

2/2 Cartridge Seat Valve, Size NG 8 / SAE 10

$Q_{\max} = 80 \text{ l/min (21 gpm)}$, $p_{\max} = 350 \text{ bar (5000 psi)}$
with solenoid operation, seat-valve shut-off, two stage
Series WRVP220-8X...



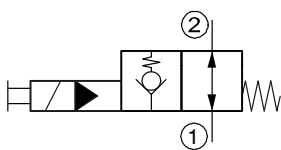
- With seat-valve shut-off from 2 → 1
- De-energized open
- Compact construction
- Fits Common Cavity according ISO and NFPA
- High flow rates
- Low headloss
- Reliable switching, even after long dwell times
- Nominal power consumption 19 W
- All exposed parts with zinc-nickel plating
- High pressure wet-armature solenoids
- The slip-on coil can be rotated, and it can be replaced without opening the hydraulic envelope
- Various plug-connector systems and voltages are available
- Can be fitted in a line-mounting body

1 Description

These 2/2 solenoid-operated directional seat valves, series WRVP220..., are size NG 8 / SAE 10, two stage, pressure balanced screw-in cartridges with an 7/8-14 UNF mounting thread. They are designed on the poppet/seat principle, and the 2 → 1 flow path is therefore virtually leak-free. "De-energized open" function is available. The straightforward design delivers a good price/performance ratio and outstanding headloss/flow ratings. These 2/2 solenoid operated seat valves are used in 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 according to DIN EN ISO 19 598 and are thus suitable for use in the harshest operating environments. The slip-on coils can be replaced without opening the hydraulic envelope and can be positioned at any angle through 360°. For self-assembly, please refer to the section related data sheets.

2 Symbol



3 Technical data

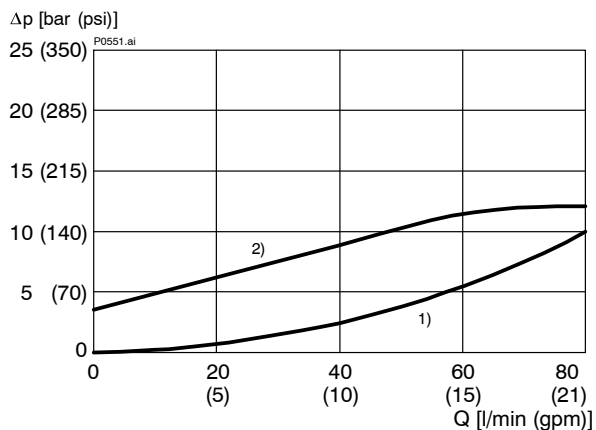
General characteristics	Description, value, unit
Designation	2/2 cartridge seat valve
Design	with solenoid operation, seat-valve shut-off, two stage
Mounting method	screw-in cartridge 7/8-14 UNF-2A
Tightening torque	80 Nm ± 10 % (60 ft-lbs ± 10 %)
Size	NG8/SAE10 for cavity AX/C1020 fits common cavity ISO 17209: 7/8-01-0-13 fits common cavity NFPA/T3.5.50: 0.875-01-0-09
Weight	0.58 kg (1.28 lbs)
Mounting attitude	unrestricted

General characteristics	Description, value, unit
Ambient temperature range	-25 °C ... +50 °C (-13 °F ... +122 °F)
MTTF _D values	150 years, see data sheet 400-P-010101-en
Hydraulic characteristics	Description, value, unit
Maximum operating pressure (ports 1 and 2)	350 bar (5000 psi)
Maximum flow rate	80 l/min (21 gpm)
Flow direction	1 → 2 / 2 → 1, see symbols Switching safety achieved by flow and Δp.
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 (-13 °F ... +176 °F)
Viscosity range	10...500 mm ² /s (cSt), recommended 15...250 mm ² /s (cSt)
Minimum fluid cleanliness Cleanliness class to ISO 4406 : 1999	class 20/18/15
Electrical characteristics	Description, value, unit
Supply voltage	12 V DC, 24 V DC
Supply voltage tolerance	± 10 %
Nominal power consumption	V DC = 19 W
Switching time	120 ... 280 ms (energizing) 20 ... 110 ms (de-energizing) Depending on pressure, flow rate, pressure drop and viscosity as well as dwell time under pressure, the switching times may vary from the the stated values.
Relative duty cycle	100 %
Protection class to ISO 20 653 / EN 60 529	IP 65 / IP 67 / IP 69K, see "Ordering code" (with appropriate mating connector and proper fitting and sealing)
Electrical connection	DIN EN 175301-803, 3-pin 2 P+E (standard) for other connectors, see "Ordering code"

