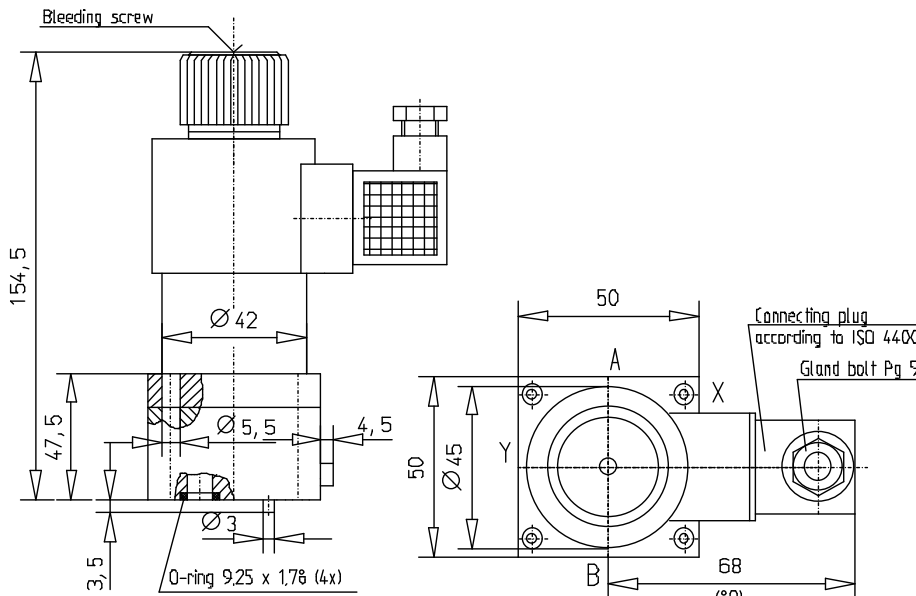


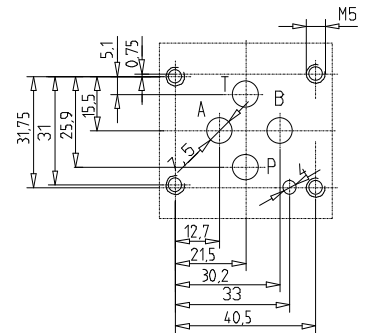
Pressure control valves control an infinitely adjustable pressure in the outlet flow to a system switched in series largely independently of primary pressure and volume flow. 2-way pressure control valves do not dispose of a secondary pressure balance, i.e. a pressure increase on the consumer side is not compensated for.

FEATURES

- Solenoid system: Power-controlled, pressure resistant, coil exchangeable without opening the hydraulic system
- Remote-controllable, programmable
- 4 set volume flow ranges
- Minimum pressure set to 7 bar for all set volume flow ranges
- With control port for remote control or pressure relief (must be closed if the function is not required)
- Standard sealing material Viton (FKM)
- Assembly on connection plates with pipe connections or control block
- Valve normal position: Open A to B
- Floating time approx. 70 msec



Mounting surface ISO 5781



ATTENTION!

The port assignment and identification does not correspond to the recommended standards.
 Standard connection codes:
P = B; T = A; A = Y; B = X

ORDER INFORMATION

The scope of delivery includes the O-rings for sealing the connection holes, four fixing screws M 5 x 55 DIN 912 - 12.9, 9,5 Nm torque and the connecting plugs.

Name **2- way pressure control valve 683 C P 70 M...**

Type series

Series code letter

Valve operating mode P = Proportional control solenoid

Rated setting pressure in bar: **70; 140; 210; 315**

Supplementary data for special models = **M...**

ACCESSORY

Must be order separately.

Connection plates

Control amplifier Type StA 03 – ES

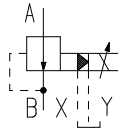
see dimension sheet 9-74-603-1004

see dimension sheet 9-74-003-0025

CHARACTERISTICS

1. General

Symbol



Design

Pilot-operated: pilot control = seat valve
main control = piston-type valve

Weight

1.9 kg

Mounting position

any, preferably vertical

Direction of volume flow

A to B

Ambient temperature range

-10°C to +50°C

2. Hydraulic characteristics

Rated pressure / max. pressure

Ports A, B and X = 315 bar
Port Y = 10 bar, recommended: unpressurized to the tank in function

Set volume flow range

7-70 bar; 7-140 bar; 7-210 bar; 7-315 bar

Rate volume flow

30 l/min

Hydraulic fluid

hydraulic oil according to DIN 51 524 (1,2)

Hydraulic fluid temperature range

-20°C to +70°C

Viscosity range

15 - 350 mm²/sec.

