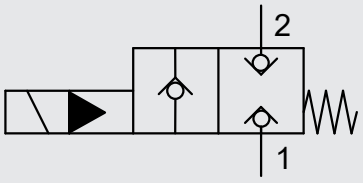
HYDAC INTERNATIONAL

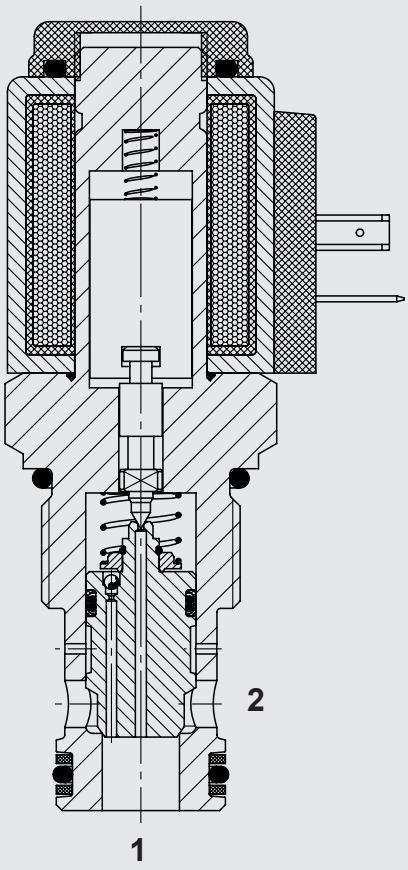


up to 110 l/min
up to 350 bar

2/2 Directional Poppet Valve
WSM12120WR-01

Solenoid-operated, pilot-operated, normally closed, Screw-In cartridge valve metric – 350 bar

FUNCTION



PRODUCT ADVANTAGES

- Simplification of various circuits
- Fewer flow losses than comparable solutions with separate check valve
- Saves space and weight
- Cost-optimised system solution
- Wide variety of connectors available
- Excellent switching performance by high-performance HYDAC solenoid
- External surfaces with advanced corrosion protection thanks to ZnNi coating (1,000 h salt spray test)

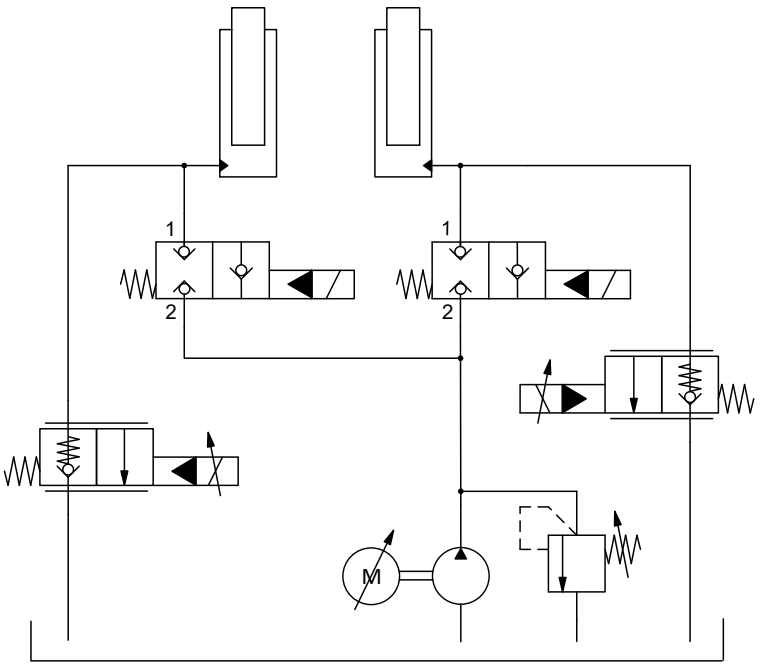
DESCRIPTION OF FUNCTION

The pilot-operated 2/2-directional valve is a solenoid-actuated poppet valve and is normally closed.

When the solenoid coil is de-energised, the valve blocks flow leaktight in both directions. When energised, there is free flow through the valve in only one direction from port 2 to 1. The direction from 1 to 2 is blocked leaktight. The valve opens at a pressure difference of approx. 2 bar.

Notice:

Switching characteristics and response times are strongly dependent on the pressure difference and the flow rate during the switching process. This is especially the case for valves with poppet seal.



