SUPERIOR
DIE SET CORPORATION

THE THREADFORMER™

UNSCREWING DEVICES FOR MOLDS

COMPACT, RIGHT ANGLE - SINGLE & TWIN UNITS

TECHNICAL INFORMATION

UNSCREWING DEVICES

***UNSCREWING DEVICES** - Precise, Sturdy and Cost-Efficient*

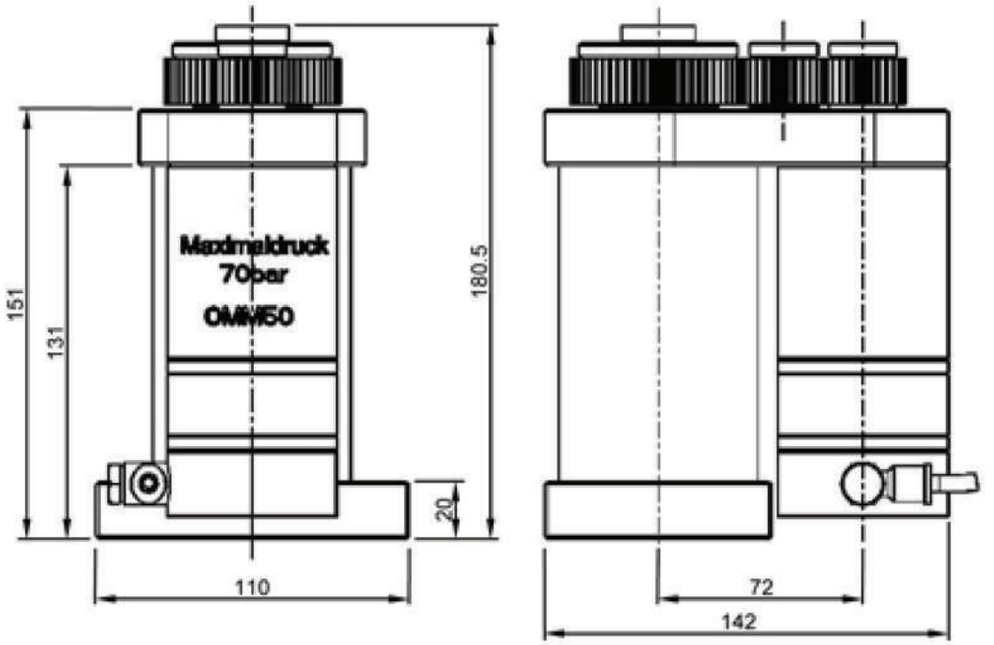
- *telescope guide system provides compact design*
- *powerful hydraulic motor for rapid unscrewing action*
- *demolds both right and left-hand thread*
- *supports long thread depths*
- *suitable for volume production, requiring minimal maintenance*
- *retrofittable on existing injection molds*

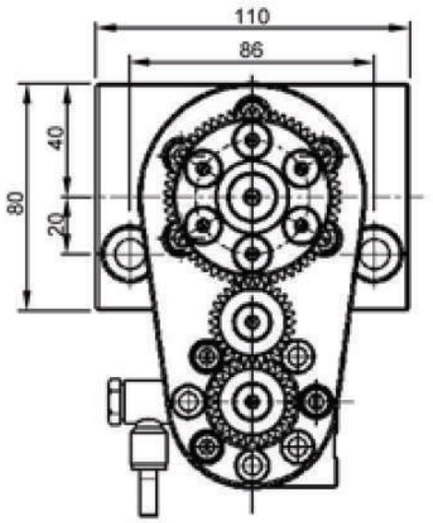
Installation Note

The thread core is fitted in the core holder via a 16 mm dia. shank mounting receptacle (optionally, 20 mm dia. for h). The pitch of the thread to be demolded is factory-machined into the thread guide nut and thread guide core per customer specifications before the unit is delivered. Thus, only the geometry-defining thread core needs to be produced by a toolmaker.

Technical drawing

Single-drive Unscrewing Device TGA-01





The height of this unscrewing device remains unchanged during operation.

Due to its compact design, the single-drive unit measures only 110 mm x 142 mm x 181 mm.

The weight is about 7.5 kg.

Technical drawing

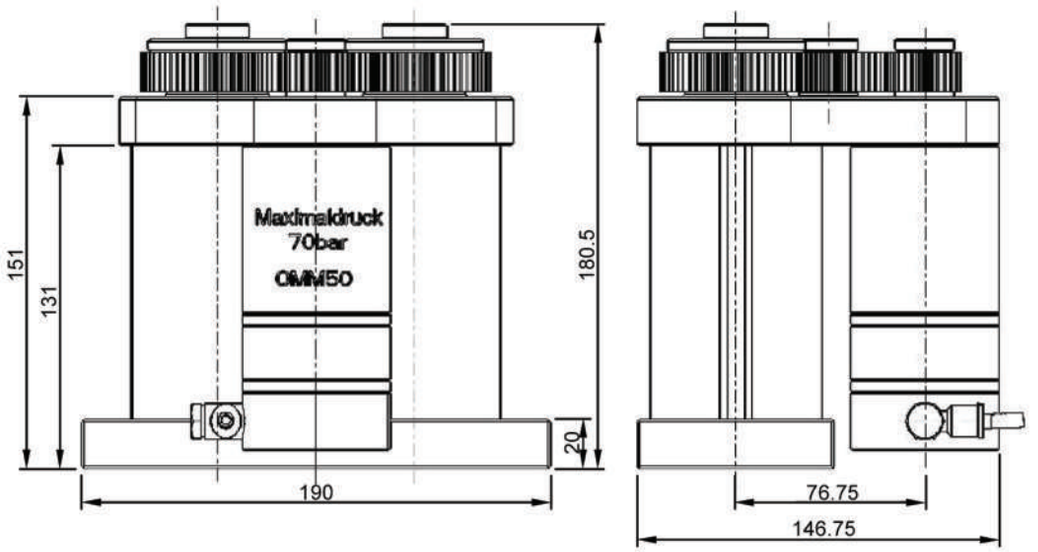
Single-drive Unscrewing Device TGA-01

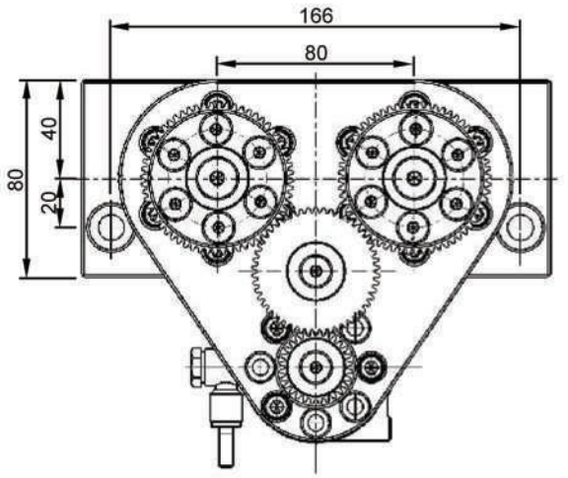
The above exploded view illustrates components of our single-drive unscrewing device.

- *Base plate and flange plate*
- *Thread core holder with telescope*
- *Thread guide nut*
- *Drive wheel*
- *Telescope wheel*
- *Hydraulic motor*

Exploded View

Twin-drive Unscrewing Device TGA-02





The height of this unscrewing device remains unchanged during operation.

The dimensions of the twin-drive unit are 190 mm x 147 x 181 mm.

The twin-drive unscrewing devices have an axis spacing of 80 mm or 120 mm (standard). Custom axis spacings can be realized upon request.

The weight is about 13 kg.

