDE



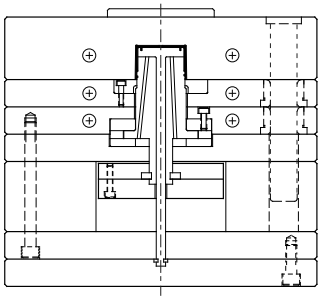


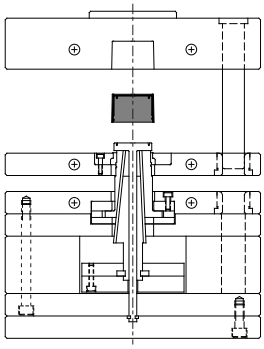
BOSS DETAIL





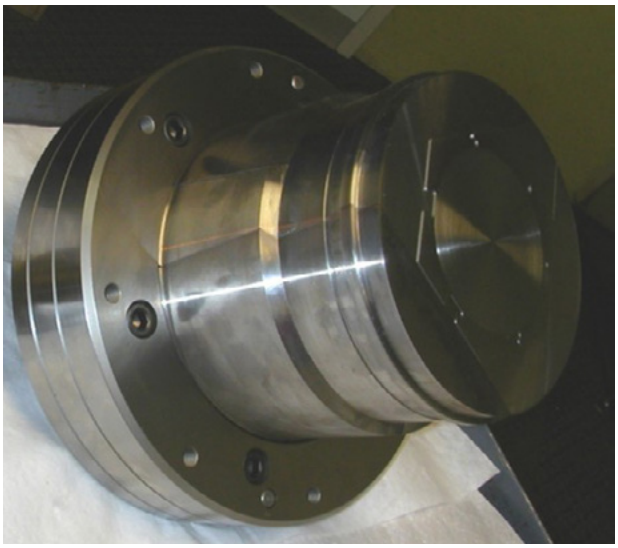
SEAL RING (PANCAKE PIN)

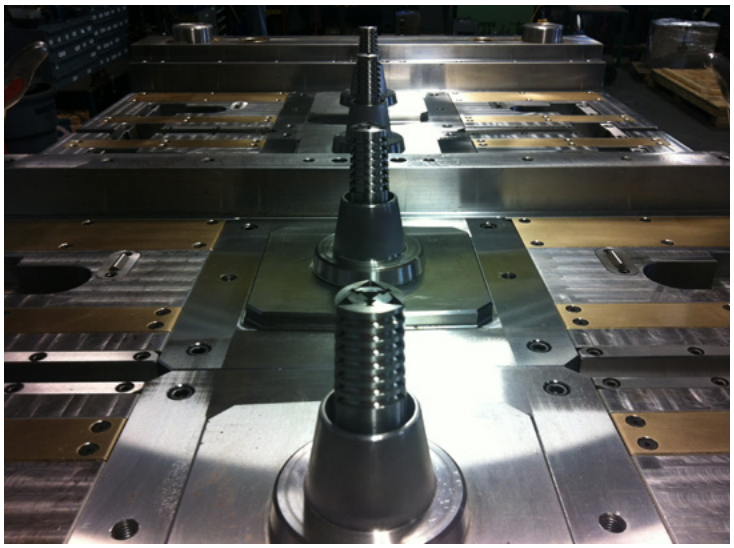




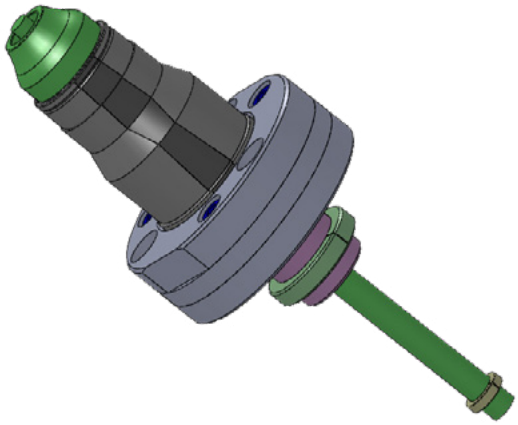
CAD reference point

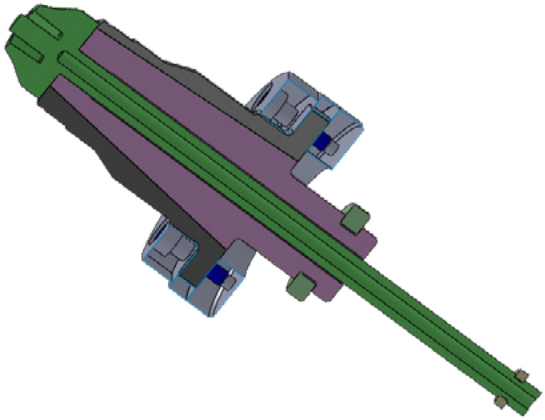
DT SERIES COLLAPSIBLE CORES
DT SERIES CUSTOM APPLICATIONS

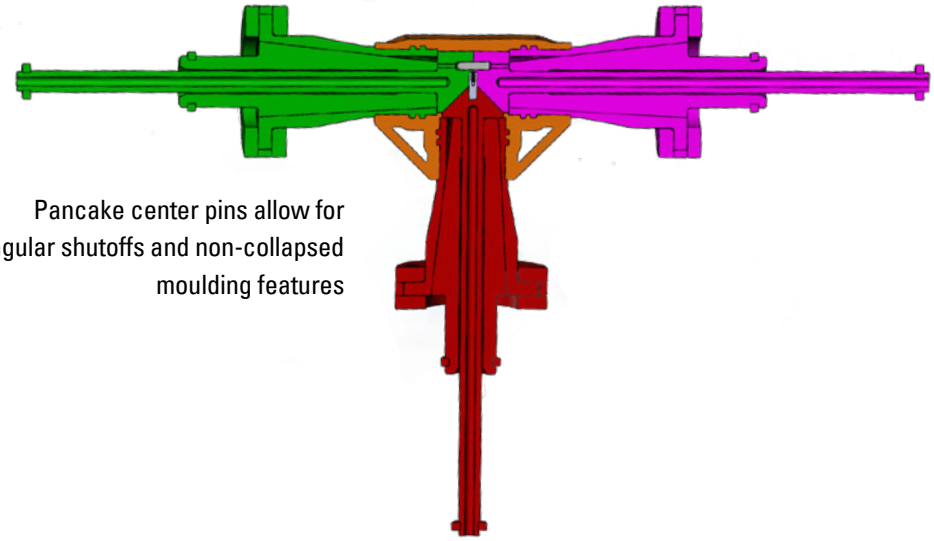




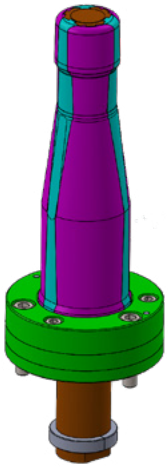
TE Cap | CT Cap | Threaded Collar | Prescription | Dosing | Long Thread Run