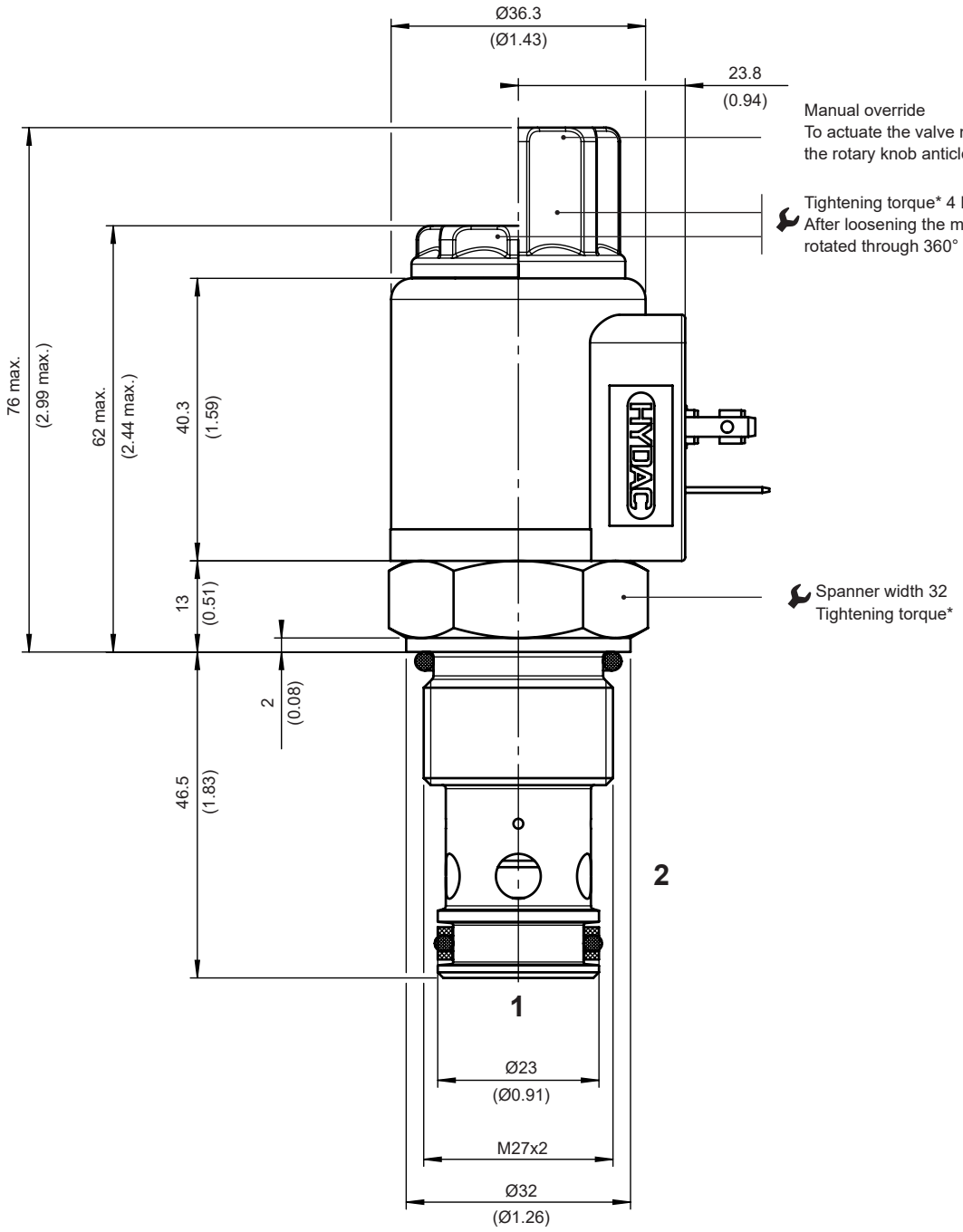
Application example: Avoiding load sinking when lifting loads

TECHNICAL CHARACTERISTICS[1)]

Operating pressure	max. 350 bar
Flow rate	max. 110 l/min
Internal leakage	Leakage-free, max. 5 drops/min (0.25 cm³/min) at 350 bar
Pressure fluid	Hydraulic oil to DIN 51524 Part 1, 2 and 3
Ambient temperature range	min. -20 °C up to max. +60 °C
Temperature range of pressurised fluid	NBR: min. -30 °C up to max. +100 °C FKM: min. -20 °C up to max. +120 °C
Viscosity range	min. 7.4 mm²/s up to max. 420 mm²/s
Filtration	Permitted contamination level of operating fluid as defined by ISO 4406 p ≤ 210 bar: min. class 20/18/15 p > 210 bar: min. class 19/17/14
$MTTF_D$	150 – 1200 years, assessment according to DIN EN ISO 13849-1:2016, Table C.1, Confirmation of ISO 13849-2:2013; Tables C.1 and C.2
Installation position	user-definable
Materials	Valve body: Steel Spool: Steel, hardened and ground Seals: NBR (standard) FKM (optional) Back-up rings: PTFE
Cavity	12120
Weight	0.36 kg 0.55 kg with coil DG
Electric system	
Type of voltage	DC: DC solenoid AC: AC solenoid with rectifier integrated into the coil.
Voltage tolerance	±15 % of nominal voltage
Nominal current at 20 °C	1.5 A at 12 V DC 0.8 A at 24 V DC
Duty cycle	100 % duty cycle (continuous operation) up to max. 115 % of the nominal voltage at 60 °C ambient temperature
Coil design	Coil ... 40-1836

[1)] See “Conditions and Instructions for Valves” in brochure 53.000.