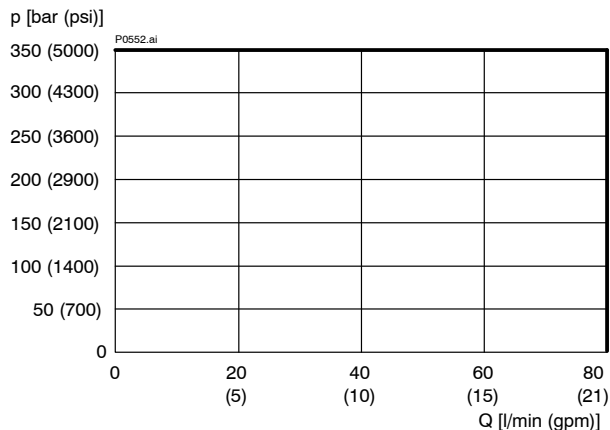
4 Performance graphs

measured with oil viscosity 33 mm²/s (cSt), coil at steady-state temperature and 10 % undervoltage

Δp = f (Q) Pressure drop - Flow rate characteristic




p = f (Q) Performance limits



- 1) 1 → 2, solenoid de-energized
2 → 1, solenoid de-energized
- 2) 1 → 2, solenoid energized

5 Installation information

 To achieve the 2/2 cartridge seat valve cartridge's maximum performance rating, fit the solenoid coil as shown (with the plug pins at the top). When fitting the cartridges, use the specified tightening torque. No adjustments are necessary, since the cartridges are set in the factory.



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.

