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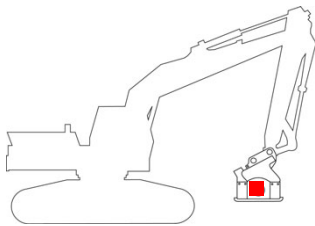
## 1 Product Details

The pressure relief valve PRV-DBU is a direct operated pressure relief valve that is designed to protect hydraulic actuators against burst or rupture. It may, due to improper connection of quick couplings, cause a hydraulic connection to be not existent or improper. If this affects the tank or drain line of the system, pressure in the connected device may arise so high, that a cylinder or motor will be destroyed. The pressure valve is constructed as a cartridge valve to be fitted in a G1/2 cavity.

### 1.1 Application

If an attachment is connected to a construction machine via a quick coupling, it might happen that the return line remains blocked due to an insufficient connection. If a cylinder is operated under these circumstances it acts as a pressure intensifier. On the rod side very high pressure may arise and lead to a bursting of the cylinder and thus to a large damage to the unit and the environment. The PRV-DBU can be installed into the return line of the attachment. If a tolerable maximum pressure, which should be fairly higher than the maximum operating pressure of the device, is exceeded due to improper coupling, the valve opens to the environment. This damage is noticed immediately, because the device does not operate and because of the leakage. This also means environmental damage, but in a much smaller quantity than a ruined cylinder would cause. The same applies to a poorly connected drain line of a consumer that can bring a motor to burst (pressed out shaft seal). This can also be avoided through a low-pressure version of this valve. The damage is minimized.

### 1.2 Recommended Installation

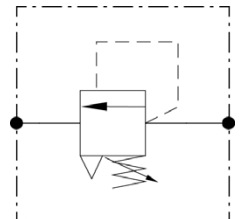


The valve is either connected with the line where pressure intensification can occur (rod side of a cylinder) or with the drain line.

### 1.3 Function

When the set pressure is exceeded, the valve opens to the environment.

Caution: Small amounts of hydraulic fluid get in the environment. But this damage is minor compared to a damage caused by a destroyed cylinder / motor!



### 1.4 Features

- Cartridge screwed into the stepped bore of different housings
- Small installation space
- Can be screwed in G1/2 cavities
- Seat valve design, leakage free
- Relief to environment

## 2 Technical Data

Criteria	Unit	Value
Installation position		any
surface protection		Zinc coated
Weight	kg	0,16
Maximum input pressure (P)	bar	550
Adjustable pressure	bar	High pressure applications 440 -550 bar, low pressure applications 20-21bar
Maximum Tankpressure (T)	bar	Relief to environment
Maximum input flow rate (P)	l/min	200 l/min for high pressure, 20 l/min for low pressure
Hydraulic fluid		Mineral oil (HL, HLP) conforming with DIN 51524, other fluids upon request
Hydraulic fluid pressure range	°C	-25 bis +80
Ambient temperature	°C	< +50
Viscosity range	mm <sup>2</sup> /s	2,8 - 500
Contamination grade		Filtering conforming with NAS 1638, class 9, with minimum retention rate β10≥75

## 3 Ordering Information

### 3.1 Type Code

PRV	DBU	CA		500		003	N
00	01	02	03	04	05	06	07
00	Product group	Pressure relief valves					PRV
01	Variant	Pilot control					DBU
02	Port / Case	Cartridgeventil					CA
03	Input flow rate Q <sub>max</sub> .	200 l/min for high pressure					200
		20 l/min for low pressure					020
04	Max. permissible pressure P <sub>max</sub> .	500bar					500
05	Activation	Manually adjustable 20-21bar, 440-500bar				e.g. adjustable 450bar (consider adjustable range)	MAN450
06	Stepped cavity	WESSEL-Patrone 8.00003 (stepped cavity)					003
07	Seal	NBR, temperatur range -25°C bis +80°C					N

XXX – Permanent preset characteristics    XXX – Characteristics selectable by customer  
■ Available    ○ Not available

### 3.2 Versions currently available

The versions listed below are available as standard. Further versions as part of the options given on the type code can be configured upon request.

