

# Pressure valve Reducing function

$Q_{\max} = 40 \text{ l/min}$ ,  $p_{\max} = 315 \text{ bar}$   
direct acting, poppet type, mechanical operation  
Type series: DDRA-5L...



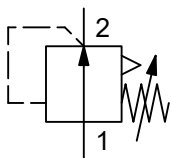
- Screw-in cartridge valve
- For cavity AL
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type GALA
- Excellent stability over the whole pressure and flow range
- Sensitive adjustment
- Available with hand-knob or tamper-proof cap

## Description

These two-stage pressure valves, series DDRA-5L..., are size 5, screw-in cartridge valves with a seated pilot stage and an 3/4-16 UNF-2A mounting thread. They are designed on the proven sliding-spool principle. The spring chamber is atmospherically relieved. To obtain a reliable pressure setting over the entire pressure range, the overall pressure range is divided into different pressure levels. These valves are mainly used

in certain mobile and industrial applications to reduce the system pressure. The pressure is set by means of an adjusting spindle. All external parts of the screw-in valves are zinc-nickel plated and are thus suitable for use in the harshest operating environments. For installation and further information, please refer to the section related data sheets.

## Symbol



## Technical data

General characteristics	Description, value, unit
Function group	Pressure valve
Function	Reducing function
Design	Screw-in cartridge valve
Controls	mechanical operation

General characteristics	Description, value, unit
Characteristic	direct acting, poppet type
MTTFd value	150 years
Construction size	NG 5
Thread size	3/4-16 UNF-2A
Mounting attitude	unrestricted
Weight	0.20 kg
Cavity acc. factory standard	For cavity AL
Tightening torque steel	50 Nm
Tightening torque aluminium	50 Nm
Tightening torque tolerance	± 10 %
Minimum ambient temperature	- 30 °C
Maximum ambient temperature	+ 80 °C
Surface protection	All external parts with zinc-nickel plating according to DIN EN ISO 19598
Sealing material	see ordering code
Seal kit order number	NBR: DS-450-N / FKM: DS-450-V

Hydraulic characteristics	Description, value, unit
Maximum operating pressure	315 bar
Restriction of the operating pressure	port 2 = 250 bar
Maximum flow rate	40 l/min
Flow direction	see symbol
Hydraulic fluid	HL and HLP mineral oil according to DIN 51 524; other fluids on request!
Minimum fluid temperature	- 30 °C
Maximum fluid temperature	+ 80 °C
Viscosity range	10 ... 650 mm <sup>2</sup> /s (cSt)
Recommended viscosity range	15 ... 250 mm <sup>2</sup> /s (cSt)
Minimum fluid cleanliness (cleanliness class according to ISO 4406:1999)	class 20/18/15
Opening pressure	60 / 100 / 160 / 250 bar
Pressure adjustment range	pressure range 20...60 bar: 1 turn = ca. 15 bar pressure range 30...100 bar: 1 turn = ca. 20 bar pressure range 40...160 bar: 1 turn = ca. 30 bar pressure range 50...250 bar: 1 turn = ca. 40 bar
Internal leakage flow rate	< 0,2 cm <sup>3</sup> /min (max. 5 drops/min) with oil viscosity 33 mm <sup>2</sup> /s (cSt)


**ATTENTION!**

If there is pressure at the secondary connection, this is added to the set pressure value.

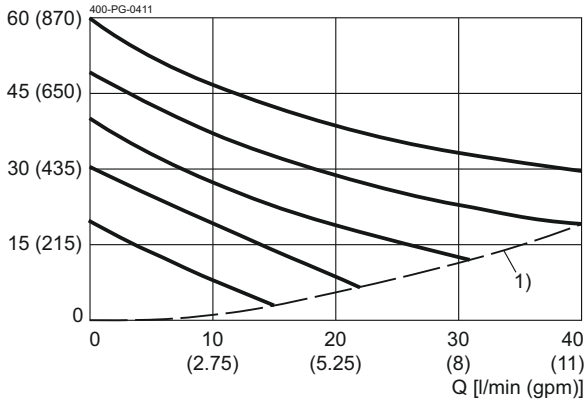
## Performance graphs

measured with oil viscosity 33.0 mm<sup>2</sup>/s (cSt)

$p = f(Q)$  Pressure-flow rate

Pressure range 20...60 bar

$p_2$  [bar (psi)]



