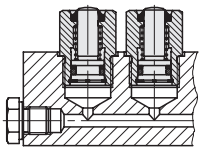
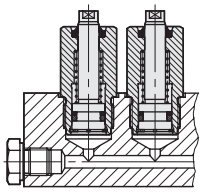
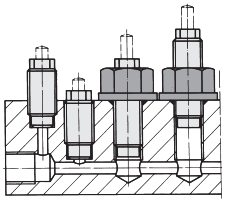
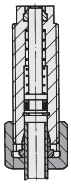
ROEMHELD
HILMA ▪ STARK

Program Summary

THREADED-BODY CYLINDERS

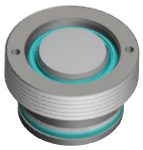
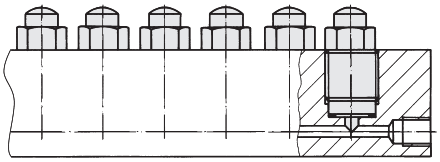
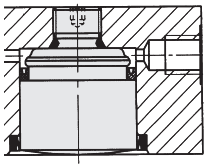
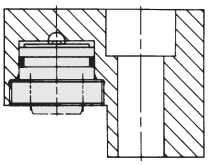
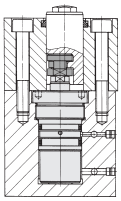
- Operating pressure up to 500 bar
- Single and double acting
- 9 different body types
- Oil supply through drilled channels
- Maximum push force from 2.5 to 62.8 kN
- Maximum piston stroke from 4 to 40 mm
- Smallest cylinder distances

Program summary THREADED-BODY CYLINDERS

Designation	Threaded-body cylinders	Threaded-body cylinders	Threaded-body cylinders	Threaded-body cylinders with pipe thread
Max. operating pressure	**500 bar**	**500 bar**	**160 / 500 bar**	**160 / 500 bar**
				
Data sheet	**B 1.4301**	**B 1.450**	**B 1.458**	**B 1.459**
Hydraulic connection	drilled channels	drilled channels	drilled channels	pipe thread
				
Sealing type	cutting edge	cutting edge	sealing ring	cutting ring
Functioning	single acting	single acting	single acting	single acting
Force to push at max. pressure	2.5 ... 40 kN	5.6 ... 40 kN	2.5 kN	2.5 kN
Admissible piston side load*	3 %	3 %	3 %	3 %
Piston Ø	8 ... 32 mm	12 ... 32 mm	8 mm	8 mm
Piston stroke	4 ... 16 mm	8 ... 16 mm	5 ... 10 mm	10 mm
Screw-in thread **min.** **max.**	M16 x 1.5 M42 x 1.5	M20 x 1.5 M42 x 1.5	M12 x 1.5	M16 x 1.5
Seals and max. operating temperature	NBR + 80 °C	NBR + 80 °C	NBR + 80 °C	NBR + 80 °C
Dirt wiper	●	●	–	●
Recommended min. pressure	5 bar	5 bar	5 bar	5 bar
Special features	short version	can only be used with contact bolts	optional pipe thread possible	optional screw-in possible
Piston rod	dome head	with internal thread	dome head	dome head
Accessories	–	various contact bolts	sealing nut for screw-in thread mounting body for pipe thread	sealing nut for screw-in thread

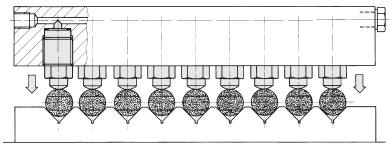
Legend: ● Series ❍ Option

* % of the push force at max. operating pressure
– not available

Threaded-body cylinders	Threaded-body cylinders	Built-in pistons	Threaded-body cylinders short stroke	Threaded-body cylinders double acting
500 bar	**500 bar**	**250 bar**	**500 bar**	**500 bar**
				
B 1.460	**B 1.461**	**B 1.462**	**B 1.464**	**B 1.470**
drilled channels	drilled channels	drilled channels	drilled channels	drilled channels
				
sealing ring	sealing ring	O-ring	O-ring / back-up ring	O-ring / back-up ring
single acting	single acting	single acting	single acting	double acting
5.7 ... 40 kN	5.7 ... 40 kN	12.25 ... 48.75 kN	15.7 ... 40.2 kN	10 ... 62.8 kN
5 %	5 %	5 %	5 %	3 %
12 ... 32 mm	12 ... 32 mm	25 ... 50 mm	20 ... 32 mm	16 ... 40 mm
10 ... 20 mm	10 ... 20 mm	8 ... 12 mm	4 ... 8 mm	16 ... 40 mm
M20 x 1.5 M48x1.5	M20 x 1.5 M48x1.5	G 1/8 G 1/2	M38 x 1.5 M56 x 1.5	M26 x 1.5 M60 x 1.5
NBR + 80 °C	NBR + 80 °C PTFE	NBR + 80 °C PTFE	NBR + 80 °C PTFE	NBR + 100 °C FKM + 150 °C
–	●	❍	●	●
10 bar	10 bar	10 bar	10 bar	5 bar
plunger piston	plunger piston	plunger piston fully recessible	plunger piston fully recessible	cylinder body fully recessible
dome head or internal thread or swivel contact bolt	dome head or internal thread or swivel contact bolt	dome head	dome head	with internal thread
various contact bolts mounting body for pipe thread	various contact bolts	wiper	–	various contact bolts coupling pin for push and pull forces

