

Hydraulic Double-Acting Telescopic Cylinder with Special Ventilation



The telescopic cylinder, a special type of the linear hydraulic drive, is used whenever a great stroke is needed but the maximum installation length of the hydraulic cylinder is limited.

Within the telescopic cylinder, several piston rod elements are guided into one another and extend telescopically during pressurisation. The total stroke is therefore divided into various stages and the installation length of the hydraulic cylinder is correspondingly shortened.

This concept is realized very easily for single-acting cylinders which only release force during extension and get pushed back through external forces. The concept is far more complicated for double-acting cylinders which extend and retract on their own. It is very important to pay attention to the oil flow inside of the cylinder during the retraction process. The pressure and the volume flow have to be present on all ring faces and up to the smallest piston rod. Since the smallest piston rod is the innermost level of the cylinder and doesn't have an external supply, the hydraulic oil has to be led all the way up to this point.

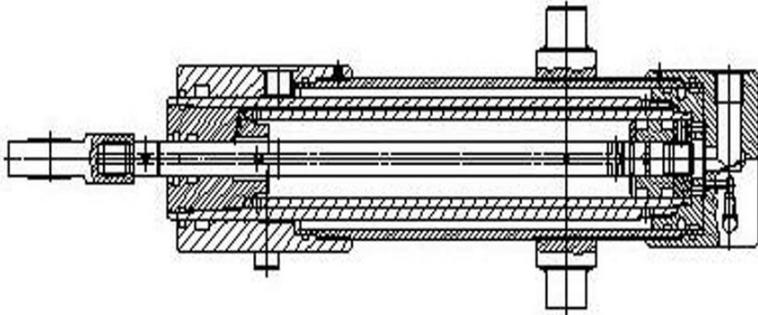
For the required constant extension rate across all levels, a precise dimensioning of the volumes and an exact coordination of the cross sections is necessary.

Due to the complex inner structure, it is especially important to pay attention to the ventilation possibilities of the cylinder. To guarantee a lasting and unproblematic life span, all levels and ducts have to be ventilated effectively while at the same time the prospective mounting position has to be taken into account.



Precision in Motion

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- ▶ Small installation length in proportion to stroke
- ▶ Controllable extension and retraction
- ▶ Good ventilation options
- ▶ Resilient design for industrial use

Example:

We constructed this very compact hydraulic telescopic cylinder particularly for very small installation spaces. Besides to the very short length compared to the stroke, we had to pay close attention to the ventilation options, because there are many chambers and ducts inside the cylinder, which are necessary for the double-acting operation. The ring space of the second level can be opened through the deep-hole bored piston rod. In combination with two additional offset ventilation holes in the cylinder base, secure and easy ventilation is possible.

Technical Information:

Telescopic Cylinder STZ.008.06.2.0-070-018-0440-0012	
Telescopic Stages:	2
Piston-Ø Stage 1:	70 mm
Piston Rod-Ø Stage 1:	60 mm
Piston-Ø Stage 2:	40 mm
Piston Rod-Ø Stage 2:	18 mm
Total Stroke:	440 mm
Stroke Stage 1:	220 mm
Stroke Stage 2:	220 mm
Operating Mode:	double-acting
Mounting Method:	Trunnion flange Ø 20mm
Piston Rod End:	Articulated lug Ø 20mm
End Position Cushioning:	none
Operating Pressure:	125 bar
Operating Fluid:	Hydraulic Oil HLP 46
Special Features:	<ul style="list-style-type: none"> • Ring face and resulting forces pulling, both levels almost identical • Additional possibilities for level 2 ventilation through ventilation holes in the piston rod.

