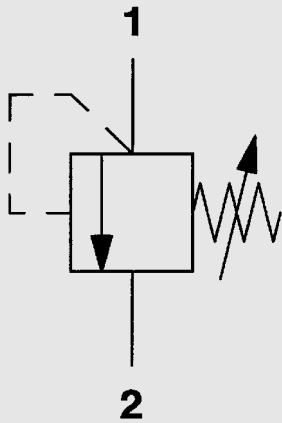


Pressure Relief Valve DB3E



up to 350 bar
up to 15 l/min



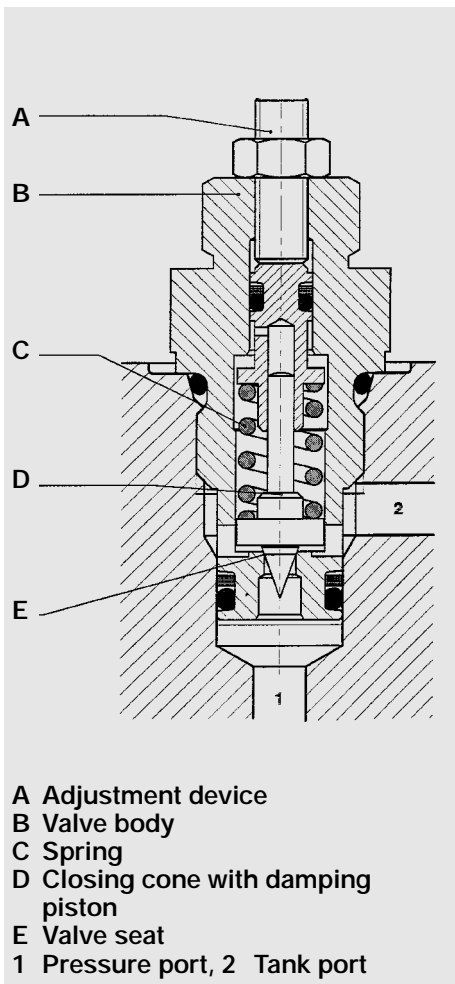
1. DESCRIPTION

1.1. GENERAL

According to DIN-ISO 1219, HYDAC pressure relief valves DB3E are valves for oil hydraulic systems used for controlling pressure by opening the outlet to the tank when the inlet pressure exceeds the spring force.

The damping unit fitted on the tank side ensures that a stable operation is maintained over the whole capacity range and that the noise level is kept to a minimum. An excellent constant-pressure performance is achieved by means of the hydrodynamic lift support. Further advantages of these valves are as follows:

- standardised installation dimensions means that they are suited to many different applications
- their compact design provides space-saving installation in connection housings, control blocks, etc. especially in confined installation conditions
- low hysteresis and high stability ensure accurate pressure control
- optimum system adaptation by means of various pressure ranges
- simple assembly by means of service-friendly cartridge valve technology
- the zinc-plated surface is suitable for use in mobile applications without additional coatings



1.2. FUNCTION

HYDAC pressure relief valves DB3E are direct-operated, spring-loaded cone seat valves for oil hydraulic systems. The valve basically consists of a valve body with built-in valve seat, a hardened and polished closing cone with damping piston and the adjustment device for setting the initial spring tension. The spring applies this force to the closing cone and pushes it against the valve seat. On the opposite side of the closing cone the system pressure acts via port 1 of the valve. If the hydraulic pressure is below the pre-set spring tension, the valve is closed. If the hydraulic pressure force exceeds the pre-set spring tension, the closing cone is lifted off the valve seat and the operating fluid flows from pressure port 1 to tank port 2. This limits the pressure across port 1. To ensure that a stable operation is maintained, the closing cone is securely located in the damping piston which has to displace oil in an aperture with each movement of the closing cone. This produces a damping force each time, opposing the direction of movement.

1.3. APPLICATION

HYDAC pressure relief valves DB3E are used:

- as safety valves for limiting pressure to the maximum permissible
- as safety valves for cylinders, pumps and other pressure generators
- for limiting pressure in hydraulic units and control blocks
- for pressure control of hydraulic circuits

Areas of application could be, for example:

- hydraulic units
- elevating platforms
- mobile hydraulics
- clamping hydraulics
- relief valves on hydraulic motors
- force or torque limiting on drive elements

1.4. NOTE

- When fitting the valves into control blocks and housings the given torque rating must be observed! (see point 3)
- Note port configuration! (see point 2.1.7.)

Please note

If the connections are incorrect or the pressure has been incorrectly set above the operating pressure, the safety function of the valve is no longer operational.

- Max. pressure across tank port 2: 100 bar

Please note

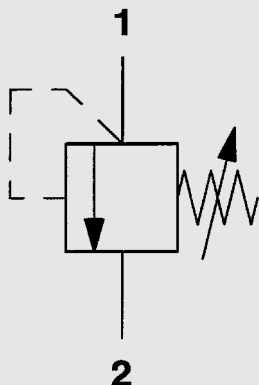
The cracking pressure of the valve increases by the amount of pressure across tank port 2!