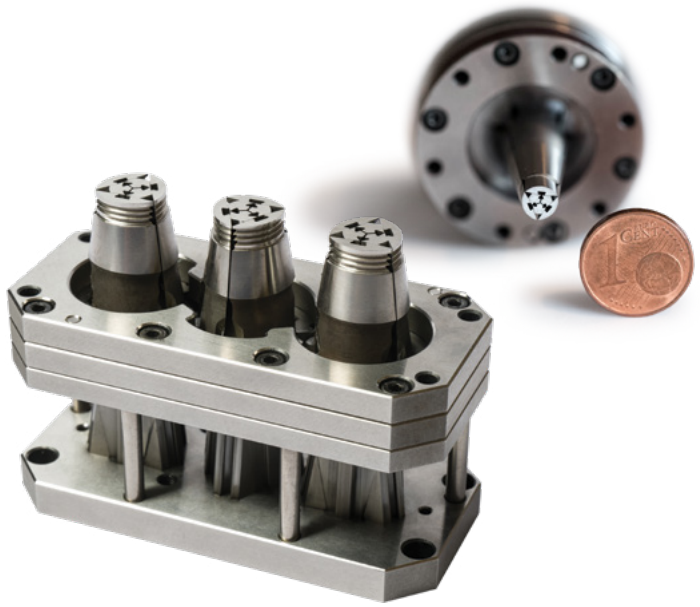
Pancake center pins allow for angular shutoffs and non-collapsed moulding features



CAD reference point

S-CORES
DME COLLAPSIBLE S-CORES

EUSCORE

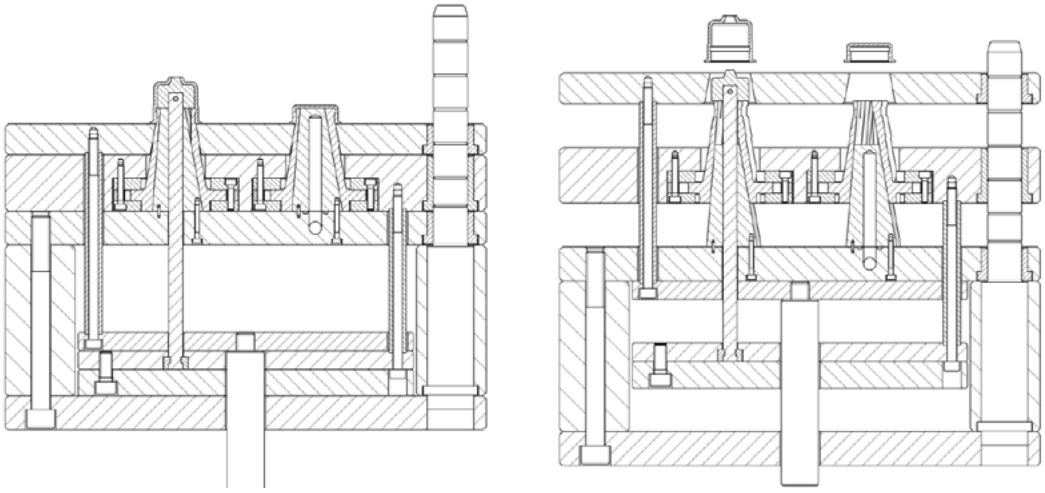


Up to 25 % undercut
Diameters from 6 mm to 400 mm
Various shapes - round or square
With 6, 8 or 12 segments
Maximum speed of 100 mm/sec
Round or square retaining rings

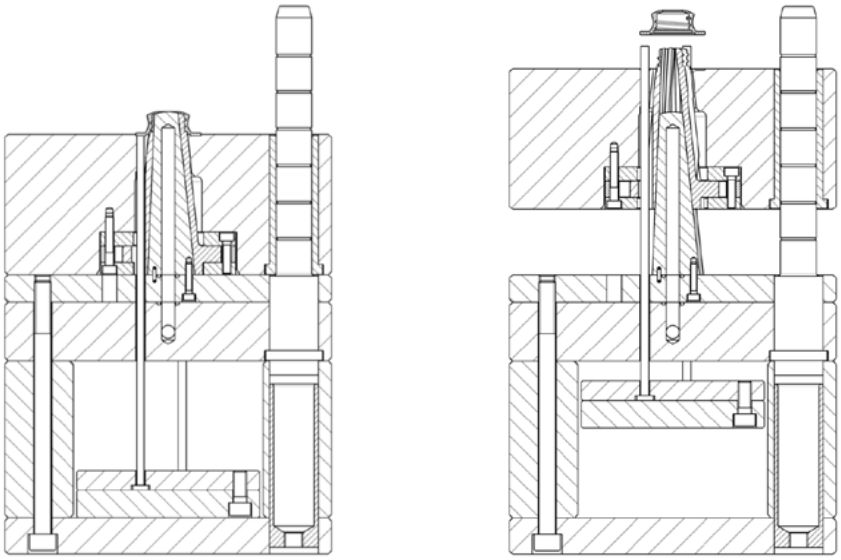
The Engineering team of DME develops custom solutions for every application.

Features
SAFETY STOP: preventing the damaging of the segments
EASIER MACHINING: thanks to its flat back, it's easier to fix the core on the magnetic table and machine the required profile to realize the undercut
PRECISE INSTALLATION: The back of the S-core has holes for screws and dowel pins to precisely position it in the mold. If needed different dowel pins can be used, in case the part is not rotational symmetric
EXTENSIVE VARIETY OF APPLICATIONS: Many possibilities are available, to better suit your application - see examples below
Special solution for SMALL CAVITY SPACING with special retaining rings

