

Load-holding valve type LHDV

Product documentation



with special vibration isolators, zero leakage

Pressure setting p_{\max} :	420 bar
Load pressure p_{\max} :	350 bar
Flow rate Q_{\max} :	80 l/min



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Table of Contents

1	Overview of load-holding valve type LHDV.....	4
2	Available versions.....	5
2.1	Single valve.....	5
2.1.1	Basic type and size.....	5
2.1.2	Circuit symbol and design.....	6
2.1.3	Flow rate and pressure setting range.....	7
2.1.4	Bypass orifice and pilot ratio.....	8
2.1.5	Single connection block (only for P-11 and P-15).....	8
2.2	Twin valve.....	9
2.2.1	Basic type and size.....	9
2.2.2	Circuit symbol and design.....	10
2.2.3	Additional elements.....	11
3	Parameters.....	15
3.1	General data.....	15
3.2	Pressure and volumetric flow.....	16
3.3	Weight.....	16
3.4	Characteristic lines.....	17
4	Dimensions.....	19
4.1	Single valves.....	19
4.2	Twin valves.....	27
5	Installation, operation and maintenance information.....	37
5.1	Intended use.....	37
5.2	Assembly information.....	37
5.3	Operating instructions.....	38
5.4	Maintenance information.....	38
6	Other information.....	39
6.1	Adjusting the pressure setting.....	39
6.2	Adjusting the damping elements.....	40
6.3	Accessories, spare and individual parts.....	40

1 Overview of load-holding valve type LHDV

Load-holding valves are a type of pressure valve. They prevent loads on cylinders or motors dropping in an uncontrolled manner. For this purpose they are pre-loaded with a pressure setting that is higher than the largest possible load. A hydraulic piston controls the opening of the valve to achieve the required lowering velocity.

The load-holding valve type LHDV has special damping characteristics. It is suitable for applications that are highly prone to oscillations, and is used especially in connection with proportional directional spool valves, e.g. types PSL and PSV. When the valve is completely closed, it is tight and prevents all leaks.

Shock valves and shuttle valves with or without restrictor check valve can be fitted in the load-holding valves type LHDV, e.g. to relieve hydraulic brakes with a delay.

Features and advantages

- Pressure settings up to 420 bar
- Various adjustment options
- Various models

Intended applications

- Cranes
- Construction machinery
- Lifting devices



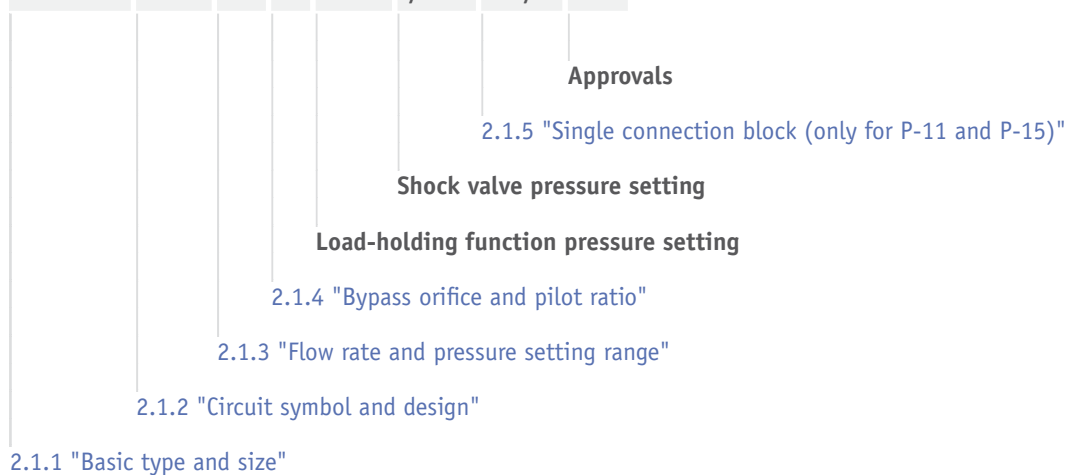
Load-holding valve type LHDV

2 Available versions

2.1 Single valve

Ordering example

LHDV 33 P-15 -B 6 -130 /150 -1/2 -EX



2.1.1 Basic type and size

Type	Description	Flow rate Q_{\max} (l/min)	Pressure setting p_{\max} (bar)
LHDV 33	Spring dome thread size G 1/2	80	420