2. TECHNICAL SPECIFICATIONS

2.1. GENERAL

2.1.1. Designation and symbol

Pressure relief valve



2.1.2. Model code (also order example)

DB3E - 02 X - 350 F 315

Pressure relief valve

Type

02 = standard model, zinc-plated

Series

(determined by manufacturer)

Setting pressure

(see also 2.2.7.)

100 = 100 bar

250 = 250 bar

350 = 350 bar

Type of adjustment

V = adjustable with tool (standard model)

F = fixed setting, cannot be adjusted

P = can be lead-sealed, adjustable with tool

Cracking pressure setting

F = factory set cracking pressure in bar

Standard models

Stock no. (= order no.)	Model code
716147	DB3E-02X-100 V
716146	DB3E-02X-250 V
397405	DB3E-02X-350 V

Please quote stock number when ordering.

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

2.1.3. Type of construction

Cone seat valve, direct-operated

2.1.4. Type of mounting

Cartridge valve

2.1.5. Mounting position

Optional

2.1.6. Weight

DB3E...0.053 kg

2.1.7. Flow direction

From 1 to 2 pressure relief function

2.1.8. Ambient temperature range

min. -20 5C

max. +80 5C

2.1.9. Materials

Valve body: high tensile steel

Closing element: hardened and polished steel, wear-resistant

Seals: FPM and PTFE

2.2. HYDRAULIC DETAILS

2.2.1. Nominal pressure

Inlet (port 1): up to 350 bar
Outlet (port 2): up to 100 bar

2.2.2. Operating pressure ranges

... up to 100 bar
... up to 250 bar
... up to 350 bar

for lowest setting pressures see
2.2.7. Pressure, dependent on flow rate

2.2.3. Operating fluid

Mineral oil to DIN 51524 Part 1 and Part 2

2.2.4. Operating fluid temperature range

min. -20 5C
max. +80 5C

2.2.5. Viscosity range

min. 10 mm²/s
max. 380 mm²/s

2.2.6. Filtration

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

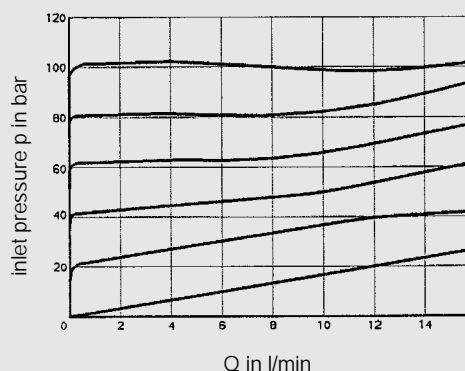
We recommend a filter with a minimum retention rate of $b_{20} 100$.

The fitting of filters and regular replacement of elements ensures correct functioning, reduces wear and tear and increases the service life.

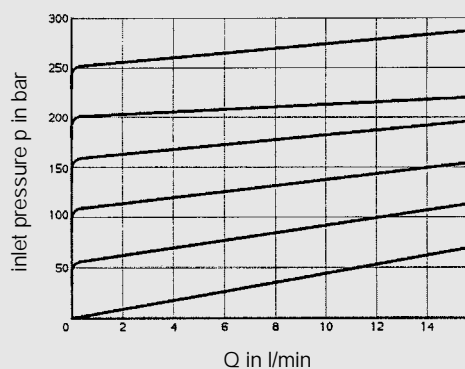
2.2.7. Pressure, dependent on flow rate

(measured at $n = 36 \text{ mm}^2/\text{s}$ and $t_{\text{oil}} = 50 \text{ 5C}$)