Exploded View

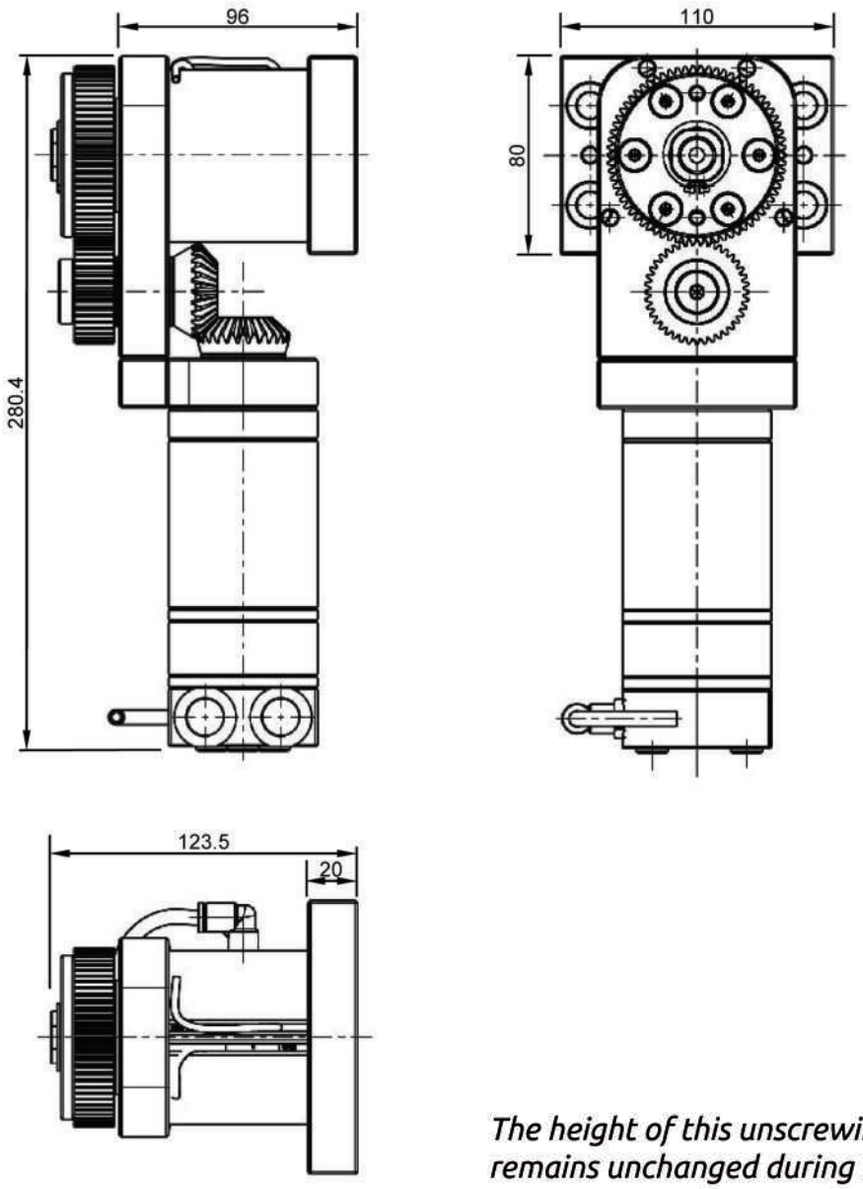
Twin-drive Unscrewing Device TGA-02

The structure of the twin-drive unit corresponds to that of the single-drive version.

The thread core holder, telescope guide system and guide nut are each provided in duplicate.

Exploded View

Compact Unscrewing Device NTGA-01

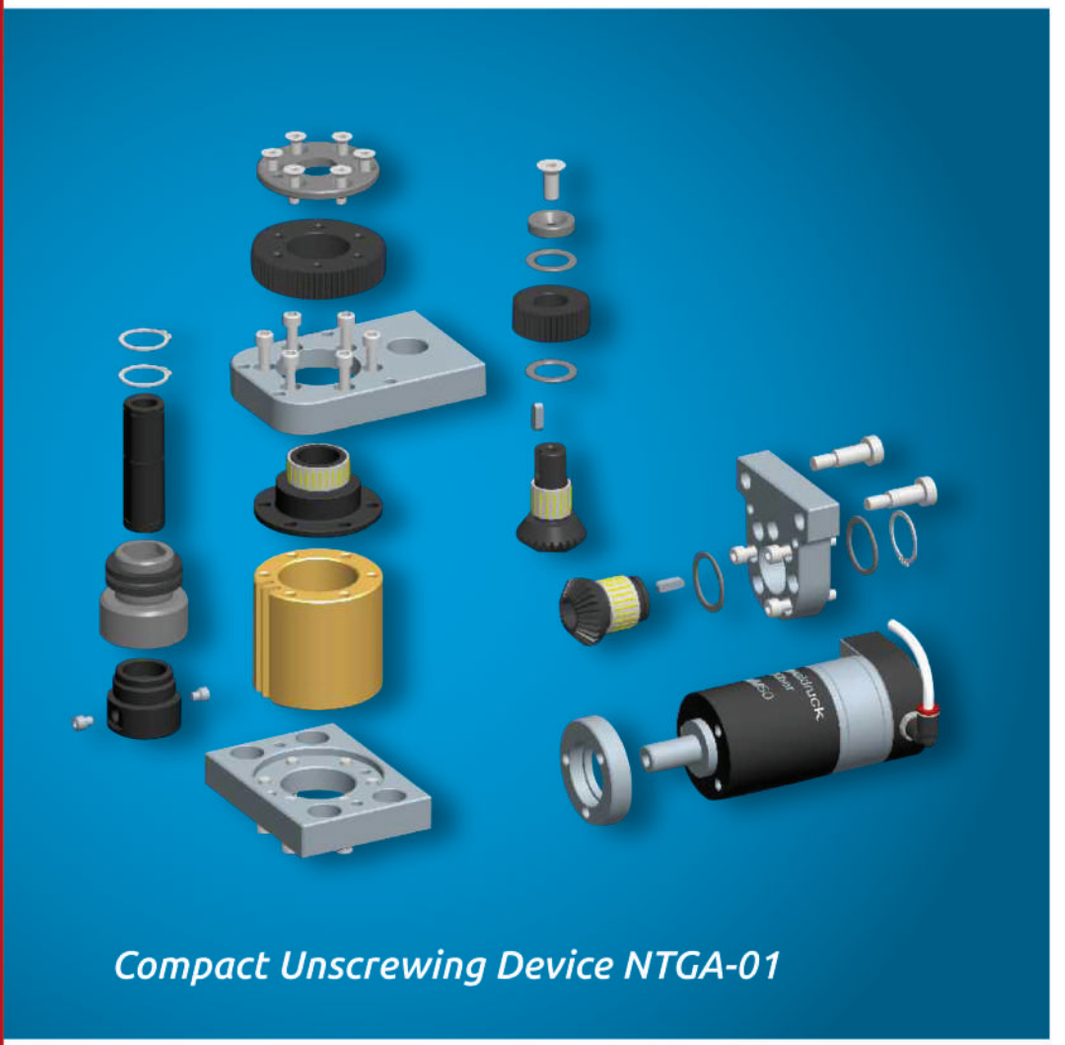


The height of this unscrewing device remains unchanged during operation.

The dimensions of the compact unit are 110 mm x 281 mm x 123.5 mm.

The weight is about 7.8 kg.

Exploded View

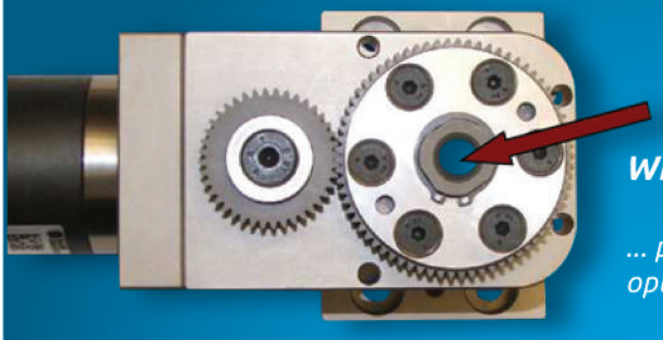


Compact Unscrewing Device NTGA-01

The characterizing feature of this low-height unscrewing device lies in its bevel gear set which redirects the drive power at a 90 degree angle.