FUNCTIONAL EXAMPLE OF A STANDARD FOLDING CORE IN COMBINATION WITH A FOLDING CORE WITH FRONT INSERT IN THE SAME TOOL



FUNCTIONAL EXAMPLE OF A STANDARD FOLDING CORE IN COMBINATION WITH EJECTOR PINS

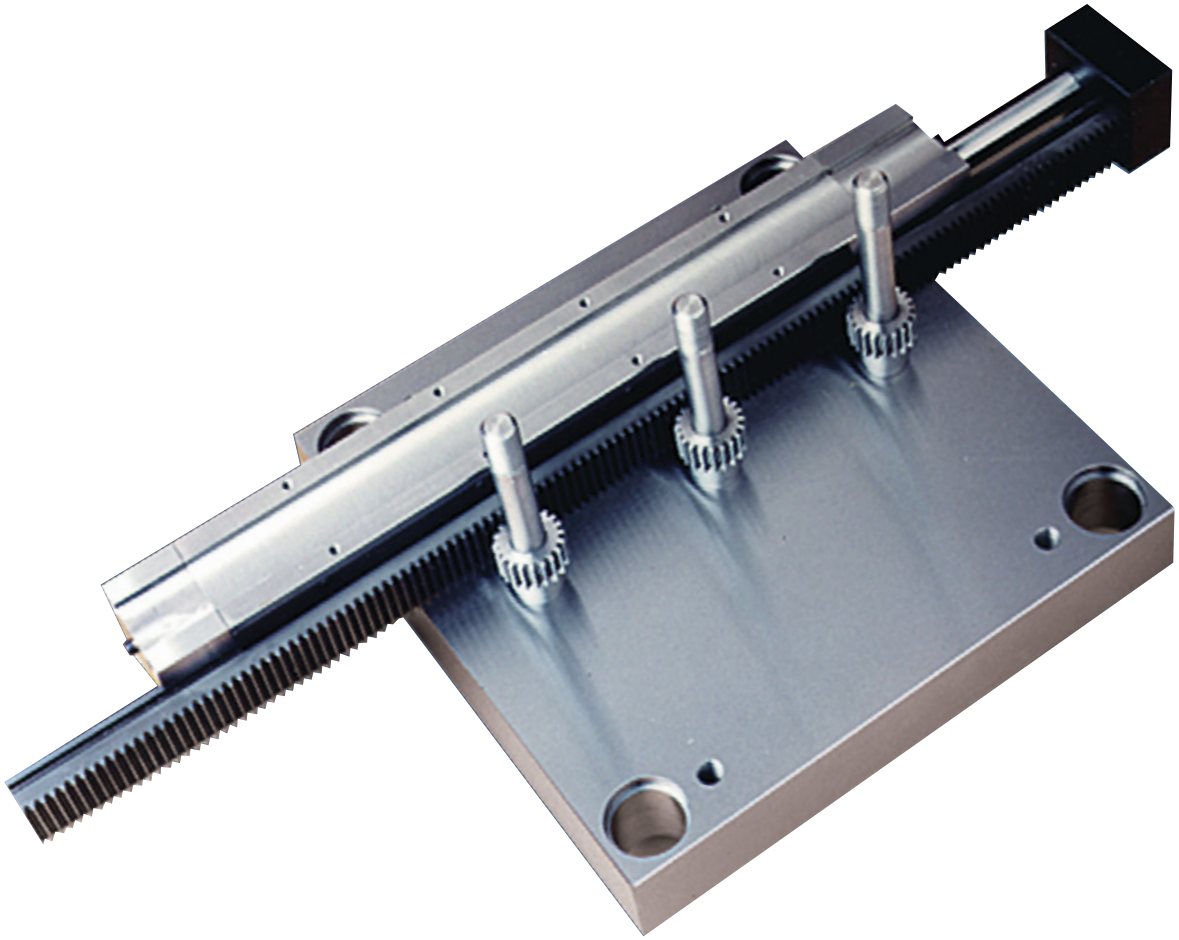


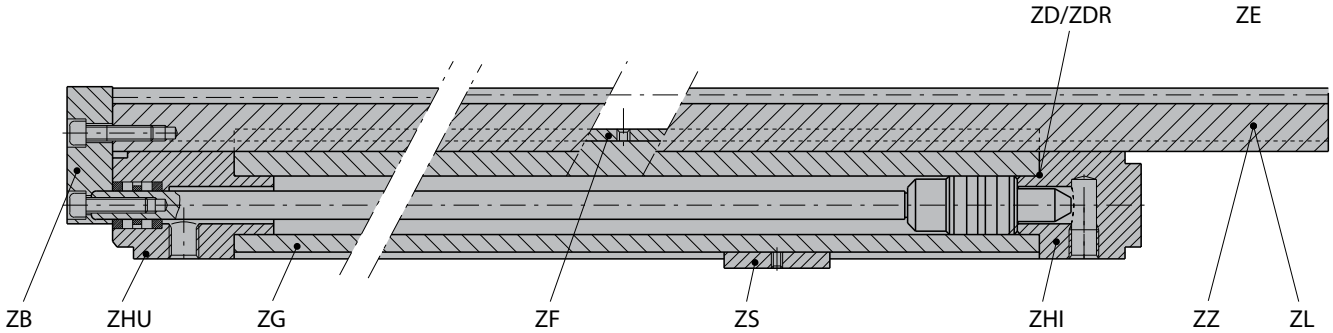
PLEASE CONTACT OUR SPECIAL PROJECTS TEAM FOR A QUOTE: dmeeu_specialprojects@dme.net

CAD reference point

UNSCREWING DEVICES
HYDRAULIC UNSCREWING DEVICE

Info





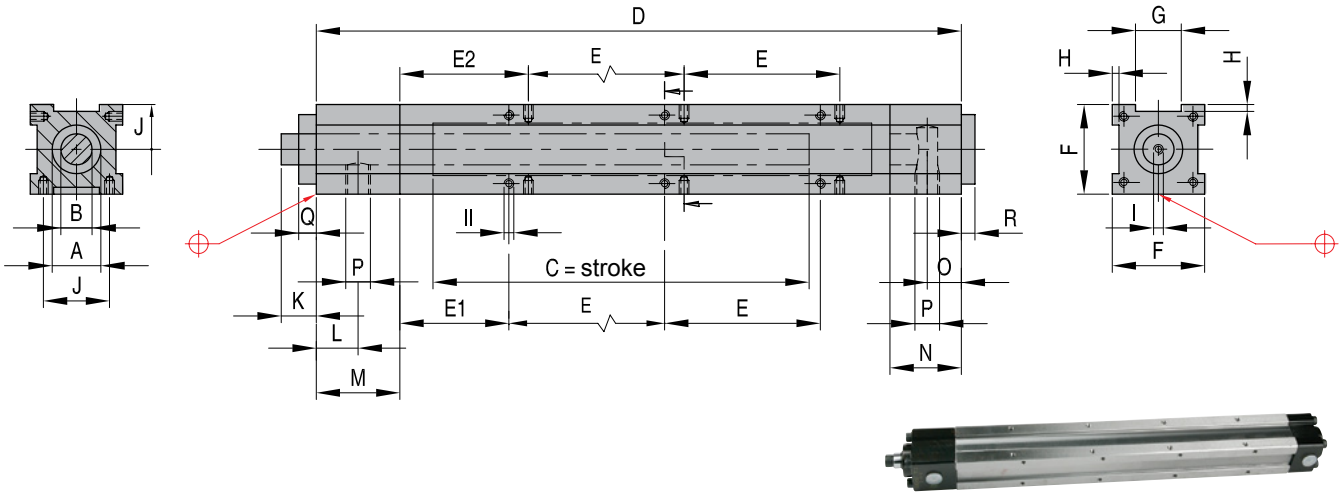
REF	Includes		
	Base construction	End caps-out	End Caps-in
ZG25300	ZG25300	ZHU25	ZHI25
ZG25400	ZG25400	ZHU25	ZHI25
ZG25500	ZG25500	ZHU25	ZHI25
ZG40300	ZG40300	ZHU40	ZHI40
ZG40400	ZG40400	ZHU40	ZHI40
ZG40500	ZG40500	ZHU40	ZHI40
ZG63400	ZG63400	ZHU63	ZHI63
ZG63500	ZG63500	ZHU63	ZHI63

