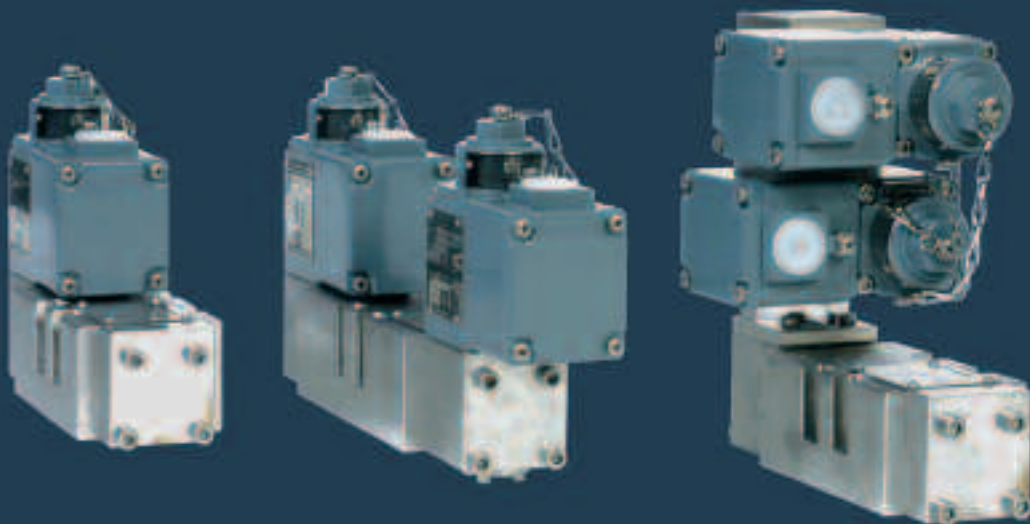
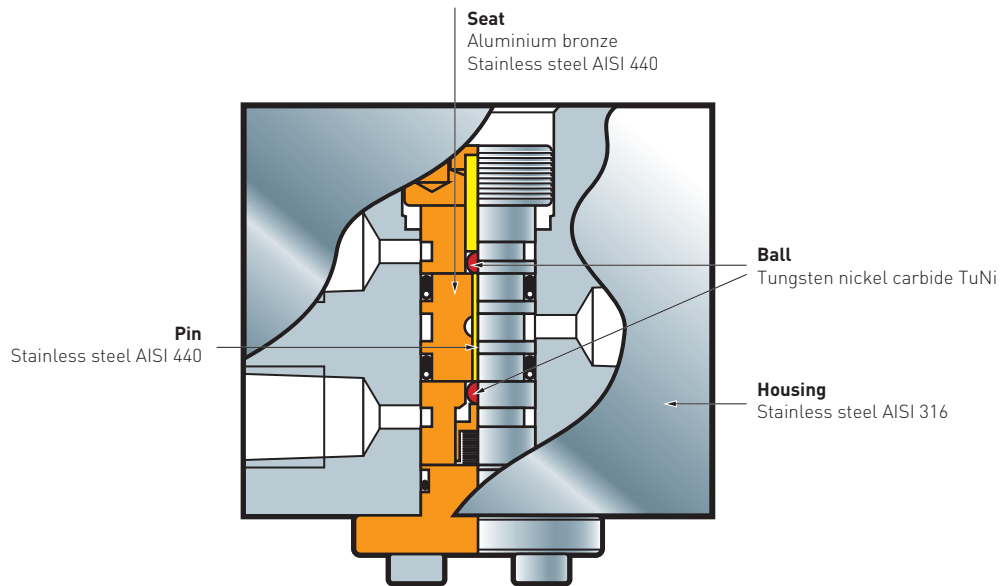


