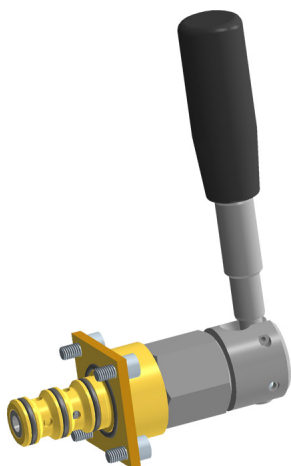


## 3/2 Cartridge Seat Valve, Size 6

$Q_{max} = 20 \text{ l/min}$ ,  $p_{max} = 315 \text{ bar}$

Bidirectional seat-valve shut-off, direct acting, manually operated

Series W1U..., W1X..., W1V..., W1Y...



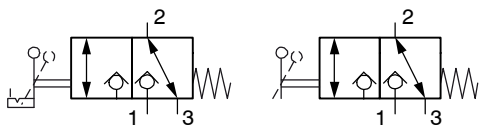
- Port 1 closed virtually leak-free in the non-operated condition
- Guided valve spool and poppet
- Two spool variants are available
- Available in two mounting versions
- Hand lever with or without detent feature
- All exposed parts with zinc-nickel plating
- Can be fitted in a line-mounting body

### 1 Description

The W1U.../W1X.../W1V.../W1Y... series of 3/2 handle-operated directional seat valves are size 6, direct acting, pressure balanced, push-in cartridges. In the normal condition (non-operated), flow in port 1 is shut off without leakage. The core element operates on the tried and tested principle of the guided poppet, and the guide spool has a seal. Two different mounting versions are available, which allows the designer to choose the insertion depth (flange 10.1 mm or 18 mm). The "overlapped spool" model (W1V..., W1Y...) features a closed crossover characteristic i.e. during the valve's switching period, there is no connection between ports 1, 2, and 3 and therefore only a minimal loss of

flow / pressure occurs. The hand lever can be turned through 360° and is available as a "detentable" (W1U/V...) or "non-detentable" (W1X/Y...) model. These valves are predominantly used in certain mobile and industrial applications where leak-tight shut-off functions are crucially important. Examples are where loads, tensions, or clamping forces must be held without leakage. All external parts of the cartridge are zinc-nickel plated to DIN 50 979 and are thus suitable for use in the harshest operating environments. If you intend to manufacture your own cavities or are designing a line-mounting installation, please refer to the section "Related data sheets".

### 2 Symbol



W1U..., W1V...

W1X..., W1Y...

### 3 Technical data

General characteristics	Description, value, unit
Designation	3/2 cartridge seat valve
Design	bidirectional seat-valve shut-off, direct acting, manually operated poppet and valve-spool design (pressure balanced) with underlapped or overlapped spool
Mounting method	push-in cartridge, 4 mounting bolts M5 x 10

General characteristics	Description, value, unit
Tightening torque	5.2 Nm $\pm$ 10 %
Size	size 6, cavity type AC or cavity type AD
Weight	0.55 kg
Mounting attitude	unrestricted
Ambient temperature range	-25 °C ... +80 °C

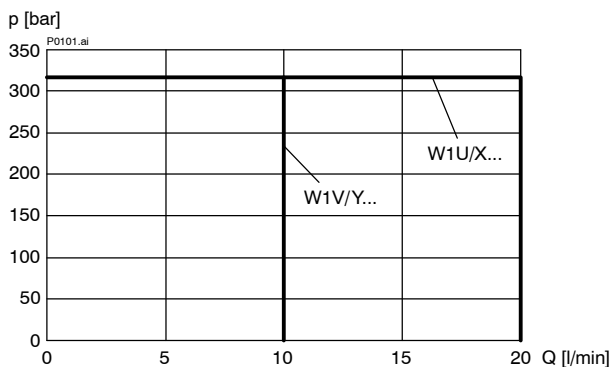
Hydraulic characteristics	Description, value, unit
Maximum operating pressure	...315 bar
Maximum flow rate	20 l/min 10 l/min (series W1V..., W1Y... with overlapped spool)
Flow direction	see symbols
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range	-25 °C ... +80 °C
Viscosity range	10...650 mm <sup>2</sup> /s (cSt), recommended 15...250 mm <sup>2</sup> /s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 20/18/15

Mechanical characteristics	Description, value, unit
Actuation angle	15°
Mounting attitude	hand lever can be turned through 360°
Design	hand-lever model:        - detentable        W1U/V... - non-detentable    W1X/Y...

