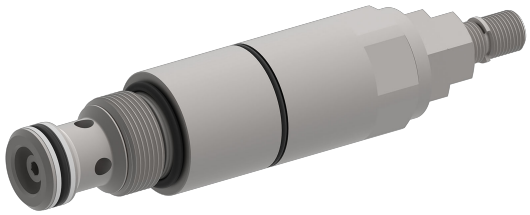
BUCHER hydraulics

Pressure valve
Reducing function

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

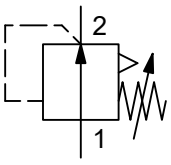


- Screw-in cartridge valve
- For cavity AL
- All external parts with zinc-nickel plating according to DIN EN ISO 19598
- Installation in threaded port body type GALA
- Excellent stability over the whole pressure and flow range
- Sensitive adjustment
- Available with hand-knob or tamper-proof cap

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

General characteristics	Description, value, unit
Controls	mechanical operation
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^2/s (cSt)
Recommended viscosity range	15 ... 250 mm^2/s (cSt)
Minimum fluid cleanliness (cleanlineless 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. 16 bar pressure range 30...100 bar: 1 turn = ca. 24 bar pressure range 40...160 bar: 1 turn = ca. 32 bar pressure range 50...250 bar: 1 turn = ca. 39 bar
Internal leakage flow rate	< 0,2 cm^3/min (max. 5 drops/min) with oil viscositt 33 mm^2/s (cSt)

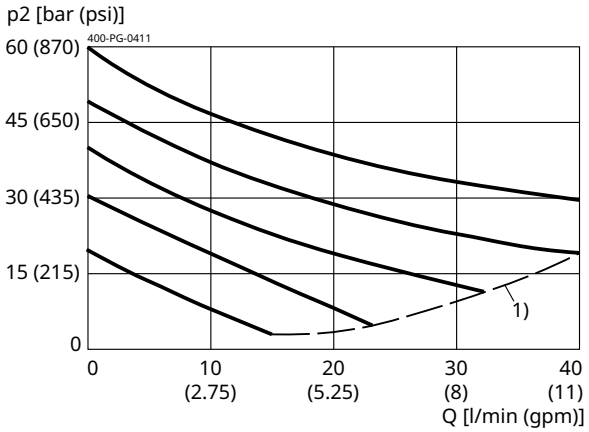
ATTENTION!
If there is pressure at the secondary connection, this is added to the set pressure value.

Performance graphs

measured with oil viscosity 33.0 mm²/s (cSt)

