

**2/2 Solenoid Cartridge Valve, 10 mm**  
**Two Stage Seat Valve Design, Flow is checked A ⇒ B**  
**Series WRA22G ... / WRA22O ...**



- 350 bar /140 l/min
- High flow rates
- 'No flow' pilot stage
- All exposed steel parts are zinc plated to ISO 4042
- Wet-armature solenoids with high-pressure core tube and slip-on coil
- Coils can be changed without opening the hydraulic envelope
- For BUCHER cavity types DD / DC
- Line mounting body (G 1/2") is available
- Can be fitted in various stack-mounting bodies

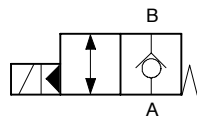
10 mm. The straightforward design delivers an outstanding Price/Performance ratio and good  $\Delta p$ -Q characteristics. All exposed steel parts are zinc plated to ISO 4042 and the valves are therefore suitable for use in the harshest operating environments. The core tube / slip-on coil design allows coils to be changed without opening the hydraulic envelope, even when the valve is under pressure. Coils can be secured at any angle through 360° and are available with most common plug connectors. For customers who manufacture their own manifold blocks, we offer form tools for sale or hire. For pipe-mounting applications, the DC-12 and DD-12 line mounting bodies (both G 1/2" threads) are available.

**1. Description**

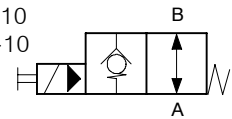
Series WRA22...-10 directional valves are solenoid operated, two stage seat-type screw-in cartridges, nominal size

**2. Symbols**

WRA22GE...A-10  
WRA22GN...A-10



WRA22OE...A-10  
WRA22ON...A-10

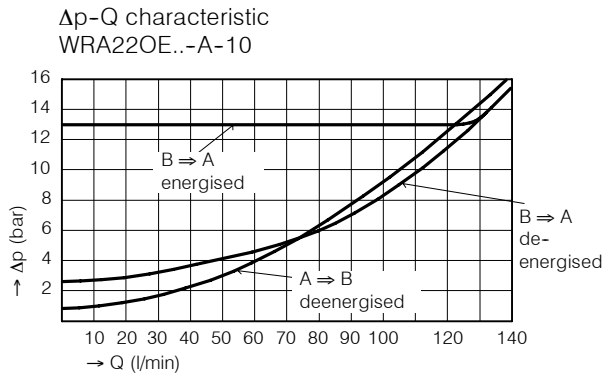
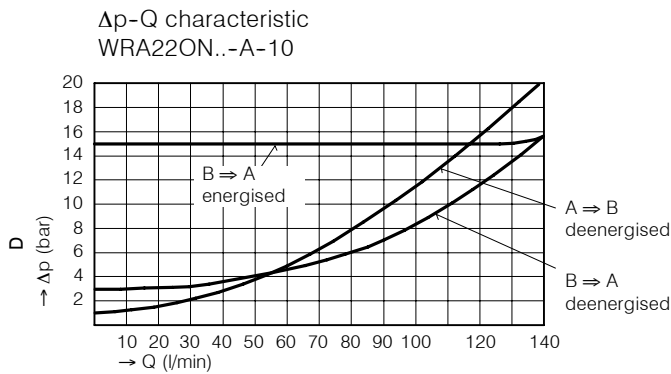
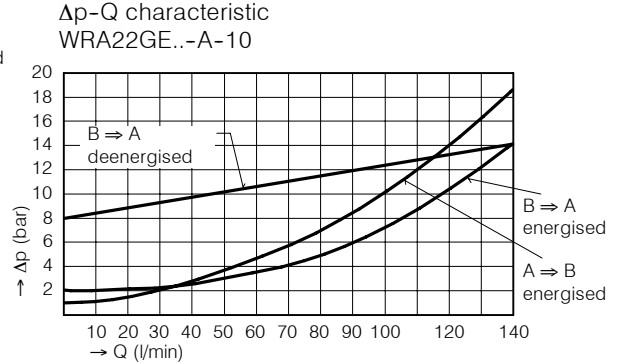
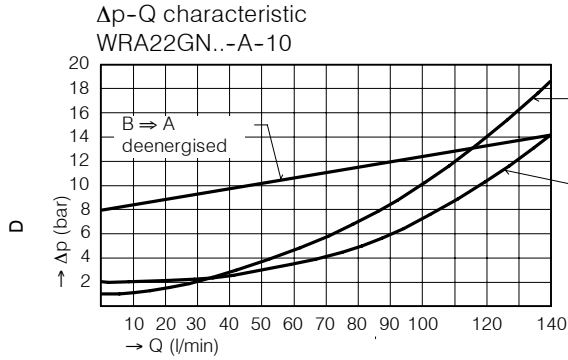


