

Valve bank (directional seated valve) type BVH

Product documentation

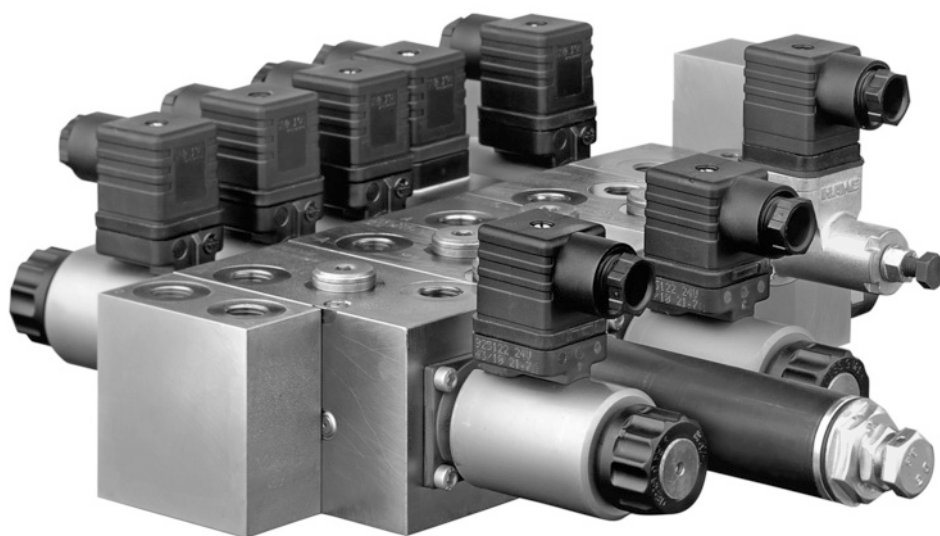


Operating pressure p_{\max} :

400 bar

Flow rate Q_{\max} :

20 lpm



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1 Overview of valve bank type BVH

A valve bank combines different valves for operating independent consumers.

The valve bank type BVH comprises several directional seated valves that are connected in parallel. As cone valves the directional seated valves have zero leakage in the closed state. The valve sections are connected using banjo bolts. 2/2, 3/2, 4/2 and 4/3-way directional seated valves are available.

Depending on the functional requirement, pressure reducing valves, pressure switches, check valves, restrictors or restrictor check valves are integrated into the valve section.

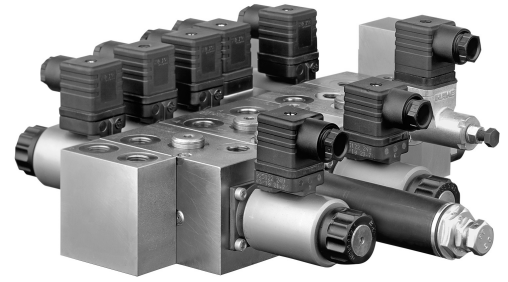
The valve bank can be flange-mounted directly on compact hydraulic power packs or integrated into a pipe system via a piping block.

Features and advantages

- Flexible expandability
- Compact and lighter design (elimination of the base plates)

Intended applications

- Auxiliary and clamping functions on machine tools and fixtures
- Auxiliary and clamping functions on forming machine tools



Valve bank type BVH

2 Available versions

Ordering examples

Direct mounting on the hydraulic power pack:

KA 2.. AB1 C250	- BVH 11 H	/GM	/R	/2		
	- BVH 11 M	/GM	/R B2,5	/3		
	- BVH 11 W	/GM	/O	/55		
	- BVH 11 M/CZ/35	/GM	/R	/2	- 81	- GM24

2.2 "Valve sections"

2.2.3 "Actuation"

2.2.4 "Additional elements in the A, B, P and R channel"

2.2.5 "Pressure switches"

2.4 "End plates"

2.5 "Solenoid voltage and connector"

Individual valve bank with pipe connection:

- BVH 11 A5						
- BVH 11 H	/GM	/R	/2			
- BVH 11 M	/GM	/R B2,5	/3			
- BVH 11 W	/GM	/O	/55			
- BVH 11 M/CZ/35	/GM	/R	/2	- 81	- GM24	

2.2.3 "Actuation"

2.2.4 "Additional elements in the A, B, P and R channel"

2.2.5 "Pressure switches"

2.4 "End plates"

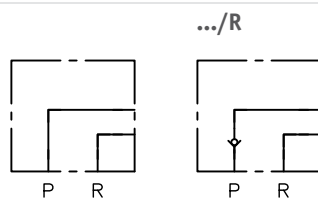
2.5 "Solenoid voltage and connector"

- 2.1 "Connection block"
- 2.2 "Valve sections"

2.1 Connection block

Ordering example

BVH 11 A5 JIS /R

Connection block	Description	Thread type	Circuit symbol
Without	<ul style="list-style-type: none"> Direct mounting on connection blocks type AB, D 6905 AB For combination with compact hydraulic power packs: <ul style="list-style-type: none"> INKA D 8132-1 HK D 7600-2, D 7600-3, D 7600-4 HKL D 7600-3L KA D 8010, D 8010-4 MPN D 7207 	--	
BVH 11 A5	<ul style="list-style-type: none"> Version for pipe connection 	G 1/4 ISO 228-1	
BVH 12 A5		G 3/8 ISO 228-1	
BVH 11 A5 JIS		G 1/4 JIS B 2351-1	
BVH 12 A5 JIS		G 3/8 JIS B 2351-1	

NOTICE

The maximum pressure is dependent on the circuit symbol and the actuation.

2.2 Valve sections

2.2.1 Valve sections without additional function

Thread type

BVH 11: ISO 228-1
BVH 11 JIS: JIS B 2351-1

Ordering example

BVH 11 G /GM /R /ABR 1,0 E /BBR 0,8 E -XM 24

Chapter 2.5, "Solenoid voltage and connector"

Chapter 2.2.4, "Additional elements in the A, B, P and R channel"

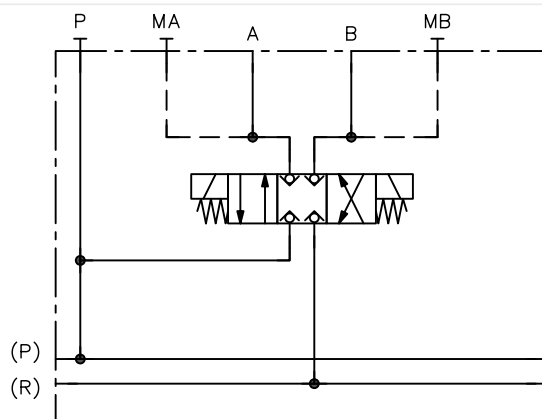
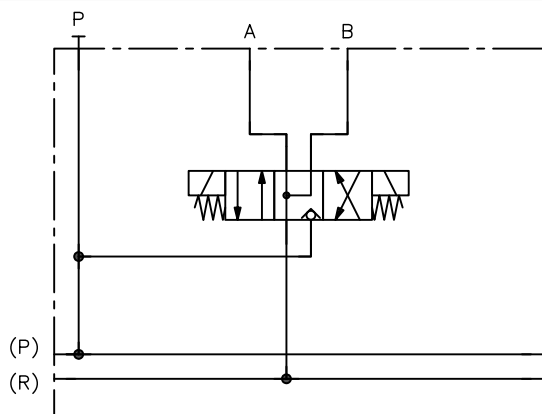
Chapter 2.2.3, "Actuation"

Circuit symbol

Coding

	D	G
Pressure p_{max} (bar)	400	400
BVH 11	●	●
BVH 11 JIS	●	●

Circuit symbol



Coding	J	H
Pressure p_{max} (bar)	400	400
BVH 11	●	●
BVH 11 JIS	--	●
Circuit symbol		

Coding	M	W
Pressure p_{max} (bar)	400	250
BVH 11	●	●
BVH 11 JIS	●	●
Circuit symbol		

Coding	V
Description	Interruption/relief in P gallery
Pressure p_{max} (bar)	400
BVH 11	●
BVH 11 JIS	--
Circuit symbol	

Coding	R/O R/S1	S/O S/S1
Description	Idle circulation valve 0: open, S1: 1 bar reflux preload	
Pressure p_{max} (bar)	400	400
BVH 11	●	●
BVH 11 JIS	●	●
Circuit symbol		

Coding	R/SX	S/SX
Description	2/2-way directional valve	
Pressure p_{max} (bar)	400	400
BVH 11	●	●
BVH 11 JIS	●	●
Circuit symbol		

i **INFORMATION**

Optionally with restrictor and/or check valve in P or R, see Chapter 2.2.4, "Additional elements in the A, B, P and R channel"

2.2.2 Valve sections with pressure reducing valve

Thread type

BVH 11: ISO 228-1
 BVH 11 JIS: JIS B 2351-1

Ordering example

BVH 11	D/CZ 5 R	/20	/GM	/RB 0,5S/ABR 0,4 E/BBR 0,4 E	-GM 24
					Chapter 2.5, "Solenoid voltage and connector"
					Chapter 2.2.4, "Additional elements in the A, B, P and R channel"
					Chapter 2.2.3, "Actuation"
					Pressure setting (bar)
					Circuit symbol / pressure reducing valve

Coding	H/CZ...	M/CZ...
Pressure p_{max} (bar)	400	400
BVH 11	●	●
BVH 11 JIS	●	--
Circuit symbol		

Coding	W/CZ...	D/CZ...
Pressure p_{max} (bar)	250	400
BVH 11	●	●
BVH 11 JIS	●	●
Circuit symbol		

Coding	D/LZ...	G/CZ...
Pressure p_{max} (bar)	400	400
BVH 11	●	●
BVH 11 JIS	--	●
Circuit symbol		

Coding	G/LZ...
Pressure p_{max} (bar)	400
BVH 11	●
BVH 11 JIS	--
Circuit symbol	

i **INFORMATION**

Optionally with restrictor and/or check valve in P or R, filter elements in A and/or B, see Chapter 2.2.4, "Additional elements in the A, B, P and R channel".

Pressure reducing valve

Coding	Description
-CZ	Pressure reducing valve type CDK to D 7745
-LZ	Pressure reducing valve type CLK to D 7745 L, with overpressure function
-CZX, -LZX	without pressure reducing valve, with tapped plug, prepared for retrofitting

Pressure range

Coding	Pressure range pA (bar)	Flow rate Q _{max} (lpm)	Coding	Pressure range pA (bar)	Flow rate Q _{max} (lpm)
08 *	50 ... 400 (450) **	12	Short model (not for type LZ)		
081 *	50 ... 400 (500) **	12	0.8K	55 ... 310	12
1	30 ... 300	12	1K	30 ... 200	12
11	30 ... 380	12	2K	20 ... 140	12
2	20 ... 200	12	5K	15 ... 90	12
21	20 ... 250	12	21K	18 ... 200	6
5	15 ... 130	12	22K	12 ... 140	6
51	15 ... 165	12	25K	8 ... 90	6
22	12 ... 200	6	208K	30 ... 310	6
25	8 ... 130	6	51K	70 ... 200	22
211	18 ... 380	6	52K	50 ... 140	22
221	12 ... 250	6	55K	30 ... 90	22
251	8 ... 165	6	508K	110 ... 310	22
52	50 ... 200	22			
55	30 ... 130	22			
511	70 ... 380	22			
521	50 ... 250	22			
551	30 ... 165	22			
X	prepared, with tapped plug				







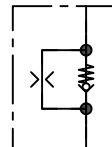
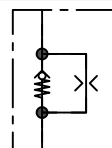
* not for type LZ

** Value in brackets define the pressure stage

2.2.3 Actuation

Coding	Description	Pressure p_{max} (bar)
GM	Solenoid actuation	250
M		400

2.2.4 Additional elements in the A, B, P and R channel

Coding	Description	Circuit symbol
0	Without	
R	Check valve in P (RK 1 to D 7445)	
B ... RB ...	Restrictor in P restrictor \varnothing (mm): 0.4; 0.5; 0.6; 0.8; 0.9; 1.0; 1.2; 1.5; 1.8; 2.0; 2.4; 2.5; 3.0; 3.5 (Orifice G-M8x-...-ST to the SK orifice)	B...  RB... 
H	Filter element type HFC 1/4 in A or A and B (HFC 1/4 to D 7235)	
S	Return pressure stop in T (RK 1 to D 7445)	
TB	Restrictor in R Restrictor \varnothing (mm): 0.4; 0.5; 0.6; 0.8; 1.0; 1.5; 2.0 (Restrictor to SK 7445 400)	
ABR..E(F) BBR..E(F)	Restrictor check valve BC1 at A and/or B Restrictor \varnothing (mm): 0.2; 0.4; 0.5; 0.6; 0.8; 1.0; 1.2 (BC 1-..E, BC 1-..F to D 6969 B)	
ABRX..E(F) BBRX..E(F)	Restrictor check valve BC1 X at A and/or B Restrictor \varnothing (mm): 1.5 (BC 1X-1.5 E, BC 1X-1.5 F to D 6969 B)	

2.2.5 Pressure switches

Pressure switches in the A channel if circuit symbol H, M and V, or in the A and B channel if circuit symbol W, not if valve sections with pressure reducing valve.