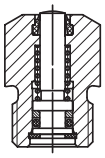
Application

Threaded-body cylinders can be screwed directly into clamping bars or fixture bodies. Hydraulic oil is supplied through drilled channels. This enables very small cylinder distances in multiple clamping fixtures.



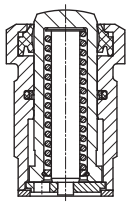
Single acting

As clamping cylinders, single-acting threaded-body cylinders with spring return are preferably used because only relatively short clamping strokes are required, and only one bore hole is needed for the hydraulic supply.



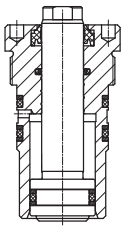
Venting of the spring area

A separate venting port is not provided for the short strokes of single-acting cylinders. If there is any danger that fluids penetrate into the spring area, only a series with wiper should be selected (see chart).
For threaded-body cylinders with plunger piston, the spring area is located on the hydraulic side.



Double acting

Due to the longer piston strokes, these threaded-body cylinders can be used universally as linear drives, i.e. pull cylinders.
The return stroke is always effected within a certain period of time, which is particularly important for cycle-dependent installations.



Sealing type

The screwed-in cylinder bodies are sealed by

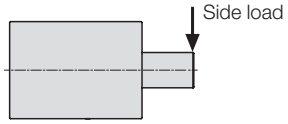
- cutting edge
  as for tube male stud couplings
- sealing ring
  flat seal made of POM
- cutting ring
  for direct pipe thread
- O-ring
  at the screwed plug
- O-ring / back-up ring
  with double-acting cylinders

Tightening torque

The required tightening torque is particularly important for the tightness and function of the threaded-body cylinders. It depends on the screw-in thread and the sealing type.
The tightening torque can be taken from the respective data sheet or the operating manual.

Admissible piston side load

If the piston rod is loaded with a side load, higher wear must be expected. Threaded-body cylinders are mostly used as clamping cylinders. Depending on the type, 3 to 5% of the push force at max. operating pressure is admissible in the clamping position.
The return stroke of single-acting cylinders must be free of side load, otherwise the force of the return spring is not sufficient.



Seals and max. operating temperature

The following elastomers are used as piston or piston rod sealing:

- NBR = Nitril-Butadiene-Rubber
  Trade name e.g. Perbunan
  Temperature range –30 … +80 °C
- FKM = fluoro rubber
  Trade name e.g. VITON®
  Temperature range –20 … +150 °C

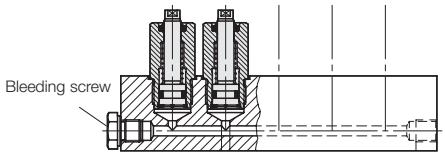
Further information, taking into account the common hydraulic fluids, can be found on data sheet A 0.100.

Leakage

Threaded-body cylinders are leakage-free in static condition. When extending the piston rod, the sealing lets pass only a micro-oil film to ensure the seal's required lubrication and thus a high service life.

Bleeding

Air in the oil prolongs the clamping time considerably and leads to function troubles.
Therefore bleeding has to be effected during start up.
As it is not possible to bled the threaded-body cylinders individually, screw plugs should be provided in the fixture body at the end of the drilled channels for bleeding.

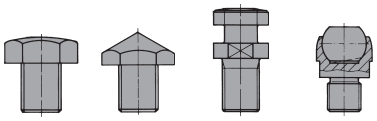


Materials

Piston: case-hardening steel, hardened
Body: free-cutting steel, black-oxide

Accessory - Contact bolts

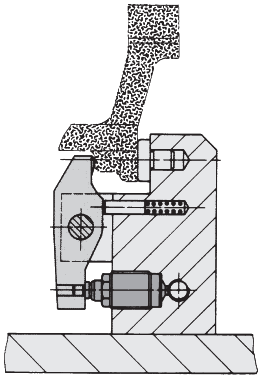
Different contact bolts and coupling pins see data sheet G 3.800.



Mounting position

any, if not otherwise stated

Application example



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