CAD reference point

UNSCREWING DEVICES
BASE CONSTRUCTION

ZG

Max T = 80°C - Max p = 150 bar

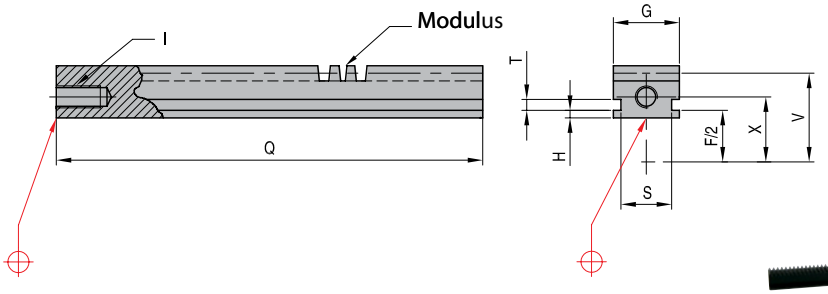


REF	A	B	C	D	E	E1	E2	F	G	H	J	K	L	M	N	O	P	Q	R	I	II
ZG25300	ø 25	ø 16	300	423,5	3x80	56	66	46	20	3,5	34	18	21,5	43	28,5	11	R 1/4"	9	6,5	M8x20	SM5x10
ZG25400	ø 25	ø 16	400	523,5	3x80	106	116	46	20	3,5	34	18	21,5	43	28,5	11	R 1/4"	9	6,5	M8x20	SM5x10
ZG25500	ø 25	ø 16	500	623,5	5x80	76	86	46	20	3,5	34	18	21,5	43	28,5	11	R 1/4"	9	6,5	M8x20	SM5x10
ZG40300	ø 40	ø 22	300	431,5	3x80	56	66	56	30	3,5	44	22	35	53	26,5	12,5	R 1/2"	9	8,5	M10x30	SM5x10
ZG40400	ø 40	ø 22	400	531,5	3x80	106	116	56	30	3,5	44	22	35	53	26,5	12,5	R 1/2"	9	8,5	M10x30	SM5x10
ZG40500	ø 40	ø 22	500	631,5	5x80	76	86	56	30	3,5	44	22	35	53	26,5	12,5	R 1/2"	9	8,5	M10x30	SM5x10
ZG63400	ø 63	ø 36	400	555,5	3x80	114	124	96	50	8	70	38	25	52	34,5	16	R 3/4"	22	12,5	M16x40	SM8x16
ZG63500	ø 63	ø 36	500	655,5	5x80	84	94	96	50	8	70	38	25	52	34,5	16	R 3/4"	22	12,5	M16x40	SM8x16

UNSCREWING DEVICES
RACKS

ZZ

Mat.: 1.6580 nitrided 60 HRc



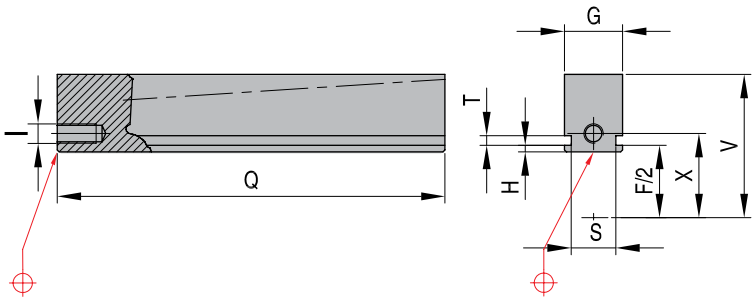
REF	A	F/2	G	H	Q	Modulus	S	T	V	X	I for
ZZ25600M1	Ø 25	23	20	3,4	600	1,00	13	5	36,3	27,1	M8 x 20
ZZ25800M1	Ø 25	23	20	3,4	800	1,00	13	5	36,3	27,1	M8 x 20
ZZ25600M1-25	Ø 25	23	20	3,4	600	1,25	13	5	36,3	27,1	M8 x 20
ZZ25800M1-25	Ø 25	23	20	3,4	800	1,25	13	5	36,3	27,1	M8 x 20
ZZ40600	Ø 40	28	30	3,4	600	1,5	23	5	43,1	34,1	M10 x 30
ZZ40800	Ø 40	28	30	3,4	800	1,5	23	5	43,1	34,1	M10 x 30
ZZ63800	Ø 63	48	50	7,9	800	2,00	40	7	68,1	55,1	M12 x 40
ZZ63900	Ø 63	48	50	7,9	900	2,00	40	7	68,1	55,1	M12 x 40

CAD reference point

UNSCREWING DEVICES GIBS

ZL

Mat.: 1.7225 ~30 HRc

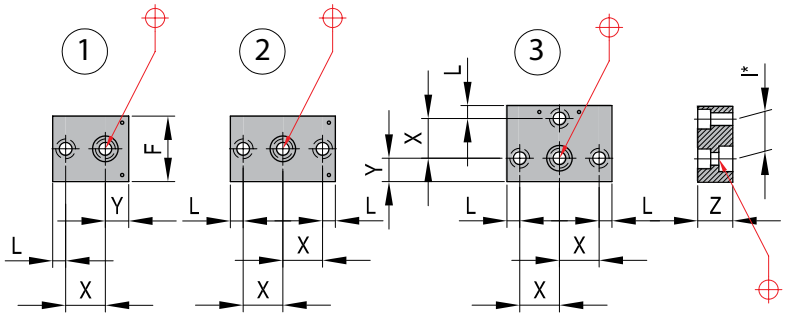


REF	A*	F/2	G	H	Q	S	T	V	X	I for
ZL25800	Ø 25	23	20	3,4	800	13	5	49,6	27,1	M8 x 20
ZL40800	Ø 40	28	30	3,4	800	23	5	64,6	34,1	M10 x 30
ZL63900	Ø 63	48	50	8,0	900	40	7	100,1	55,1	M12 x 40

*Suited for cylinder diameter

UNSCREWING DEVICES FLANGES

ZB



* I is the thread dimension

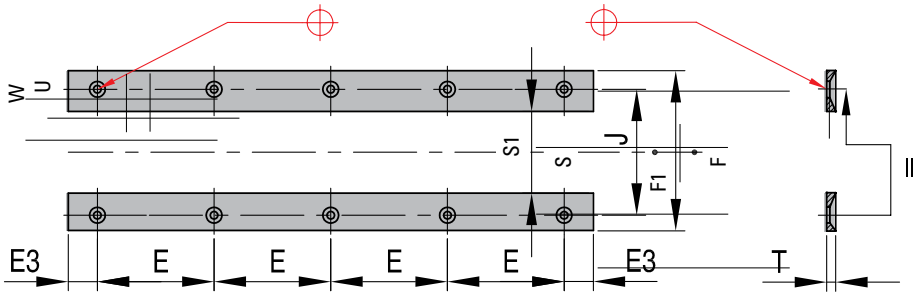
REF	A	X	Y	F	Z	L	I: for
ZB251	Ø 25	27	12,5	46	20	10,5	2 x M8 x 20
ZB252							3 x M8 x 20
ZB253							4 x M8 x 20
ZB401	Ø 40	34	20,0	56	30	11,0	2 x M10 x 30
ZB402							3 x M10 x 30
ZB403							4 x M10 x 30
ZB631	Ø 63	55	30,0	96	40	15,0	1 x M12 x 40 1 x M16 x 40
ZB632							2 x M12 x 40 1 x M16 x 40
ZB633							3 x M12 x 40 1 x M16 x 40

CAD reference point

UNSCREWING DEVICES GUIDEWAYS

ZF

Order per 2 pieces

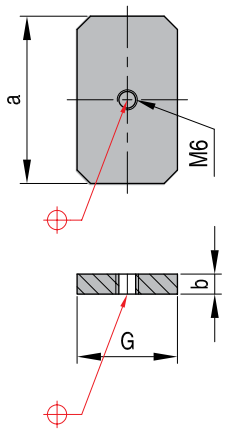


REF	A	C	E	E3	F	F1	J	S	S1	W	U	T	II
ZF2540300	Ø 25	300	3x80	46	46	45	34	13	15	15	5,5	4	SM 5x10
ZF2540400	Ø 25	400	3x80	96	46	45	34	13	15	15	5,5	4	SM 5x10
ZF2540500	Ø 25	500	5x80	66	46	45	34	13	15	15	5,5	4	SM 5x10
ZF2540300	Ø 40	300	3x80	46	56	55	44	23	25	15	5,5	4	SM 5x10
ZF2540400	Ø 40	400	3x80	96	56	55	44	23	25	15	5,5	4	SM 5x10
ZF2540500	Ø 40	500	5x80	66	56	55	44	23	25	15	5,5	4	SM 5x10
ZF63400	Ø 63	400	3x80	104	96	91,6	70	40	41,6	25	10,8	6	SM 8x16
ZF63500	Ø 63	500	5x80	74	96	91,6	70	40	41,6	25	10,8	6	SM 8x16

Guideways for diameter 25 and 40 are the same.