Coding	Pressure switches (DG)	Adjustment range (bar)	
2	Without DG	--	Pressure switches type DG: D 5440 (mechanical pressure switch)
3	DG 33	200 ... 700	
4	DG 34	100 ... 400	
5	DG 35	20 ... 250	
6	DG 36	4 ... 12	
7	DG 365	12 ... 170	
8	DG 364	4 ... 50	
5 E1	DG 5 E-100		
5 E2	DG 5 E-250		
5 E4	DG 5 E-400		
5 E6	DG 5 E-600		
6 E1	DG 61	0 ... 100	Electronic pressure switches type DG 6: D 5440 F (two switch points)
6 ER1	DG 61 R	0 ... 100	
6 E2	DG 62	0 ... 250	
6 ER2	DG 62 R	0 ... 250	
6 E4	DG 64	0 ... 400	
6 ER4	DG 64 R	0 ... 400	

2.2.6 Sub-plates

Thread type

BVH 11: ISO 228-1
 BVH 11 JIS: JIS B 2351-1

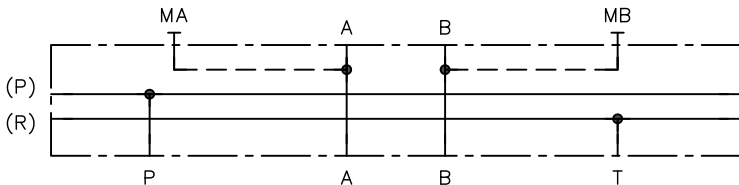
Ordering example

BVH 11 - NBVP 16 G/GM /0

Sub-plate
 Specification of the NG6 valves

- Type ROLV: [D 8144](#)
- Type NBVP: [D 7765 N](#)
- Type NSWP: [D 7451 N](#)
- Type NG, NWG: [D 7300 N](#)
- Type NPMVP: [D 7485 N](#)

Sub-plate for mounting NG6 valves

Coding	BVH 11 - ... /0
BVH 11	●
BVH 11 JIS	--
Circuit symbol	

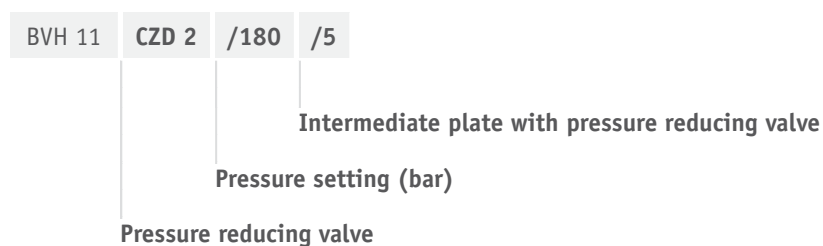
2.3 Intermediate plates and shut-off devices

2.3.1 Intermediate plate with pressure reducing valve in the P channel

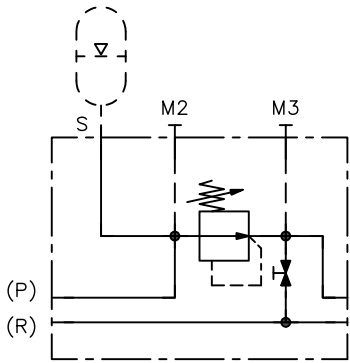
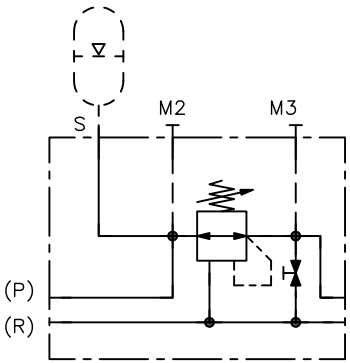
Thread type

BVH 11: ISO 228-1
 BVH 11 JIS: JIS B 2351-1


Ordering example



Coding	CZD.../5...	LZD.../5...
Pressure p_{max} (bar)	400	400
BVH 11	●	●
BVH 11 JIS	--	--

Intermediate plate

Coding	Description	Circuit symbol
/5	Series	--
/5X	Port S sealed	--
/5R	Check valve in P (installed upstream of pressure reducing valve)	
/5RX	Check valve in P (installed upstream of pressure reducing valve) and port S sealed	

NOTICE

The check valve can only be mounted or dismantled if the pressure reducing valve is dismantled.

2.3.2 Intermediate plate with pressure switch in P gallery

Thread type

BVH 11: ISO 228-1
 BVH 11 JIS: JIS B 2351-1

Ordering example

BVH 11 Z1 /3 /6E1

Connection option for a 2nd pressure switch in the P channel

Pressure switch in the P channel

Intermediate plate with pressure switch

Coding	Z1/...
Pressure p_{max} (bar)	400
BVH 11	●
BVH 11 JIS	--
Circuit symbol	

Pressure switches

Coding	Pressure switches (DG)	Adjustment range (bar)	
2	Without DG	--	Pressure switches type DG: D 5440 (mechanical pressure switch)
3	DG 33	200 ... 700	
4	DG 34	100 ... 400	
5	DG 35	20 ... 250	
6	DG 36	4 ... 12	
7	DG 365	12 ... 170	
8	DG 364	4 ... 50	
5 E1 5 E2 5 E4 5 E6	DG 5 E-100 DG 5 E-250 DG 5 E-400 DG 5 E-600		
6 E1 6 ER1 6 E2 6 ER2 6 E4 6 ER4	DG 61 DG 61 R DG 62 DG 62 R DG 64 DG 64 R	0 ... 100 0 ... 100 0 ... 250 0 ... 250 0 ... 400 0 ... 400	Electronic pressure switches type DG 6: D 5440 F (two switch points)

2.3.3 Intermediate plate with pressure filter

Thread type

BVH 11: ISO 228-1
 BVH 11 JIS: JIS B 2351-1

Ordering example

BVH 11 ZD	10	/SX	/VE
			Visual clogging indicator
			Preload for bypass
			Filter unit

Intermediate plate with filter unit

Coding	ZD/./SX/..	ZD/./S8/..
Pressure p_{max} (bar)	400	400
BVH 11	●	●
BVH 11 JIS	--	--
Circuit symbol		

Filter unit

Coding	Description
10	10 μm , $Q_{max} = 8 \text{ lpm}$
25	25 μm , $Q_{max} = 10 \text{ lpm}$
40	40 μm , $Q_{max} = 12 \text{ lpm}$

Preload for bypass

Coding	Description
SX	Bypass P blocked
S8	Bypass at P preloaded with 8 bar

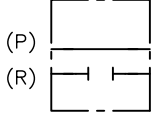
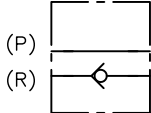
Visual clogging indicator

Coding	Description
Without coding	Without visual clogging indicator
VA	With visual contamination indicator (automatic reset), $p_{\max} = 400$ bar Response differential pressure: 5 bar
VV	With visual contamination indicator (manual reset), $p_{\max} = 400$ bar Response differential pressure: 5 bar
VE	With electric contamination indicator, $p_{\max} = 400$ bar Response differential pressure: 5 bar

2.3.4 Barrier and return pressure stop in R between the sections

Ordering example

BVH 11 A5 BVH 11 W/GM/RB 1,2H - XR - BVH 11 W

Coding	Designation	Opening pressure (bar)	Pressure p_{\max} in R (bar)	Circuit symbol
Without coding	Without	--	--	
XR	Barrier (8050 069)	--	50	Coding XR 
XRS	Return pressure stop (SK 6905 R)	approx. 0.1	50	
XRS1	Return pressure stop (check valve) (SK 6905 R1)	approx. 0.9	50	

2.4 End plates

Coding	Description	Connections	Circuit symbol
- 1	<ul style="list-style-type: none"> Port R: G 1/4, sealed with tapped plug Port P: End screw with connection thread G 1/4, sealed with tapped plug 	ISO 228-1	
- 1 JIS	<ul style="list-style-type: none"> Port R: G 1/4, sealed with tapped plug Port P: End screw with connection thread G 1/4 JIS, sealed with tapped plug 	ISO 228-1 (R) JIS B 2351-1 (P)	
- 1A JIS	<ul style="list-style-type: none"> Port R: G 1/4, with adapter G 1/4 to G 1/4 JIS, sealed with tapped plug Port P: End screw with connection thread G 1/4 JIS, sealed with tapped plug 	JIS B 2351-1	
- 2	<ul style="list-style-type: none"> Port R: G 1/4, sealed with tapped plug Port P: sealed by end screw without connection thread 	ISO 228-1	
- 81 - 82	With accumulator port and drain valve <ul style="list-style-type: none"> - 81: see coding - 1 - 82: see coding - 2 	ISO 228-1	
- 82 JIS		JIS B 2351-1	
- 81/B ... - 82/B ...	With accumulator port, drain valve and orifice at M1 <p>Restrictor \varnothing (mm): 0.4; 0.5; 0.6; 0.8; 0.9; 1.0; 1.2; 1.5; 1.8; 2.0; 2.4; 2.5; 3.0; 3.5 (Orifice G-M8x-...-ST to the SK orifice)</p> <ul style="list-style-type: none"> - 81/B: see coding - 1 - 82/B: see coding - 2 	ISO 228-1	

2.5 Solenoid voltage and connector

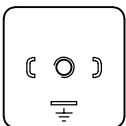
Coding	Electrical connection	Pressure p_{max} (bar)	Nominal voltage	Protection class (IEC 60529)
X 12 X 24 X 98 X 205 WG 110 WG 230	EN 175 301-803 A <ul style="list-style-type: none"> ▪ G: with male connector ▪ L: with male connector with LED ▪ WG: with male connector with alternating rectifier ▪ 5K: with 5 m connecting cable ▪ 10K: with 10 m connecting cable 	400	12 V DC 24 V DC 98 V DC 205 V DC 110 V AC 50/60 Hz 230 V AC 50/60 Hz	IP 65
XM 12 XM 24 XM 98 XM 205 WGM 110 WGM 230		250	12 V DC 24 V DC 98 V DC 205 V DC 110 V AC 50/60 Hz 230 V AC 50/60 Hz	IP 65
M 24/8W	M12x1	250	24 V DC	IP 67
		Circuit symbol W: <ul style="list-style-type: none"> ▪ max. 100 bar at Q_{max} 18 lpm, ED max. 50 % ▪ max. 250 bar at Q_{max} 6 lpm, ED max. 50 % 		

NOTICE

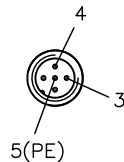
- The availability of additional solenoid voltages and solenoid male connectors is based on the directional valves used.
- The solenoid voltages and solenoid male connectors are specified at the end of the order coding and are applicable to all the solenoids on the valve bank.
- The specifications regarding the IP protection class apply for versions featuring a properly assembled male connector.
- Pressure switches DG 3, DT 11, DG 1 are supplied as standard with a DIN connector; pressure switches DG 51, DG 6, DG 7 and DT 2 are supplied as standard with an M 12 connection.

Connection pattern

G .., X .., L .., WG ..



M 24/8W



3 Parameters

3.1 General data

Designation	Valve bank type BVH
Design	Sectional design with banjo bolt connection
Material	Steel; zinc-nickel coated valve housing, hardened functional inner parts
Installation position	Any
Attachment	see Chapter 4, "Dimensions"
Hydraulic fluid	Hydraulic fluid, according to DIN 51 524 Parts 1 to 3; ISO VG 10 to 68 according to DIN ISO 3448 Viscosity range: 4 - 1500 mm ² /s Optimal operating range: approx. 10 - 500 mm ² /s Also suitable for biologically degradable hydraulic fluids type HEPG (polyalkylene glycol) and HEES (synthetic ester) at operating temperatures up to approx. +70°C.
Cleanliness level	ISO 4406 <u>21/18/15...19/17/13</u>
Overlap	Negative, transition from one flow direction to the other is completed only in the stroke end position. During switching, all passages are connected to each other.
Temperatures	Environment: approx. -40 to +80 °C, hydraulic fluid: -25 to +80 °C, pay attention to the viscosity range. Start temperature: down to -40 °C is permissible (take account of the start viscosities!), as long as the steady-state temperature is at least 20 K higher during subsequent operation. Biologically degradable hydraulic fluids: note manufacturer specifications. With consideration for the seal compatibility, not above +70°C.
Flow direction	Only in direction of arrow according to circuit symbol

3.2 Pressure and volumetric flow

Operating pressure	Connection P: $p_{\max} = 400$ bar Connection R: $p_{\max} = 50$ bar Connection A, B: p_{\max} according to the circuit symbol and actuation
Flow rate	$Q_{\max} = 20$ lpm



NOTICE

Observe the specifications of the attached directional valves and upstream hydraulic power packs.

