

Hydraulic Cylinder with Cooling



Function:

Hydraulic cylinders with integrated cooling discharge heat using various methods or their combination.

Cooling through housing and fresh air injection. In this way, the entire cylinder can be cooled to a certain extent.

Cooling through circulation of cooling liquid around the cylinder tube. This is applied to HYDROPNEU Type 44 for example. The cylinder tube is designed with double-walls and a separate cooling circuit can be connected. This traps a large proportion of radiant heat, and the cylinder and the fluid are getting cooled over a large area.

This system may be optimized using a restricted guidance of the cooling fluid, e.g. through included twists.

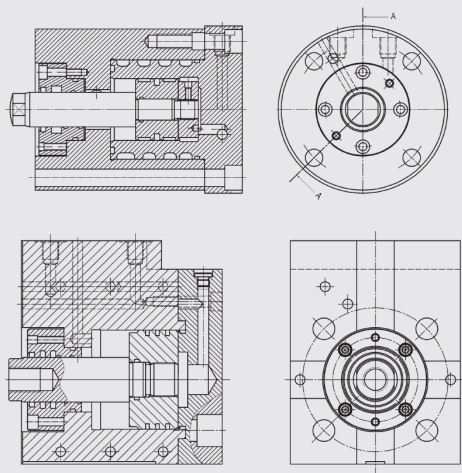
A further option is cooling with milled cooling channels throughout the cylinder. Herewith, certain areas can be cooled selectively. This enables for example to derive heat even in the thermally sensitive area of the cylinder head.

The piston rod can also be cooled to extend the lifetime of piston rod seals.

HYDROPNEU engineers the optimal cooling system according to the requirements and installation situation.



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References:

- ▶ Oskar Frech
- ▶ KSM Castings
- ▶ Daimler AG

Fields of Duties and Requirements:

Many hydraulic components are sensitive to heat. Generally, hydraulics is designed for maximum temperatures of 65°C.

Exceeding temperatures cause several consequences.

If the seals get to their temperature limit and beyond, the wear increases and leakage occurs.

The material, particularly of the piston rod, may be affected through extreme temperatures (e.g. in foundries). This could lead to breakage or increased wear.

The hydraulic fluid can form gas bubbles. These gas bubbles can lead to cavitation which may attack both, the seals and the cylinder material.

Applications and Operational Areas:

- ▶ for tools and molds
- ▶ for casters

Technical information:

- ▶ **Piston Diameter** 40 – 200 mm
- ▶ **Stroke Lengths** up to 1000 mm
- ▶ **All Standard Forms of Construction**
- ▶ **Different Designs with:**
 - jacket cooling (air or water)
 - cooling of cylinder head
 - internal cooling of piston rod