# HYDRAULIC DIRECTIONAL CONTROL VALVES





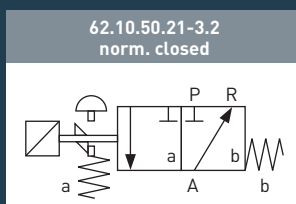
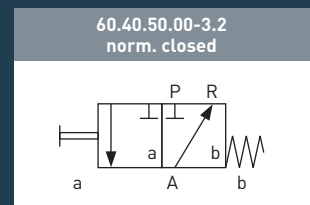
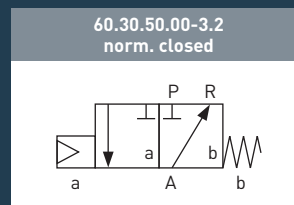
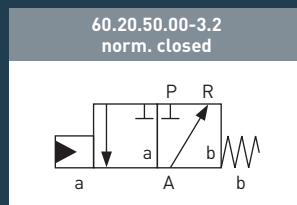
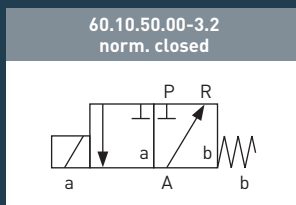
# 3 way 2 position valve



This 3 way 2 position valve is used as the pilot valve for the main stage on all our shear type seal valves. The valve has been further developed throughout the years since first used in early seventies. Different materials are available for internal parts as well as for the housing.

For applications with a limited flow this is a well proven and reliable valve where only a 3/2 function is required.