Due to its extra flat design, the low-height unscrewing device can even be accommodated in the ejector space.

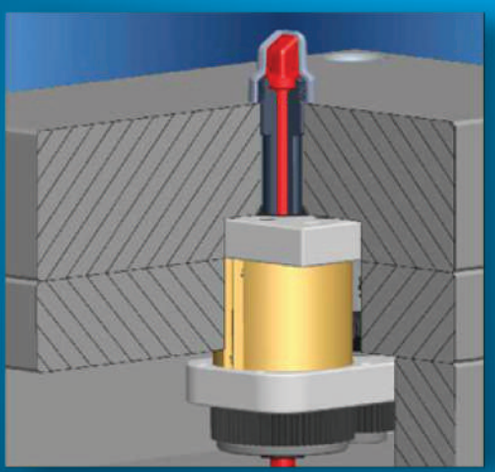
Installation Example NTGA-01



Whoaa! It's a hole ...

... providing diverse new options, e.g., for installing:

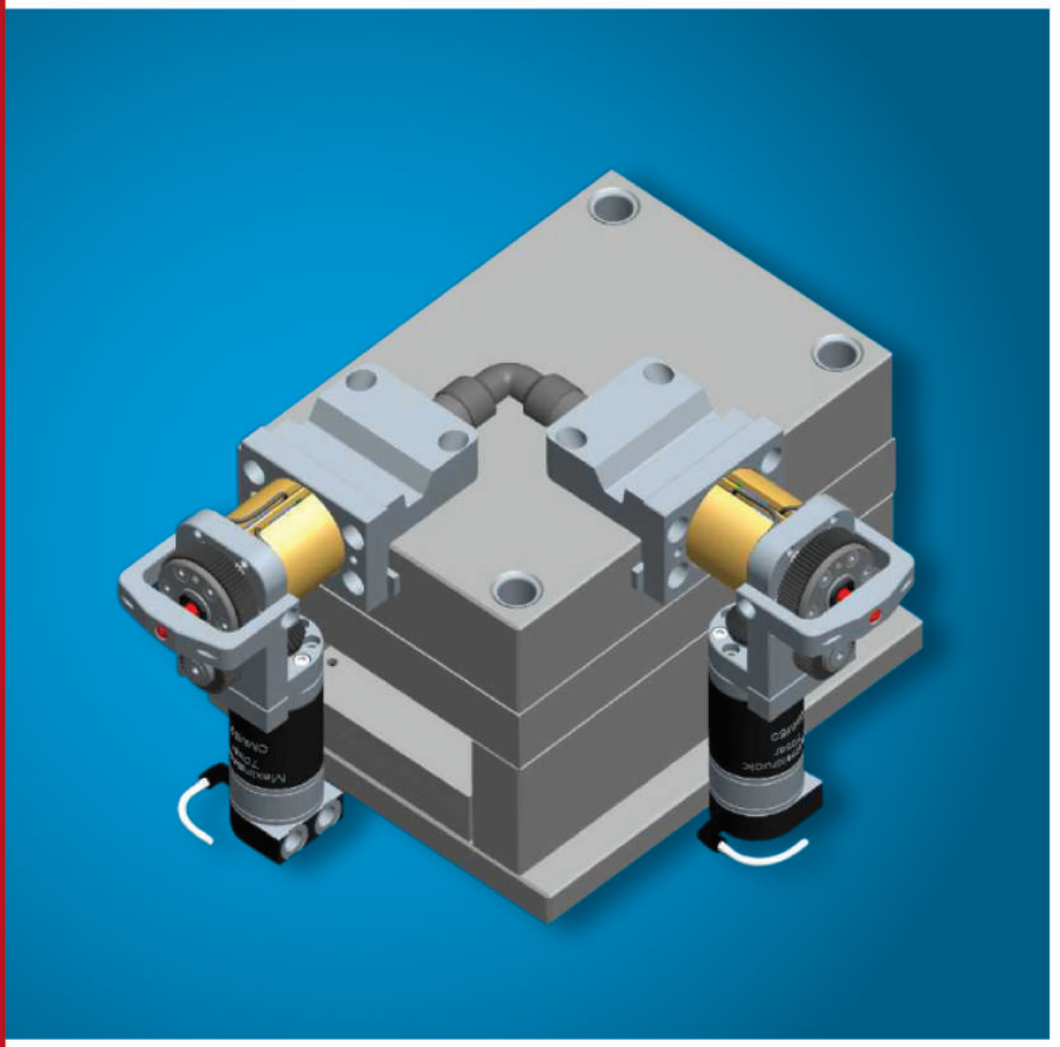
- *upstanding cores*
- *blowing needles for making bottles or containers*
- *core cooling tubes*



Installation Example - Upstanding Core

Inside the core holder, a 20 mm dia. shank receptacle is provided for mounting either the shape-defining thread core or a thread bushing. The telescopic sleeve has a bore diameter of 13 mm, so cores (marked red) with a sturdy 12 mm dia. shank can be passed through it.

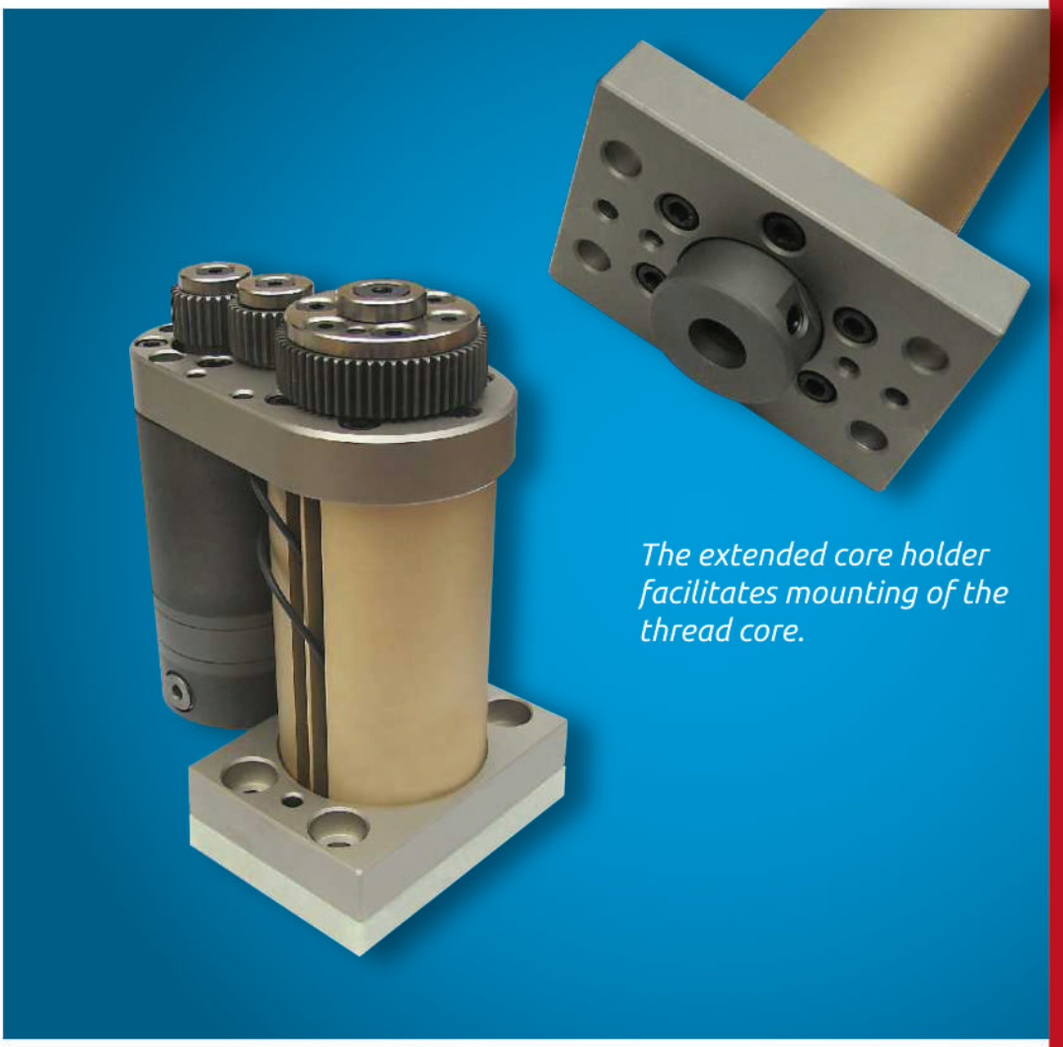
Special Variants



Installation Example - Fittings

Our new "NTGA" type compact unscrewing device shows its merits especially when it comes to making pipe fittings. The upstanding cores (marked red) are passed through the telescopic sleeve and secured against turning behind the unscrewing device.