Weight

Type

BVH 11 M(H)	= 1.5 kg
BVH 11 W	= 2.0 kg
BVH 11 M(H)/CZ	= 2.2 kg
BVH 11 W/CZ	= 2.7 kg
BVH 11 D(G)	= 2.9 kg
BVH 11 CZD(LZD)	= 0.8 kg
BVH 11 Z1	= 0.5 kg
BVH 11 ZD	= 1.5 kg
BVH 11 A5	= 0.8 kg
BVH 11 ...-81(82)/B..	= 0.9 kg

Per pressure switch

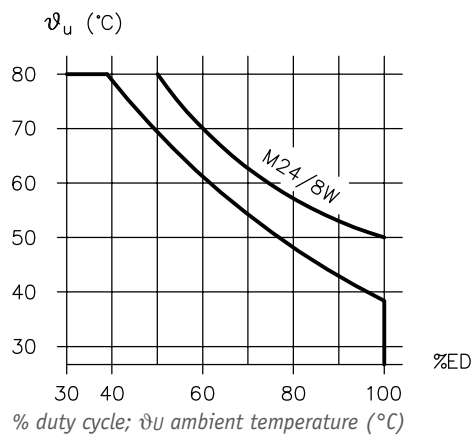
DG 3.	= 0.4 kg
DG 5.	= approx. 0.25 kg
DG 6.	= approx. 0.08 kg

3.3 Electrical data

Coding	X 12	XM 12	X 24	XM 24	M24/8W	WG 110	WGM 110	WG 230	WGM 230
Nominal voltage U_N	12 V DC	12 V DC	24 V DC	24 V DC	24 V DC	110 V AC	110 V AC	230 V AC	230 V AC
Nominal power P_N	29.4 W	26.2 W	27.6 W	26.5 W	8 W	28.6 W	24.8 W	30.2 W	28 W
Switching times (reference value)	On or off: approx. 50 to 60 ms, for M 24/8W and WG... 2-3 times longer								
Switching operations	approx. 2000/h, evenly distributed								
Contact temperature	Approx. 120 °C, at 20 °C ambient temperature								
Cut-off energy	$W_A \leq 0.4 \text{ Ws}$								
Insulation material class	F Contact temperature at 20° ambient temperature approx. 85 – 95 °C (cladding). In adhering to the reference values for % duty cycle in operation, the permissible winding limit temperature of approx. 150 °C according to insulation material class F is approximately reached as a steady-state temperature.								

Relative duty cycle

Reference value and restriction in operation



NOTICE

The thermal load of the coil can be reduced by means of an economy circuit, for example.

Protection class

see Chapter 2.5, "Solenoid voltage and connector"

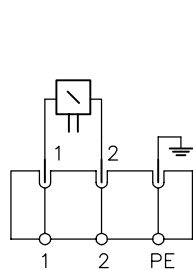
Electrical connection

see Chapter 2.5, "Solenoid voltage and connector"

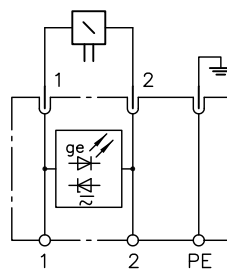
Circuit diagrams

DC voltage

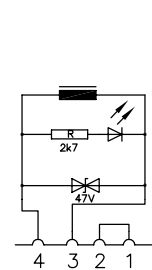
X(M) .., G(M) ..



L(M) ..

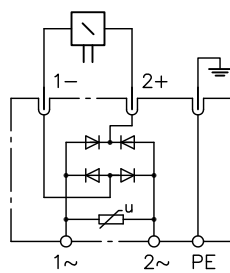


M ..




AC voltage

WG(M) ..



see Chapter 2.5, "Solenoid voltage and connector"

Contamination indicator coding VE

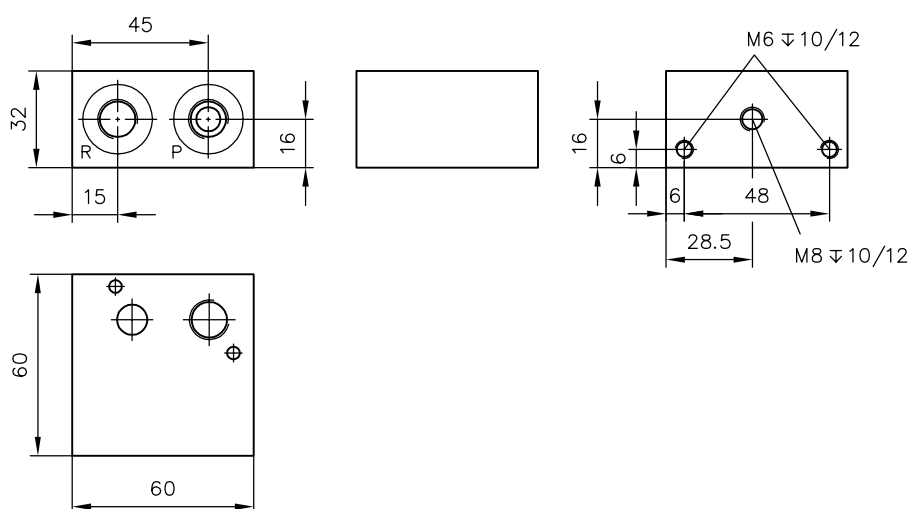
Switch	Change-over contact
Connection	<p>EN 175 301-803 A 3-pin IP 65 (IEC 60529)</p>  <p>The diagram shows two electrical symbols. On the left is a terminal block symbol with three pins labeled 1, 2, and 3. Pin 1 is connected to a ground symbol. On the right is a switch symbol with three terminals labeled 1, 2, and 3. Terminal 1 is the common terminal, and terminals 2 and 3 are the switched terminals.</p>
DC/AC switching capacity	30 VA
Max. DC/AC current	5 A / 0.25 A
Max. voltage	230 V DC/AC

4 Dimensions

All dimensions in mm, subject to change.

4.1 Connection block

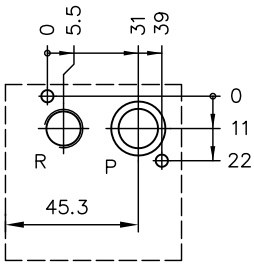
BVH 11 A5
 BVH 11 A5 JIS
 BVH 12 A5
 BVH 12 A5 JIS



Type	Connections	
	R, P	
BVH 11 A5	G 1/4	ISO 228-1
BVH 12 A5	G 3/8	ISO 228-1
BVH 11 A5 JIS	G 1/4 JIS	JIS B 2351-1
BVH 12 A5 JIS	G 3/8 JIS	JIS B 2351-1

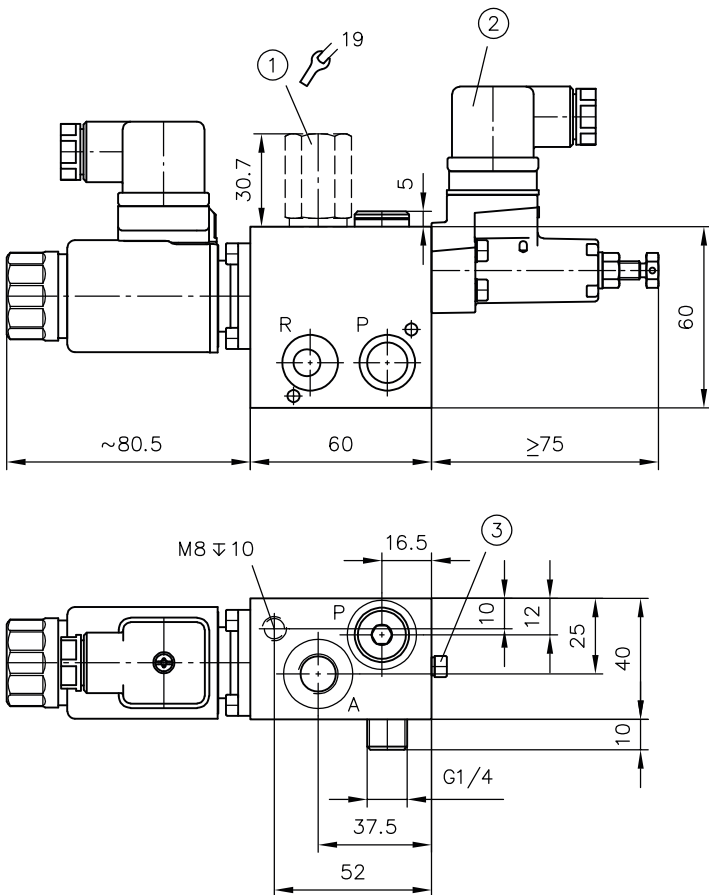
4.2 Valve sections

Side hole pattern



Valve section BVH 11 M.. and H..

BVH 11 M..
BVH 11 JIS M..
BVH 11 H..
BVH 11 JIS H..



- 1 Additional element ABR..E(F)
- 2 Pressure switch DG
- 3 DG prepared

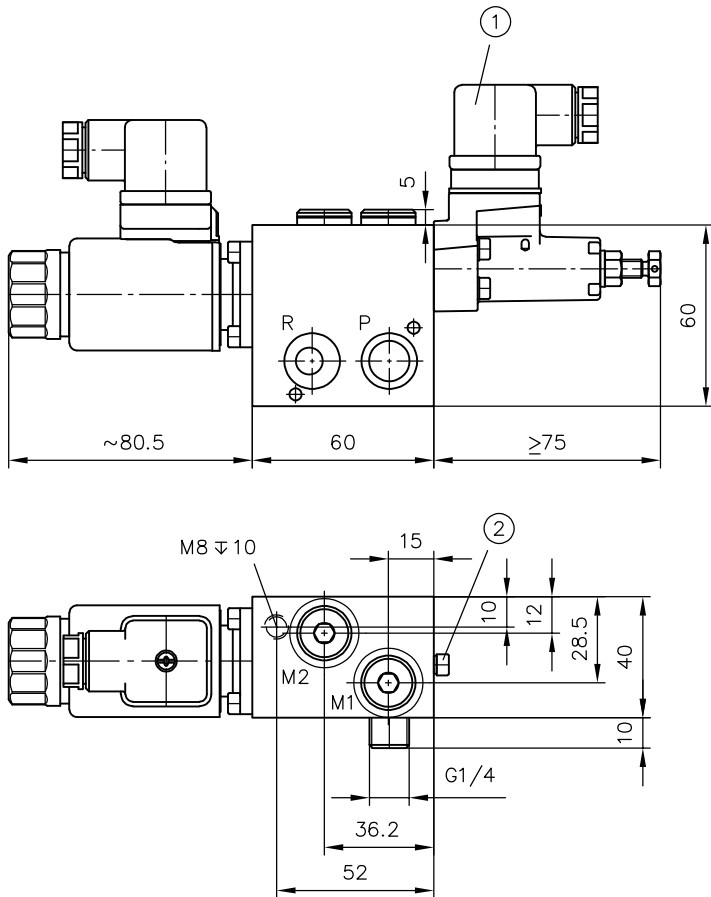
Type

Connections

	A		P	
	BVH 11	G 1/4	ISO 228-1	G 1/4
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1	G 1/4	ISO 228-1

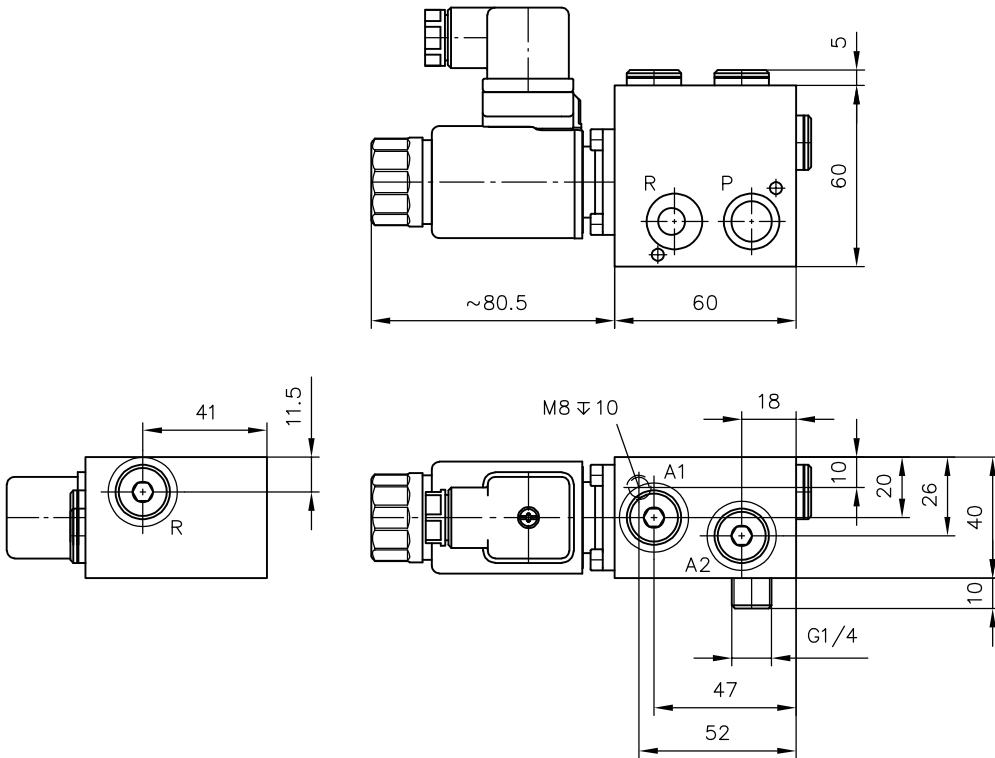
Valve section BVH 11 V., R.. and S..

