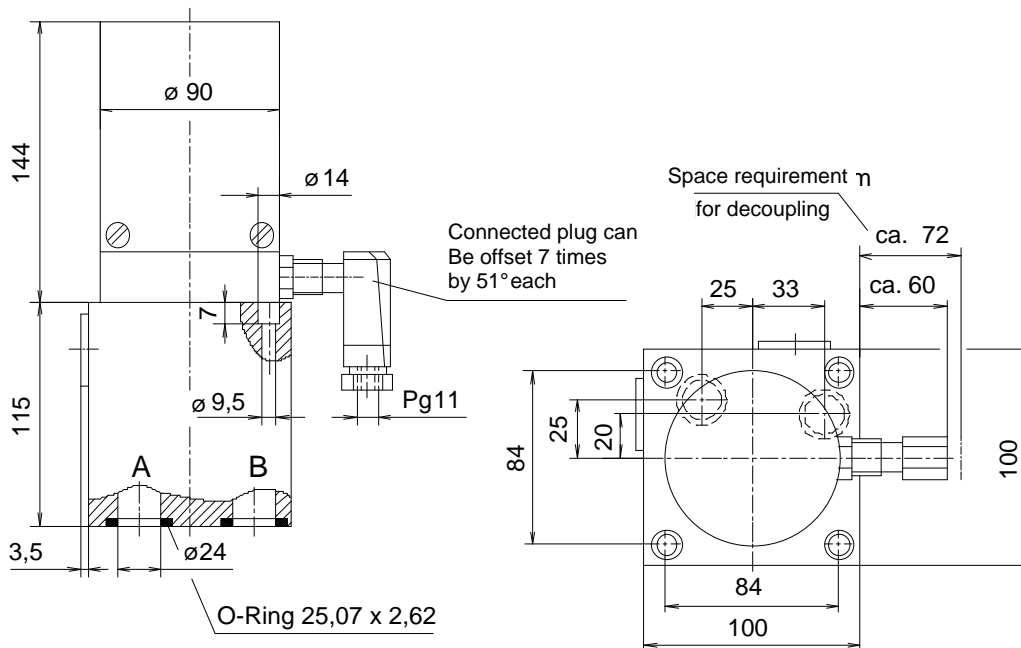


2-way flow control valves are flow valves (throttle valves) with integrated pressure regulator in serial connection. The valves automatically control an adjustable volume flow independently of pressure variations in the supply or discharge line to make it constant.

**FEATURES**

- Connecting voltage 12 V DC/ 24 V DC
- Stroke limits by means of limit switches
- Adjustable control cams
- Optional potentiometer of electrical position display
- Failsafe behaviour: valve keeps the last position in case of a power failure
- No electrical temperature drift
- Floating time approx. 16 sec. at 12 V; approx. 8 sec. at 24 V
- Volume flow signal function: progressive: large control range
- 2 setting volume flow ranges
- Mounting surface according to Schiedrum internal standard
- Assembly on subplates with pipe connections or control block
- With by-pass check valve
- Standard sealing material Buna N / NBR
- For volume flow control in both flow directions, volume flow rectifier plates type 71 are available.



**ORDER INFORMATION**

The scope of delivery of the flow control valve includes the O-rings for sealing the connecting holes and connecting plugs plus two fixing screws M 8 x 120 DIN 912 - 10.9. Tightening torque 30 Nm and the connection plug.

**Name**

2-way-flow control valve	267	C	DC	160	1	M15
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**Type series**

**Series code letter**

Valve actuation with **DC**

Rated adjustment volume flow: **100; 160** l/min

Actuator variant:

with potentiometer = 1

without potentiometer = 2

Supplementary data for special models

e. g. special sealings from Viton (FKM) = **M15**

**ACCESSORY**

**Subplates**

see dimension sheet 9-74-201-0003

**Flow rectifier plates Type 71 - 8**

see dimension sheet 9-74-071-0016

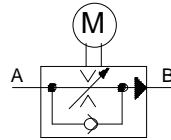
**Control amplifier (with or without indicator)**

see dimension sheet StS - 02  
 9-74-002-0003 and 9-74-002-0004

# CHARACTERISTICS

## 1. General

Symbol



Design

Adjustment throttle: hollow piston with rectangular opening  
Differential pressure valve: switched in downstream with the adjustment Throttle

Weight

Check valve: spring-loaded ball valve

Mounting position

9.8 kg

Direction of volume flow

any, preferably vertical

Ambient temperature

A to B controlled; B to A unthrottled return flow

Floating time

-25°C to +50°C

Qmind. to Qmax approx. 16 sec at 12 V  
approx. 8 sec at 24 V

## 2. Hydraulic characteristics

Rated pressure / max. pressure

210 bar, p min = see Fig.2

Hydraulic Fluid

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

Hydraulic Fluid temperature range

-20°C to +60°C

Viscosity range

5 - 350 mm<sup>2</sup>/sec.

