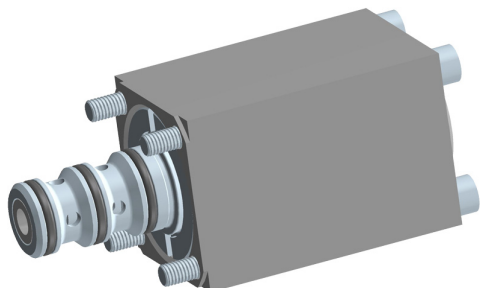


3/2 Cartridge Seat Valve, Size 6

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

Bidirectional seat-valve shut-off, direct acting, pneumatic operation

Series W1R..., W1S...



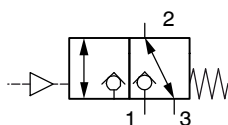
- Port 1 closed virtually leak-free in the non-operated condition
- Guided valve spool and poppet
- Two spool variants are available
- For installation in cavity type AC
- Control head is hard-anodised aluminium

1 Description

The W1R... / W1S... series of pneumatically operated 3/2 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. The pneumatic control head has a G1/8" threaded port for the air feed. The "overlapped spool" model (W1S...) 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. 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. The external parts of the cartridge are zinc plated (CrVI-free), the aluminium control head is hard anodised, and the valve is thus suitable for use in the harshest operating environments.

2 Symbol



W1R..., W1S...

3 Technical data

General characteristics	Description, value, unit
Designation	3/2 cartridge seat valve
Design	bidirectional seat-valve shut-off, direct acting, pneumatic operation, poppet and valve-spool design (pressure balanced) with underlapped or overlapped spool
Mounting method	push-in cartridge, 4 mounting bolts M5 x 70
Tightening torque	5.2 Nm $\pm 10 \%$
Size	size 6, cavity type AC
Weight	0.55 kg
Mounting attitude	unrestricted
Ambient temperature range	-25 °C ... +80 °C

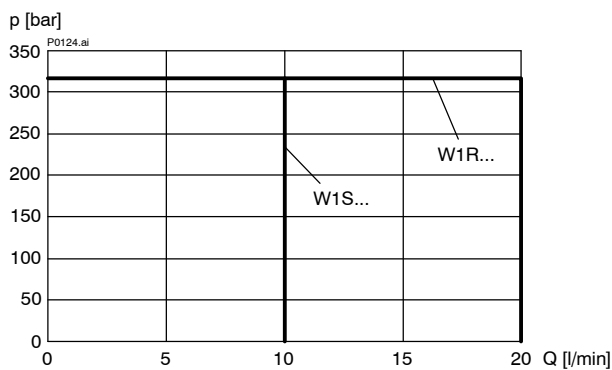
Hydraulic characteristics	Description, value, unit
Maximum operating pressure	...315 bar
Maximum flow rate	20 l/min 10 l/min (series W1S... with overlapped spool)
Flow direction	see symbols
Hydraulic fluid	HL and HLP mineral oil to DIN 51 524; for other fluids, please contact BUCHER
Hydraulic fluid temperature range	-25 °C ... +80 °C
Viscosity range	10...650 mm ² /s (cSt), recommended 15...250 mm ² /s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 20/18/15

Pneumatische Kenngrößen	Description, value, unit
Minimaler Steuerdruck	6.5 bar

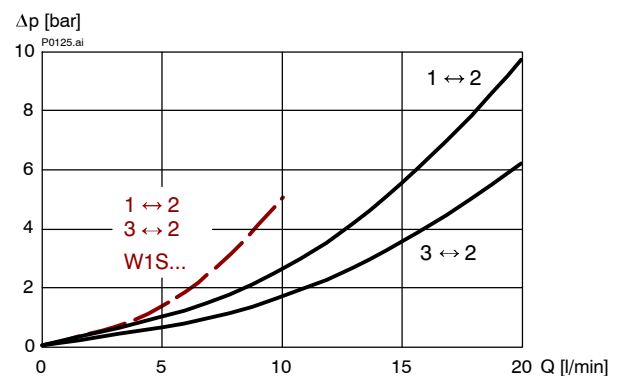
4 Performance graphs

measured with oil viscosity 33 mm²/s (cSt)