UNSCREWING DEVICES LOCATING PLATES

ZS

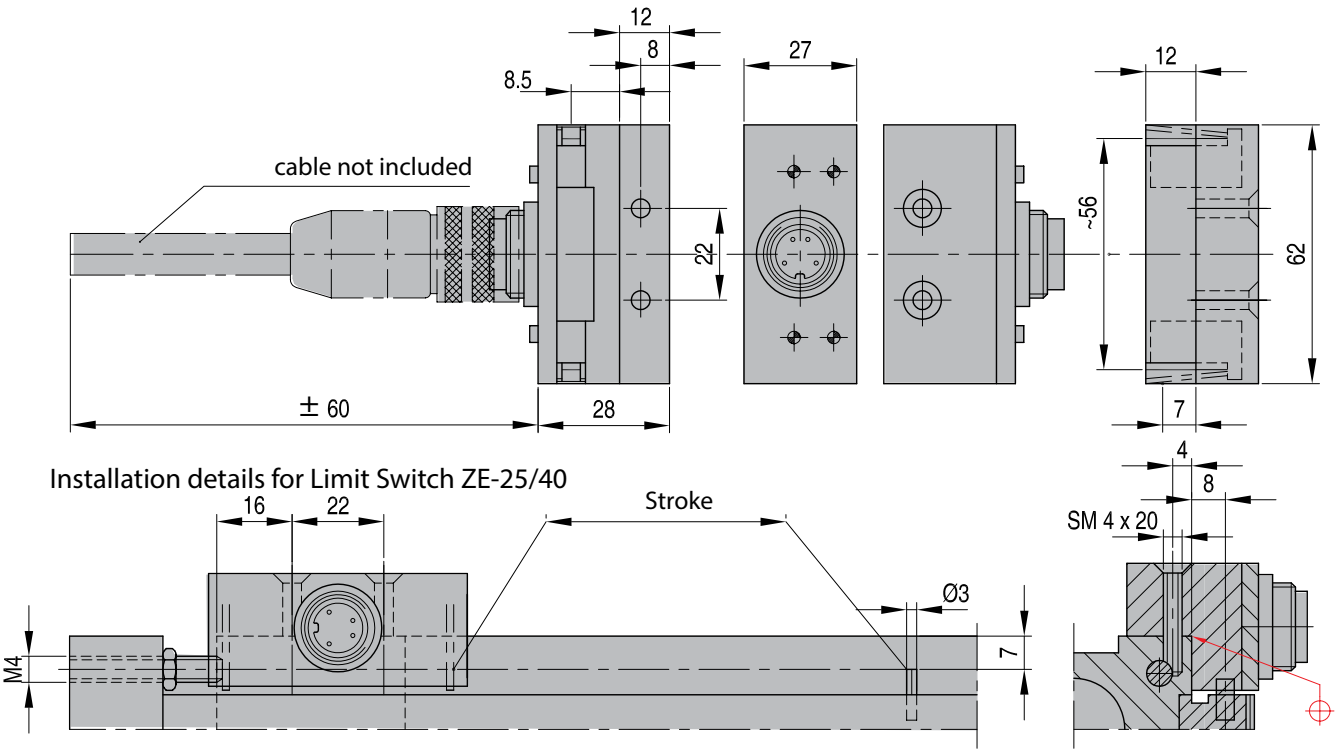


REF	A	G	a	b
ZS25	Ø 25	20	40	6
ZS40	Ø 40	30	50	6
ZS63	Ø 63	50	80	15

CAD reference point

UNSCREWING DEVICES
LIMIT SWITCHES

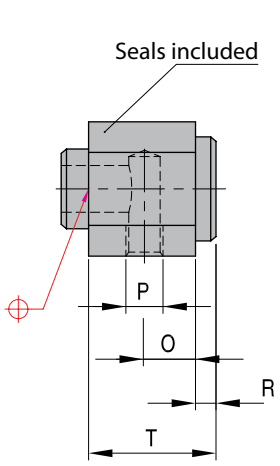
ZE

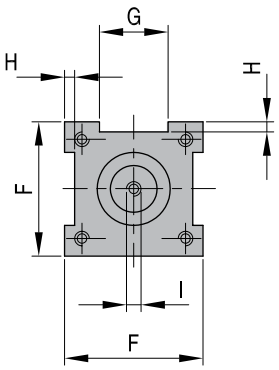


REF	Includes			
ZE2540	(2x) **SM4x20**	(1x) **DP3x16**	(1x) **GS4x20**	(1x) **M4 DIN 934**