Special Variants



The extended core holder facilitates mounting of the thread core.

These thread unscrewing devices are also available in special versions, e.g., with extended core holder and matching heat insulation plate.

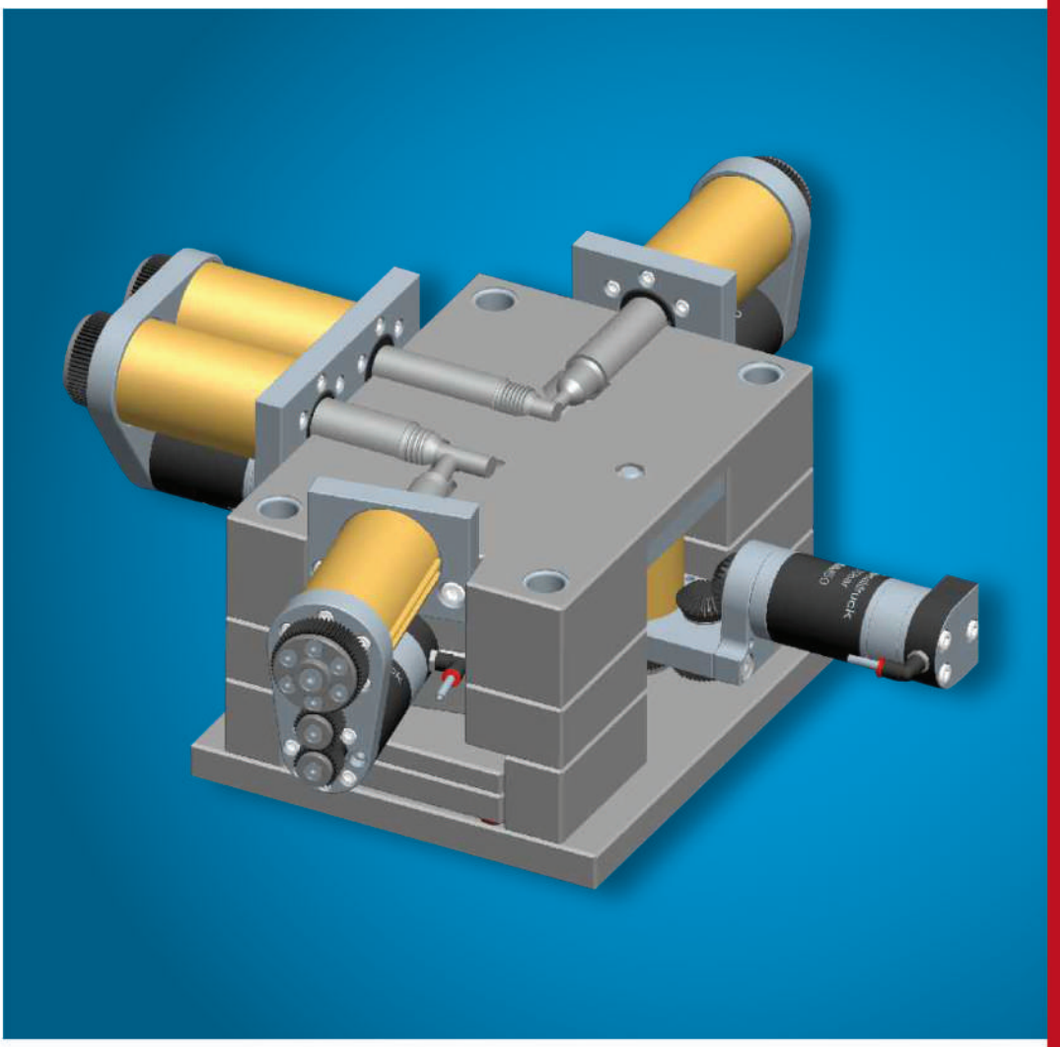
Special Variants

*Model **TGA-01S***
Single-drive unit with upright motor

Our TGA-01 and TGA-02 unscrewing devices are also available in special versions:

- *TGA-01 with upright motor*
- *TGA-02 with custom axis spacing*

Technical Specifications



The unscrewing devices mount to the mold using two M10 screws.

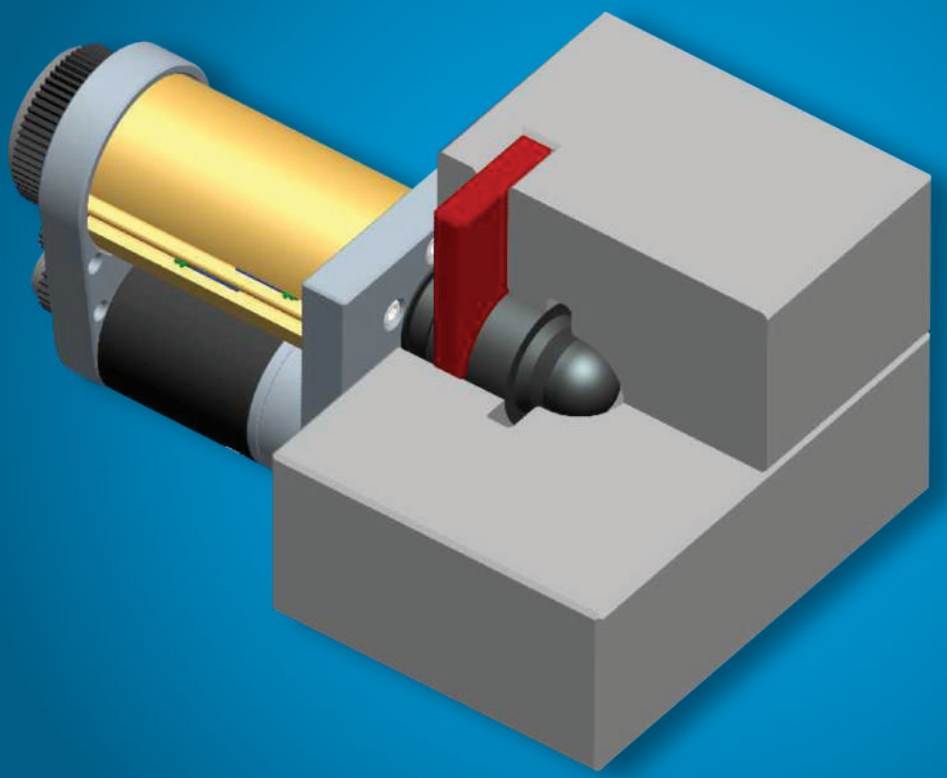
Our unscrewing devices can be fitted at any angle, even within the mold.

Installation Example

The unscrewing devices can be ordered with different high-powered hydraulic motors.
Each unit comes with high-precision magnetic field sensors. The thread depth is determined by a fixed stop on the mold. These unscrewing devices are rated for operating temperatures up to 70°C. For applications involving higher temperatures please contact our technical support.