2.1.2 Circuit symbol and design

Coding	Shock valve	Ports	Circuit symbol
Manifold mounting			
P-11 *	none	F, V = G 1/2 M, S, Z = G 1/4 **	
SAE-11	none	F = G 1/2 V = SAE 3/4-6000 M, S, Z, T = G 1/4 **	
P-15 *	with	F, V = G 1/2 R = G 3/8 M, S, Z = G 1/4 **	
BP-15 ***	with	F = G 1/2 R = G 3/8 M, S, Z = G 1/4 **	
Banjo bolt			
H-11	none	F = G 1/2 V = M22x1.5 R = G 3/8 M, S, Z = G 1/4 **	
H-1/2-11	none	F, V = G 1/2 R = G 3/8 M, S, Z = G 1/4 **	
H-15	with	F = G 1/2 V = M22x1.5 R = G 3/8 M = M8x1 S, Z = G 1/4 **	
H-1/2-15	with	F, V = G 1/2 R = G 3/8 M = M8x1 S, Z = G 1/4 **	

! NOTICE

- * Also available with single connection block G 1/2 (see Chapter 2.1.5, "Single connection block (only for P-11 and P-15)")
- ** Port Z is not sealed in the factory. If not used, the customer must close this port themselves, e.g. using tapped plug G 1/4 A DIN 908 with EOLASTIK sealing ring.
- *** Bypass check valve designed as a ball valve.

! NOTICE

For version with banjo bolt: attached at any angle concentrically around the V port. A centring base is required in the basic body, see Chapter 4, "Dimensions".

2.1.3 Flow rate and pressure setting range

Coding	Flow rate Q_{\max} (l/min)	Pressure setting p (bar)	Permitted return pressure p_{\max} (bar)
A	80	(50) to 350	10
B	60	(50) to 350	10
C	40	(50) to 350	10
D	25	(50) to 350	10
E	16	(50) to 350	10
L	80	351 to 420	10
M	60	351 to 420	10
N	40	351 to 420	10
P	25	351 to 420	10
R	16	351 to 420	10

! NOTICE

For the maximum flow rate V → F with the valve fully open, a Δp of 50 bar can be expected, see Chapter 3.4, "Characteristic lines".

! NOTICE

The pressure setting should be at least 20% higher than the maximum load pressure.

2.1.4 Bypass orifice and pilot ratio

Coding	Bypass orifice D2 Ø (mm)	Pilot ratio
0	0 (undrilled)	1 : 8.2
4	0.4	1 : 6.3
5	0.5	1 : 4.5
6 (standard)	0.6	1 : 2.9
7	0.7	1 : 1.8
8	0.8	1 : 1.2

i INFORMATION

Inflow orifice D1 Ø 0.5 mm (standard, no coding). Can be replaced if required.

2.1.5 Single connection block (only for P-11 and P-15)

Coding	Shock valve	Ports	Circuit symbol
Pipe connection			
P-11-...-1/2	none	Manifold valve with single connection block G 1/2	
P-15-...-1/2	with	Manifold valve with single connection block G 1/2	

2.2 Twin valve

Ordering example

LHDV 33	-25	WL	-B	6	-300/200	-300/250	-EX
							Approvals
							Shock valve pressure setting
							Load-holding function pressure setting
							2.1.4 "Bypass orifice and pilot ratio"
							2.1.3 "Flow rate and pressure setting range"
							2.2.3 "Additional elements"
							2.2.2 "Circuit symbol and design"
							2.2.1 "Basic type and size"

2.2.1 Basic type and size

Type	Description	Flow rate Q_{\max} (l/min)	Pressure setting p_{\max} (bar)
LHDV 30 ..	Spring dome closed (only P-23 and BP-23)	80	420
LHDV 33 ..	Spring dome thread size G 1/2 (not P-23 and BP-23)		