BVH 11 V..



- 1 Pressure switch DG
- 2 DG prepared

BVH 11 R..
BVH 11 S..
BVH 11 JIS R..
BVH 11 JIS S..

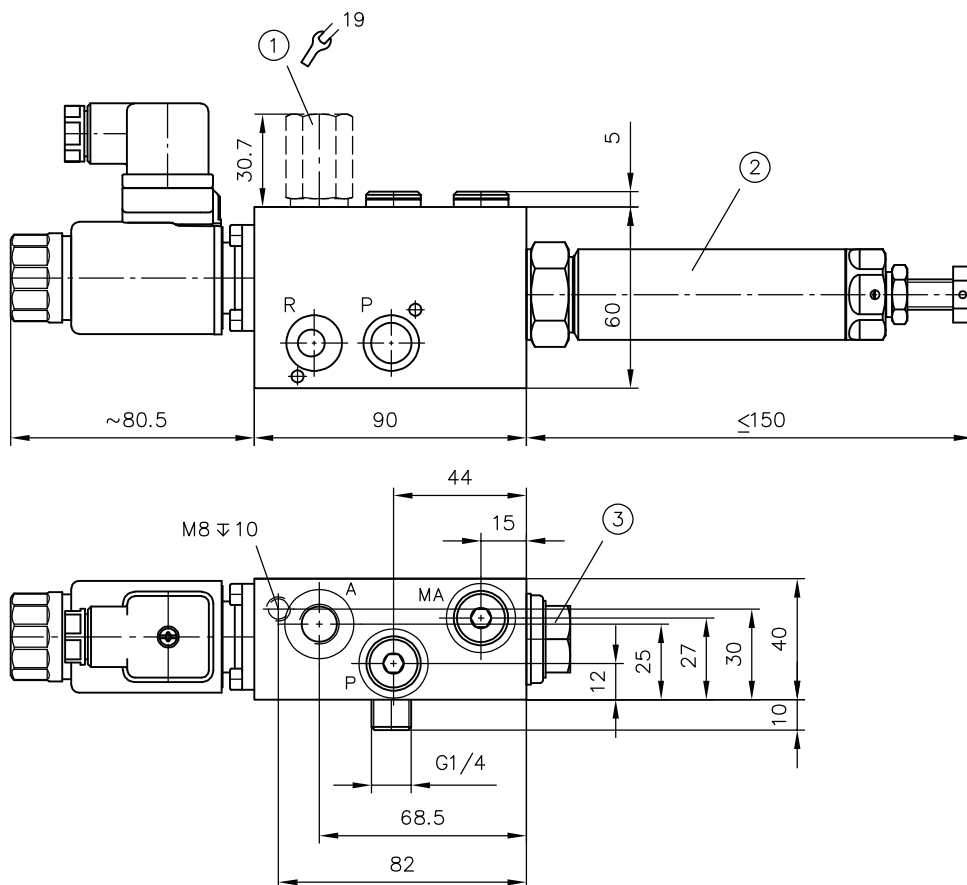


Type	Connections	
	A1, A2, M1, M2, P	
BVH 11	G 1/4	ISO 228-1
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1

Valve section BVH 11 H/CZ..

BVH 11 H/CZ..

BVH 11 JIS H/CZ..



1 Additional element ABR..E(F)

2 Pressure reducing valve CZ

3 For /CZX

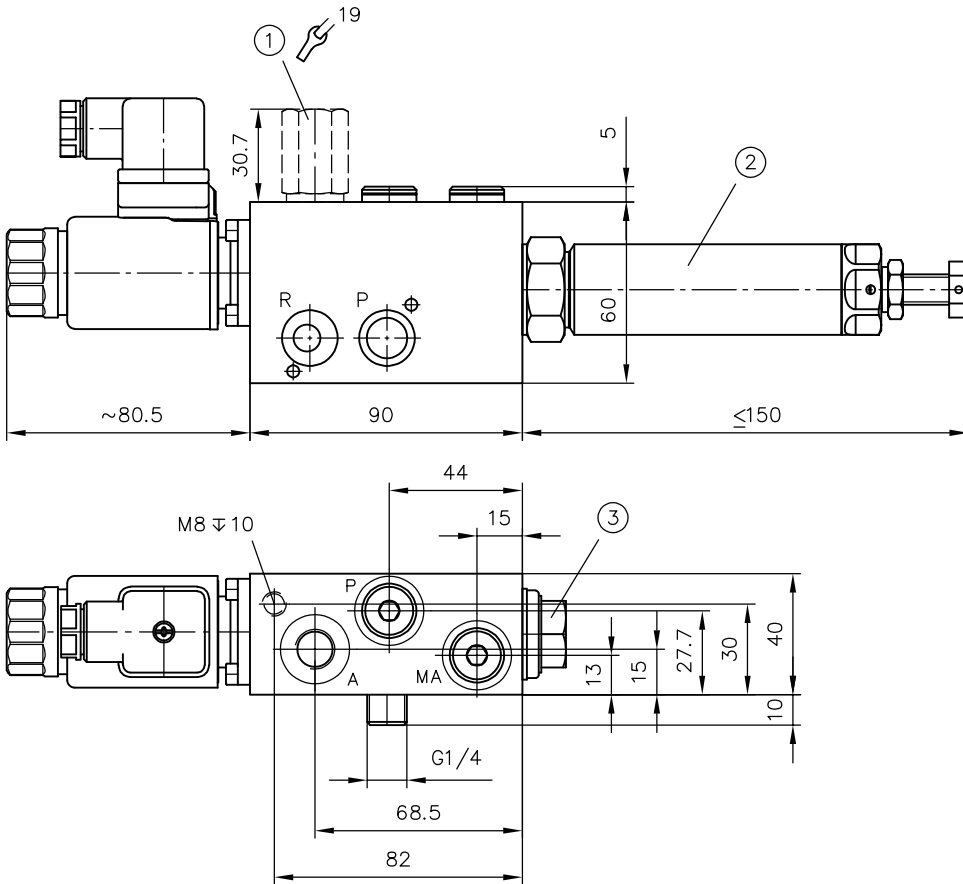
Type

Connections

Type	Connections			
	A		MA, P	
BVH 11	G 1/4	ISO 228-1	G 1/4	ISO 228-1
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1	G 1/4	ISO 228-1

Valve section BVH 11 M/CZ..

BVH 11 M/CZ..
BVH 11 JIS M/CZ..

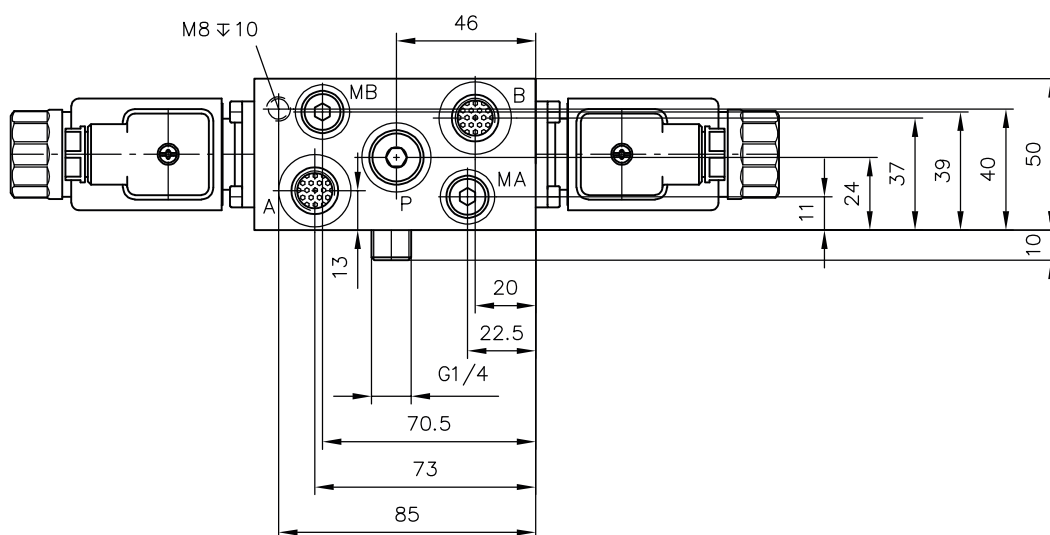
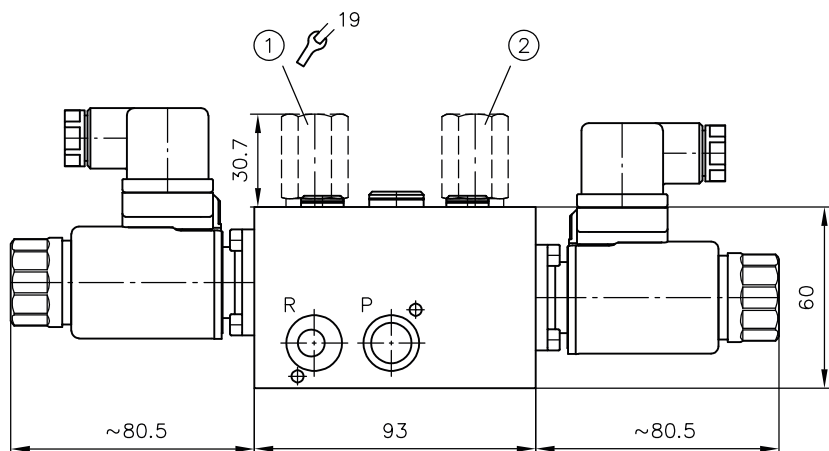


- 1 Additional element ABR..E(F)
- 2 Pressure reducing valve CZ
- 3 For /CZX

Type	Connections			
	A		MA, P	
BVH 11	G 1/4	ISO 228-1	G 1/4	ISO 228-1
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1	G 1/4	ISO 228-1

Valve section BVH 11 G

BVH 11 G
BVH 11 JIS G

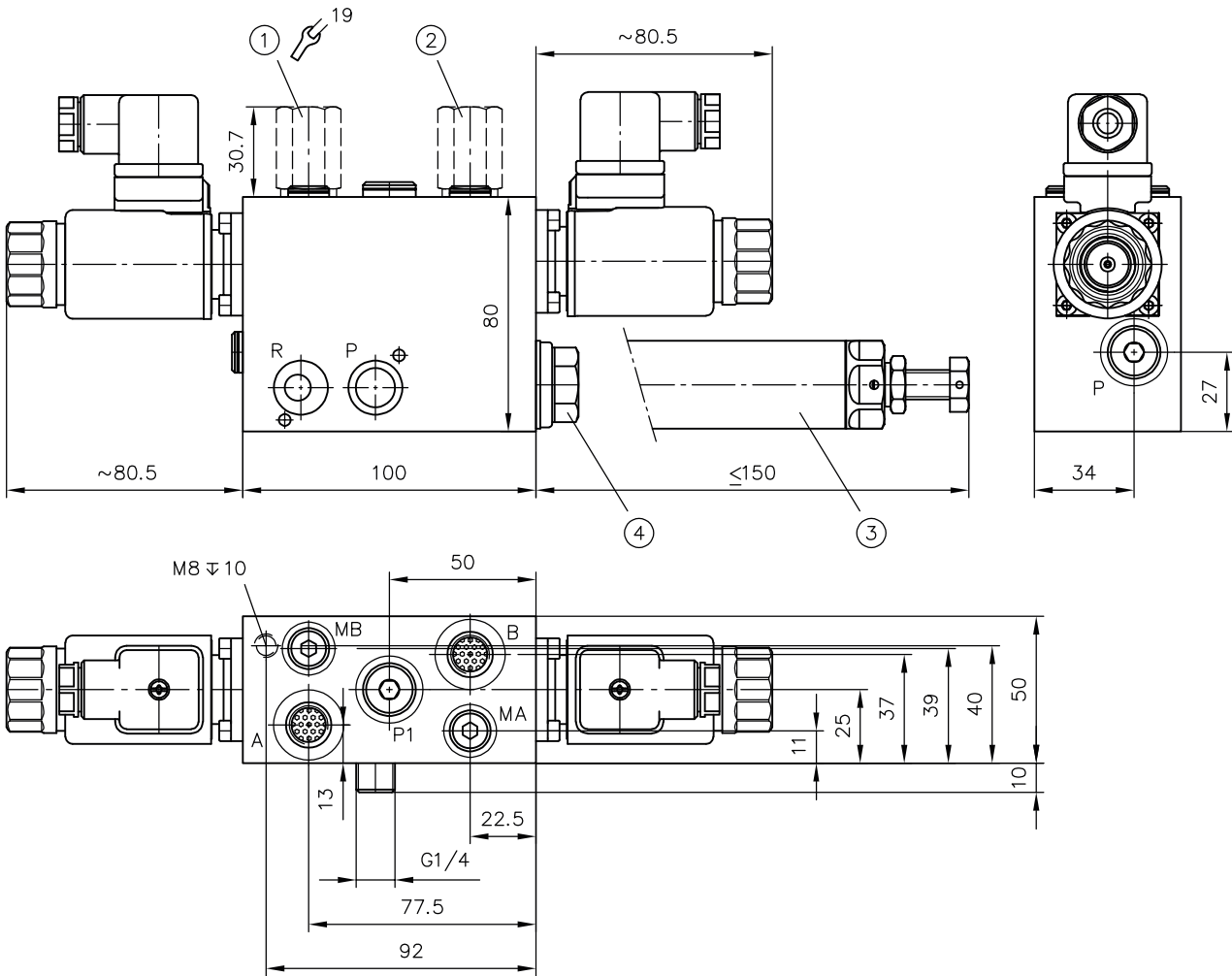


- 1 Additional element ABR..E(F)
- 2 Additional element BBR..E(F)

Type	Connections					
	A, B		P		MA, MB	
BVH 11	G 1/4	ISO 228-1	G 1/4	ISO 228-1	G 1/8	ISO 228-1
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1	G 1/4	ISO 228-1	G 1/8	ISO 228-1

Valve section BVH 11 G/CZ.. and G/LZ..