Installation Instruction "Core Locks"

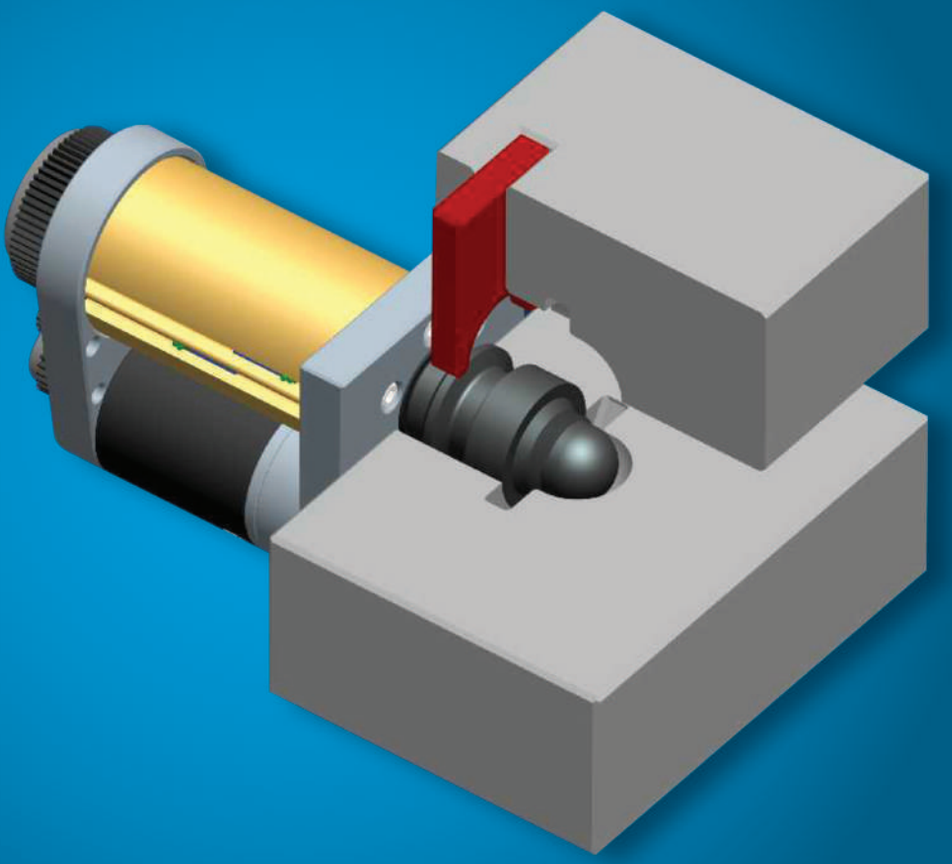
Mold with closed core lock



With large-diameter or blind-hole thread, it is necessary to lock the threaded core in order to protect the guide thread from axial forces caused by injection pressure.

Installation Instruction "Positioning Accuracy"

Mold with core lock released

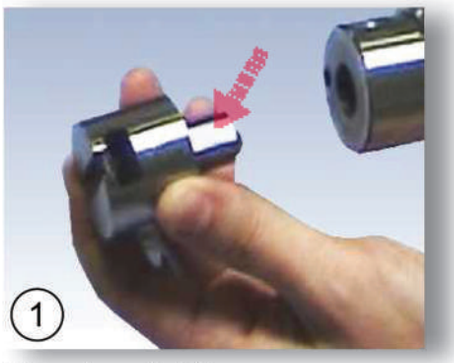


Product: Attachment bracket

Material: PBGF10
Thread: M8
Pitch: 1.0 mm
Total stroke length: 20 mm

Croner Präzisionsformenbau GmbH
Sachsen b. Ansbach, Germany

Installation Example

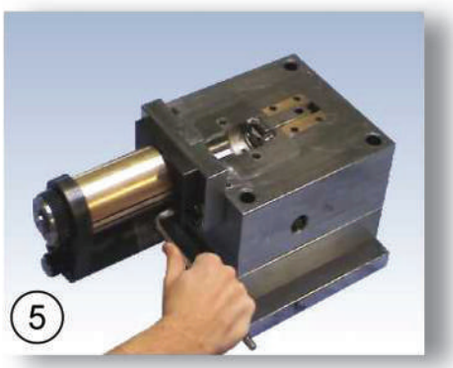


Thread core holding area.

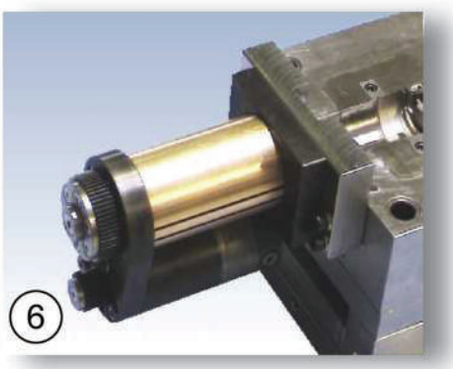
Mount the core in the core holder.

Secure the assembly with set screws. No dowel pins are required.

Screw the core holder into the thread guide nut. Insert with magnetic field sensors into the slot in the guide nut.



Assemble the base plate and flange plate with the thread guide nut by means of the bolts. Mount the hydraulic motor and gear wheels. Attach the assembled unit to the mold.



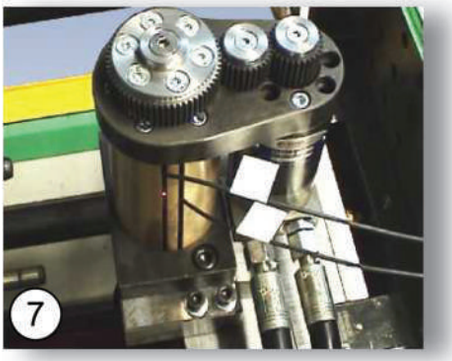
Move the core holder against its forward stop by turning the follower disc of the telescope wheel.

Product: Protective Cap

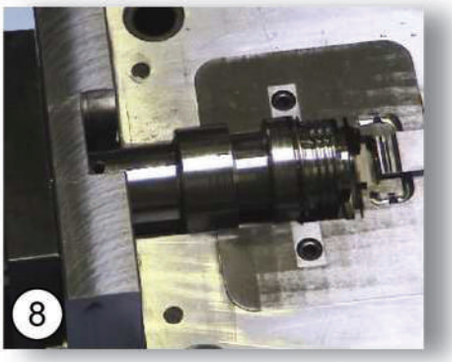
We thank the following companies for their good cooperation:

- *Eichahorn GmbHm, Michelstadt*
- *Kremer-Kautschuk-Kunststoff GmbH & Co. KG, Bad-Soden - Salmünster*
- *MSA Auer GmbH, Berlin*

Installation Example

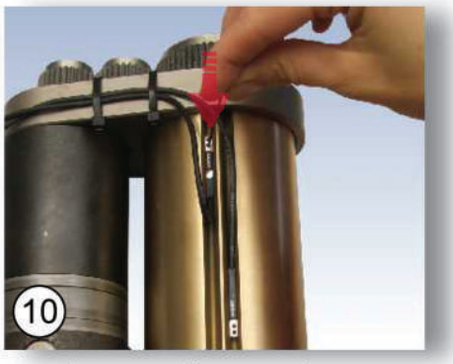


Connect the hydraulic lines. Determine the correct direction of rotation.

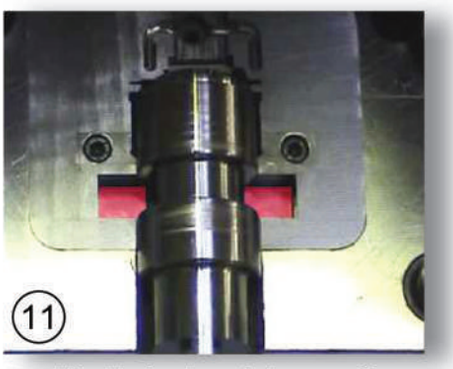


Advance the core holder with max. 40 bar into its permanent stop position using the core puller control system.