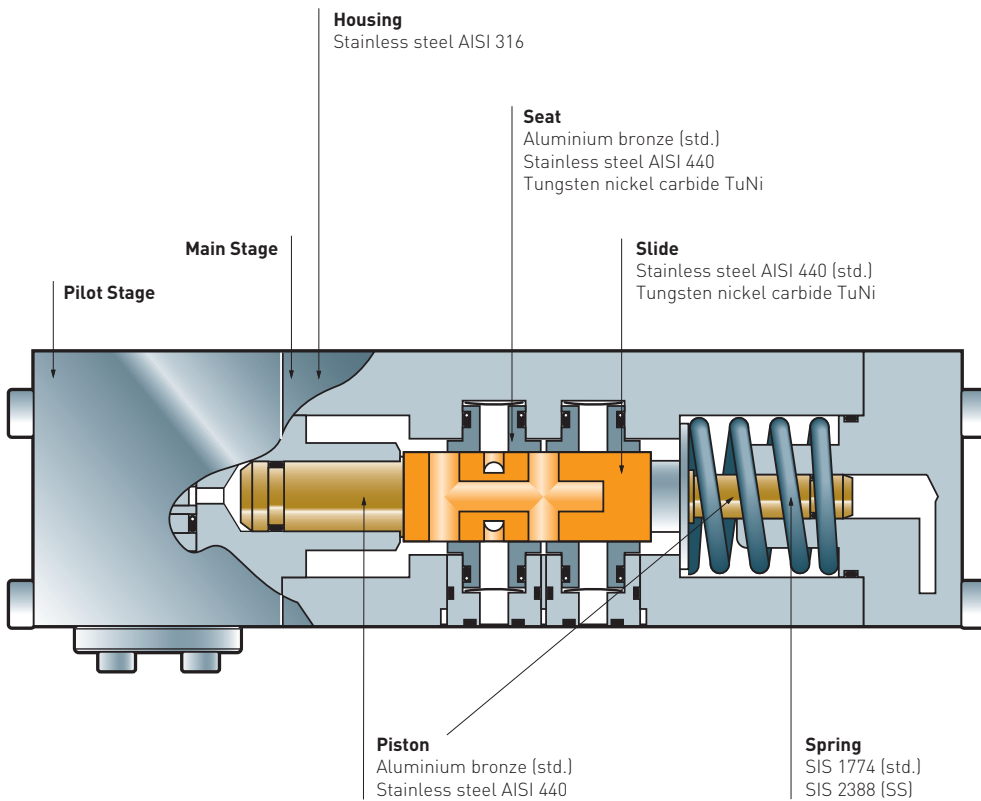
## Typical Valve Symbols



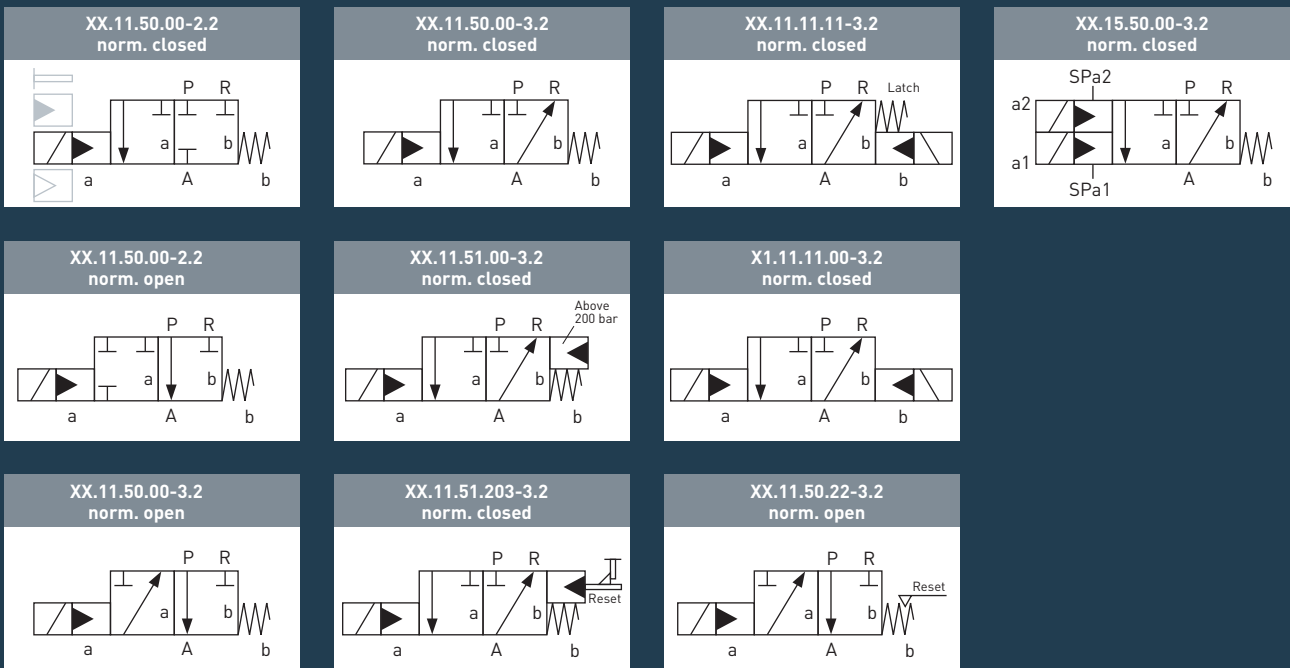
## Technical Data

Dimensions (LxWxH):	60 [69] x 50 x 54 mm / 2,36 [2,72] x 1,97 x 2,13 inch
Weight:	1,3 kg / 2,8 lbs [MAIN BODY]
Pressure rate:	20 – 345 bar / 300 – 5000 psi
Orifice:	1,5 mm
CV:	0,02
Connection:	Pipe connections or subplate mounted (1/4" – 3/8" NPT)
Media:	Suitable for all hydraulic fluids