2.2.2 Circuit symbol and design

Coding	Shock valve	Ports	Circuit symbol
Pipe connection			
-21	none	F, V = G 1/2	<p>The diagram shows a shock valve with two main ports, F1 and F2, and two auxiliary ports, V1 and V2. It features a central spool valve with two solenoid coils (D1 and D2) and two check valves. The symbol is enclosed in a dashed rectangular box.</p>
JIS-21	none	F, V = G 1/2 JIS Type 0	
UNF-21	none	F = 7/8-14 UNF-2B (SAE 10) V = 3/4-16 UNF-2B (SAE 08)	
G-23	with	F, V = G 1/2 R = G 3/8 M = G 1/4 S = M22x1.5	<p>The diagram shows a shock valve with four main ports: F1, R1, R2, and F2, and two auxiliary ports: V1 and V2. It includes a central spool valve, two solenoid coils (D1 and D2), and two check valves. The symbol is enclosed in a dashed rectangular box.</p>
-25	with	F, V = G 1/2	<p>The diagram shows a shock valve with two main ports, F1 and F2, and two auxiliary ports, V1 and V2. It features a central spool valve with two solenoid coils (D1 and D2) and two check valves. The symbol is enclosed in a dashed rectangular box.</p>
Manifold mounting			
P-21	none	F = G 1/2 M = G 1/4	<p>The diagram shows a shock valve with four main ports: M1, F1, F2, and M2, and two auxiliary ports: V1 and V2. It features a central spool valve with two solenoid coils (D1 and D2) and two check valves. The symbol is enclosed in a dashed rectangular box.</p>
P-23	with	M, S = G 1/4	<p>The diagram shows a shock valve with four main ports: M1, F1, S1, and M2, and two auxiliary ports: V1 and V2. It includes a central spool valve, two solenoid coils (D1 and D2), and two check valves. The symbol is enclosed in a dashed rectangular box.</p>

Coding	Shock valve	Ports	Circuit symbol
BP-23 *	with	M, S = G 1/4	

NOTICE

* Bypass check valve designed as a ball valve.

2.2.3 Additional elements

Coding	Description	Available connection blocks	Circuit symbol
W	<ul style="list-style-type: none"> with shuttle valve for pressure signal output X (T) for brake with hydraulic release, preferably for hydraulic motors 	-21W	
		-25W	
WD	<ul style="list-style-type: none"> with additional restrictor check valve in the case of port X prevents a hydraulic brake from being engaged suddenly 	-21WD	

Coding	Description	Available connection blocks	Circuit symbol
		-25WD	
<p>WN WNL</p>	<ul style="list-style-type: none"> with anti-cavitation valves and additional suction port T to compensate for volume changes caused by leakage on hydraulic motors 	<p>-25WN</p>	
		-25WNL	
<p>L WL WNL WDL WDLN</p>	<ul style="list-style-type: none"> control piston relieved, additional drain port L 	<p>-21L</p>	
		-25L	

Coding	Description	Available connection blocks	Circuit symbol
		-21WL	
		-25WL	
		-25WDL	
		-25WDNL	

