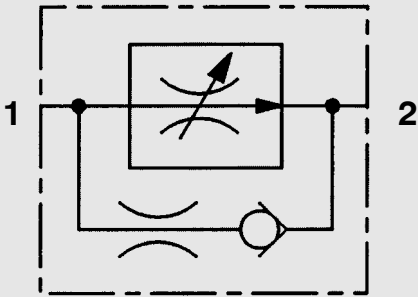


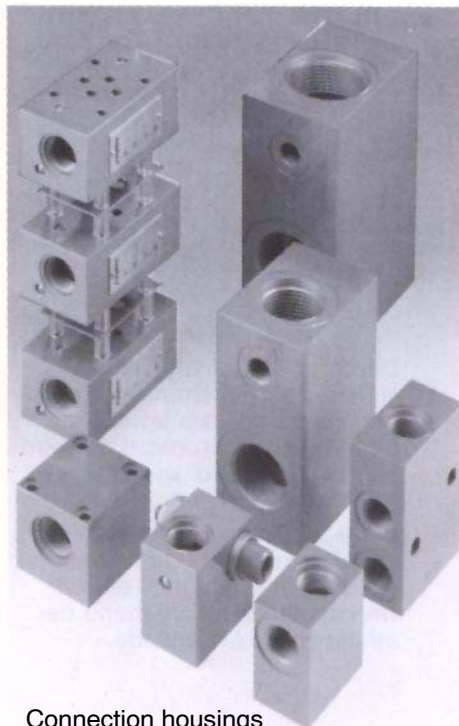
## Pressure Compensated Flow Control Valves SR5E



up to 350 bar  
up to 20 l/min



Cartridge valve



Connection housings

## 1. DESCRIPTION

### 1.1. GENERAL

In accordance with DIN-ISO 1219 HYDAC pressure compensated flow control valves, type SR5E, are valves for oil hydraulic systems which maintain a constant outlet flow by means of a control function.

The flow rate is more or less independent of the pressure.

The flow rate is determined by a fixed orifice (measuring orifice) and can be adjusted within a certain range.

Distinct advantages are:

- standardised installation dimensions, 06020, mean that they are flexible and suited to many different applications
- the compact design allows space-saving installation in connection housings, control blocks, etc
- mounting position optional
- simple, time-saving assembly due to service-friendly cartridge valve technology
- can be exchanged with flow control valve DV5

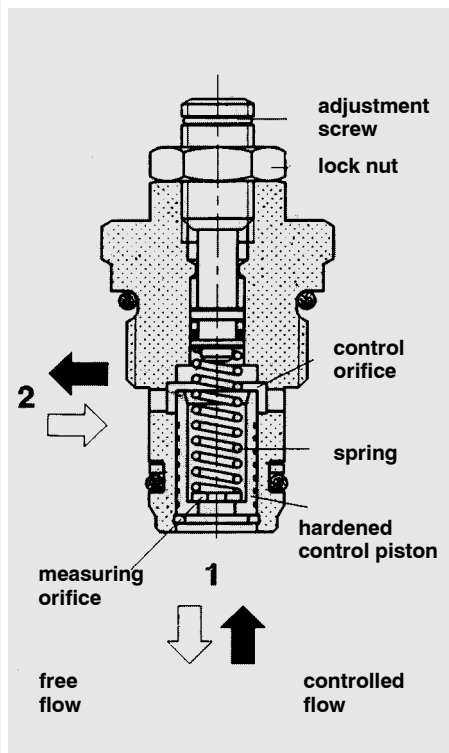
### 1.2. FUNCTION

HYDAC pressure compensated flow control valves, type SR5E are fixed orifice valves with back-up differential pressure control for oil hydraulic systems.

The differential pressure control (compensating piston) basically consists of a control piston, spring, control orifice and the adjustment screw for setting the control pressure differential. The measuring orifice determines the setting range for the flow rate.

Flow from 1 to 2 creates a pressure drop across the measuring orifice. The piston moves so that its control position is in equilibrium with the force of the pressure drop, multiplied by the control piston area, and the spring force.