UNSCREWING DEVICES
SPARE PART: END CAP - IN

ZHI



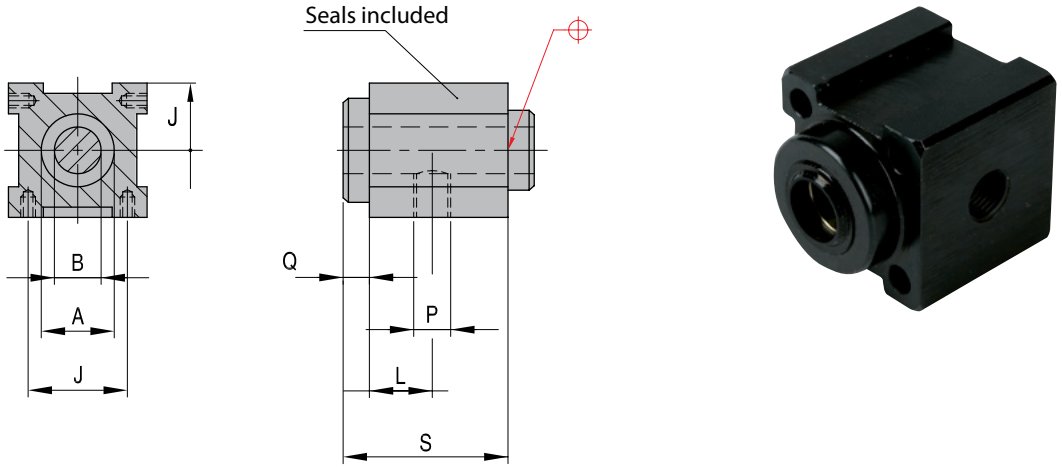


REF	O	R	P	T
ZHI25	11	6,5	R 1/4"	35
ZHI40	12,5	8,5	R 1/2"	35
ZHI63	16	12,5	R 3/4"	47

CAD reference point

UNSCREWING DEVICES
SPARE PART: END CAP - OUT

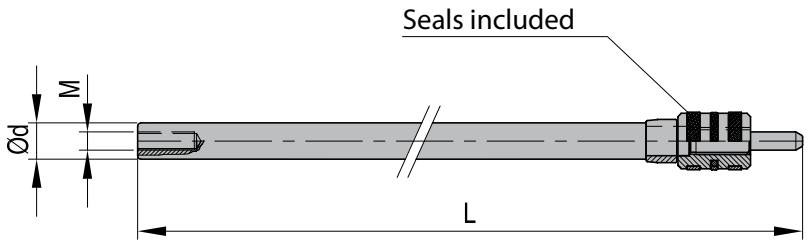
ZHU



REF	L	Q	P	S
ZHU25	21,5	9	R 1/4"	52
ZHU40	35	9	R 1/2"	62
ZHU63	25	22	R 3/4"	74

UNSCREWING DEVICES
SPARE PART: ROD & PIST

ZTP

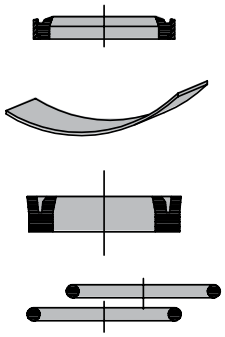


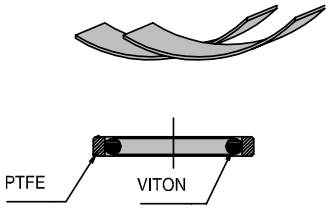
REF	Ø d	M	L
ZTP2530ZG25300	16	8	426
ZTP2540ZG25400	16	8	526
ZTP2550ZG25500	16	8	626
ZTP4030ZG40300	22	10	442
ZTP4040ZG40400	22	10	542
ZTP4050ZG40500	22	10	642
ZTP6340ZG63400	36	16	575
ZTP6350ZG63500	36	16	675

CAD reference point

UNSCREWING DEVICES
SPARE PART: SEALS (KIT)

ZD

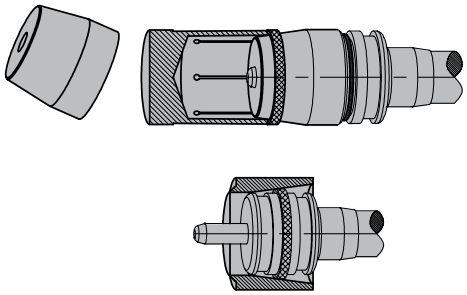




REF
ZD25
ZD40
ZD63

UNSCREWING DEVICES
MOUNTING TOOLS FOR ZD SEAL KIT

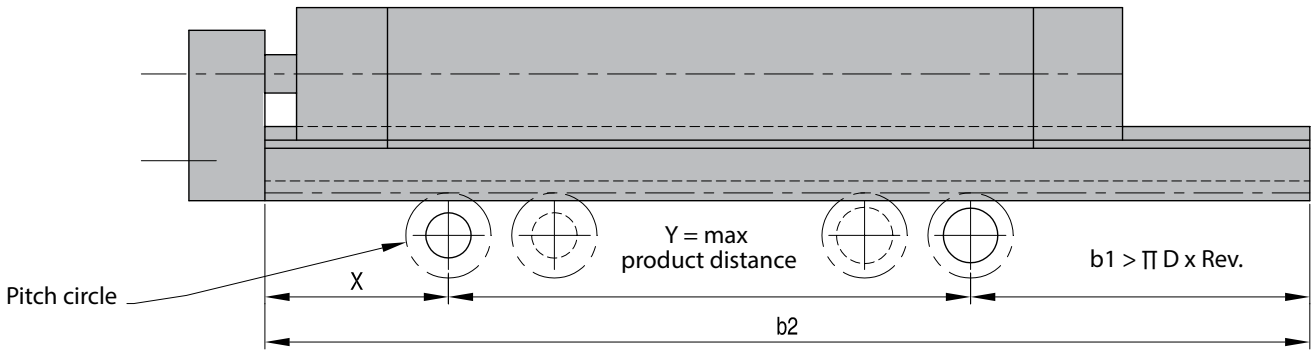
ZDR



REF
ZDR0025TOOL
ZDR0040TOOL
ZDR0063TOOL

UNSCREWING DEVICES
CALCULATION EXAMPLE

Info

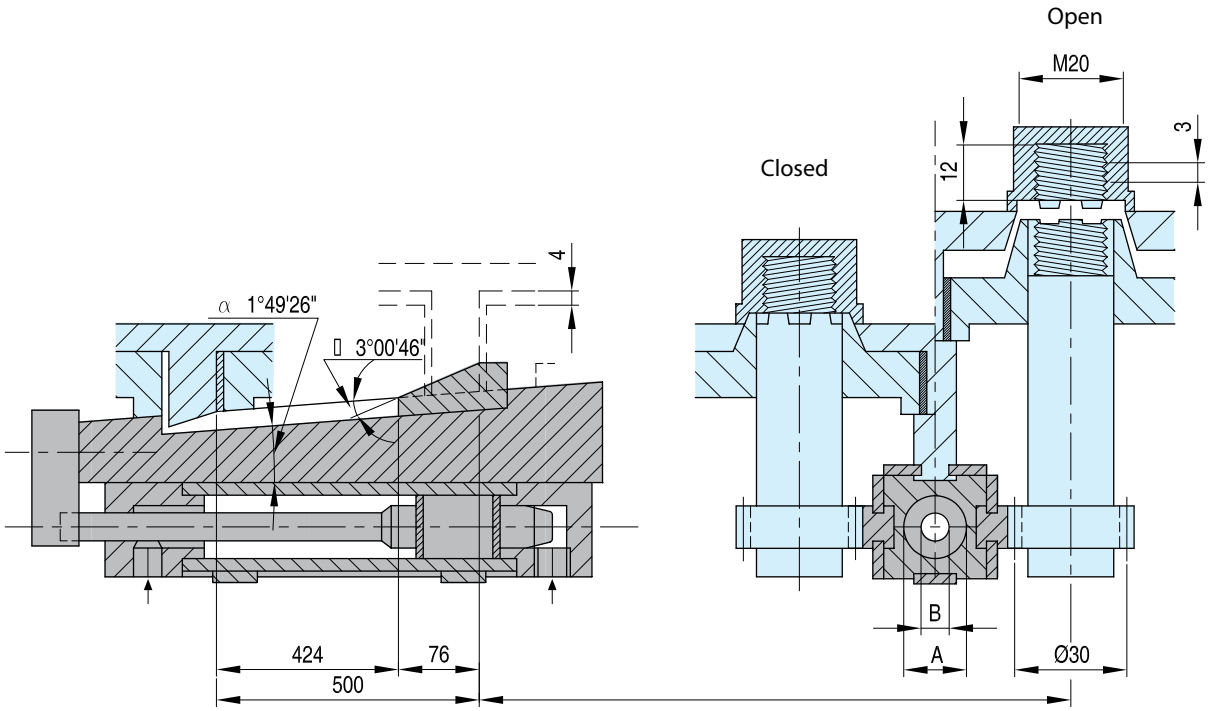


A. Stroke
a. Required revolutions (thread core) = thread height/thread lead + safety (min 0,5 t) = 12 mm/3 mm + 0,5 rev. = 4,5 rev.
b. 1. Required stroke (mm) = pitch circle x π x rev. = 30 mm x 3,14 x 4,5 rev. = 424 mm If required stroke is too long, a cog wheel transmission gear should be used 2. Length of rack b2 = X + Y + b1
c. Stripper stroke (mm) = cylinder stroke - required rack stroke = 500 mm - 424 mm = 76 mm