NBR seal kit no. DS-479-N ¹⁾

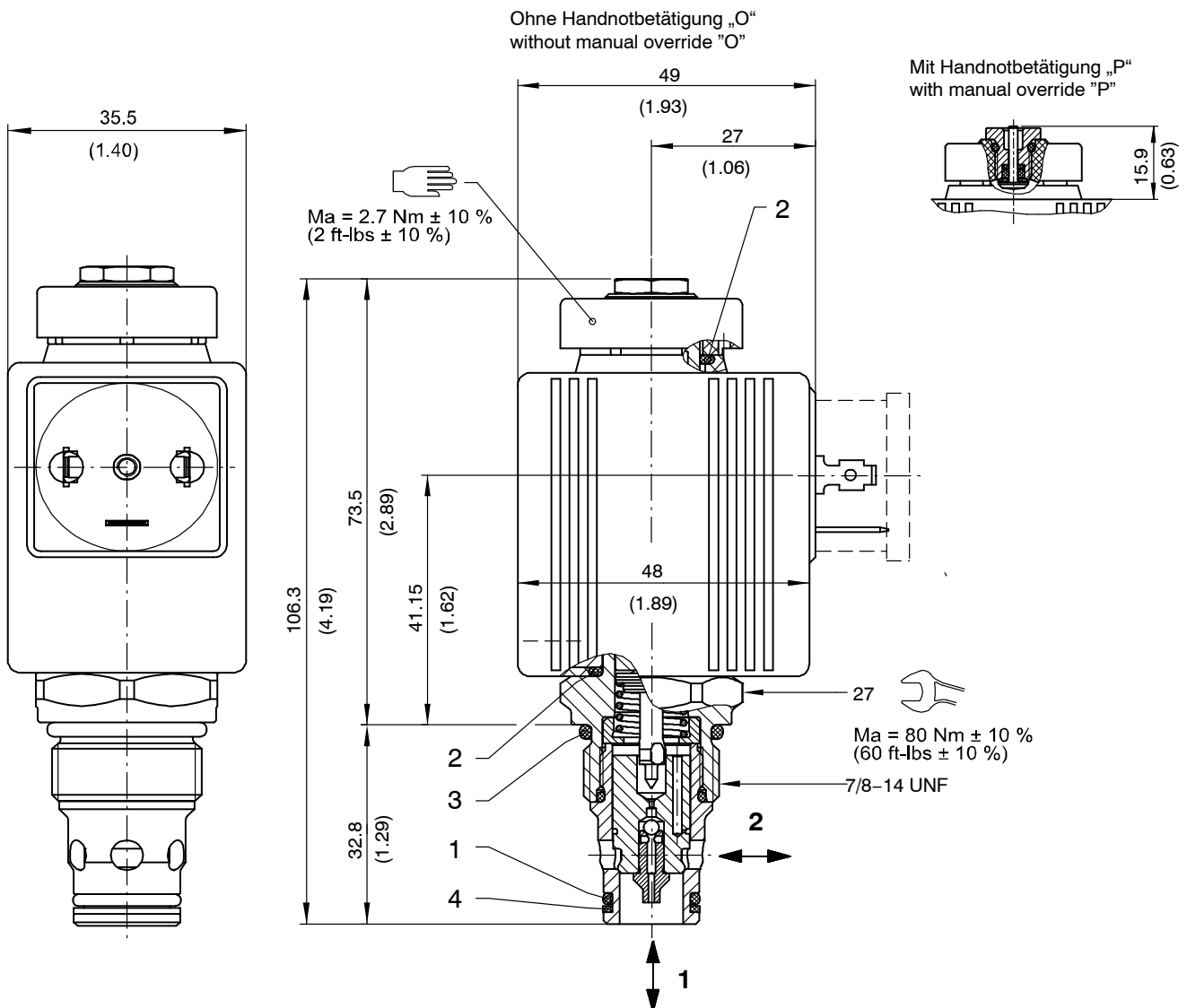
Item	Qty.	Description
1	1	O-ring no. 014 \varnothing 12.42 x 1.78 N90
2	2	O-ring \varnothing 16.00 x 2.00 V83
3	1	O-ring \varnothing 19.30 x 2.20 N90
4	1	Backup ring \varnothing 10.70 x 1.45 x 1.00 FI0751



IMPORTANT!

¹⁾ Seal kit with FKM (Viton) seals, no. DS-479-V

6 Dimensions & sectional view



7 Ordering code

Ex.

W	R	V	P	22O	-	8	X	-		-	N	A	1	24	D	G	
---	---	---	---	-----	---	---	---	---	--	---	---	---	---	----	---	---	--

- W = directional valve
- R = check valve function (seat-type)
- V = pilot operated
- P = electrically operated, V DC = 19 W
- 22O = 2-way/2-position, normally open
- 8 = nominal size 8 / SAE 10
- X = cavity type AX/C1020
- O = without manual override
- P = with manual override
- N = NBR (nitril-butadien-rubber / BUNA) seals (*standard*)
- V = FKM (fluorocarbon rubber / VITON) seals
(*special seals – please consult BUCHER*)
- A ... Q = standard model according to valid data sheet
- Z ... R = special model after consultation
- 1 ... 9 = technical design no. (omit when ordering)
- ... = voltage e.g. 24 (24 V)
- D = current DC
- G = standard plug connection to DIN EN (3-pole, 2 P+E, IP 65)
- J = Junior Timer radial plug connection (IP 65)
- JR = Junior Timer radial plug connection (with protection diode, IP 65)
- U = Deutsch plug connection radial DT04-2P (IP 67/69K)
- UR = Deutsch plug connection radial DT04-2P (with protection diode, IP 67/69K)
- (blank) = without mating plug
- Q = with mating plug (only by connection type "G" possible)

8 Related data sheets

Reference	(Old no.)	Description
400-P-040011		Form Tools
400-P-040261		Cavity type AX/C1020
520-P-040171		Cavity type C1020
400-P-120212		Coils for screw-in cartridge valves series 36x48/116
520-P-000121	(0-012.1)	Line-mounting body, 10 Series – 2-Way
400-P-122120		2-way/2-position, de-energized closed, WRVP22G-8X...

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