BVH 11 G/CZ..
BVH 11 JIS G/CZ..
BVH 11 G/LZ..



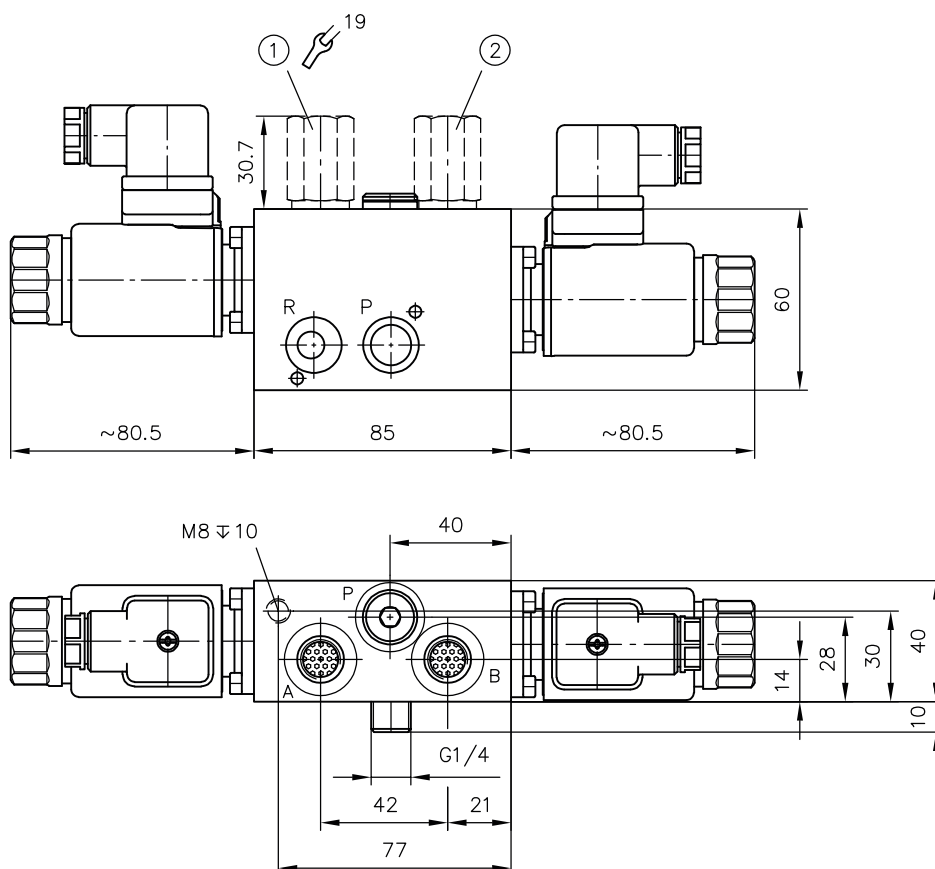
- 1 Additional element ABR..E(F)
- 2 Additional element BBR..E(F)
- 3 Pressure reducing valve CZ(LZ)
- 4 at /CZX(LZX)

Type	Connections					
	A, B, P		P1		MA, MB	
BVH 11	G 1/4	ISO 228-1	G 1/4	ISO 228-1	G 1/8	ISO 228-1
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1	G 1/4	ISO 228-1	G 1/8	ISO 228-1

Valve section BVH 11 D..

BVH 11 D..

BVH 11 JIS D..



1 Additional element ABR..E(F)

2 Additional element BBR..E(F)

Type

Connections

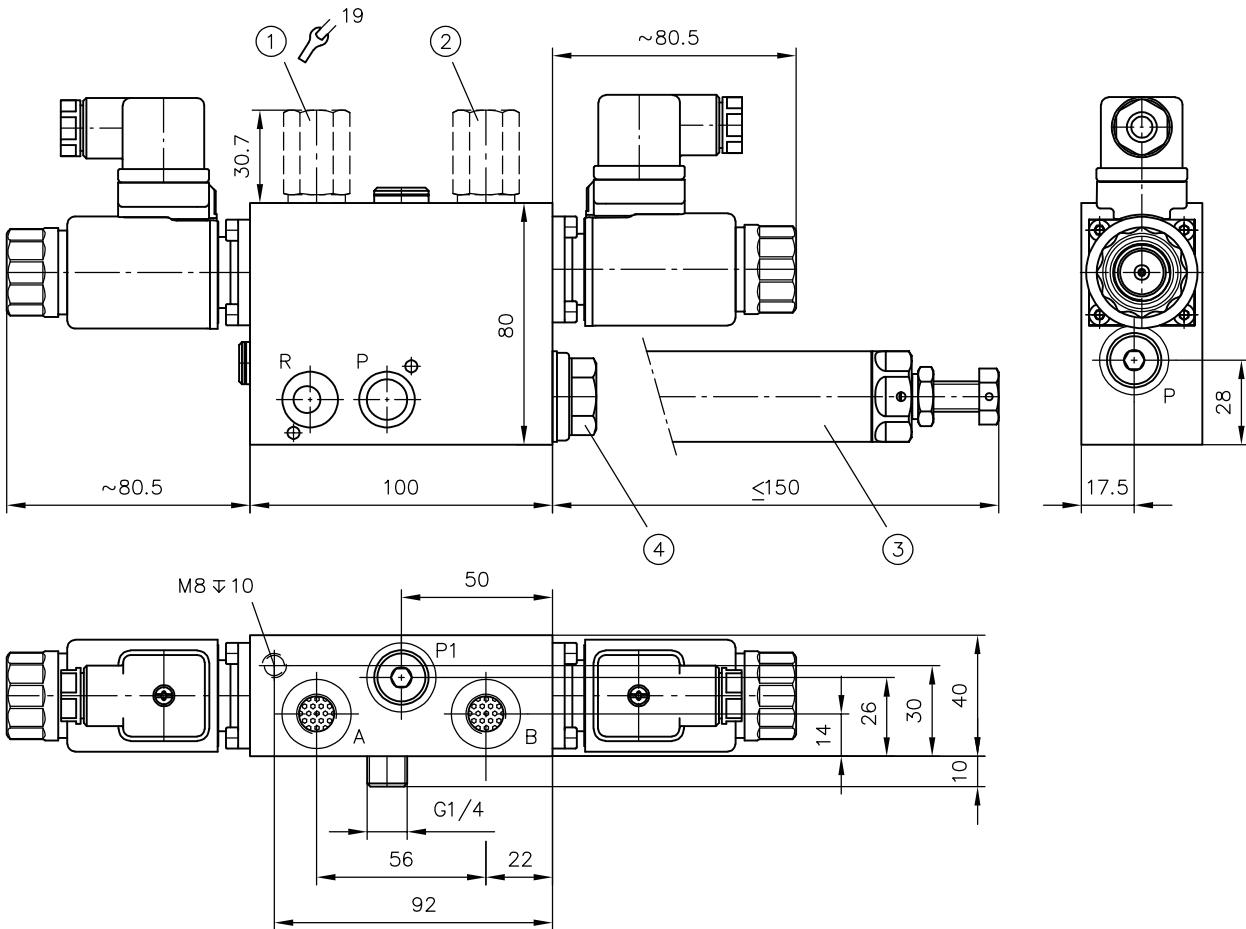
Type	A, B		P	
	BVH 11	G 1/4	ISO 228-1	G 1/4
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1	G 1/4	ISO 228-1

Valve section BVH 11 D/CZ.. and D/LZ..

BVH 11 D/CZ..

BVH 11 D/LZ..

BVH 11 JIS D/CZ..

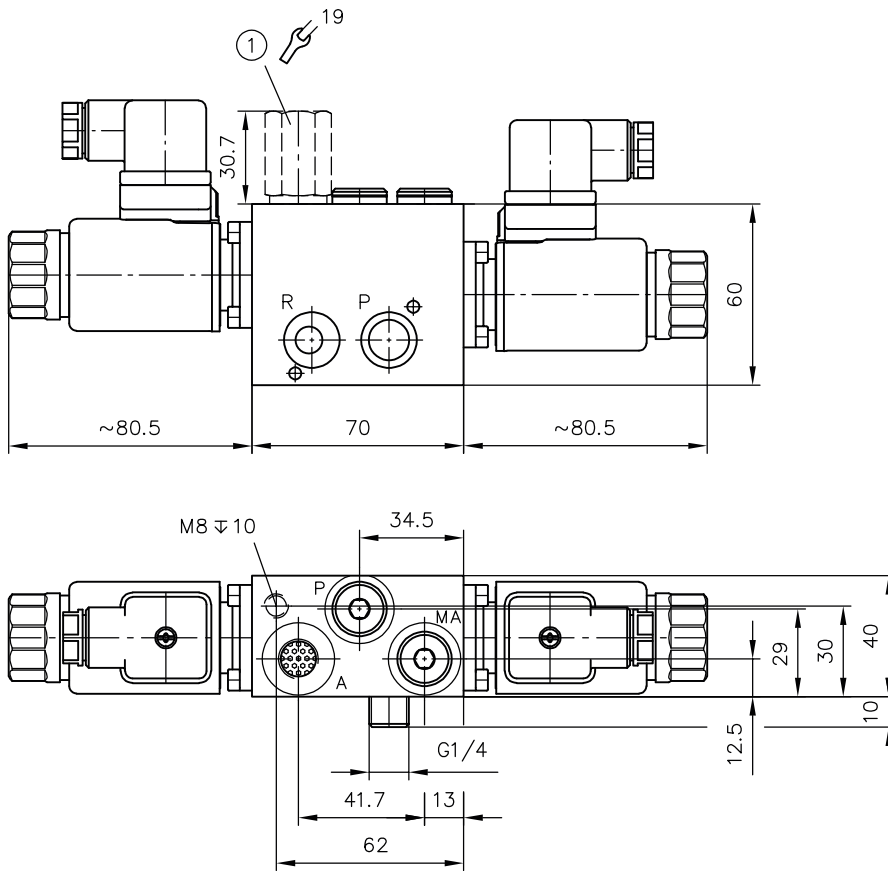


- 1 Additional element ABR..E(F)
- 2 Additional element BBR..E(F)
- 3 Pressure reducing valve CZ(LZ)
- 4 at /CZX(LZX)

Type	Connections			
	A, B		P, P1	
BVH 11	G 1/4	ISO 228-1	G 1/4	ISO 228-1
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1	G 1/4	ISO 228-1

Valve section BVH 11 J..

BVH 11 J..