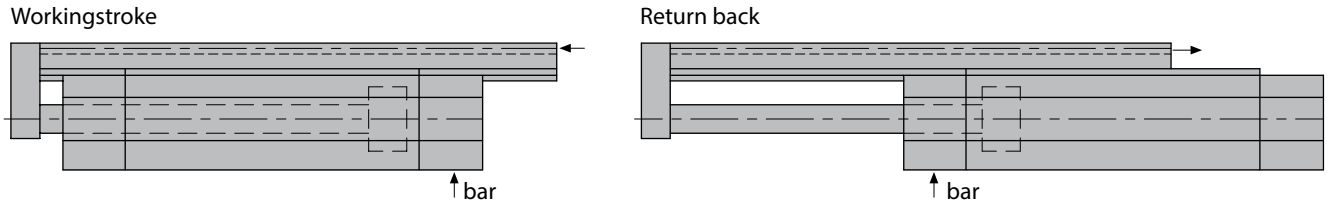
CAD reference point

UNSCREWING DEVICES
CALCULATION EXAMPLE

Info



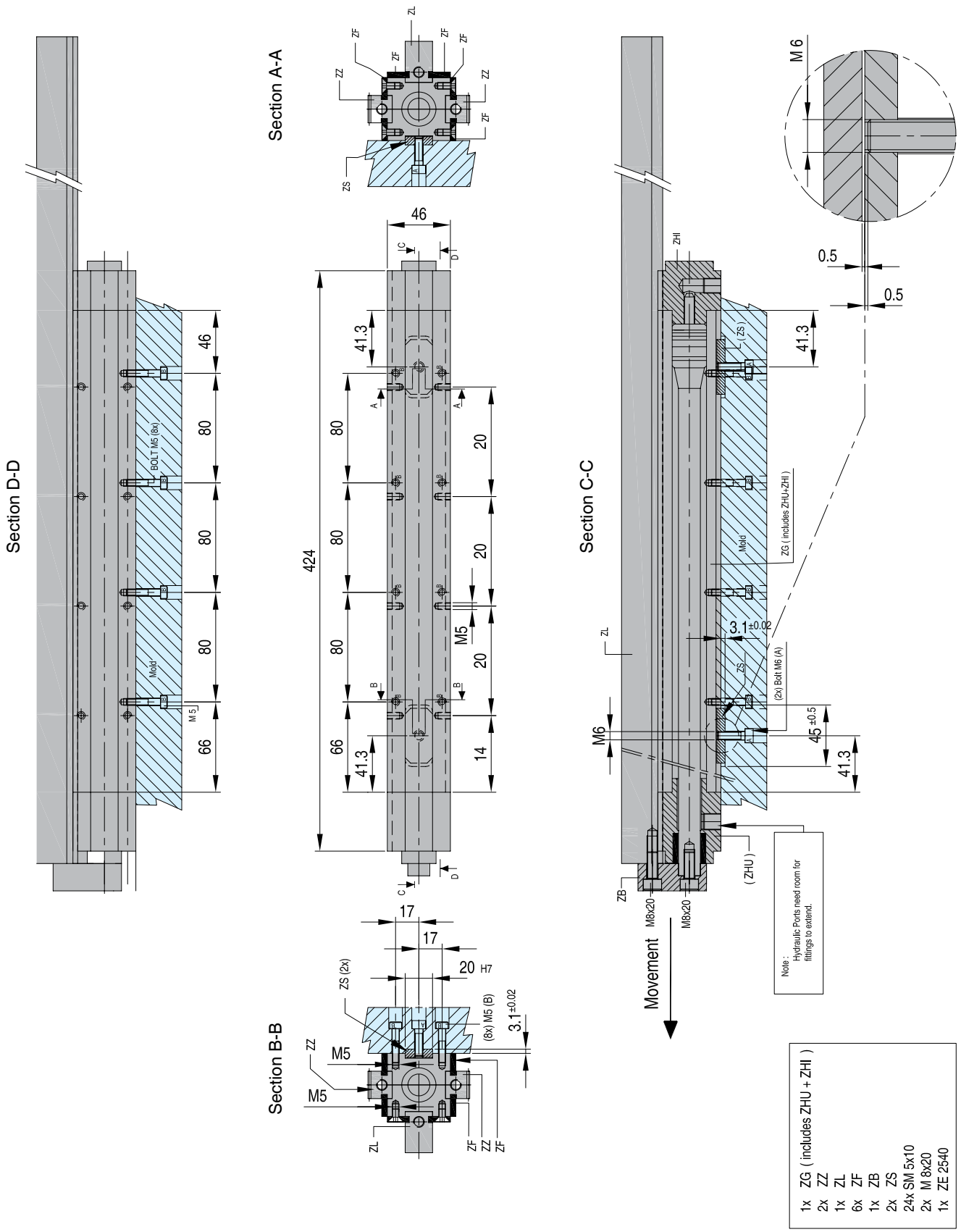
B. Control cam calculation
d. Moving cam (α) tan α = lead/dia. pitch circle x π = 3 mm/30 mm x 3,14 = 0,031847; α = 1° 49' 26"
e. Stripper cam (ß) tan ß = Stripper height/Stripper stroke = 4 mm/76 mm = 0,0526315; ß = 3°00'46"



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, lubricant, etc...)
f. Residual pressure (bar) 1/100 of max. injection pressure = 1000 bar/100 ≈ 10 bar ≈ 1 N/mm²
g. Effective core surface area (mm²) = thread dia. x π x thread height x 2* = 20 mm x 3,14 x 12 mm x 2 = 1507 mm²
* - 2 x height for developped surface (^^^^) - frontal area is neglected
h. Unscrewing torque (Nmm) = Holding pressure x surface x thread radius = 1 N/mm² x 1507 mm² x 10 mm = 15070 Nmm
i. Unscrewing force rack (kN) = unscrewing torque/radius pitch circle x number of cores = 15070 Nmm/15 mm x 4 = 4019 N = 4,02 kN
k. Hydraulic force (kN) = Unscrewing force x 1,5 = 4,02 kN x 1,5 = 6,03 kN (50 % safety, hence x 1,5)