**3. Characteristics**

Type		2/2 solenoid cartridge valve
Design		two stage, seat type with flow checked from A ⇒ B
Mounting method		screw-in cartridge
Size		nom. 10 mm, BUCHER cavity type DD, with adapter ring C: BUCHER cavity type DC
Mass	kg	0,50
Mounting attitude		unrestricted
Flow direction		A ⇒ B / B ⇒ A, see symbols
Operating pressure	bar	to 350 in A and B
Flow rate Qmax	l/min	140
Fluids		Hydraulic oils HL and HLP to DIN 51 524, other fluids - contact BUCHER
Fluid temperature range	°C	-25 ... + 80
Ambient temperature	°C	-25 ... + 50
Viscosity range	cSt	10 ... 500, recommended 15 ... 250
Minimum fluid cleanliness		18/14 to ISO 4406 /CETOP RP70H 8 ... 9 to NAS 1638
Standard voltages	VAC	115, 230 50 ... 60 Hz
	VDC	12, 24
Nom. voltage tolerance	%	± 10
Nom. power consumption	VAC	17W (Option: 25 W)
	VDC	17W (Option: 27 W)
Duty cycle	%	100
Enclosure protection		IP 65 to DIN 40050
Electrical connection		3-pin square plug to DIN 43 650 / ISO 4400 (standard), other connectors - contact BUCHER

## 4. Performance graphs

Oil viscosity 33 cSt  
 coil steady-state temperature  
 10% under-voltage



### Performance limits

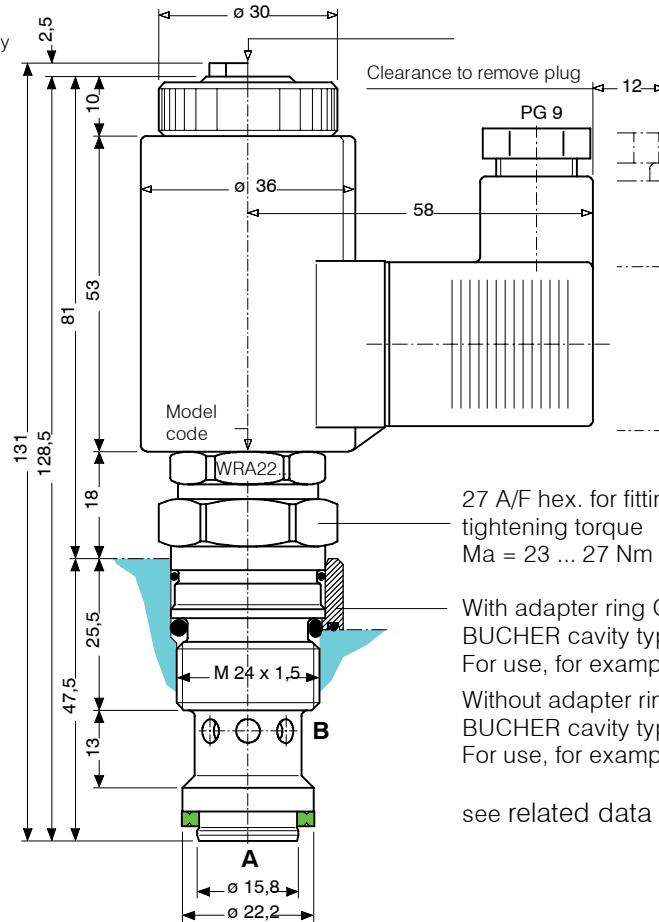
None within the range  
 $p = 350$  (bar)  
 $Q = 140$  (l/min)

SWITCHING TIMES		WRA22GN...A-10	WRA22GE...A-10	WRA22ON...A-10	WRA22OE...A-10
Flow direction	Solenoid ON	28 ... 180 ms	28 ... 108 ms	54 ... 142 ms	66 ... 132 ms
$A \Rightarrow B$ and $B \Rightarrow A$	Solenoid OFF	68 ... 102 ms	90 ... 292 ms	18 ... 60 ms	16 ... 66 ms

These times are strongly influenced by fluid pressure, flow rate and oil viscosity

## 5. Dimensions

Manual override  
on type WR22O..10 only



27 A/F hex. for fitting the cartridge  
tightening torque  
 $M_a = 23 \dots 27 \text{ Nm}$

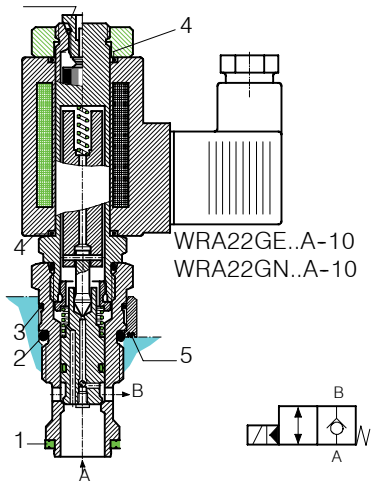
With adapter ring C:  
BUCHER cavity type DC  
For use, for example, in line mounting body type DC-12.