# 2 and 3 way 2 position shear-type-seal valve

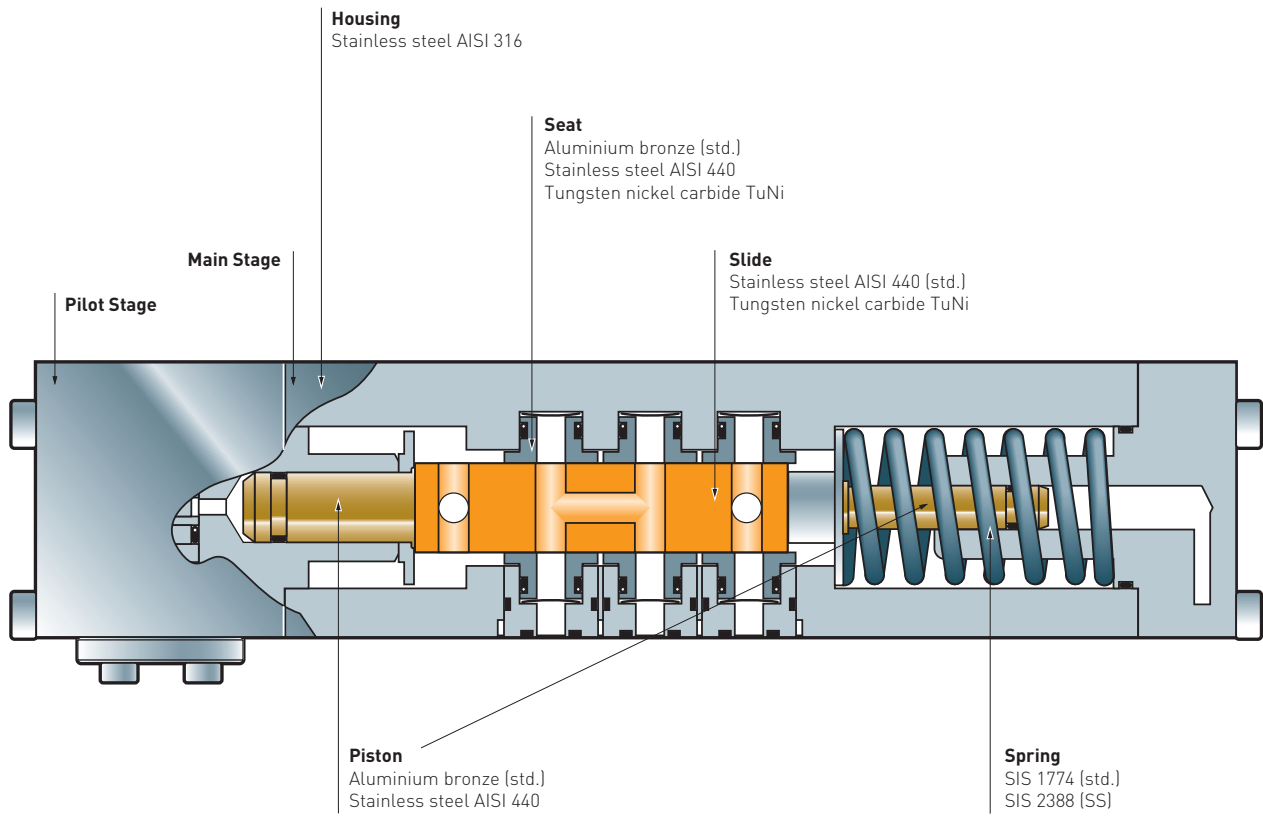


## Typical Valve Symbols

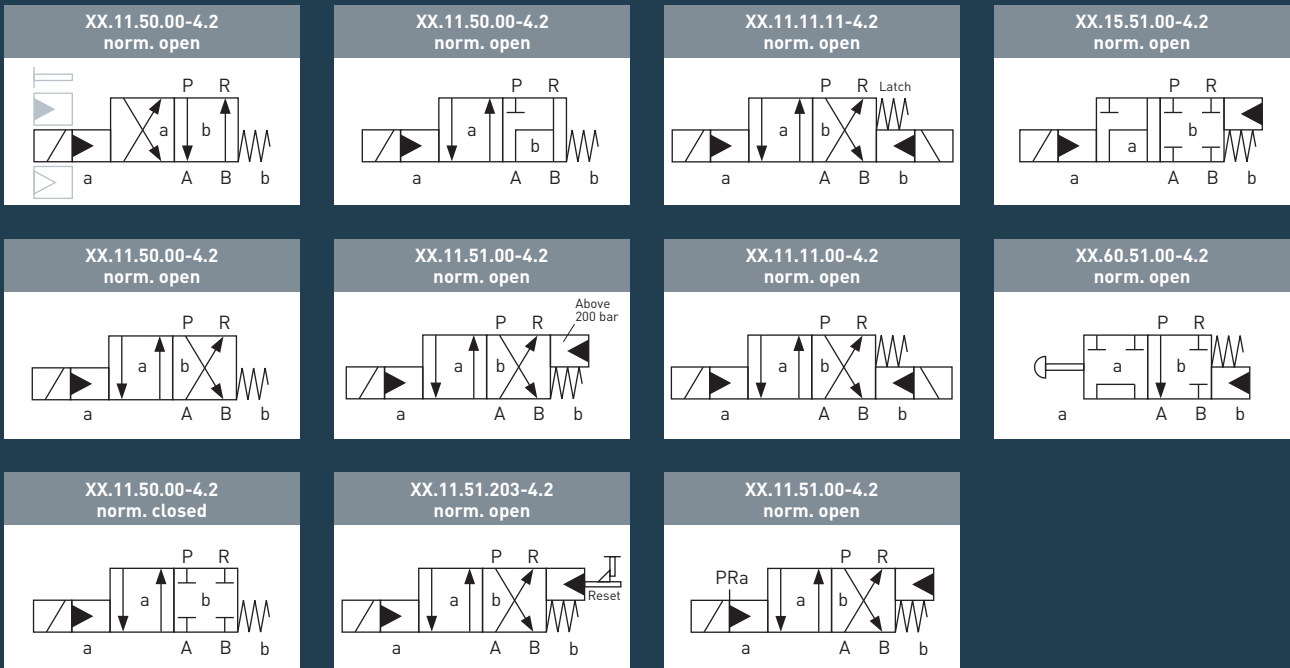


All symbols available with these pilot combinations: Electric/hydraulic Hydraulic/hydraulic Pneumatic/hydraulic Manual