Designation	Type Code	Part Nr.
PRV –DBU –CA -200LPM -500BAR –MAN450BAR –003 -NBR	PRV –DBU –CA -200 -500 –MAN450 –003 -N	412.071.403.9
PRV –DBU –CA -20LPM - 500BAR –MAN020BAR –003 -NBR	PRV –DBU –CA -020 -500 –MAN007 –003 -N	412.071.404.9

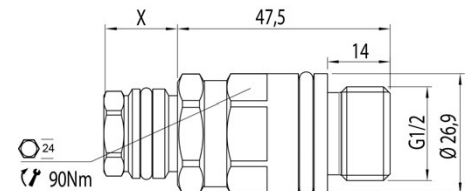
## 4 Description of Characteristics in Accordance with Type Code

### 4.1 Characteristic 1: Variant DBU

Slip-in cartridge, damage protected

### 4.2 Characteristic 5: Port / Case: Variant CA - Cartridge

In the variant CA, the valve is delivered as a cartridge valve. The Cavity has to be designed according to Feature 6 (stepped bore)



### 4.3 Characteristic 2: input flow rate

Depending on the pressure range: The high pressure (> 440 bar) version is designed for approx.. 200 l/min, the low pressure version the maximum possible flow rate is limited to 20 l/min.

### 4.4 Characteristic 3: Max.permissible pressure

The maximum allowable pressure is depending on the body solidity and from the spring: 550bar

### 4.5 Characteristic 4: Activation / Setting



#### ATTENTION

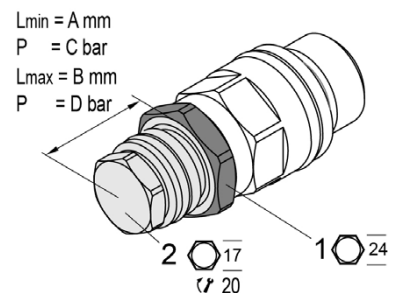
During operation, the valve can heat up to the oil temperature.



#### CAUTION

Do not unscrew the set-screws (2) more than **B** mm out of the housing (see scale). No settings may be done while the valve is pressurized.

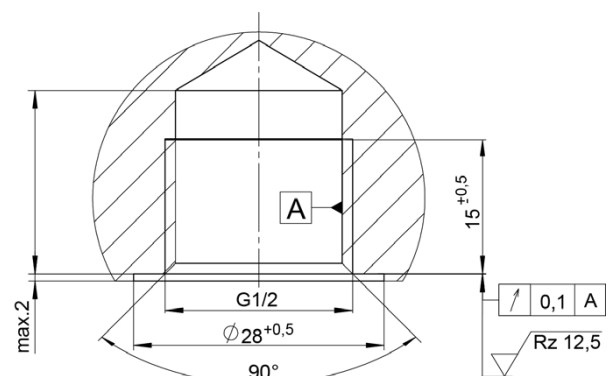
- Ensure that the flow control valve is not under pressure
- Undo the counter-nut (1) .
- Adjust the maximum operating pressure of the attachment:  
 ... **Increase**: Turn the set-screw (2) to the right (CW)  
 ... **Reduce**: Turn the set-screw (2) to the left (CCW)
- Secure setting with a counter-nut (1)



Max.permissible pressure $P_{max.}$		A mm	B mm	C bar	D bar	1mm = bar
20bar (adjustable range 7-9bar)	MAN020	≈17,5	≈18,5	≈9	≈7	≈2,2
450bar (adjustable range 440-550bar)	MAN450	≈15,5	≈16,5	≈550	≈440	≈124,5

### 4.6 Characteristic 6: Stepped cavity 8.00003

The pilot-operated pressure relief valve is a cartridge device and is screwed into a stepped bore according WESSEL standard 8.00003 (G1/2).



### 4.7 Characteristic 7: Seal

NBR, temperature range -25°C bis +80°C

## 5 Installation

### 5.1 General information

- Observe all installation and safety information of the construction machine / attachment tools manufacturer.
- Only technically permitted changes are to be made on the construction machine.
- The user has to ensure that the device is suitable for the respective application.
- Application exclusively for the range of application specified by the manufacturer.
- Before installation or de-installation, the hydraulic system is to be depressurized.
- Settings are to be made by qualified personnel only.
- Opening is only to be performed with the approval of the manufacturer, otherwise the warranty is invalid.

### 5.2 General Instructions



**NOTE:** Enclosed proposed resolution is not always guaranteed. The functionality and the technical details of the construction machine must be checked.

### 5.3 Installation – space

The valve is screwed in a block with a torque of 90 Nm. Wrench size 24 is required

- Observe connection names.
- Do not damage seals and flange surface.
- Its hydraulic system must be vented
- Ensure sufficient free space for setting and installation work



**CAUTION:** Hydraulic hoses must not touch the pressure relief valve, otherwise they are subject to thermal damaging. Tightening torques must be observed. Torque wrench needed.

## 6 Notes, Standards and Safety Instructions

### 6.1 General Instructions

- The views in drawings are shown in accordance with the European normal projection variant



- A comma ( , ) is used as a decimal point in drawings
- All dimensions are given in mm

### 6.2 Standards

The following standards must be observed when installing and operating the valve:

- DIN EN ISO 13732-1:2008-12, Temperatures on accessible surfaces

## 7 Accessories