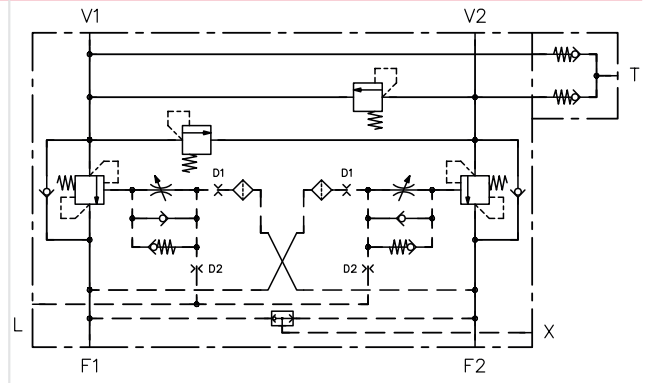
Coding

Description

Available
connection blocks

Circuit symbol

-25WNL



3 Parameters

3.1 General data

Designation	Load-holding valve, with hydraulic relief, with bypass check valve
Design	<ul style="list-style-type: none"> ▪ Load-holding valve: cone-seated piston valve ▪ Bypass check valve: plate seated valve (circuit symbol BP: ball seated valve)
Model	<ul style="list-style-type: none"> ▪ Single or twin valve for pipe connection ▪ Manifold mounting valve ▪ Screw-in valve, version for banjo bolt mounting ▪ With special vibration isolators
Material	Steel; internal parts hardened
Attachment	see Chapter 4, "Dimensions"
Tightening torque	see Chapter 4, "Dimensions"
Installation position	any
Ports/connections	<ul style="list-style-type: none"> ▪ F, V = main ports ▪ S = pilot pressure port ▪ M, Z = pressure gauge connections ▪ L = drain port ▪ X = pressure signal output ▪ T = suction port
Flow direction	<ul style="list-style-type: none"> ▪ Operating direction (load-holding function) $V \rightarrow F$ ▪ Free flow $F \rightarrow V$
Pilot ratio	see Chapter 2.1.4, "Bypass orifice and pilot ratio"
Hydraulic fluid	<p>Hydraulic fluid, according to DIN 51 524 Parts 1 to 3; ISO VG 10 to 68 according to DIN ISO 3448</p> <p>Viscosity range: 4 - 1500 mm²/s</p> <p>Optimal operating range: approx. 10 - 500 mm²/s</p> <p>Also suitable for biologically degradable hydraulic fluids type HEPG (polyalkylene glycol) and HEES (synthetic ester) at operating temperatures up to approx. +70°C.</p>
Cleanliness level	<p>ISO 4406</p> <hr style="width: 25%; margin-left: 0;"/> <p>21/18/15...19/17/13</p>
Temperatures	<p>Environment: approx. -40 to +80 °C, hydraulic fluid: -25 to +80 °C, pay attention to the viscosity range.</p> <p>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.</p> <p>Biologically degradable hydraulic fluids: note manufacturer specifications. With consideration for the seal compatibility, not above +70°C.</p>

3.2 Pressure and volumetric flow

Pressure setting	see Chapter 2.1.3, "Flow rate and pressure setting range"
Flow rate	see Chapter 2.1.3, "Flow rate and pressure setting range"
Leakage	zero leakage

3.3 Weight

Single valve	Coding	
	P-11	= 1.3 kg
	SAE-11	= 3.2 kg
	P-15	= 1.8 kg
	BP-15	= 1.3 kg
	H-11	= 1.7 kg
	H-1/2-11	= 1.7 kg
	H-15	= 2.2 kg
	H-1/2-15	= 2.2 kg
Twin valve	Coding	
	-21	= 3.5 kg
	-21WL	= 3.5 kg
	-21WD	= 3.6 kg
	JIS-21	= 3.5 kg
	UNF-21	= 3.5 kg
	G-23	= 4.0 kg
	-25	= 3.9 kg
	-25W	= 3.9 kg
	-25WL	= 3.9 kg
	-25WD	= 4.0 kg
	-25WDN	= 4.7 kg
	-25WDNL	= 4.8 kg
	P-21	= 4.8 kg
	P-23	= 5.2 kg
	BP-23	= 5.2 kg

3.4 Characteristic lines

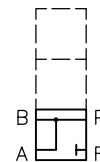
Viscosity of the hydraulic fluid approx. 60 mm²/s

NOTICE

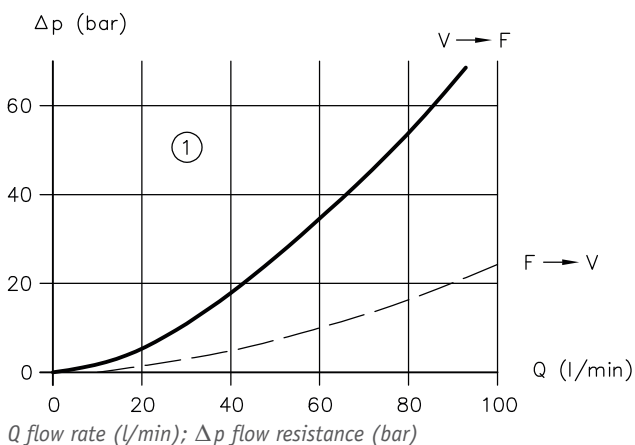
Functional restriction for circuit symbols -21 and -25:

Load-holding valves cannot be used in conjunction with directional spool valves with the flow diagram of the differential circuit in a (any) switching position (e.g. with coding **C**, **Y** according to **D 5650/1**).

Single valves (circuit symbols **-11** or **-15**) cannot be used on the rod side of the connected hydraulic cylinder here.

