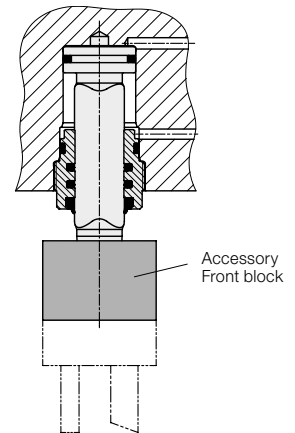




## Built-in Elements with Anti-Rotation Pistons

Piston and threaded bushing, complete with seals, double acting, max. operating pressure 350 bar



### Application

Built-in pistons are directly mounted into the fixture or tool body. Thus integrated hydraulic cylinders are formed which can produce both push and pull forces.

The piston rod is protected against rotation by the polygon profile. In connection with the sturdy guide bushing, torques and side loads are compensated. External guiding elements are not required.

Applications:

- Direct operation of tools for joining, pressing and stamping.
- Guided operation of tool sets (cutters, stamps) e.g. for finishing of pressed plastic mould parts.
- Guided displacement and pressing-in of assembly tools.
- Guided pressing-out of disassembly tools.

### Important notes!

Wear, tightness and service life depend mainly on the surface quality of the location holes. The piston running surface should be rolled or honed.

Before mounting, all bore holes must be cleaned carefully. Especially the drilled channels should be flushed and blown out in order to remove all machining residues.

The threaded bushing must be secured against loosening, e.g. by means of a small set screw.

The tools are guided by the piston. Additional guide rods can cause overdetermination with increased wear.

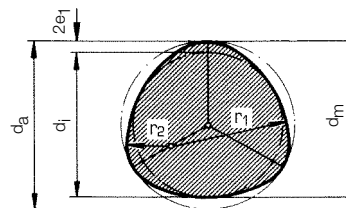
Operating conditions, tolerances and other data see data sheet A 0.100.

### Material

Piston:	case-hardening steel, hardened
Threaded bushing:	high alloy steel
Seals:	NBR (-25... +100 °C)

### Description

The polygon profile of the piston rod is a very sturdy and low-wear anti-rotation protection. Special rod seals adapt themselves very well to the relatively large radii.



The rod guide by a screwed-in threaded bushing requires only little space, however it is not possible to predetermine the angle position of the piston. Therefore the piston rod does not have a radial positioning slot. But the cone 1:10 enables the exact aligning of the tools and a play-free connection with the piston.

The front block, available as accessory, allows an exact centring and fixing of the tools. The location hole for the built-in piston is made by the customer.

Exact manufacturing dimensions are available on request.

### Block cylinder, with anti-rotation piston

with optional position monitoring see data sheet B 1.560.

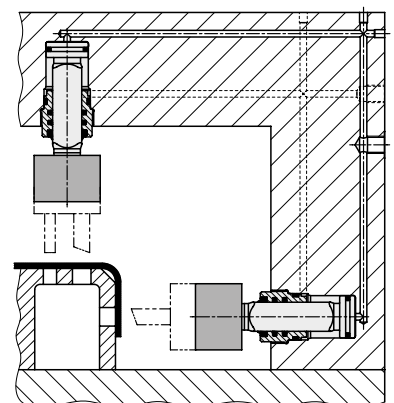


### Advantages

- Space-saving installation
- More compact fixtures and tools
- Anti-rotation piston
- No additional guides required
- Avoidance of squeezing points
- Compensation of torques independent of the piston position
- Compensation of side loads also eccentric load possible
- Solid fixing of the tools on the proven cone 1:10
- High stiffness
- Stroke limitation by distance bushing possible
- Sealing with very little leakage
- Maintenance free

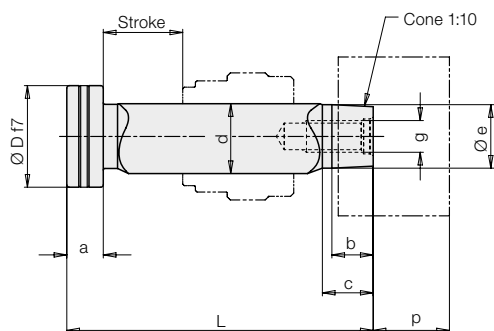
### Application example

Punching tool for plastic mats

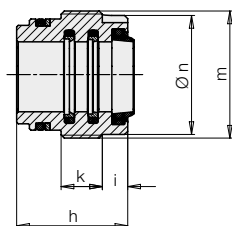


## Dimensions Part numbers • Accessories

### Piston complete

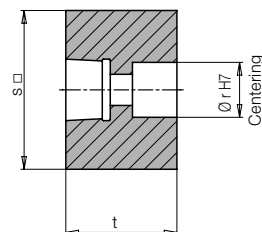


### Threaded bushing complete



### Accessory

Front block (fixing screws included in the delivery)



Manufacturing dimensions on request.

Piston Ø D		[mm]	32	40	50
<b>Rod profile P3G Ø d</b>		[mm]	<b>22</b>	<b>32</b>	<b>40</b>
Push force at	100 bar	[kN]	8	12.5	19.6
	350 bar	[kN]	28.1	44	68.7
Pull force at	100 bar	[kN]	4.2	4.5	7.1
	350 bar	[kN]	14.8	15.8	24.7
Oil volume	stroke to extend	[cm <sup>3</sup> ]	8.04	12.56	19.63
10 mm stroke	stroke to retract	[cm <sup>3</sup> ]	4.2	4.5	7.1
Adm. torque		[Nm]	20	40	60
Adm. piston side load		[kN]	2.8	4.4	6.9
a		[mm]	11.5	13.5	15.5
b		[mm]	13	16	20
c		[mm]	16	19	23
Ø e ± 0.05		[mm]	20	25	32
g x deep		[mm]	M10 x 20	M12 x 20	M16 x 25
h		[mm]	35	39	46
i		[mm]	8	10	11
k		[mm]	13	15	17
m		[mm]	M40x1.5	M50x1.5	M60x1.5
Ø n -0.2		[mm]	37.7	47.7	57.7
p		[mm]	24	28	36
Ø r H7 x 4 deep		[mm]	18 H7	20 H7	26 H7
s □		[mm]	50 x 50	65 x 65	80 x 80
t		[mm]	35	44	56

### Piston complete

Stroke	[mm]	25	25	25
L ± 0.3	[mm]	96.5	109.5	125.5
<b>Part no.</b>		<b>0156-404</b>	<b>0156-504</b>	<b>0156-604</b>

Stroke	[mm]	50	50	50
L ± 0.3	[mm]	121.5	134.5	150.5
<b>Part no.</b>		<b>0156-405</b>	<b>0156-505</b>	<b>0156-605</b>

Stroke	[mm]	100	100	100
L ± 0.3	[mm]	171.5	184.5	200.5
<b>Part no.</b>		<b>0156-406</b>	<b>0156-506</b>	<b>0156-606</b>

### Threaded bushing complete

<b>Part no.</b>	<b>0156-407</b>	<b>0156-507</b>	<b>0156-607</b>
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### Accessory

#### Front block with screw

<b>Part no.</b>	<b>0354-251</b>	<b>0354-252</b>	<b>0354-253</b>
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