As the flow rate increases, i.e. increasing pressure drop, the diameter of the control orifice is reduced in accordance with the increased pressure drop, until a force equilibrium exists.



Due to the continuous adjustment of the compensating piston in accordance with the prevailing pressure drop, a constant flow in control direction 1 → 2 is achieved.

In the reverse direction 2 → 1 the flow is free. The pressure drop is determined by the built-in measuring orifice.

### 1.3. APPLICATION

HYDAC pressure compensated flow control valves, type SR5E, are particularly suitable for controlling the speed of hydraulic cylinders and motors, irrespective of the pressure, as well as for limiting and controlling oil flows. During pump operation, the unused pump flow is fed back to the tank via a pressure relief valve.

Particularly suitable applications are:

- machine tools
- elevating platforms
- lift tables
- tail lifts to limit the max. speed of the loading device in accordance with relevant accident prevention regulations
- flow rate controls for control oil circuits in main or secondary flows
- general flow control functions in hydraulic systems

### 1.4. NOTE

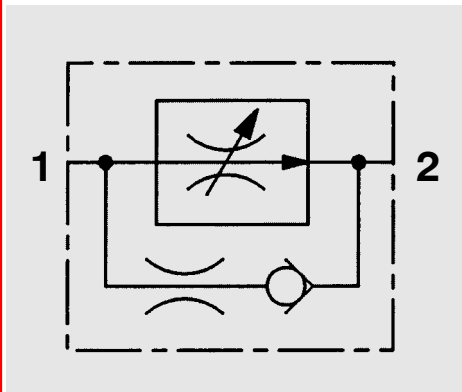
- when fitting the valves into control blocks and housings the recommended torque ratings must be taken into account! (see point 3.1.)
- the adjustment screw must not be forced past the adjustment limit
- if the required control pressure differential is not reached, the valve operates as a throttle valve

## 2. TECHNICAL SPECIFICATIONS

### 2.1. GENERAL

#### 2.1.1. Designation and Symbol

Pressure compensated flow control valve



#### 2.1.2. Model Code

(also order example)

**SR5E - 01 X / 2.5 - 2.8**

**Pressure compensated flow control valve**

**Type**

**01** = technical specifications as per this brochure

**Series**

(determined by manufacturer)

**Flow Rate Code**

(see point 2.2.8.)

**Flow Rate Setting Value** (l/min)

- if no details are specified the valve is not set, but the flow rate is within the setting range
- if a flow rate setting is required, please indicate setting value when ordering. Delivery for pre-set valves is longer and the price is higher.

#### Standard Models:

Stock no. (= order no.)	Model Code
710321	0.5
710337	1
710338	1.6
710339	2.5
710340	SR5E-01X/ 4
710341	6.5
710343	10
710344	16

Please quote stock number when ordering.

Delivery for non-standard models is longer and the price is higher.

#### 2.1.3. Type of Construction

Fixed orifice valve with back-up differential pressure control. Control pressure differential adjustable

#### 2.1.4. Type of Mounting

Cartridge valve

#### 2.1.5. Mounting Position

Optional

#### 2.1.6. Weight

SR5E...0.07 kg

#### 2.1.7. Flow Direction

From 1 to 2 controlled flow  
From 2 to 1 throttled reverse flow

#### 2.1.8. Ambient Temperature Range

min. - 20 °C  
max. + 80 °C

#### 2.1.9. Materials

Valve body: free-cutting steel  
Control piston: hardened and ground steel  
Seals: FPM and PTFE

#### 2.1.10. Type of Connection

Various types of suitable connection housings with installation dimensions 06020 are available. See separate housing brochure no. E 5.252../..

## 2.2. HYDRAULIC DETAILS

### 2.2.1. Nominal Pressure

$p_N = 350$  bar  
across all ports

### 2.2.2. Operating Pressure Range

$\Delta p$  = the required control pressure differential  $p_1 - p_2$ ,  
(see point 2.2.8.)