DIMENSIONS

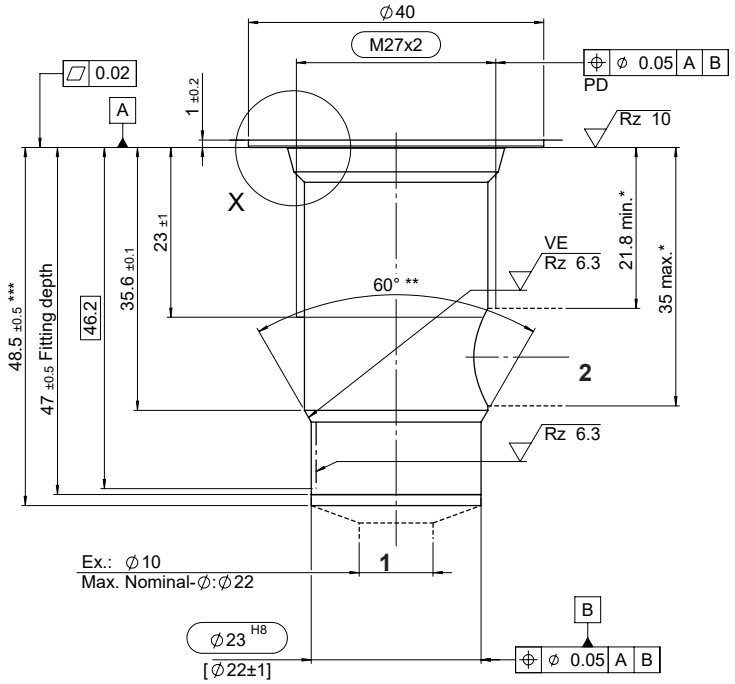


*Tightening torque:
Steel housing (burst strength > 360 N/mm²): 115 Nm
Aluminium housing (burst strength > 330 N/mm²): 75 Nm
(With torque tool according to DIN EN ISO 6789, tool type II class A or B).
For more information, see “Operating conditions and instructions for valves” in brochure 53.000.

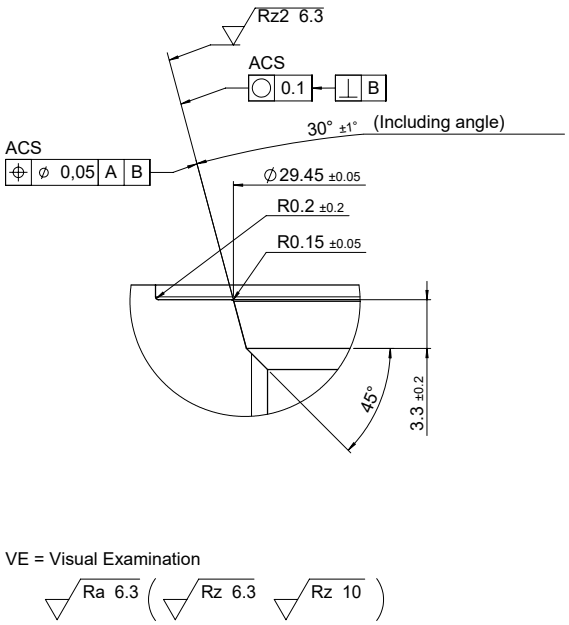
Millimetre (inch)
Subject to technical modifications.

CAVITY

12120



X 4 : 1



VE = Visual Examination

Ra 6.3 (Rz 6.3 Rz 10)

* Permitted boring zone (for block design).
** Sharp edges should be avoided by using a radius of 0.1 mm to 0.2 mm.
*** Largest pilot hole diameter (nominal tool diameter).

Millimetre
Subject to technical modifications.