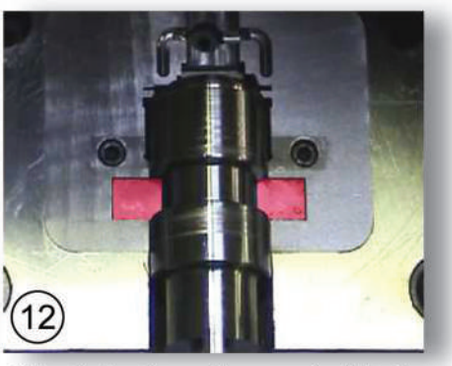
Adjust the magnetic sensor for the forward actuating point from the bottom up. The LED will light up.



Use the core puller control system to move the core into its final limit position. Adjust the magnetic field sensor causing the LED to light up. The hydraulic pressure should be 20-25 bar above the run-in pressure, ie. about 60-65 bar.



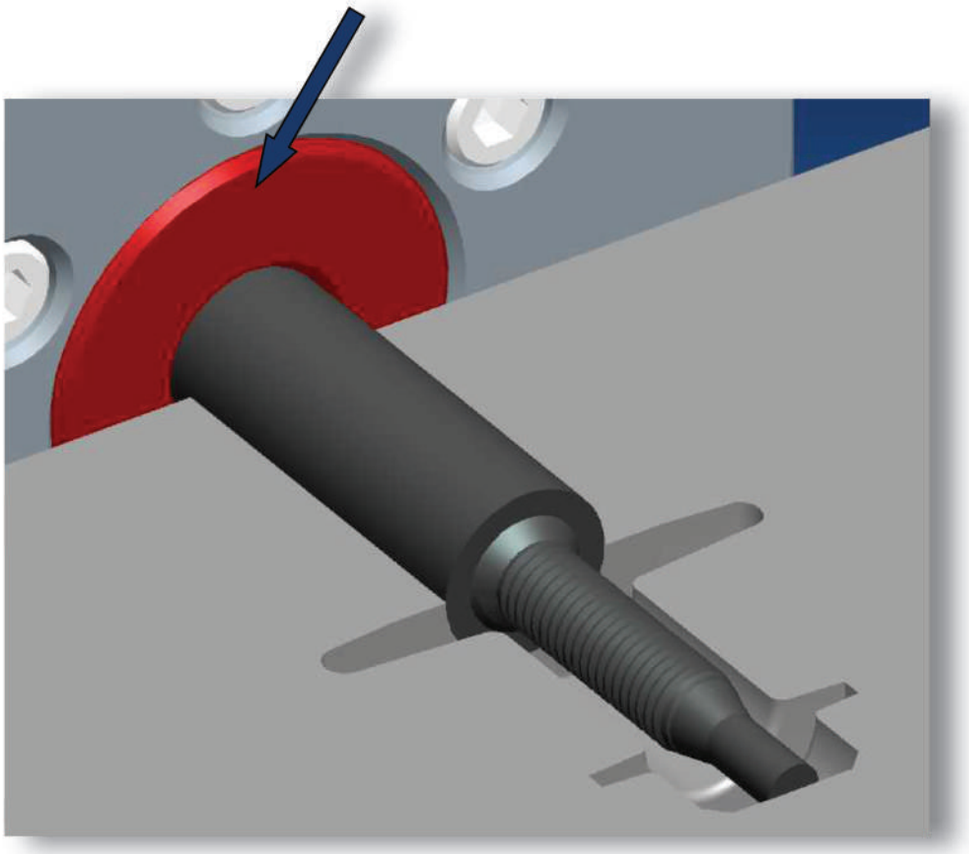
For blind-hole thread the use of a core lock is required, shown in its released state here (see area marked in red).



This photo shows the core lock in its locked condition.

Installation Instruction "Positioning Accuracy"

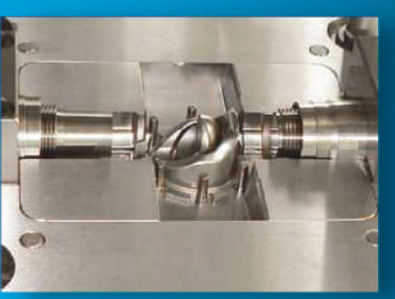
In order to maximize the positioning accuracy, the core holder must run against a fixed stop with its entire front surface area (see area marked in red).
The thread core itself should not strike firmly against a surface. We recommend approx. 0.02 mm clearance between core and mold surfaces..



Product: Valve housing

Material: PPO GF30
Thread: 2 G 3/4
Pitch: 1.82 mm
Total stroke length: 46 and 24 mm

IMI Norgren Buschjost GmbH + Co.
Bad Oeynhausen, Germany



Installation Instruction "Positioning Accuracy"

To guarantee a precise thread start position, the core holder must run against a fixed stop with its entire front surface area at a pressure not exceeding 40 bar.

Once the holder lies flush against the fixed stop, the flow of hydraulic fluid must be shut off by means of the proximity switch.

For the core holder operating stroke, the unscrewing pressure must be higher than the screw-in pressure. However, the unscrewing pressure should not be higher than 100 bar. With OMM50 motors, this pressure should not exceed 70 bar.

The retraction of the core holder must again be stopped by the proximity switch. This will involve some overtravel. Care should be taken to ensure that the core holder does not run up against a fixed stop at this point. In case this has happened, the core holder must be released manually.

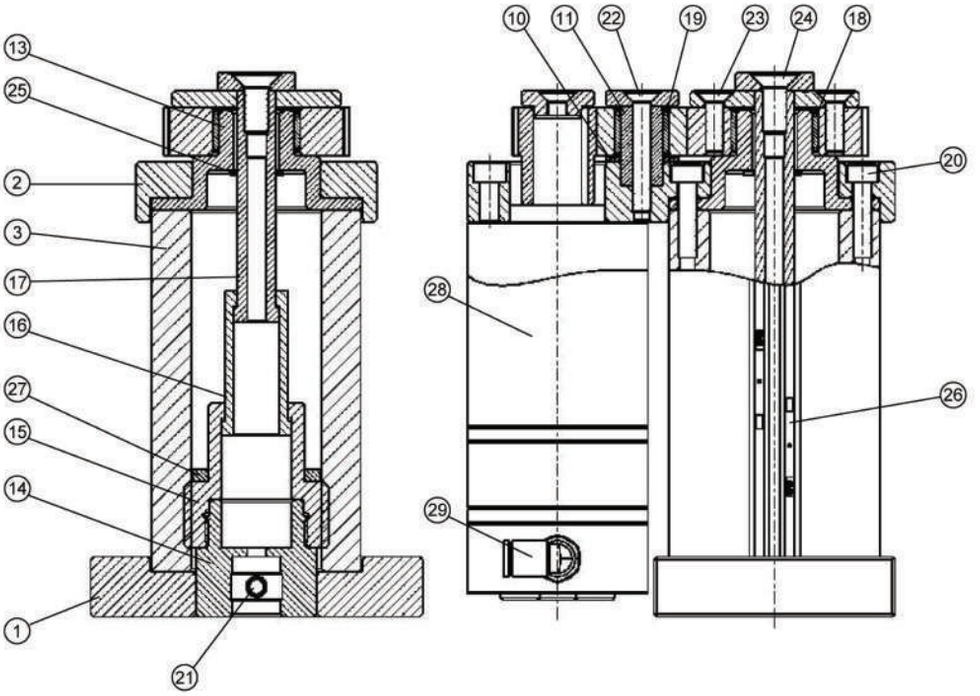
With through-thread, note that the core holder must not touch but should have up to 0.02 mm play upon reaching the thread start position. This amount of play will not yet result in melt film formation.