At lower differential pressure the valve operates as a throttle valve.

$p_{1\text{max.}} = 350$  bar

### 2.2.3. Operating Fluid

Hydraulic oil to DIN 51524, part 1 and 2

### 2.2.4. Operating Fluid Temperature Range

min.  $-20$  °C

max.  $+80$  °C

### 2.2.5. Viscosity Range

min.  $2.8$  mm<sup>2</sup>/s

max.  $380$  mm<sup>2</sup>/s

### 2.2.6. Filtration

Max. permissible contamination level of the operating fluid to ISO 4406 class 21/19/16 (NAS 1638 class 10).

We therefore recommend a filter with a minimum retention rate of  $b_{20} \geq 100$ .

The installation of a filter and the regular replacement of the filter element ensures the correct functioning of the valves, reduces wear and tear and increases the service life.

### 2.2.7. Flow Rate Setting

(also see point 3.1.)

To adjust the flow rate within the setting range, the lock nut must be unscrewed. Turn the adjustment screw in the appropriate direction (+ increase flow; - reduce flow) to adjust the flow rate. Subsequently, the adjustment screw is secured by means of the lock nut.

#### Please note:

The round-wire ring limits the adjustment range.

The adjustment screw must not be forced past the adjustment limit.

### 2.2.8. Flow Rate

Flow rate code VK	Flow rate adjustment range (l/min)	Required control pressure differential $\Delta p = (p_1 - p_2)$ (bar)
0.5	0.5 - 0.6	10 - 15
1	1.0 - 1.2	10 - 18
1.6	1.6 - 2.1	10 - 18
2.5	2.5 - 3.2	10 - 18
4	4.0 - 5.2	10 - 18
6.5	6.5 - 7.8	10 - 18
10	10.0 - 12.5	12 - 20
16	16.0 - 20.0	12 - 20

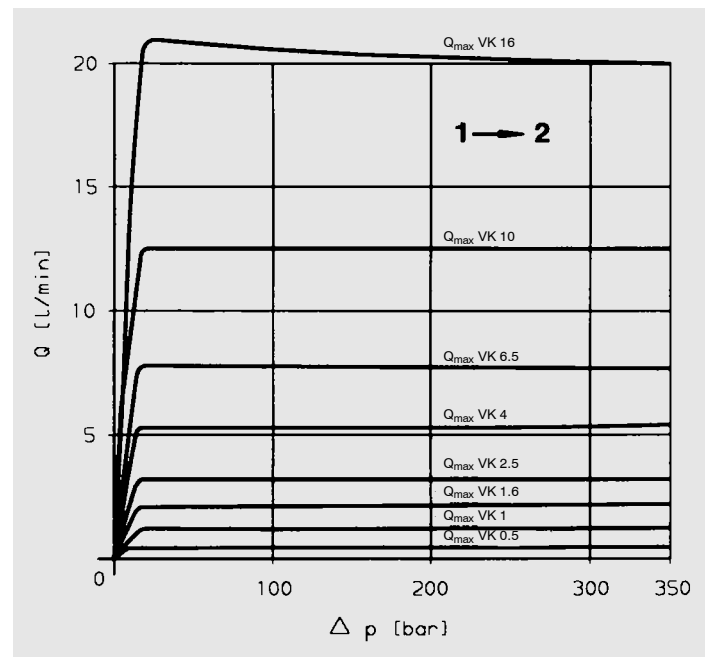
The above flow rate values are standard values.

Different flow rate values are available within the range of 0.3 - 20 l/min.

Standard manufacturer's setting is at  $\Delta p = 100$  bar.

## 2.2.9. Flow Rate, pressure dependent

$Q$ - $\Delta p$  graph measured at  $v = 72$  mm<sup>2</sup>/s and  $t_{oil} = 30$  °C



### 2.2.10. Dp-Q Graph

Pressure differential  $\Delta p$  depending on flow rate  $Q$ , measured at  $v = 72$  mm<sup>2</sup>/s and  $t_{oil} = 30$  °C.

VK = Flow Rate Code