$p = f(Q)$ Performance limits

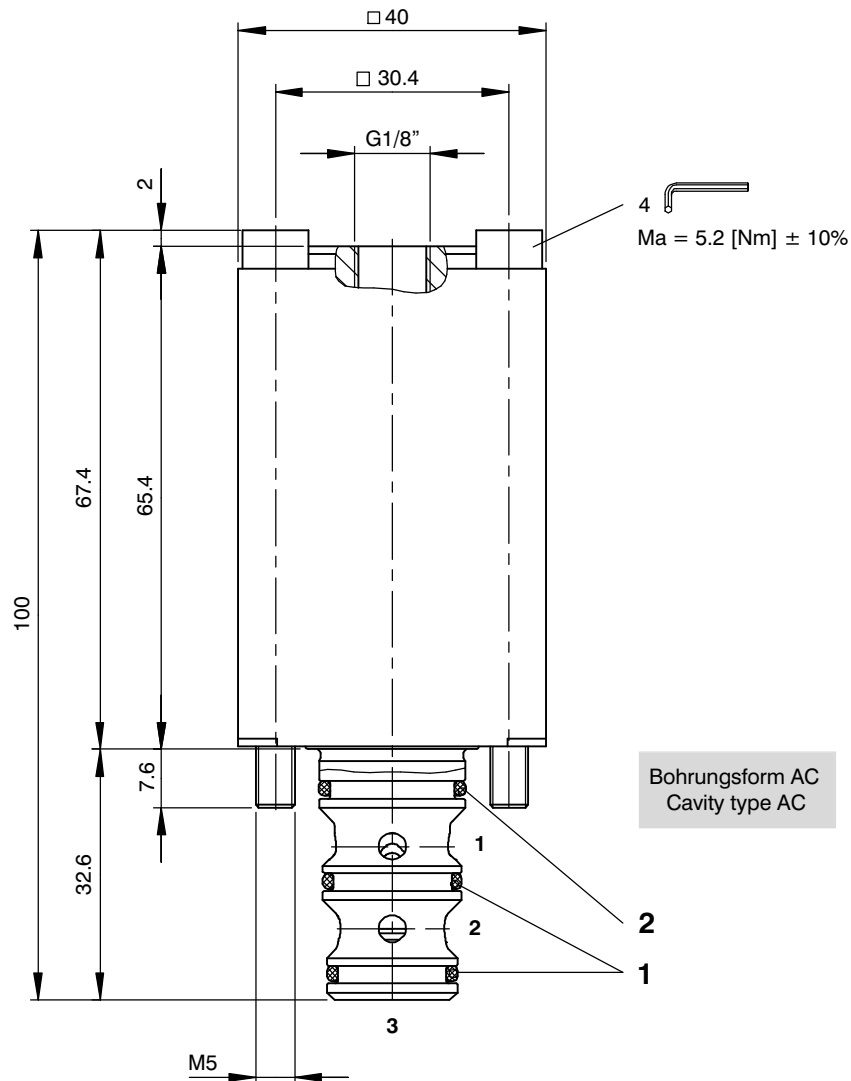


$\Delta p = f(Q)$ Pressure drop - Flow rate characteristic



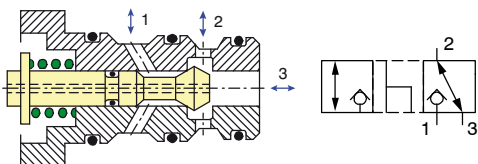
5 Dimensions & sectional view

5.1 Shallow insertion model

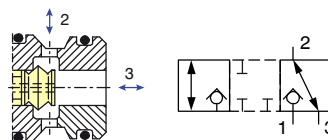


6 Functional principle / Spool variants

Underlapped spool (standard, W1R...)



Overlapped spool (W1S...)



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 ¹⁾

Item	Qty.	Description
1	2	O-ring no. 015 Ø 14,00 x 1,78 N90
2	1	O-ring no. 016 Ø 15,60 x 1,78 N90



IMPORTANT!

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

8 Ordering code

Ex.

W1	R	Q	A	_
----	---	---	---	---

- W1 = directional seat valve, non-operated 1 → 2 closed
- R = standard spool, 3/2 function, with pneumatic operation
- S = overlapped spool, 3/2 function, with pneumatic operation
- Q = NBR (nitrile) seals (**standard**)
- S = FKM (viton) seals
- 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

info.ch@bucherhydraulics.com

www.bucherhydraulics.com

© 2015 by Bucher Hydraulics AG Frutigen, CH-3714 Frutigen

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.

Classification: 430.300.-.305.310.340 (W-2.12)