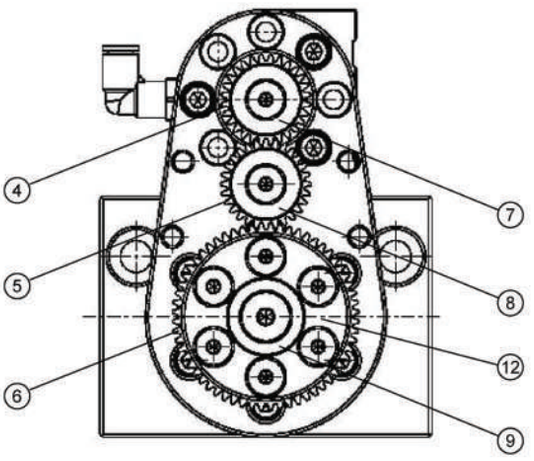
Product: Threaded Plug

Material: PA
Thread diameter: 20mm
Pitch: 5.0 mm
Total stroke length: 35 mm

Plako GmbH
Ennepetal, Germany

Components Single-Drive Unscrewing Device TGA-01





Product: Threaded Plug

Material: ABS
Thread ∅: 12 and 16 mm
Pitch: 2 x 1.0 mm

Total stroke length: 2 x 30 mm

SKS Metaplast Scheffer Klute GmbH
Sundern, Germany

Parts List

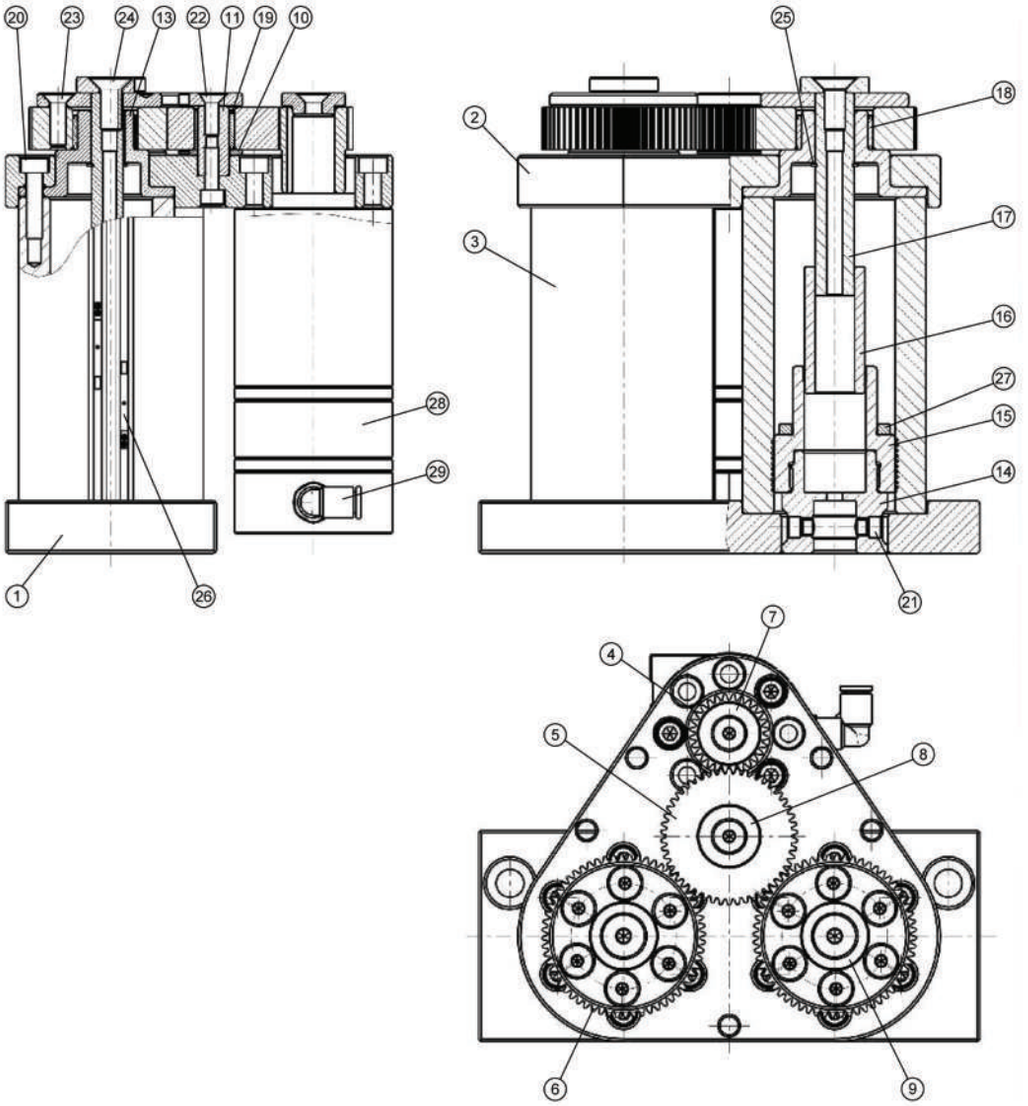
Item	Description	Piece
1	Base plate	1
2	Flange plate	1
3	Thread guide nut	1
4	Drive wheel	1
5	Intermediate wheel	1
6	Telescope wheel	1
7	Retaining disc for drive wheel	1
8	Retaining disc for intermediate wheel	1
9	Retaining disc for telescope wheel	1
10	Sliding disc for intermediate wheel	1
11	Shaft for intermediate wheel	1
12	Follower disc for telescope wheel	1
13	Bearing flange for telescope wheel	1
14	Core holder	1
15	Thread guide core	1
16	Telescope central section	1
17	Telescope top section	1
18	Needle bearing for telescope wheel	1
19	Needle roller-cage assembly for intermediate wheel	1
20	Hexagon socket head cap screw M6x25 ISO 4762	15
21	Hexagon socket screw with flat point M6x10 ISO 4028	1
22	Hexagon socket countersunk screw M6x40 ISO 10642	1
23	Hexagon socket countersunk screw M6x20 ISO 10642	7
24	Hexagon socket countersunk screw M8x20 ISO 10642	1
25	Snap ring Ø14x1	1
26	Magnetic field sensor	2
27	Ring magnet Ø42x4	2
28	Hydraulic motor OMM32	1
	Hydraulic motor OMM50 (optional)	1
29	Leakage oil kit	1

Note:

All components can also be ordered individually as spare parts. Prices are available upon request.

A matching leakage oil kit (enhancing the service life of the hydraulic motor) is included in delivery of an unscrewing device.