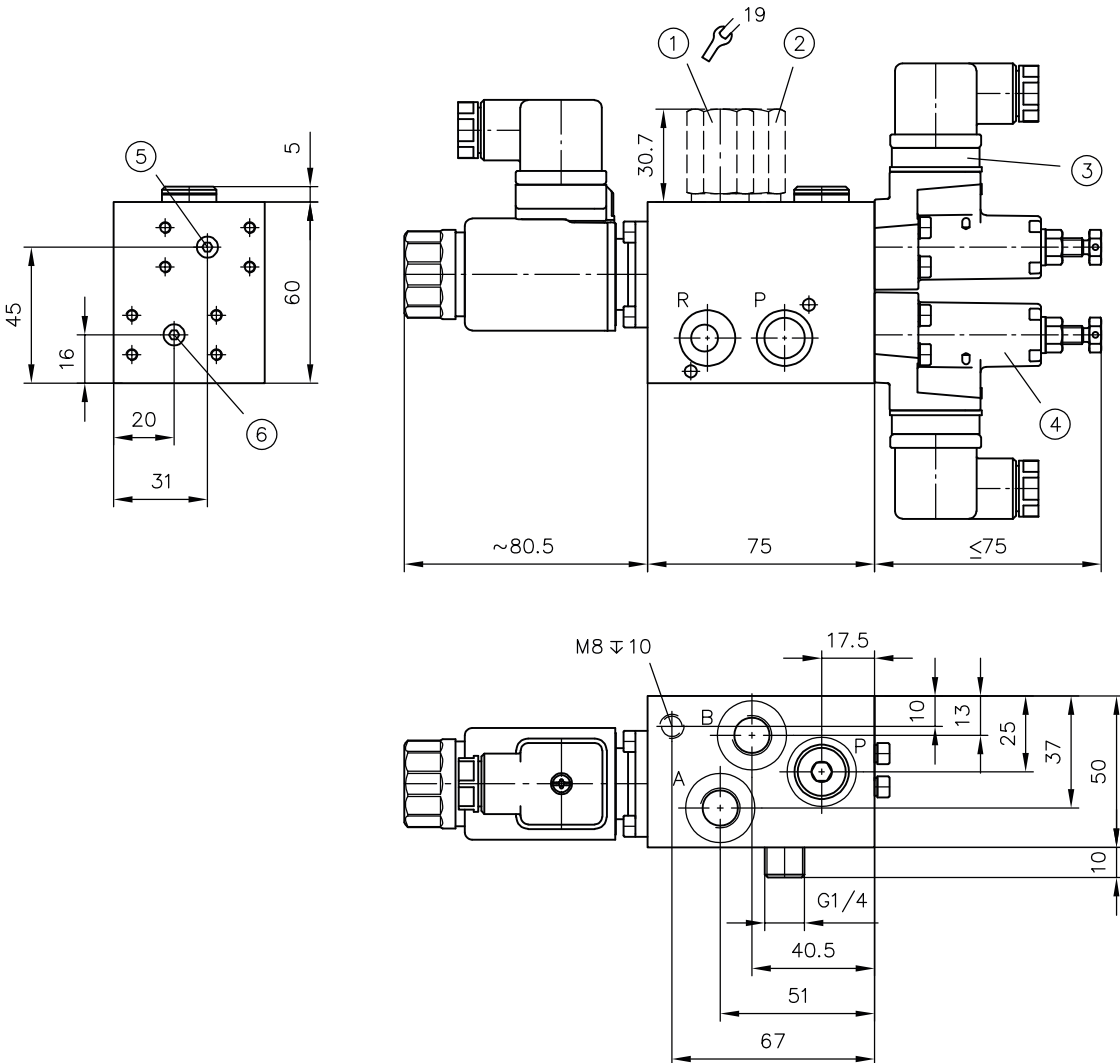
1 Additional element ABR..E(F)

Type	Ports (ISO 228-1)
	MA, A, P
BVH 11	G 1/4

Valve section BVH 11 W..

BVH 11 W..

BVH 11 JIS W..



- 1 Additional element ABR..E(F)
- 2 Additional element BBR..E(F)
- 3 Pressure switch DG at B
- 4 Pressure switch DG at A
- 5 DG prepared at B
- 6 DG prepared at A

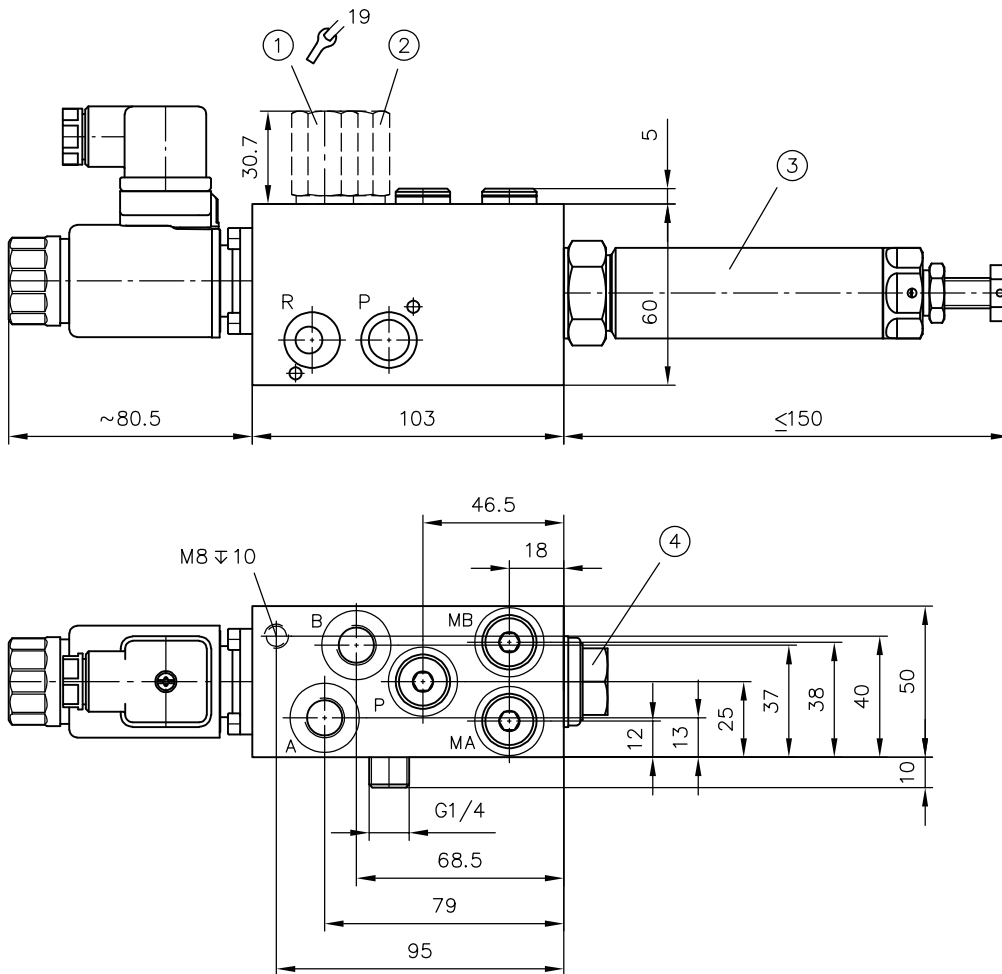
Type

Connections

	A, B		P	
BVH 11	G 1/4	ISO 228-1	G 1/4	ISO 228-1
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1	G 1/4	ISO 228-1

Valve section BVH 11 W/CZ..

BVH 11 W/CZ..
 BVH 11 JIS W/CZ..

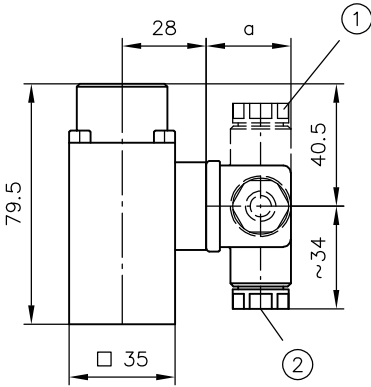


- 1 Additional element ABR..E(F)
- 2 Additional element BBR..E(F)
- 3 Pressure reducing valve CZ
- 4 For /CZX

Type	Connections			
	A, B		MA, MB, P	
BVH 11	G 1/4	ISO 228-1	G 1/4	ISO 228-1
BVH 11 JIS	G 1/4 JIS	JIS B 2351-1	G 1/4	ISO 228-1

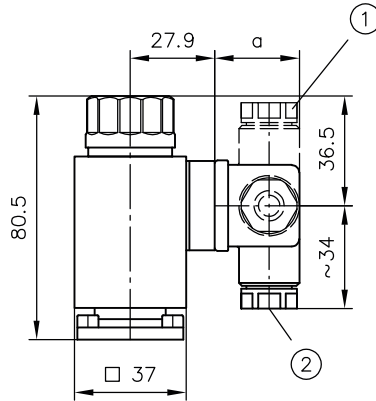
4.2.1 Actuation

X, G, WG
for directional valve
Coding **H, M, V, R, S, D, J**



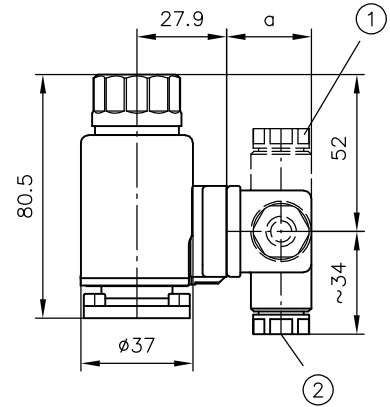
- 1 Plug can be mounted offset 4x 90°
- 2 Cable fitting

X.. (G.., L.., WG..)
for directional valve
Coding **G**



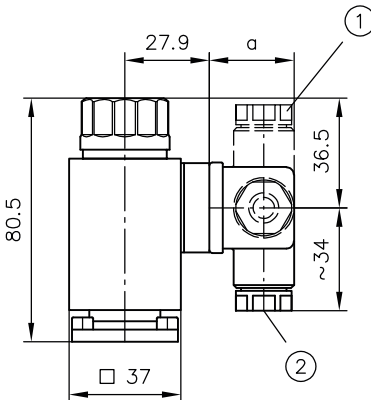
- 1 Plug can be mounted offset 4x 90°
- 2 Cable fitting

XM.. (GM.., LM.., WGM..)
for directional valve
Coding **G**



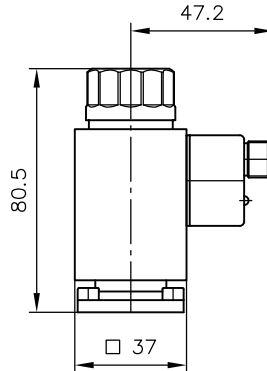
- 1 Plug can be mounted offset 4x 90°
- 2 Cable fitting

XM.. (GM.., LM.., WGM..)
for directional valve
Coding **W**

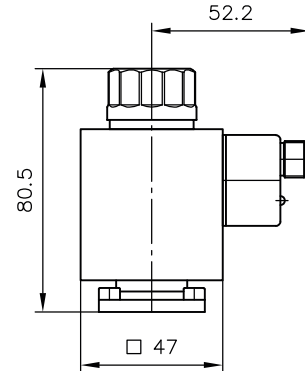


- 1 Plug can be mounted offset 4x 90°
- 2 Cable fitting

M24/8W
for directional valve
Coding **H, M, V, R, S, D, J**

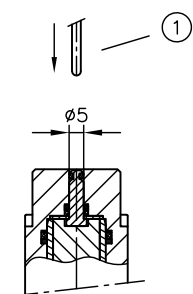


M24/8W
for directional valve
Coding **G, W**



Version	a
G	28
WG	34,5

Manual override



To actuate the valve:

- Use a steel pin or screwdriver etc. to depress the brass bolt (visible on the upper face).

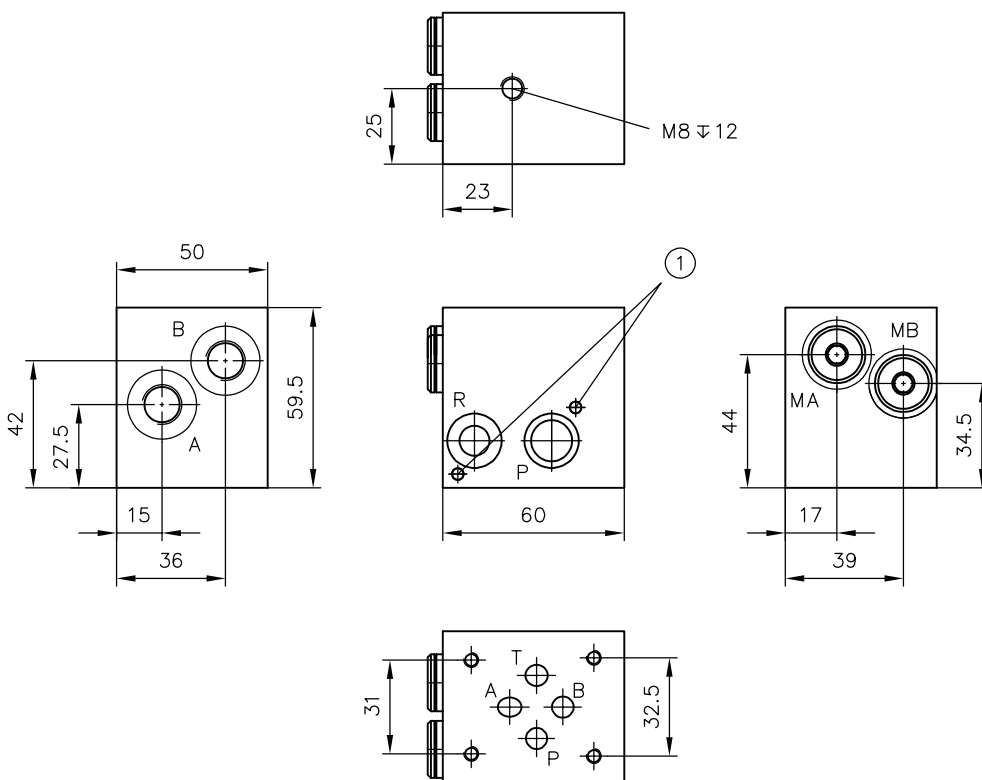
NOTICE

Any pressure on port B produces a counterforce that acts on the brass bolt. This has a $\varnothing 5$ mm, i.e. 100 bar \triangleq 195 N!