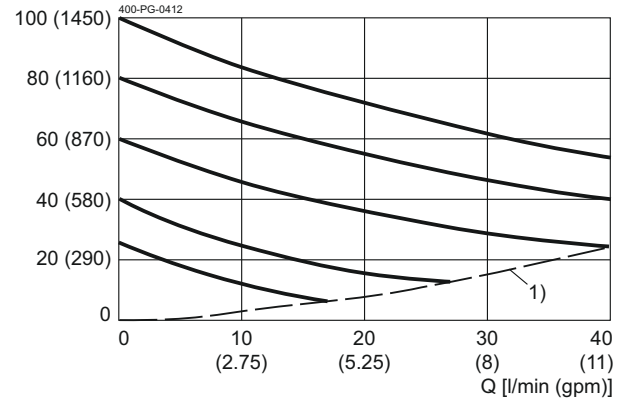
$p_N = 60 \text{ bar (870 psi)}$

1) Einsatzgrenze / Application limit

$p = f(Q)$  Pressure-flow rate

Pressure range 30...100 bar

$p_2$  [bar (psi)]



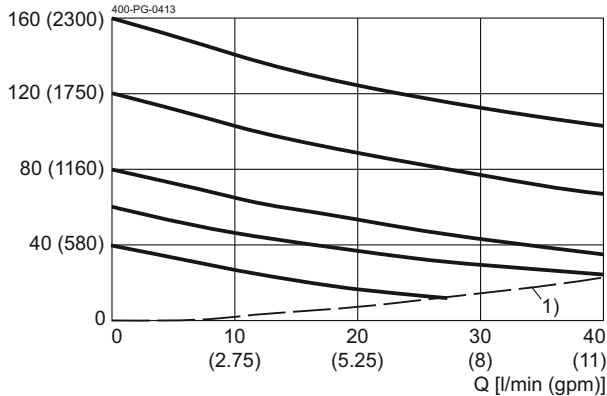
$p_N = 100 \text{ bar (1450 psi)}$

1) Einsatzgrenze / Application limit

$p = f(Q)$  Pressure-flow rate

Pressure range 40...160 bar

$p_2$  [bar (psi)]



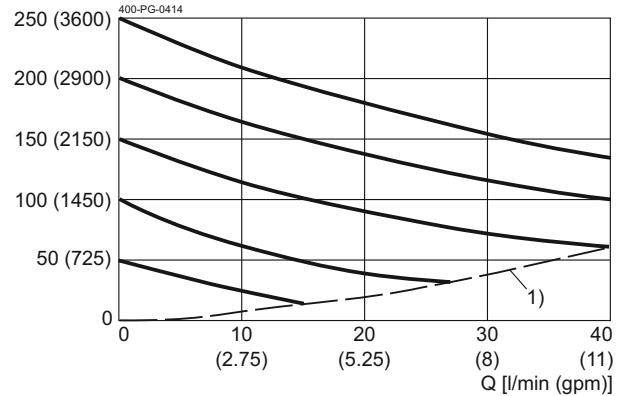
$p_N = 160 \text{ bar (2300 psi)}$

1) Einsatzgrenze / Application limit

$p = f(Q)$  Pressure-flow rate

Pressure range 50...250 bar

$p_2$  [bar (psi)]