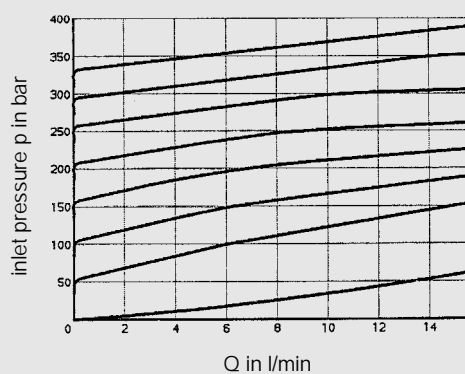
Pressure range...100 bar



Pressure range...250 bar

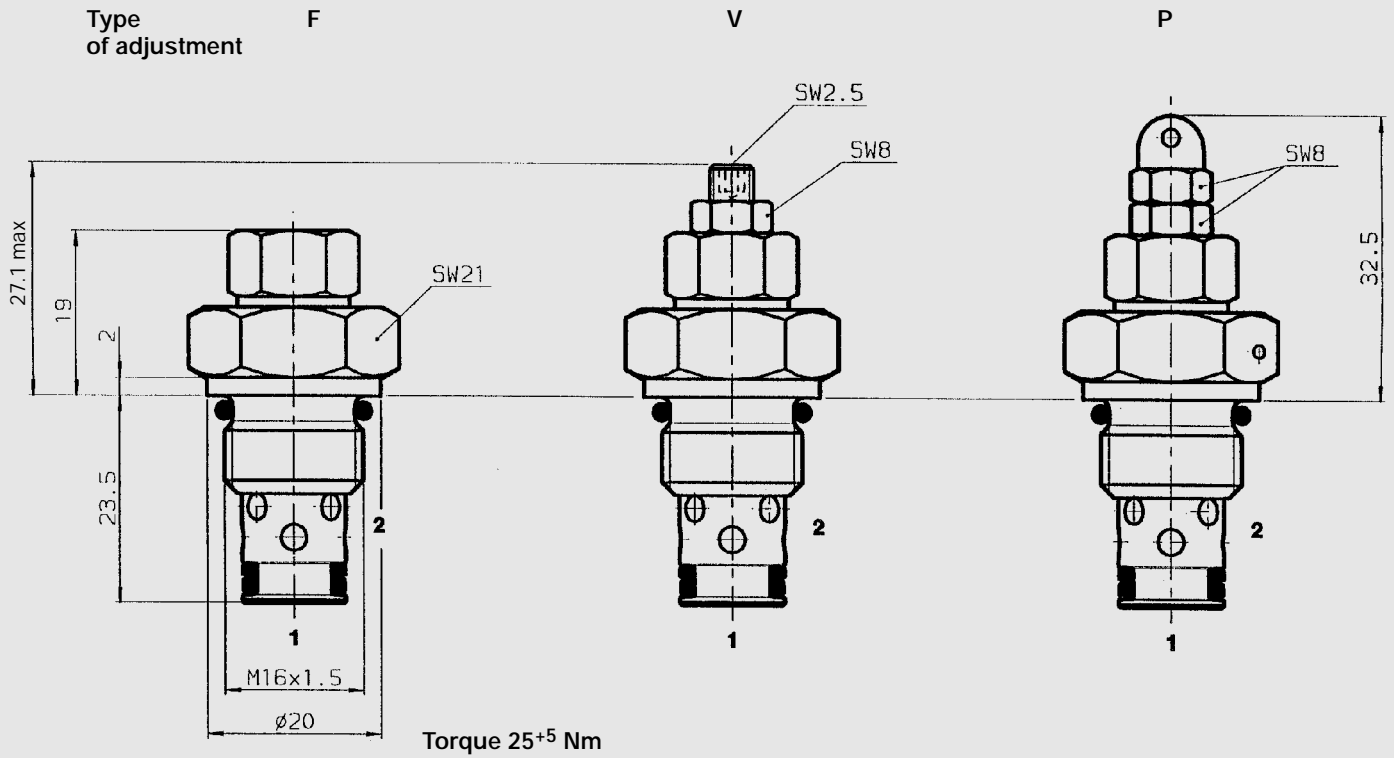


Pressure range...350 bar

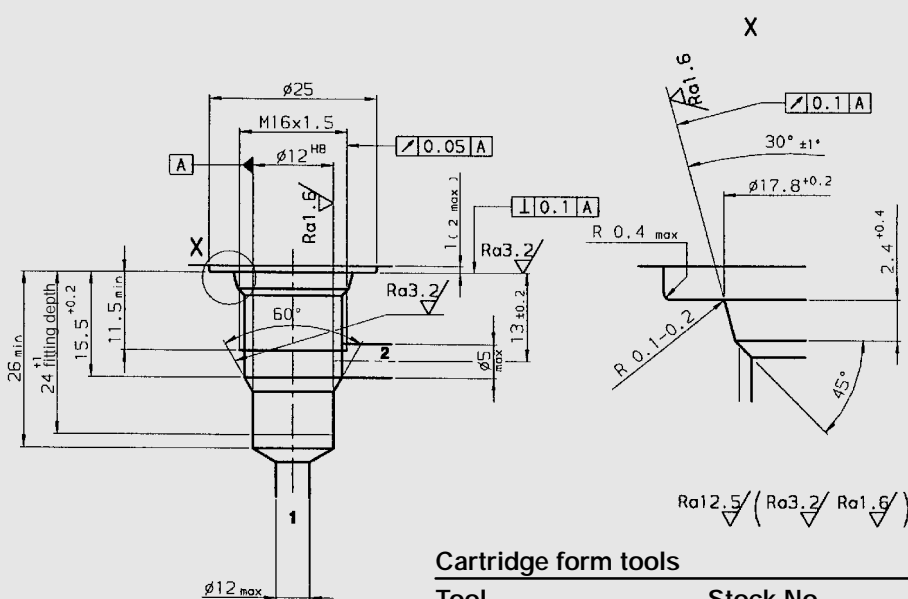


3. DIMENSIONS

DB3E



Installation dimensions 05220:



Cartridge form tools

Tool	Stock No.
Countersink	170040
Reamer	1014203
Tap	1002605
Plug gauge	172827

4. NOTE

The information in this brochure relates to the operating conditions and applications described. For applications or operating conditions not described, please contact the relevant technical department. Subject to technical modifications.