Without adapter ring C:  
BUCHER cavity type DD  
For use, for example, in line mounting body type DD-12.

see related data sheets

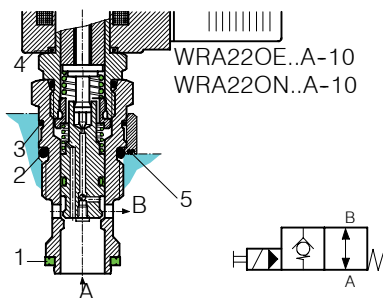
For flow checked  $B \Rightarrow A$   
see data sheet ..131110..

## 6. Schematic section



Seat kit no. DS-276, comprising:

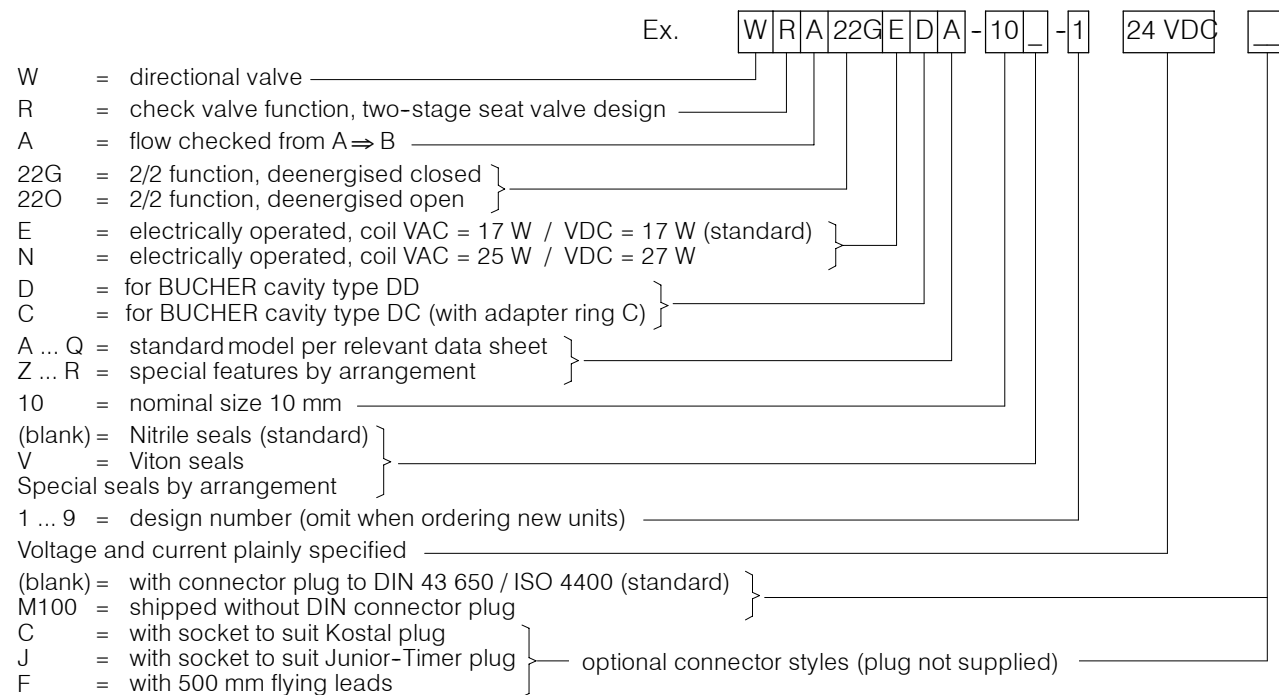
ltn.	Qty.	Description	Size
1	1	Seal	$\varnothing 22,1 / 16,5 \times 2,5$
2	1	O-ring no 117	$\varnothing 20,29 \times 2,62 \text{ N90}$
3	1	O-ring no 020	$\varnothing 21,95 \times 1,78 \text{ N90}$
4	2	O-ring	$\varnothing 16,00 \times 2,00 \text{ Viton}$
5	1	O-ring	$\varnothing 27,00 \times 1,5 \text{ N75}$



## 7. Installation and servicing

All installation and servicing must be carried out with care, and by qualified personnel only. When changing seals, the new seals must be thoroughly oiled or greased before they are fitted. Use the specified tightening torque when fitting the cartridge.

## 8. Model code key



## 9. Related data sheets

Old no.	New no.	
i-32	400-P-040011-E	The BUCHER Form Tool Hire Programme
i-45.1	400-P-060111-E	BUCHER Cavity Type DC
i-45.2	400-P-060121-E	BUCHER Cavity Type DD
W-2.141	400-P-120110-E	Optional Electrical Connector Styles
G-24.20	400-P-740101-E	Line- and Manifold Mounting Body DC-12 (G 1/2")
G-24.21	400-P-740111-E	Line- and Manifold Mounting Body DD-12 (G 1/2")

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.