$p_N = 250 \text{ bar (3600 psi)}$

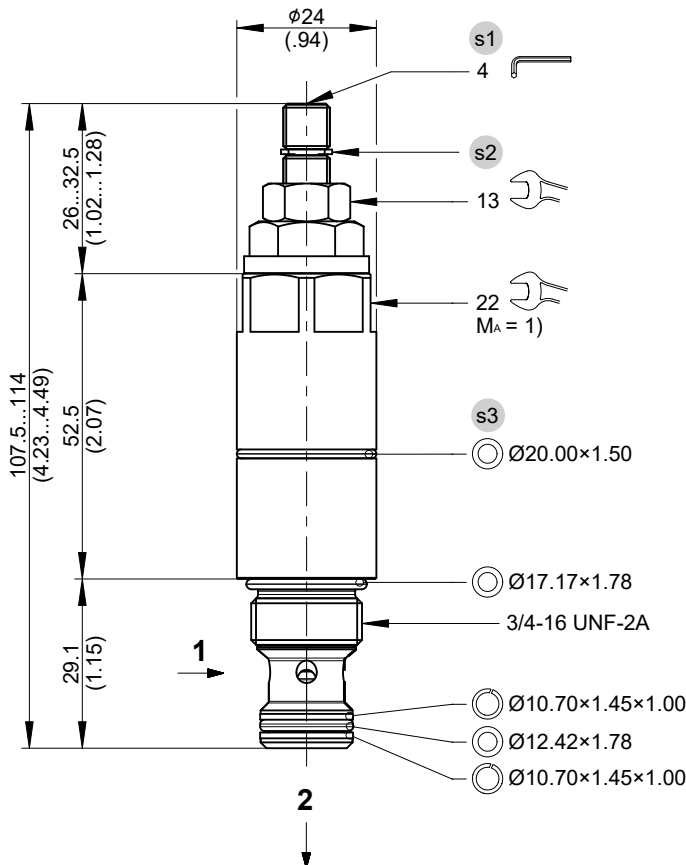
1) Einsatzgrenze / Application limit

## Dimensions and sectional view

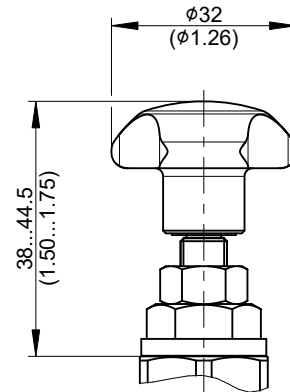
### Beispiel für die Masseinheit: Exampel for the dimensional units:

0.79 = 0.79 mm millimeter  
(.031) = 0.031" inch

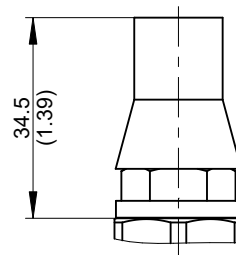
Version "S": Einstellschraube mit Innensechskant (Standard)  
Version "S": adjustment screw with internal hexagon (standard)



Version "H": Einstellschraube mit Handrad  
Version "H": adjustment screw with handknob



Einstellschraube mit Sicherungskappe  
adjustment screw with tamper-proof cap



## Installation information

**NOTE!**  
1) When fitting the screw-in cartridge valve, use the specified tightening torque. The value can be found in the chapter "Technical data".

**NOTE!**  
Set the required pressure with the adjusting screw (s1). After you have set the valve, lock the adjusting screw (s1) with the lock nut.

**IMPORTANT!**  
Due to the atmospheric venting (s3), an external leak age cannot be ruled out. Depending on the appli cation, external influences and duration of use, this oil volume might vary. To collect the oil in the spring chamber, a vertical installation orientation is recommended.

**NOTE!**  
Valve settings can be sealed by fitting the tamper-proof cap. To fit the cap, the snap ring (s2) has to be removed. Subsequent adjustment is only possible by destroying the tamper-proof cap.

**NOTE!**  
The seals are not available individually. The seal kit order number can be found in the chapter "Technical data".

**ATTENTION!**  
Only qualified personnel with mechanical skills may carry out any maintenance work. Generally, the only work that should ever be undertaken is to check, and possibly replace, the seals. When changing seals, oil or grease the new seals thoroughly before fitting them.

## Ordering code

	Ex.	D	DR	A	-	5	L	-	5	-	25	-	S	N	-	3
D	=	pressure-control valve														
DR	=	direct acting pressure reducing cartridge														
A ... Q	=	standard model according to valid data sheet														
Z ... R	=	special model (on request)														
5	=	pressure-reducing with external spring space relief														
L	=	cavity type AL														
5	=	nominal size 5														
06	=	pressure range 20...60 bar / 290...870 psi														
10	=	pressure range 30...100 bar / 435...1450 psi														
16	=	pressure range 40...160 bar / 580...2300 psi														
25	=	pressure range 50...250 bar / 725...3600 psi <b>(standard)</b>														
S	=	adjustment screw with internal hexagon <b>(standard)</b>														
H	=	adjustment screw with hand knob														
N	=	NBR (nitril-butadien-rubber / BUNA) seals <b>(standard)</b>														
V	=	FKM (fluorocarbon rubber / VITON) seals (special seals on request)														
1 ... 9	=	technical design no. (omit by ordering)														



### IMPORTANT!

When required, the tamper-proof cap (the adjustment seal) must be ordered separately in plain language.

## Related data sheets

Reference	Description
<a href="#">400-P-040011</a>	Form tools
<a href="#">400-P-040171</a>	Cavity AL
<a href="#">400-P-720101</a>	Threaded port body GALA
<a href="#">400-P-010101</a>	MTTFd Values for Hydraulic Valves

[info.ch@bucherhydraulics.com](mailto:info.ch@bucherhydraulics.com)

[www.bucherhydraulics.com](http://www.bucherhydraulics.com)

© 2025 by Bucher Hydraulics AG Frutigen, 3714 Frutigen, Switzerland

All rights reserved.

Data is provided for the purpose of product description only, and must not be construed as warranted characteristics in the legal sense. The information does not relieve users from the duty of conducting their own evaluations and tests. Because the products are subject to continual improvement, we reserve the right to amend the product specifications contained in this catalogue.