CAD reference point

UNSCREWING DEVICES
INSTALLATION INSTRUCTIONS

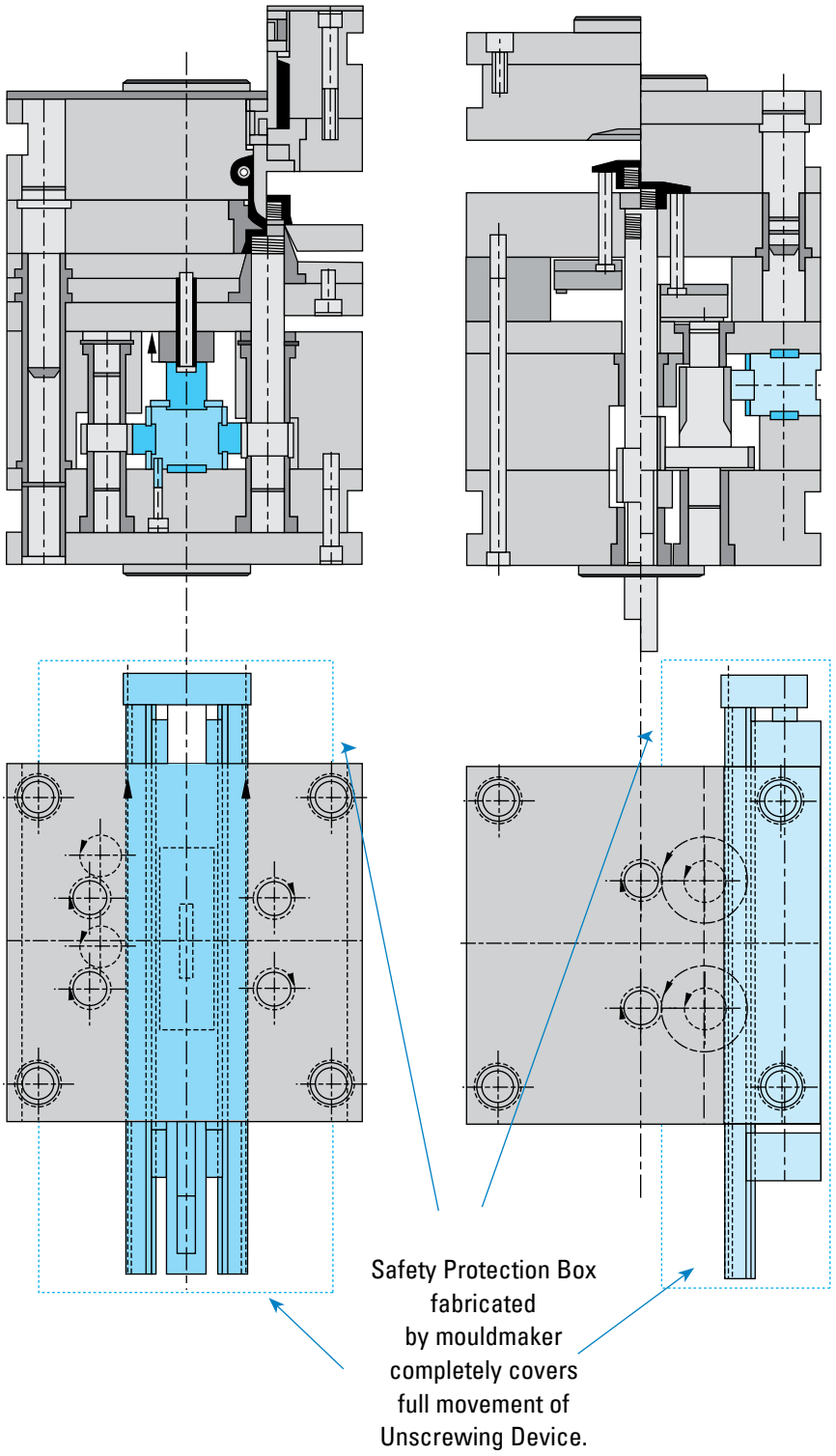


CAD reference point

UNSCREWING DEVICES APPLICATIONS

APPLICATION A WITHOUT GUIDING THREAD WITH CAM

APPLICATION B WITH GUIDING THREAD

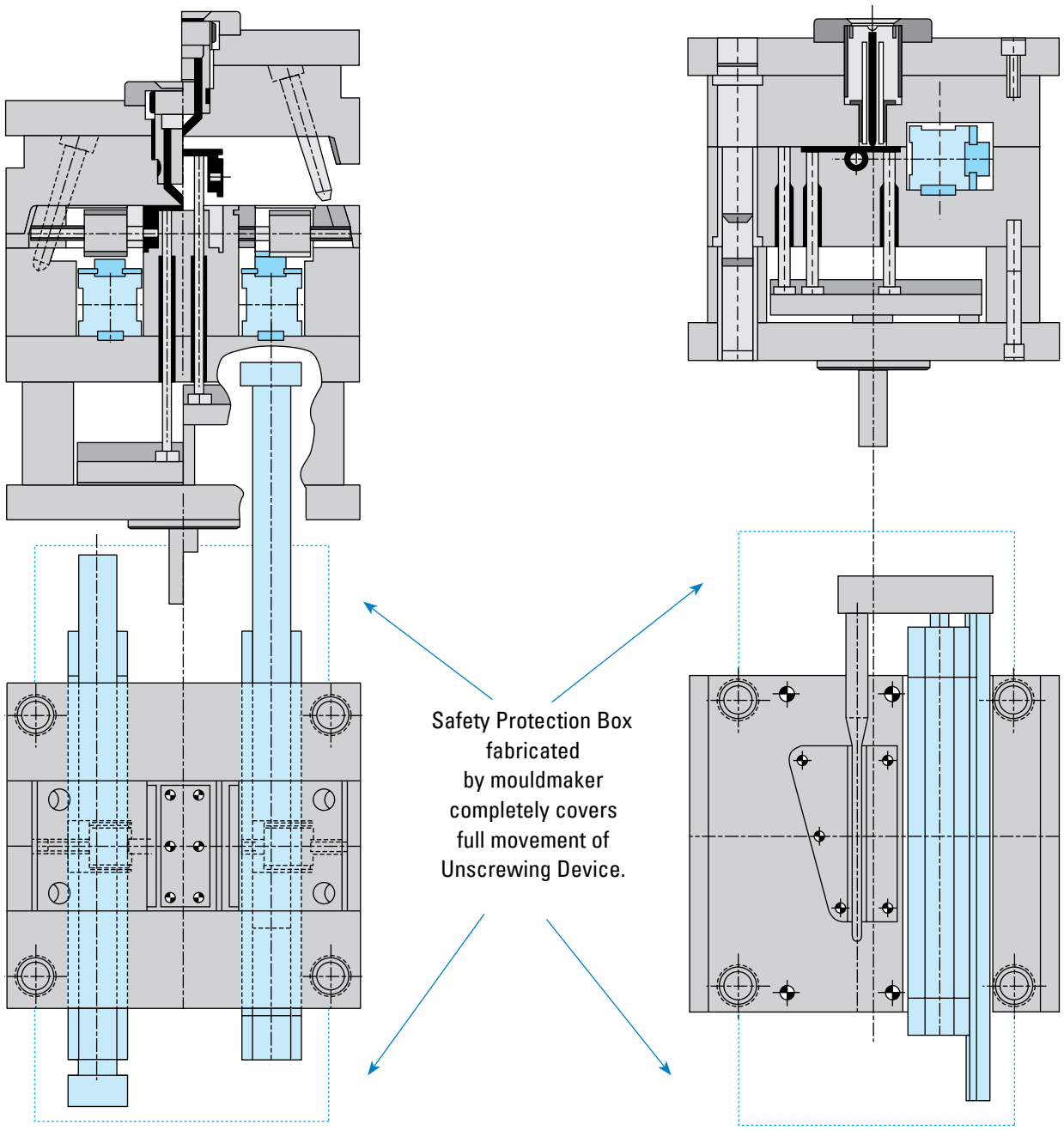


CAD reference point

UNSCREWING DEVICES APPLICATIONS

APPLICATION C WITH GUIDING THREAD

APPLICATION D LONG GUIDING CORES



Safety Considerations:
Mouldmaker must fabricate boxes over the rack areas which move to protect against injury to personnel. Mouldmaker 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.

CAD reference point

NOTES

CAD reference point