# 4 way 2 position shear-type-seal valve

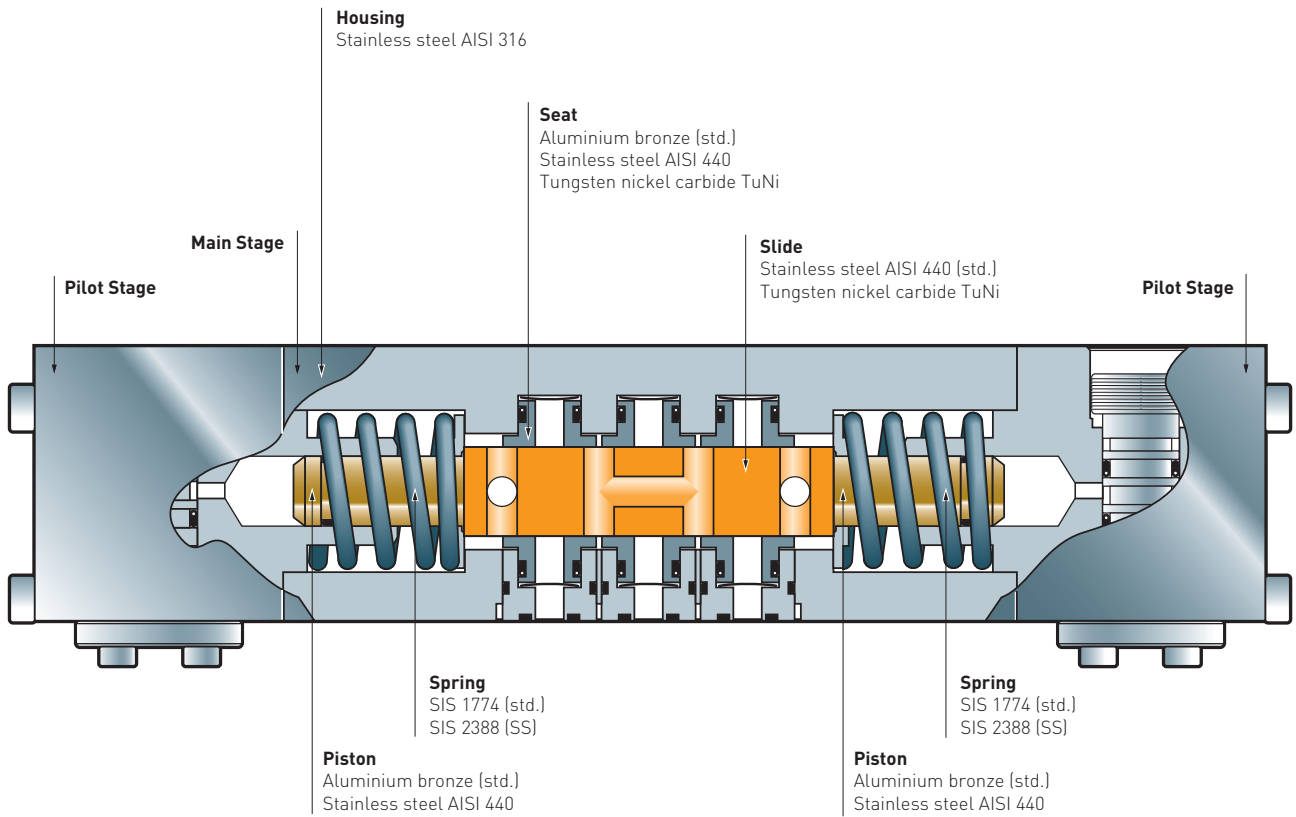


## Typical Valve Symbols

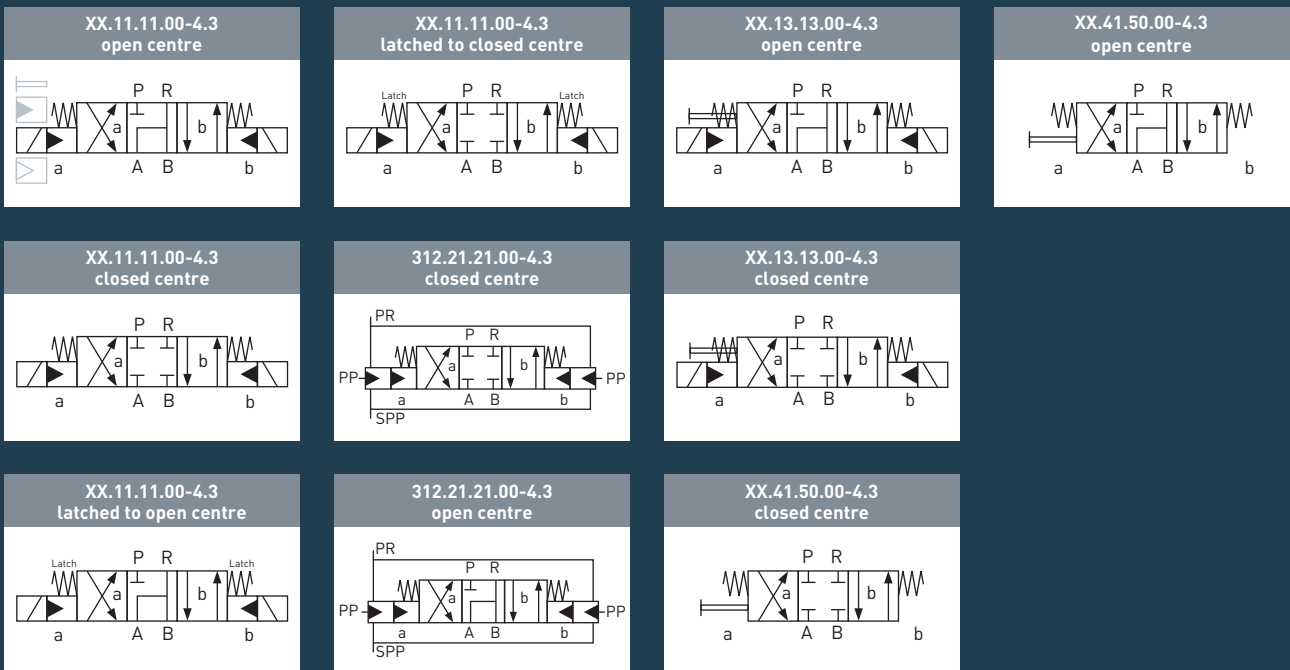


All symbols available with these pilot combinations: Electric/hydraulic Hydraulic/hydraulic Pneumatic/hydraulic Manual