MODEL CODE

WSM12120WR – 01M – C – N – 24 DG

Designation
2/2 directional poppet valve, metric

Design
01 = standard
01M = with manual override

Body and ports
C = Screw-In cartridge valve

Sealing material
N = NBR (standard)
V = FKM

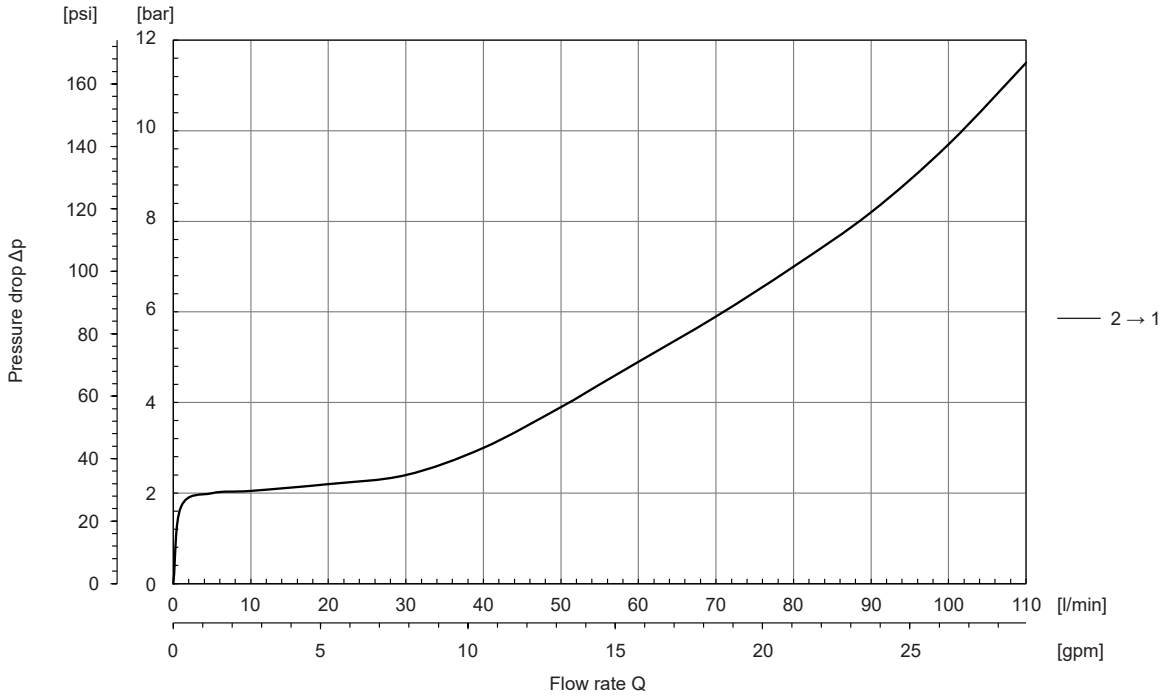
Nominal voltage
DC voltage:
12 = 12 V DC
24 = 24 V DC
AC voltage (rectifier integrated into coil):
115 = 115 V AC
230 = 230 V AC
Further versions on request.

Coil design (type 40-1836)	Number of pins	Connection	Protection class
DC:			
DG = Design A acc. to DIN EN 175301-803	3-pole	radial	IP65
DK = KOSTAL threaded connector M27x1	2-pole	radial	IP65 / IP67
DL = 2 flying leads 0.75 mm² x 457 mm (18")	2-pole	radial	IP65 / IP67
DN = DEUTSCH plug connector DT04-2P	2-pole	axial	IP67 / IP69
DO = M12 plug connector	4-pole	radial	IP65
DT = AMP Junior Timer	2-pole	radial	IP65 / IP67
DU = AMP Junior Timer	2-pole	axial	IP65 / IP67
AC:			
AG = Design A acc. to DIN EN 175301-803	3-pole	radial	IP65

For further versions, see brochure Solenoid coils for switching valves.

SAMPLE CHARACTERISTICS

Δp/Q - characteristics measured at ν = 33 mm²/s, T_{Oil} = 46 °C



MATERIAL OVERVIEW

Standard models

Designation	Part no.
WSM12120WR-01-C-N-24DG	4508433

Further versions on request.

Spare parts, seal kits

Designation	Material	Code	Part no.
Seal kit	NBR	12120-NBR	3454001
Seal kit	FKM	12120-FKM	3454002

Housing

Designation	Material	Code	Pressure max.	Connections	Weight	Part no.
Inline connection housing	Steel, zinc-plated	R12120-10X-01	350 bar	G3/4"	1.43 kg	396708
Inline connection housing	Steel, zinc-plated	R12120-10X-02	350 bar	M27x2	1.41 kg	396707

Cavity tools

Designation	Part no.
Countersink (shank MK3)	172880
Reamer	1014207

NOTE

The information in this brochure relates to the operating conditions and fields of application described. For applications and operating conditions not described, please contact the relevant technical departments.

Subject to technical modifications.

Documents are only valid if they have been obtained via the website and are up-to-date.

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