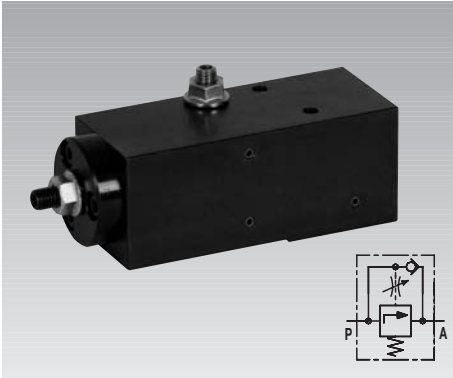


Sequence Valve ND 5 with time-dependent switching sequence, max. operating pressure 250 bar



Advantages

- Realisation of switching sequences not dependent on pressure
- Cost reduction due to less control valves and pipes
- Big adjusting range
- Oil supply through drilled channels
- Similar connecting scheme as sequence valves as per data sheet C 2.954
- Compact design

Application

This valve is especially suitable for clamping fixtures with pressure-independent sequence controls or switching sequences within a determined time sequence.

Description

Hydraulic sequence valves with time-dependent switching sequence are used for sequence controls.

The adjustable switching delay allows a time-dependent switching sequence of hydraulic elements within a hydraulic circuit, independent of the hydraulic pressure.

On principle the valve has to be preadjusted to the hydraulic conditions with reference to pressure, viscosity and temperature (see: adjusting instructions step 3).

Parallel or series connection of several valves is possible. The compact design facilitates the installation directly at the clamping fixture.

Function

The valve consists of a basic body with an integrated hydraulic piston and a mechanically-operated opening valve.

For adjustment of the time-dependent switching sequence there are two possibilities. A throttle screw is used for the rough adjustment of the response time according to the adjusted system pressure.

With an adjusting screw mounted on the face the precise adjustment of the delay time is effected.

As soon as there is oil pressure at input port P, the internal piston realises a determined stroke and opens mechanically the installed opening valve. Now the flow rate is available at output port A for the hydraulic element.

Technical characteristics

Configuration	Poppet valve	
Type of mounting	Flange joint with screws 2 x M5	
Oil supply	Drilled channels with O-ring sealing	
Max. operating pressure	[bar]	250
Min. operating pressure	[bar]	30
Max. oil flow rate	[l/min]	8
Adjusting range of time delay	[s]	approx. 1-10
Weight	[kg]	1.5
Part-no.	2954-836	

Important notes

Reproducibility of the time delay

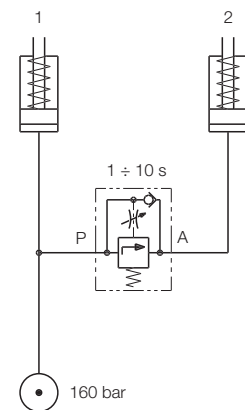
The reproducibility of the adjusted time delay depends on constant hydraulic conditions. A highly variable oil temperature can change the adjusted delay time.

Therefore pay attention that the valve adjustment is made at operating temperature or is readjusted.

Pressure increase

During the time delay phase the hydraulic pump may built up the complete pressure due to the throttle adjustment at the valve (in the case of high throttling) and consequently give the signal „clamped“ to a connected pressure switch.

Application example

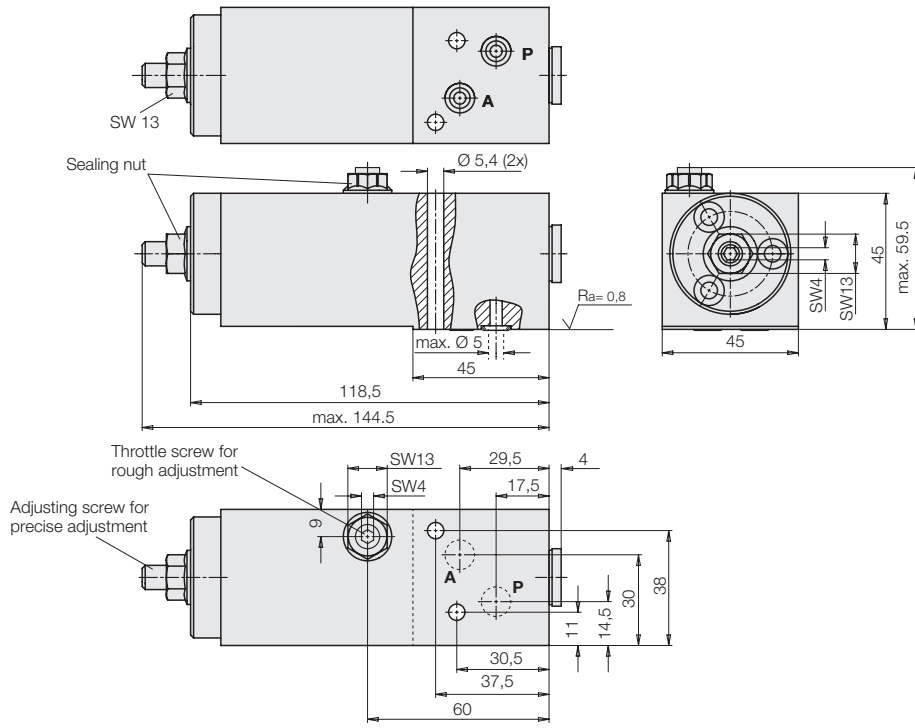


Clamping sequence:

1. Cylinder 1 moves without pressure against the workpiece.
2. Oil pressure increases up to 160 bar.
3. After the adjusted delay time the sequence valve opens and cylinder 2 moves without pressure against the workpiece.
4. The oil pressure at both cylinders increases up to 160 bar.

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Adjusting instructions

Adjustment of adjusting screws

The throttle screw for the rough adjustment must only be unscrewed until the red marking (position for low throttling).

The adjusting screw for precise adjustment may be unscrewed until a noticeable resistance (position for a long time delay).

Procedure for the adjustment of the time delay

On principle the valves are preadjusted to a system pressure of 150 bar. Both adjusting screws are locked and sealed by sealing nuts.

Adjustment must only be made in depressurised mode.

Step 1:

Loosen sealing nut of the precise adjustment and screw in completely the adjusting screw. Tighten sealing nut.

Step 2:

Loosen sealing nut of the rough adjustment and adjust a switching time of approx. 1 second. Tighten sealing nut.

Step 3:

Loosen sealing nut of the precise adjustment and unscrew adjusting screw until the desired switching time is obtained.

Tighten sealing nut (possibly this step has to be repeated several times).