Rated volume flow range

100; 160 l/min

Min. adjustable and controllable volume flow

approx. 300 cm<sup>3</sup>/min

Contamination level / filtering

Class 18/15 according to ISO 4406 or 9 according to NAS 1638  
(recommended filter: minimum retention rate  $\beta_{10-15} \geq 75$ )

Volume flow via the check valve

300 l/min max.

## 3. Type of actuation

electric-motor controllable

### 3.1. Motor

Type

DC motor

Rated voltage

24 V DC / operating voltage range approx. 6 - 24 V DC

Current consumption

approx. 0,1A / starting current 0,25 A

Power consumption

approx. 2 W

Duty cycle

100%

### 3.2 Potentiometer for position indication

Type

Rotation potentiometer with wire-wrapped resistance element

Permissible load

2 W at 40°C; 0 W at 105°C

Independent linearity

+/- 1.0 %

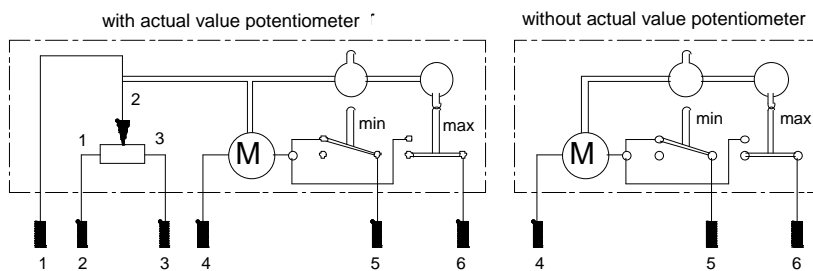
Resistance value

1 K Ohm +/- 10%

Max. operating voltage

44 V at 40°C

### Circuit diagrams



legend		
PIN	Potentiometer	
1	U outlet	
2	0 V	
3	U supply +	
	valve adjustable	
	Q min	Q max
4	6...24VDC	0 V
5	0 V	Without circuit
6	Without circuit	6...24VDC

### 3.3 Limit switches

Contact system

single-pole change-over switch

Switching system

Surge circuit

Switching capacity

4 A; 250 V

### 3.4 Protective system (according to DIN 40 050) IP 54

### 3.5 Connection type

Plug connection according to DIN 43 651

Cable diameter

7...9 mm

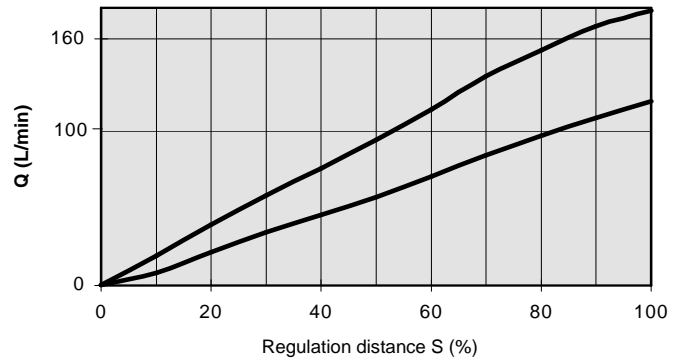
Wire gauge

0.5 mm<sup>2</sup>

# CHARACTERISTICS

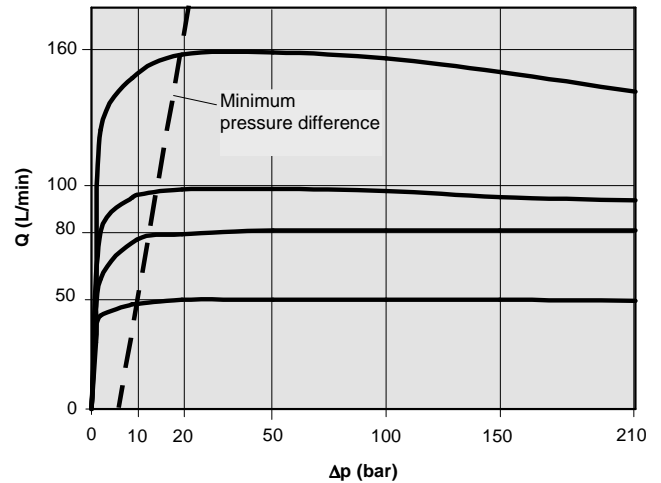
## Q-s-characteristic; $Q = f(\text{setting part } s; \%)$

The dependency of the three rated volume flows as a function of the regulation distance.