p = f (Q) Pressure-flow rate

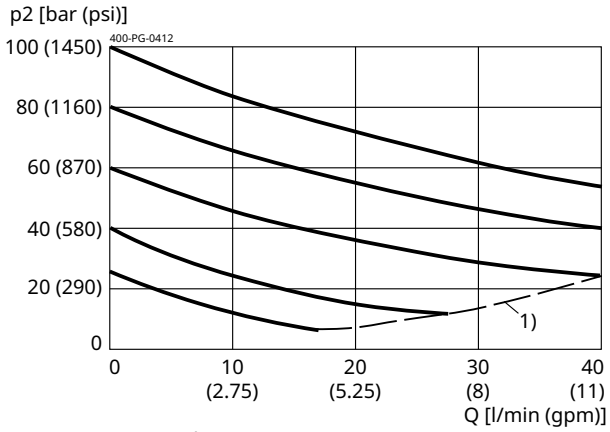
Pressure range 20...60 bar



p_N = 60 bar (870 psi)
1) Einsatzgrenze / Application limit

p = f (Q) Pressure-flow rate

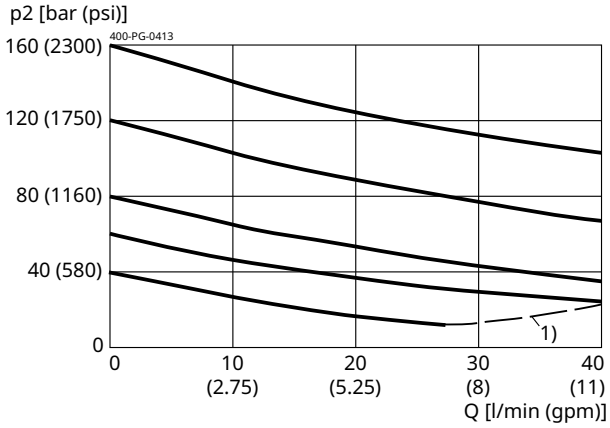
Pressure range 30...100 bar



p_N = 100 bar (1450 psi)
1) Einsatzgrenze / Application limit

p = f (Q) Pressure-flow rate

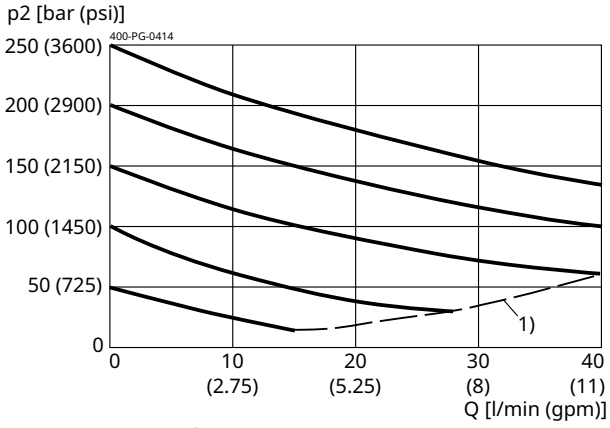
Pressure range 40...160 bar



p_N = 160 bar (2300 psi)
1) Einsatzgrenze / Application limit

p = f (Q) Pressure-flow rate

Pressure range 50...250 bar



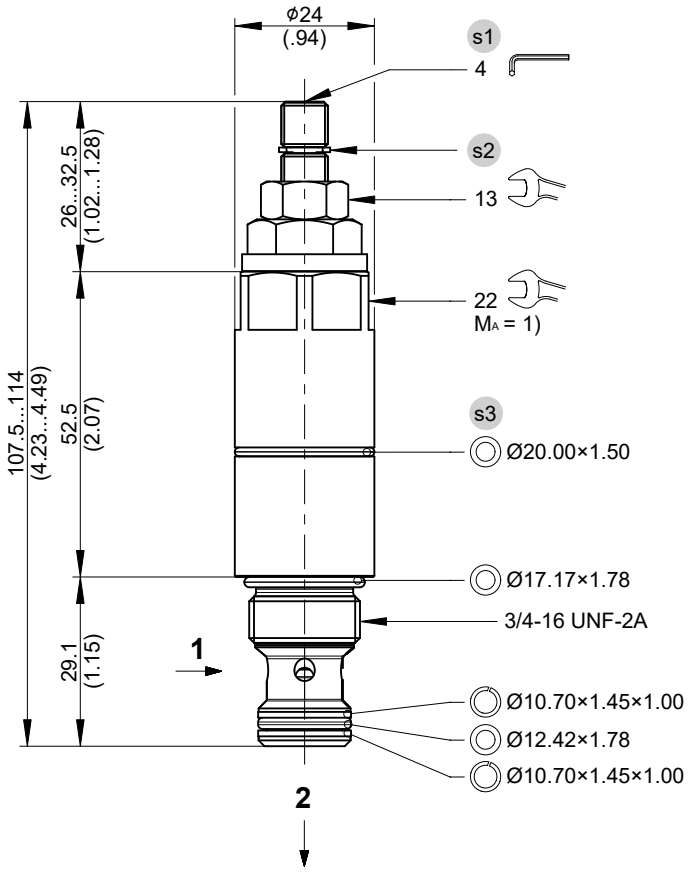
p_N = 250 bar (3600 psi)
1) Einsatzgrenze / Application limit

Dimensions and sectional view

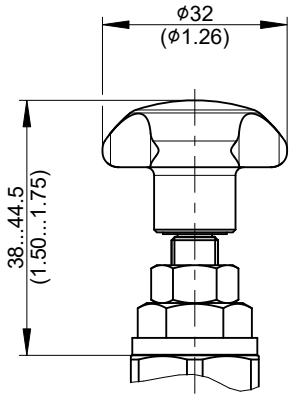
Beispiel für die Masseinheit:
Exampel for the dimensional units:

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

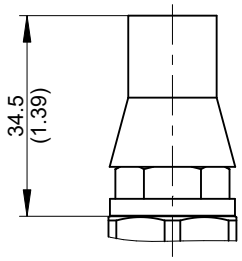
Version "S": Einstellschraube mit Innensechskant (Standard)
Version "S": adjustment screw with internal hexagon (standard)



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 leakage cannot be ruled out. Depending on the application, 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 wth 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
S	=	adjustment screw with internal hexagon **(standard)**
H	=	adjustment screw with hand knob
N	=	NBR (nitril-butadien-rubber / BUNA) seals **(standard)**
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
400-P-040011	Form tools
400-P-040171	Cavity AL
400-P-720101	Threaded port body GALA
400-P-010101	MTTFd Values for Hydraulic Valves

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