# 4 way 3 position shear-type-seal valve



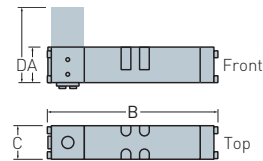
## Typical Valve Symbols



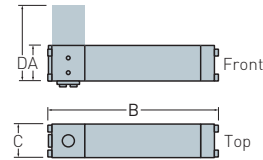
All symbols available with these pilot combinations: Electric/hydraulic Hydraulic/hydraulic Pneumatic/hydraulic Manual

# Technical Data

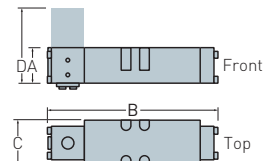
Type 4X	
Orifice	3 mm
Cv	P-F = 0,2 / F-R = 0.13
Pressure range, Main stage / Pilot Stage:	30 - 690 bar / 30 - 345 bar
Dimensions (A x B x C)	54 x 204 x 50 mm / 2,13 x 8,03 x 1,97 inch
Total height (D) depending on piloting.	
Length (B) given for 3.2 valves. Varies upon different applications.	



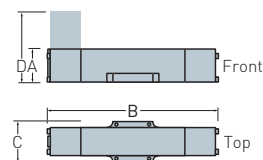
Type 2X	
Orifice	6 mm
Cv	P-F = 0,8 / F-R = 0.5
Pressure range, Main stage / Pilot Stage:	30 - 345 bar / 30 - 345 bar
Dimensions (A x B x C)	54 x 197 x 50 mm / 2,13 x 7,76 x 1,97 inch
Total height (D) depending on piloting.	
Length (B) given for 3.2 valves. Varies upon different applications.	



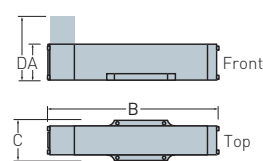
Type 3X	
Orifice	6 mm
Cv	P-F = 0,8 / F-R = 0.5
Pressure range, Main stage / Pilot Stage:	30 - 690 bar / 30 - 345 bar
Dimensions (A x B x C)	54 x 200 x 70 mm / 2,13 x 7,87 x 2,76 inch
Total height (D) depending on piloting.	
Length (B) given for 3.2 valves. Varies upon different applications.	



Type 7X	
Orifice	9 mm
Cv	P-F = 1,5 / F-R = 1,3
Pressure range, Main stage / Pilot Stage:	30 - 345 bar / 80 - 345 bar
Dimensions (A x B x C)	82,5 x 413 x 100 mm / 3,25 x 16,26 x 3,94 inch
Total height (D) depending on piloting.	
Length (B) given for 3.2 valves. Varies upon different applications.	



Type 5X	
Orifice	12 mm
Cv	P-F = 3,2 / F-R = 2,8
Pressure range, Main stage / Pilot Stage:	30 - 345 bar / 80 - 345 bar
Dimensions (A x B x C)	110 x 520 x 125 mm / 4,33 x 20,47 x 4,92 inch
Total height (D) depending on piloting.	
Length (B) given for 3.2 valves. Varies upon different applications.	



General	
Port indication:	P = Pressure, F = Function [A or B], R = Return
Media:	Suitable for all known hydraulic fluids
Admissible fluid temperature:	-20°C up to +70°C
Ambient temperature	-20°C up to +70°C

Other specifications on request.

## Note: Given Cv value is for valve only

Flow coefficient for the control valves, Cv value, are based on test according to IEC Publication 534 – Part 1, 2.1 and 2.3. Measurements are conducted on pure water at 5°C to 38°C with turbulent flow conditions through the valve.

For conditions other than these, Flow can be obtained using the following formulae, rewritten for [l/min] and [bar] as input values plus theoretical compensation of viscosity:

$$Q[l/min] = 14.416 \cdot C_v \cdot \sqrt{\frac{\rho_w@20^\circ C}{\rho_{fluid}} \cdot \frac{\Delta P[bar]}{(v_{fluid}[cSt])^2}}$$

Test according to IEC Publication 534 give the Cv value with a precision of ±5 %.

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