- 1 Auxiliary tool for actuation (do not use parts with sharp edges)

4.2.2 Sub-plates

BVH 11 ... /0

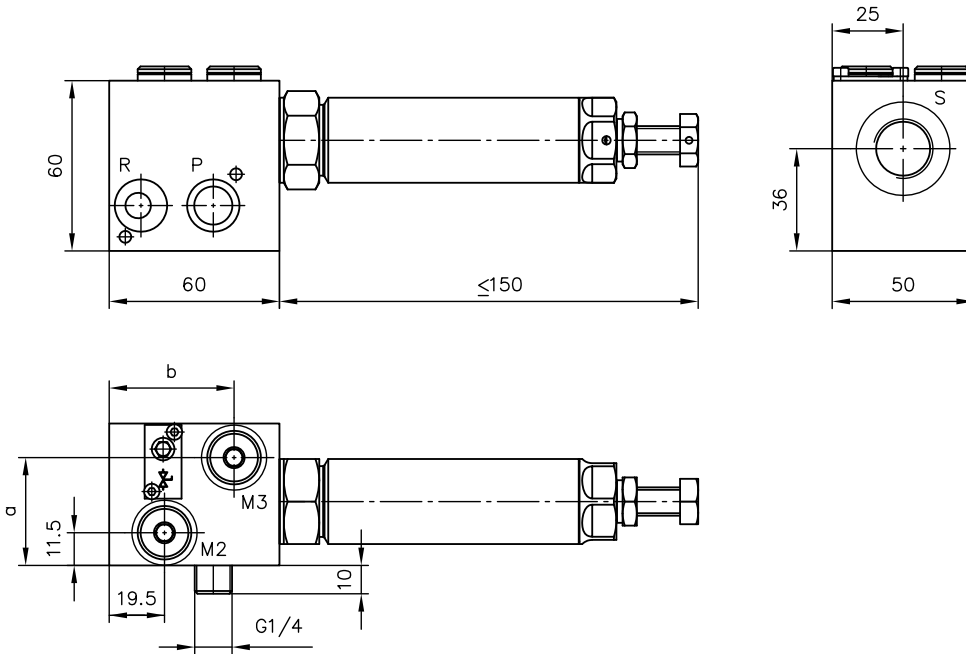


- 1 Centring pins ISO 8750-4x8-St

Type	Ports (ISO 228-1)
	A, B, MA, MB
BVH 11	G 1/4

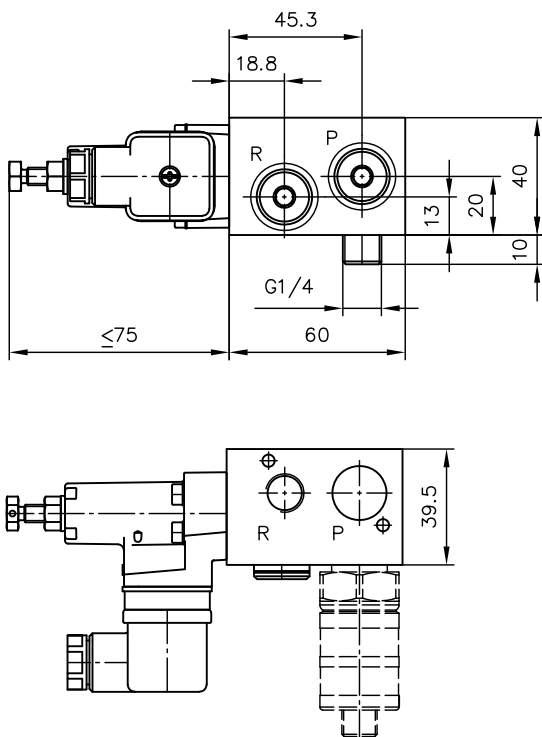
4.3 Intermediate plates

BVH 11 CZD.../5...
BVH 11 LZD.../5...



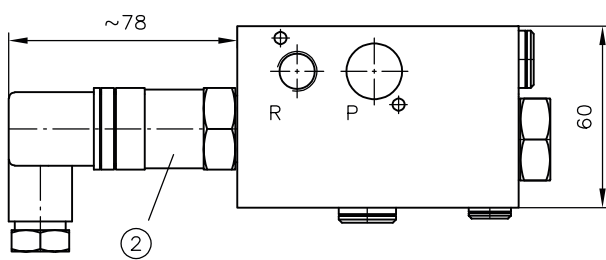
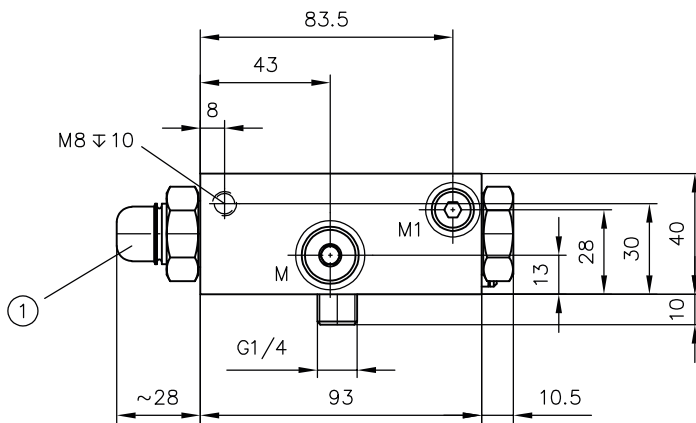
Type	a	b
BVH 11 CZD../5..	38	44
BVH 11 LZD../5..	38,5	38

BVH 11 Z1/...



Type	Ports (ISO 228-1)	
	BVH 11	M2, M3, R, P G 1/4

BVH 11 ZD../S8(SX) /VA(VE, VE)



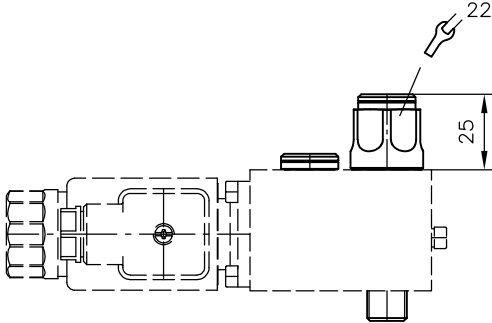
- 1 Coding VA, VV
- 2 Coding VE

Type	Ports (ISO 228-1)	
	M1	M, R
BVH 11	G 1/8	G 1/4

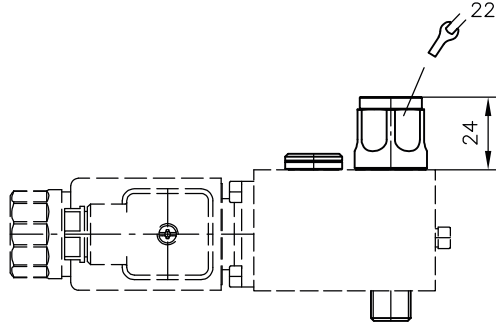
4.4 End plates

Finished with tapped plugs

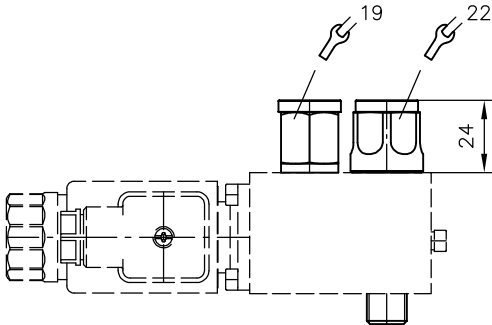
Coding - 1



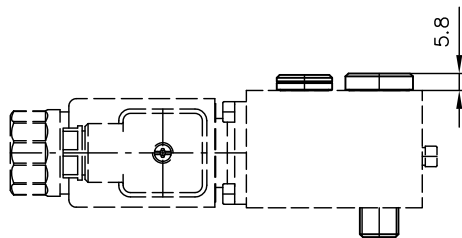
Coding - 1 JIS



Coding - 1A JIS

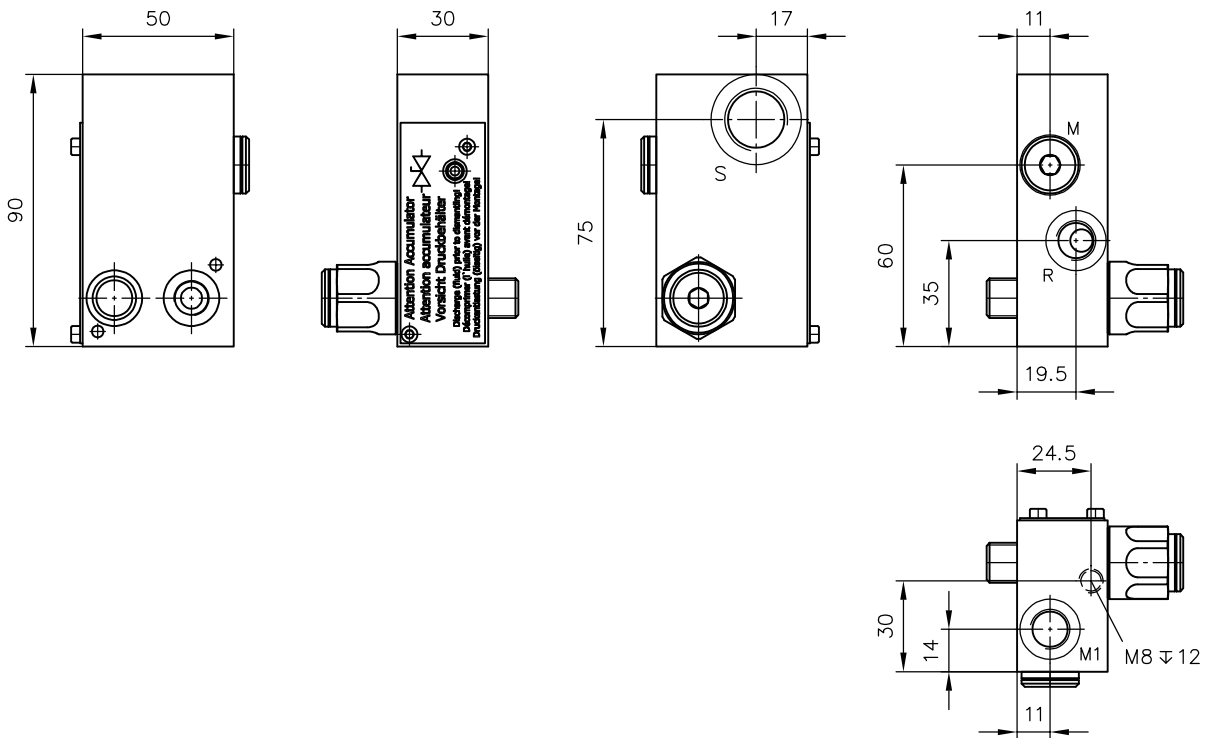


Coding - 2



End plate - 81

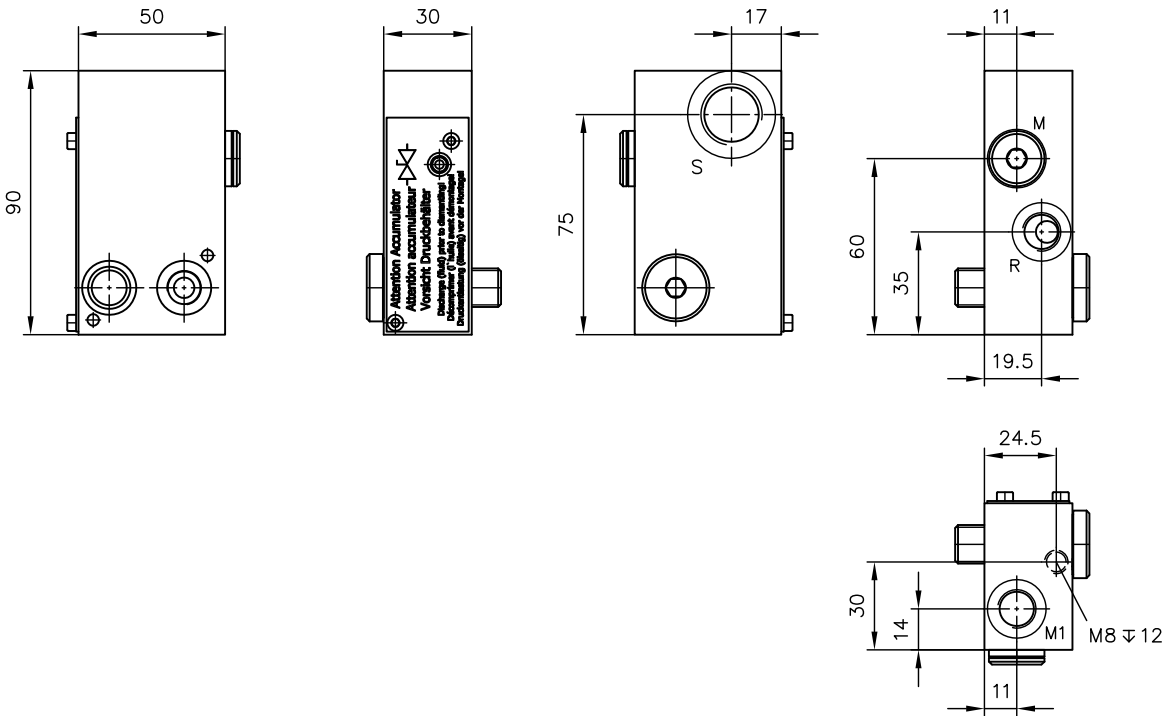
Coding - 81, - 81/B...