Components Twin-Drive Unscrewing Device TGA-02



Product: Multi-purpose distribution fitting for heating and sanitation

Material: ABS
Thread: G 3/4 and G1

SBK GmbH
Neuenstein, Germany

Twin -Drive Unscrewing Device TGA-02

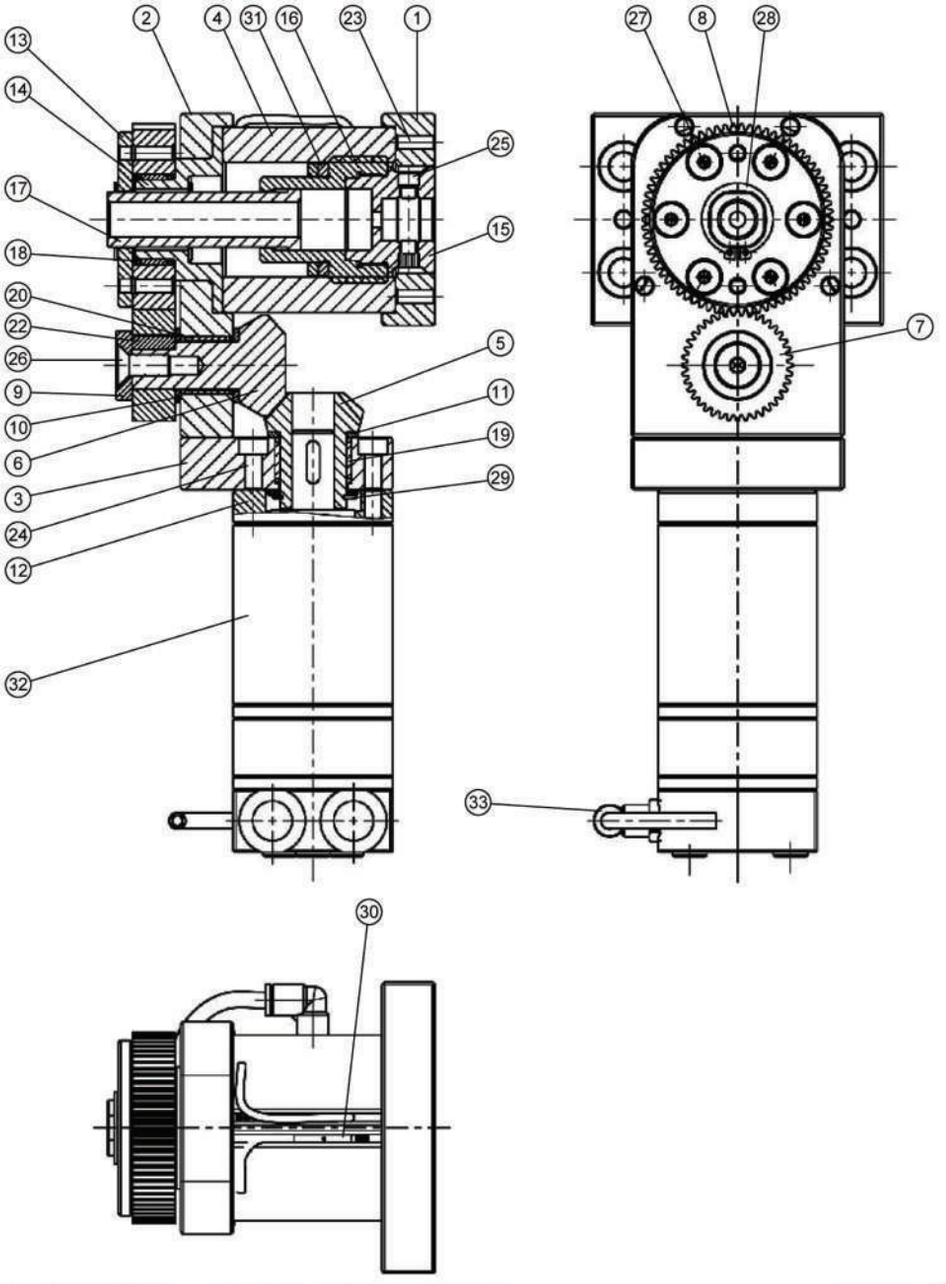
Item	Description	Piece
1	Base plate	1
2	Flange plate	1
3	Thread guide nut	2
4	Drive wheel	1
5	Intermediate wheel	1
6	Telescope wheel	2
7	Retaining disc for drive wheel	1
8	Retaining disc for intermediate wheel	1
9	Retaining disc for telescope wheel	2
10	Sliding disc for intermediate wheel	1
11	Shaft for intermediate wheel	1
12	Follower disc for telescope wheel	2
13	Bearing flange for telescope wheel	2
14	Core holder	2
15	Thread guide core	2
16	Telescope central section	2
17	Telescope top section	2
18	Needle bearing for telescope wheel	2
19	Needle roller-cage assembly for intermediate wheel	1
20	Hexagon socket countersunk screw M6x25 ISO 4762	27
21	Hexagon socket screw with flat point M8x10 ISO 4028	4
22	Hexagon socket countersunk screw M6x40 ISO 10642	1
23	Hexagon socket countersunk screw M6x20 ISO 10642	13
24	Hexagon socket countersunk screw M8x20 ISO 10642	2
25	Snap ring Ø14x1	2
26	Magnetic field sensor	2
27	Ring magnet Ø42x4	2
28	Hydraulic motor OMM32	1
	Hydraulic motor OMM50 (optional)	1
29	Leakage oil kit	1

Product: Pump housing

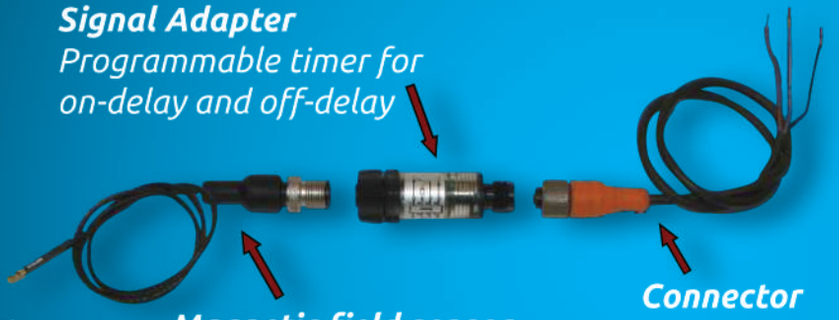
Material: ABS
Thread: 2 x G 1/4

EHEIM GmbH & Co. KG
Deizisau, Germany

Components Compact Unscrewing Device NTGA-01



Signal Adapter
Programmable timer for on-delay and off-delay



The signal adapter transmits the sensor signal with delay, thus preventing the occurrence of switching inaccuracies. More detailed technical information is provided in our operating instructions.

Parts List

Item	Description	Piece
1	Base plate	1
2	Flange plate	1
3	Motor mounting plate	1
4	Thread guide nut	1
5	Bevel gear wheel - motor	1
6	Bevel gear wheel - intermediate wheel	1
7	Intermediate wheel	1
8	Telescope wheel	1
9	Retaining disc for intermediate wheel	1
10	Sliding disc for intermediate wheel	2
11	Sliding disc for bevel gear wheel - motor	2
12	Spacer ring - motor	1
13	Follower disc for telescope wheel	1
14	Bearing flange for telescope wheel	1
15	Core holder	1
16	Thread guide core	1
17	Telescope top section	1
18	Needle roller - cage assembly for telescope wheel	1
19	Needle roller - cage assembly for bevel gear wheel - motor	1
20	Needle roller - cage assembly for intermediate wheel	1
21	Locating screw	2
22	Key	2
23	Hexagon socket head cap screw M6x35 ISO 4762	12
24	Hexagon socket head cap screw M8x10 ISO 4762	3
25	Hexagon socket screw with flat point M8x10 ISO 4028	2
26	Hexagon socket countersunk screw M8x20 ISO 10642	1
27	Hexagon socket countersunk screw M6x20 ISO 10642	6
28	Snap ring Ø22x1.2	2
29	Snap ring Ø24x1.2	1
30	Magnet field sensor	2
31	Ring magnet Ø42x4	2
32	Hydraulic motor OMM50	1
33	Leakage oil kit	1

Note:

All components can also be ordered individually as spare parts. Prices are available upon request.

A matching leakage oil kit (enhancing the service life of the hydraulic motor) is included in delivery of an unscrewing unit.

Superior Die Set unscrewing devices are supplied ready for operation. The fixed thread guide nut comes with factory-machined internal thread matching the pitch of the thread to be demolded. Similarly, the thread guide core is delivered with the corresponding male thread.

For maintenance, the thread on the thread guide core should be sprayed with thin fluid oil (e.g. WD40) at regular intervals.

Our unscrewing devices provide time and cost gain in mold making while reducing production costs for the injection molder by giving reliable, trouble-free service.

Please allow 1-2 weeks for normal delivery. Shipping times for custom designs are quoted upon request.

SUPERIOR DIE SET CORPORATION
SERVING THE DIE & MOLD BUILDING INDUSTRIES

900 W. Drexel Avenue • Oak Creek, WI 53154
Phone (800) 558-6040 • *FAX* (800) 657-0855
messages@superiordieset.com
www.superiordieset.com

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THREADFORMER DESIGN ASSISTANCE

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