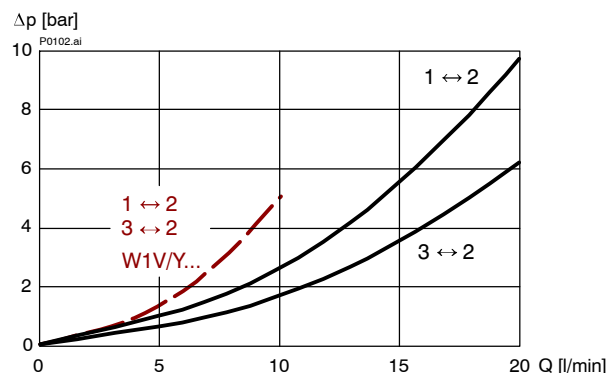
## 4 Performance graphs

measured with oil viscosity 33 mm<sup>2</sup>/s (cSt)

$p = f(Q)$  Performance limits

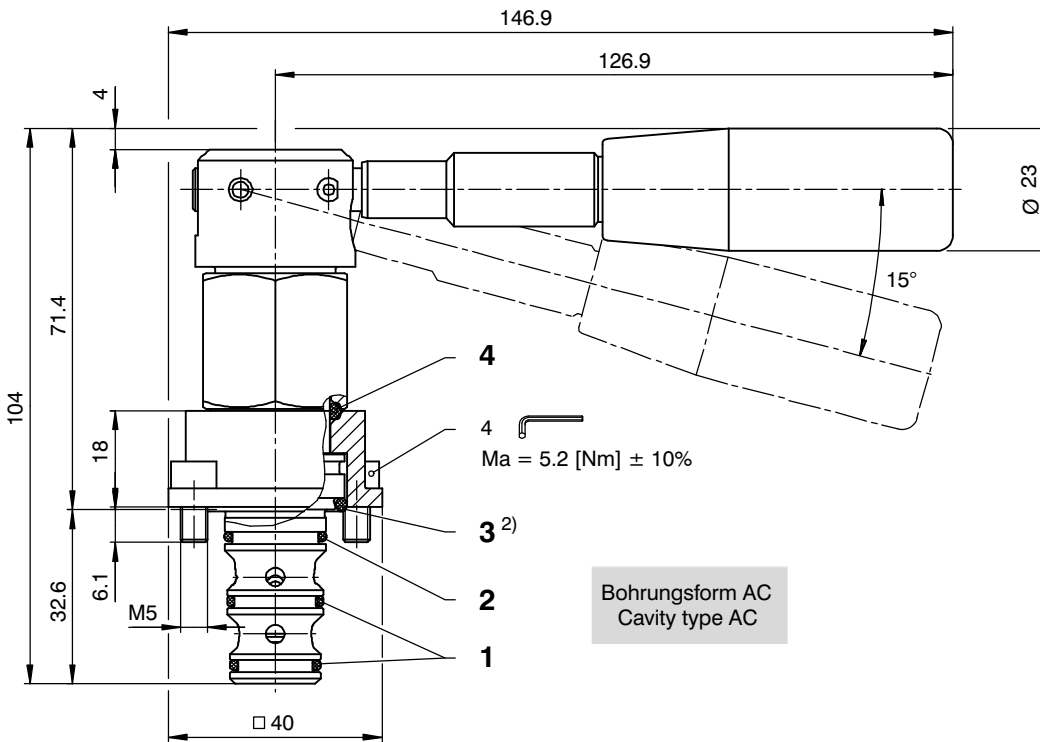


$\Delta p = f(Q)$  Pressure drop - Flow rate characteristic

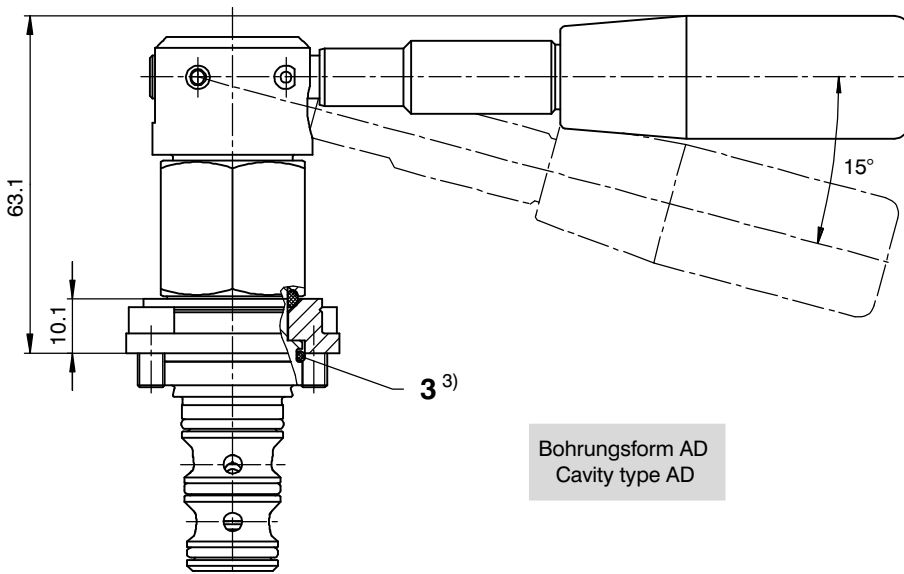


## 5 Dimensions & sectional view

### 5.1 Shallow insertion model

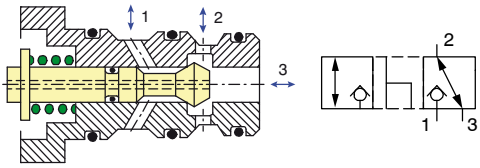


### 5.2 Deep insertion model

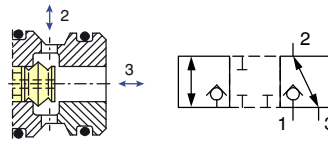


## 6 Functional principle / Spool variants

Underlapped spool (standard, W1U.../ W1X...)



Overlapped spool (W1V.../ W1Y...)



The "overlapped spool" model features a closed crossover characteristic i.e. during the valve's switching period, there is no connection between ports 1, 2, and 3 and therefore only a minimal loss of flow/pressure occurs. This is a very important benefit in small-volume circuits, and in accumulator- and clamping systems.

## 7 Installation information



### 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.



### IMPORTANT!

When fitting the cartridges, use the specified tightening torque for the mounting screws. No adjustments are necessary, since the cartridges are set in the factory.

Seal kit NBR no. DS-387-N <sup>1)</sup>

Item	Qty. <sup>2)</sup>	Qty. <sup>3)</sup>	Description
1	2	2	O-ring no. 015 Ø 14,00 x 1,78 N90
2	1	1	O-ring no. 016 Ø 15,60 x 1,78 N90
3	1	- - -	O-ring no. 116 Ø 18,72 x 2,62 N70