Coding	Ports (ISO 228-1)	
	S	M, M1, R
- 81	G 1/2	G 1/4
- 81/B...	G 1/2	G 1/4

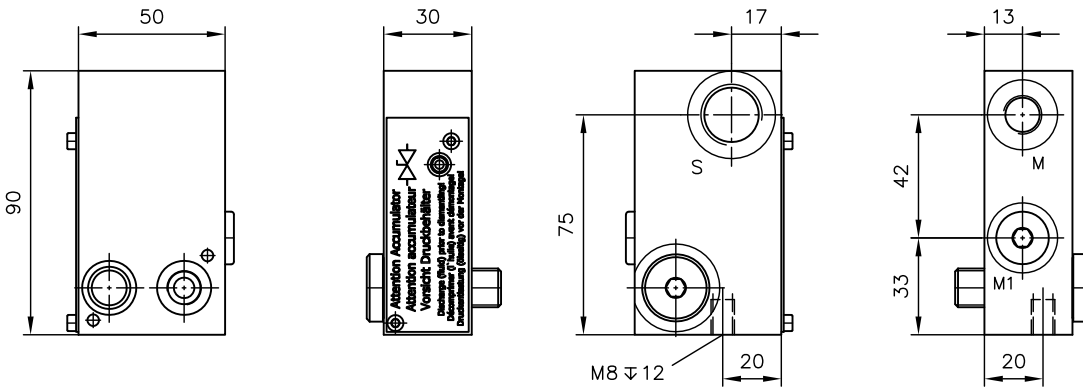
End plate - 82

Coding - 82, - 82/B...



Coding	Ports (ISO 228-1)	
	S	M, M1, R
- 82	G 1/2	G 1/4
- 82/B...	G 1/2	G 1/4

Coding - 82 JIS



Coding	Connections		
	ISO 228-1	JIS B 2351-1	
	S	M	M1
- 82 JIS	G 1/2	G 1/4	G 1/4 JIS

5**Installation, operation and maintenance information**

Observe the document B 5488 "General operating instructions for assembly, commissioning, and maintenance."

5.1 Intended use

This product is intended exclusively for hydraulic applications (fluid technology).

The user must observe the safety measures and warnings in this document.

Essential requirements for the product to function correctly and safely:

- ▶ All information in this documentation must be observed. This applies in particular to all safety measures and warnings.
- ▶ The product must only be assembled and put into operation by specialist personnel.
- ▶ The product must only be operated within the specified technical parameters described in detail in this document.
- ▶ All components must be suitable for the operating conditions when using an assembly.
- ▶ The operating instructions for the components, assemblies and the specific complete system must also always be observed.

If the product can no longer be operated safely:

1. Remove the product from operation and mark it accordingly.
 - ✓ It is then not permitted to continue using or operating the product.

5.2 Assembly information

The product must only be installed in the complete system with standard and compliant connection components (screw fittings, hoses, pipes, fixtures etc.).

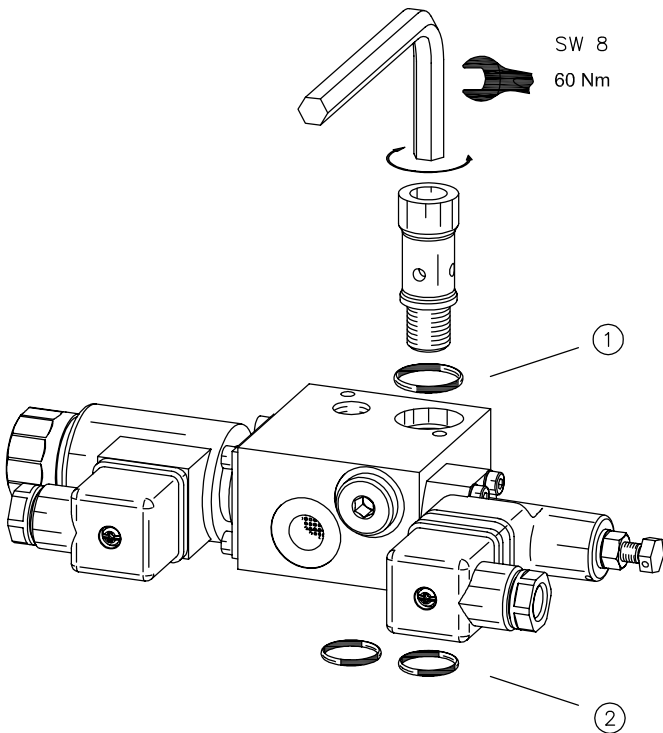
The product must be shut down correctly prior to disassembly (in particular in combination with hydraulic accumulators).

**DANGER****Sudden movement of the hydraulic drives when disassembled incorrectly**

Risk of serious injury or death

- ▶ Depressurise the hydraulic system.
- ▶ Perform safety measures in preparation for maintenance.

Installation of the banjo bolt



- 1 O-ring 18.77x1.78 P 5001
2 O-ring 15.00x2.00 P 5001

5.3 Operating instructions

Observe product configuration and pressure/flow rate.

The statements and technical parameters in this document must be strictly observed.
The instructions for the complete technical system must also always be followed.

NOTICE

- ▶ Read the documentation carefully before usage.
- ▶ The documentation must be accessible to the operating and maintenance staff at all times.
- ▶ Keep documentation up to date after every addition or update.

CAUTION

Overloading components due to incorrect pressure settings.

Risk of minor injury.

- Pay attention to the maximum operating pressure of the pump, valves and fittings.
- Always monitor the pressure gauge when setting and changing the pressure.

Purity and filtering of the hydraulic fluid

Fine contamination can significantly impair the function of the product. Contamination can cause irreparable damage.

Examples of fine contamination include:

- Swarf
- Rubber particles from hoses and seals
- Dirt due to assembly and maintenance
- Mechanical debris
- Chemical ageing of the hydraulic fluid

! NOTICE

New hydraulic fluid from the manufacturer may not have the required purity.

Damage to the product is possible.

- ▶ Filter new hydraulic fluid to a high quality when filling.
- ▶ Do not mix hydraulic fluids. Always use hydraulic fluid that is from the same manufacturer, of the same type, and with the same viscosity properties.

For smooth operation, pay attention to the cleanliness level of the hydraulic fluid (cleanliness level see Chapter 3, "Parameters").

Additionally applicable document: [D 5488/1](#) Oil recommendations

5.4 Maintenance information

Check regularly (at least once a year) by visual inspection whether the hydraulic connections are damaged. If external leakages are found, shut down and repair the system.

Clean the surface of the device regularly (at least once a year) (dust deposits and dirt).

Control of the visual clogging indicator for pressure filter

A red piston becomes visible once the response pressure is reached. In this case, replace the pressure filter cartridge.

6 Other information

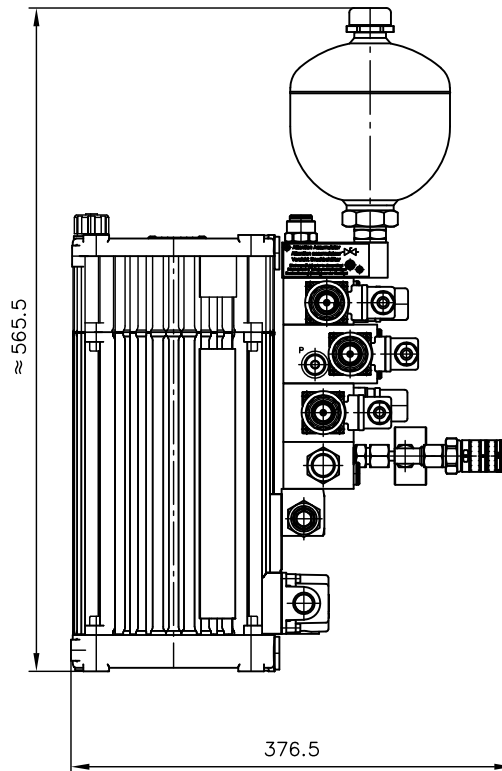
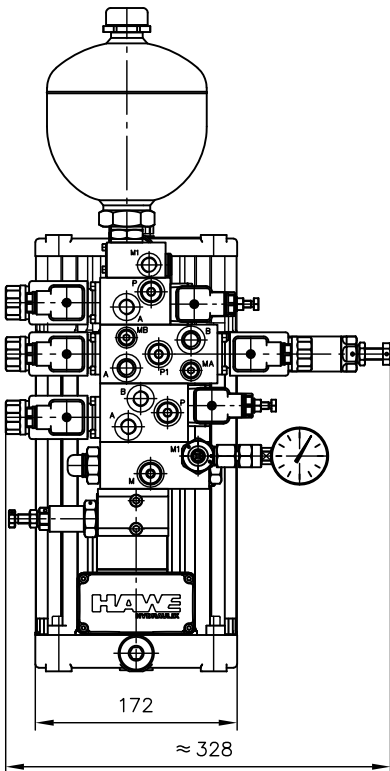
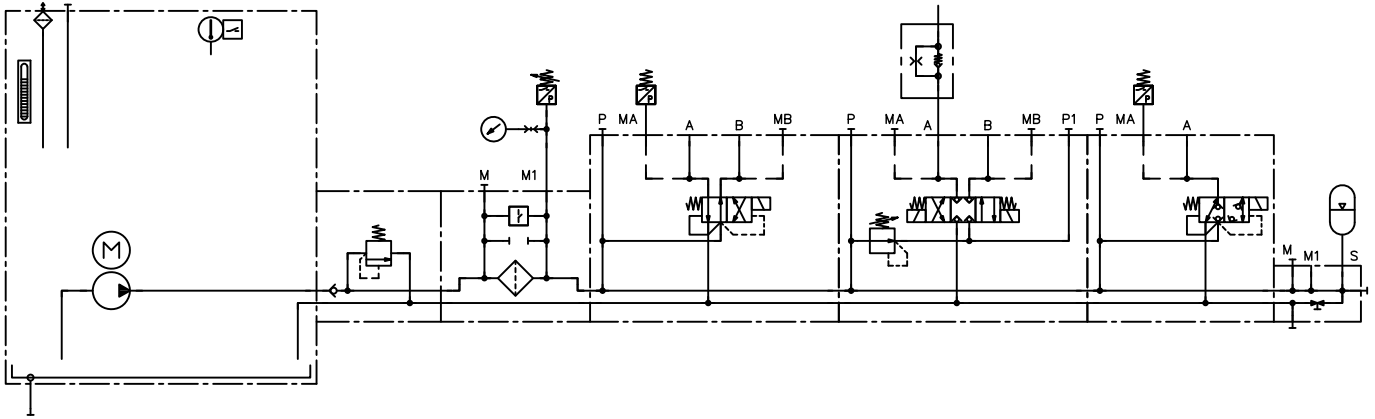
6.1 Circuit example

KA 281 SKT/Z 5.2

- AB 1 K PV X/ E 120
- BVH 11 ZD 10/SX/VV
- BVH 11 W/GM/0/52
- BVH 11 G/CZ 5/50/GM/0/BBR 1.0 E
- BVH 11 H/GM/0/5
- 81 - GM 24
- X 84 W-DG 62 R-9/160
- AC 1002/80/3 A3 x 400 V 50 Hz

Compact hydraulic power pack type KA
motor power 1 kW

Connection block with return line filter and TÜV-approved safety valve set to 120 bar.
Valve bank type BVH with three valve sections, two clamping functions with individually adjustable clamping pressure



6.2 Planning information

i INFORMATION

When in combination with hydraulic accumulators, the permissible flow rate must be respected. An orifice may need to be incorporated between the accumulator and directional valves.

6.3 Accessories, spare and individual parts

To purchase spare parts, please see [HAWE Hydraulik interactive contact map](#).

Description		Order number
Filter element	10 µm	7953 834-F10
	25 µm	7953 834-F25
	40 µm	7953 834-F40
banjo bolt		8050 002
O-ring 18.77x1.78 P5001		
O-ring 15.00x2.0 P5001		

References

Additional versions

- Connection blocks for single-circuit pump types AB, AL: D 6905 AB
- Compact hydraulic power pack type MPN and MPNW: D 7207
- Compact hydraulic power pack type HK 2: D 7600-2
- Compact hydraulic power pack type HK 3: D 7600-3
- Compact hydraulic power pack type HKL and HKLW: D 7600-3L
- Compact hydraulic power pack type HK 4: D 7600-4
- Compact hydraulic power pack type INKA: D 8132-1
- Compact hydraulic power pack type KA and KAW size 2: D 8010
- Compact hydraulic power packs type KA and KAW size 4: D 8010-4
- Pressure switch type DG: D 5440
- Electronic pressure switch type DG 5: D 5440 E/1
- Electronic pressure switch type DG 6: D 5440 F
- Restrictor check valve type BC: D 6969 B
- High-pressure screen filter type HF: D 7235
- Check valve type RK and RB: D 7445
- Pressure-reducing valve type CDK: D 7745
- Pressure-reducing valve type CLK: D 7745 L