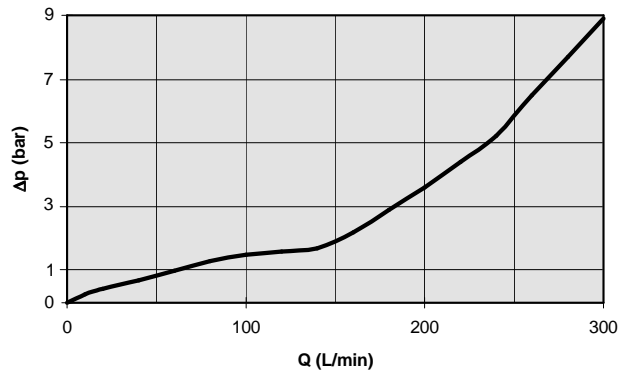
## Q- $\Delta p$ Characteristic; $Q = f(\Delta p)$

The control behaviour of the valve for the volume flow direction A to B for the various rated variable volume flows by 100% and 50% of  $Q_n$ , as well as the minimum pressure difference required for the function.



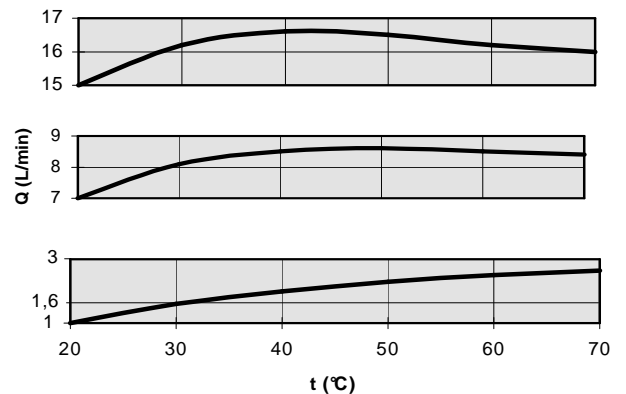
## $\Delta p$ -Q Characteristic; $\Delta p = f(Q)$

The pressure loss the valve for the volume flow direction B to A through the by-pass check valve with the orifice closed.



## Q-t- characteristic line; $\Delta p = f(Q)$

The volume flow change depending on the oil temperature at a constant pressure difference of 100 bar by 3 different setting values. Measured using hydraulic oil HLP 46 (ISO-VG 46)  $\nu = 46 \text{ mm}^2/\text{sec}$ . at 40°C. For longer volume flows, the temperature influence becomes smaller. For smaller flow, low viscosity oils result in smaller volume flow deviations.



## Valve description

### 1. Valve

The valves automatically control an adjustable discharging flow constant within the function limits independently of pressure variations in the supply or discharge line. They may be integrated at the supply or discharge side of the consumer. The adjustment throttle is designed like a rotary valves with radial slot. Due the orifice-like screen of the adjusting throttle the rated flow is not affected by viscosity or contamination.

A volume flow is made independent of the pressure by means of the differential pressure valve (pressure balance). It provides a constant pressure difference at the setting orifice and is arranged downstream of the orifice (secondary control). Due to the very compact design, the flow can be adjusted within msec in case of pressure changes.

The pressure balance is open in its normal position. Thus, there may be a starting step change when switching on the valve. The volume flow is controlled from A to B. In reserve flow direction, a by-pass check valve is integrated which allows for an unrestricted return flow at low pressure loss. It is designed as spring loaded ball seat valve.

The volume flow adjustment is realised using a motor drive unit coupled to an actual valve potentiometer feeding back the position of the setting throttle to the motor control unit. The standard attitude can be changed if necessary by the user – only toward reduction of the setting range – by adjustable tripping segment themselves. Upon special request, the valve can also get more potential-free switches.

### 2. Materials

The valve parts are made of engineering steel, the external parts are black-finished, wear parts are surface-hardened. The housing of the actuating drive is made of aluminium, black anodized. The other parts of the valve are made of various materials and the most are corrosion protected.

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 36mm<sup>2</sup>/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.