	- - -	1	O-ring no. 021 Ø 23,52 x 1,78 N90
4	2	2	O-ring no. 117 Ø 20,24 x 2,62 N70

<sup>1)</sup> Seal kit with FKM (Viton) seals, no. DS-387-V

<sup>2)</sup> W1UQ... / W1XQ... / W1VQ... / W1YQ... (Shallow insertion model)

<sup>3)</sup> W1UR... / W1XR... / W1VR... / W1YR... (Deep insertion model)

## 8 Ordering code

		Ex.	W1	U	Q	A	_
W1	=	directional seat valve, non-operated 1 → 2 closed					
U	=	standard spool, 3/2 function, with hand lever, detentable					
X	=	standard spool, 3/2 function, with hand lever, non-detentable					
V	=	overlapped spool, 3/2 function, with hand lever, detentable					
Y	=	overlapped spool, 3/2 function, with hand lever, non-detentable					
Nitrile seals Viton seals	Mounting depth (Cavity types AC and AD)						
Q S	shallow	= not available with line-mounting body					
R T	deep	= with or without line-mounting body					
A ... Q		= standard model - see relevant data sheets					
Z ... R		= special features - please consult BUCHER					
1 ... 9		= design stage, seat valve (omit when ordering new units)					

## 9 Related data sheets

Reference	(Old no.)	Description
400-P-010301	(i-01)	Orifice flow chart
400-P-040011	(i-32)	The form-tool hire programme
400-P-040111	(i-33.2)	Cavity type AC and AD
400-P-730121	(G-2.20)	Line-mounting body, type GADA (G 3/8")

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Classification: 430.300.-.305.310.300 (W-2.12)