Control oil share

approx. 350 cm³/min

Contamination level / filtering

Class 16/13 according to ISO 4406 or 7 according to NAS 1638
(recommended filter: min. retaining rate $\beta_{5-10} \geq 75$)

3. Type of actuation

Electrically – proportional solenoid

3.1 Solenoid

Type Simple solenoid - pressurized, pressure-proof
Voltage D C
Rated voltage 12 V
Rated current 1.6 A
Limit current 1.9 A
Rated resistance $R_{20} = 5.7 \text{ Ohm}$
Rated power 14.6 W
Type of connection Plug connection according to DIN 43 650 - AF 2 (ISO 4400)
Protective system IP 65 according to DIN 40 050 (with plug installed)

4. Response characteristic

(Definition according to DIN 24 311)

Sensitivity approx. 1 %
Repeatability approx. 1 %
Range of inversion approx. 1 %
Hysteresis approx. 4 %

} from nominal signal

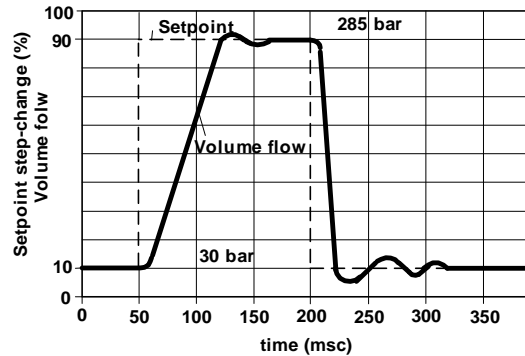
Pressure signal function see fig. 2

Time response see fig. 1

CHARACTERISTICS

Time characteristic

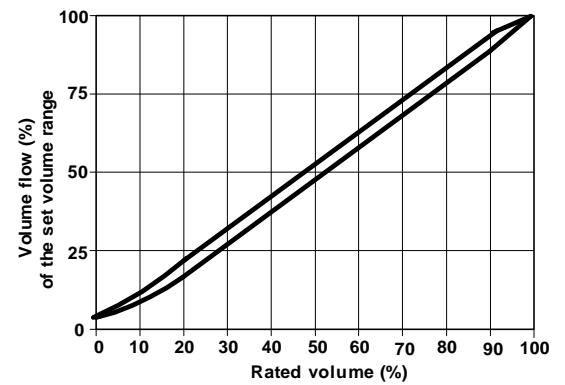
Fig. 1 shows the transient function or step response in case of a set point step change from 10% to 90% and vice versa. Measured at a volume flow of 20 l/min. Values vary largely depending on the system.



Pressure signal function characteristic

Fig. 2 shows the valve-specific characteristic for the volume flow signal function. It delivers information on linearity and hysteresis.

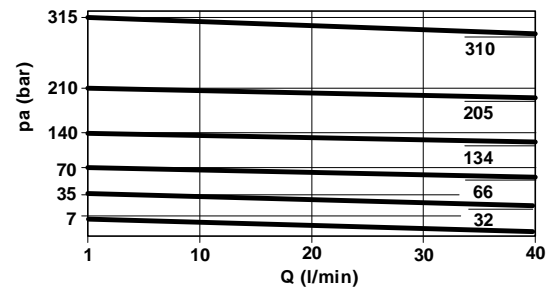
Fig. 2



pa-Q-characteristic; $p_a=f(Q, p_e=\text{const.})$

Fig. 3 shows the dependency of the volume flow for the outlet flow as well as the lowest set flow. Measured at an inlet flow of 20 bar above the outlet flow, control oil return to the tank in depressurized state.

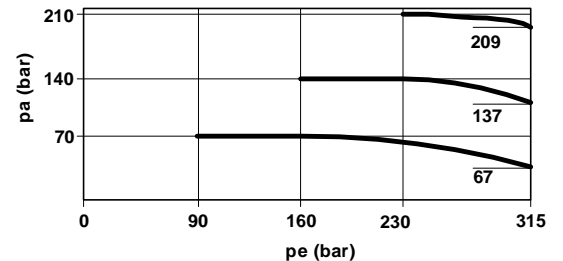
Fig. 3



pa-pe-characteristic; $p_a=f(p_e, Q=\text{const.})$

Fig. 4 shows the control characteristic for the outlet flow depending on the inlet flow given a volume flow of 30 l/min, control oil returns to the tank in depressurized state.

Fig. 4



Description of the valve

1. Valve

These valves are two-stage units mainly comprising the main control unit controlled by a pilot control valve using the proportional control solenoid. By means of the pilot control, the flow is controlled largely independently of the volume flow. The volume flow can be controlled infinitely by means of the proportional solenoid which is actuated by a control amplifier. The proportional solenoid is an electro-mechanical transformer. Its output parameter force is proportional to the flow. The magnetic force acts via a pressure spring and a valve cone on the pilot valve seat against the hydraulic force of the hydraulic fluid in the control circuit. The pressure controlled in this way is applied to the control piston in the main valve as reference pressure. The control piston takes up the function of a pressure balance controlling the flow within the hydraulic circuit in accordance with the pilot control flow.

2. Material

The valve parts are made of steel. All wear parts are hardened. The external valve parts are burnished. The solenoid coil is galvanized and chromized.

The valve is equipped with four ports, the main ports A and B for inlet and outlet plus the control ports X and Y. Via port Y, the pilot oil is drained. In order to avoid valve vibrations we recommend to make the control oil return to the tank separately in a depressurized state and without interference. Port X allows for the external valve relief on the one hand and for remote control on the other hand: The port must be closed if these functions are not required. However, we recommend to provide this port in control blocks or connection plates at any rate to be able to modify the dampening characteristic of the valve via this port should any system vibrations occur.

Before starting the operation, the valve should be bled via the provided bleeding screw (see dimension diagram).

For applications in excess of the given specification, please contact Schiedrum.

All specified parameters are partially based on long user's experience and partly on measurements made in laboratories. The data are typical of the valve and can deviate in series. All measurements were carried out on a test stand with an oil viscosity of 36mm²/sec and a filter mesh of < 10 µm. All data given here should be used as description of the product only and they are not to understand as warranty in the sense of law.