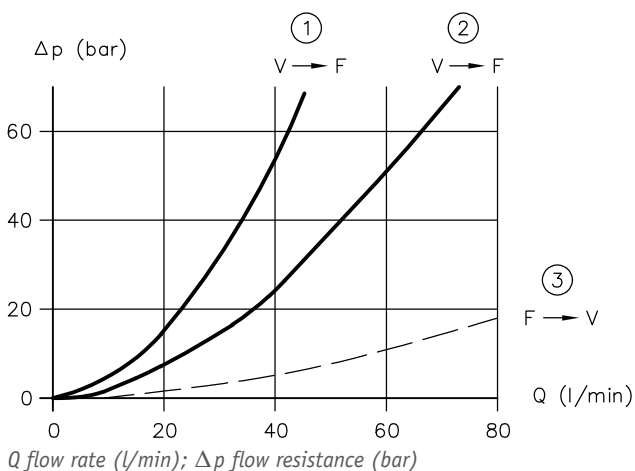


Pressure range A, L



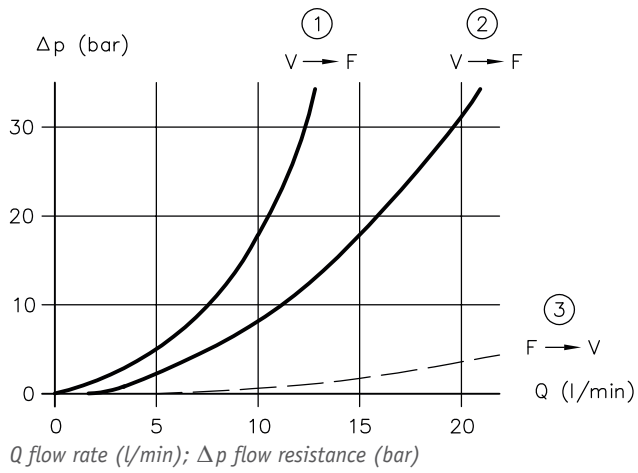
1 Pressure range A

Pressure range B, C, M, N



- 1 Pressure range C
- 2 Pressure range B
- 3 Pressure range B, C

Pressure range D, E, P, R



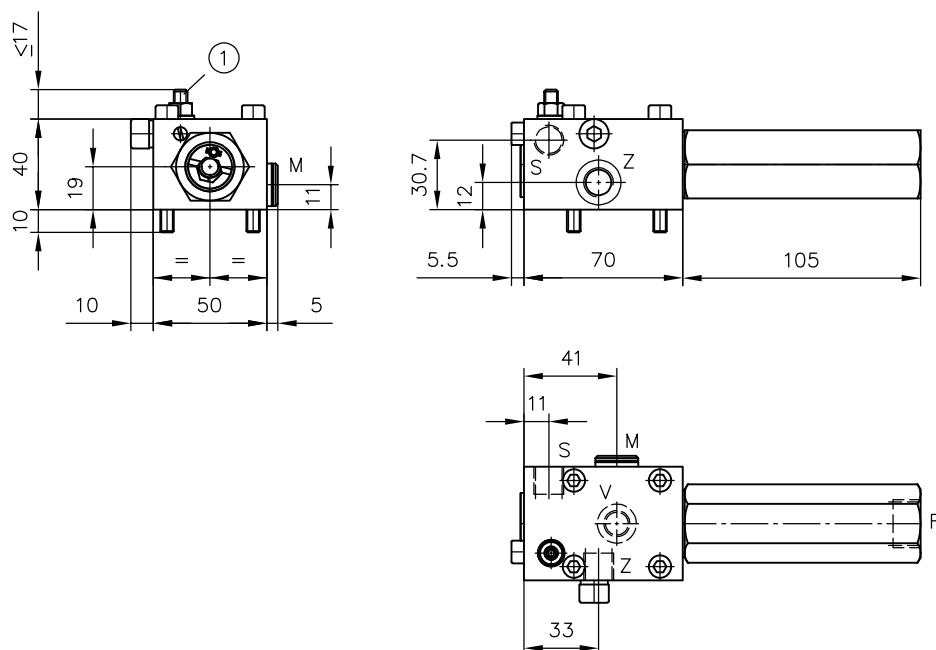
- 1 Pressure range E
- 2 Pressure range D
- 3 Pressure range D, E

4 Dimensions

All dimensions in mm, subject to change.

4.1 Single valves

LHDV 33 P-11



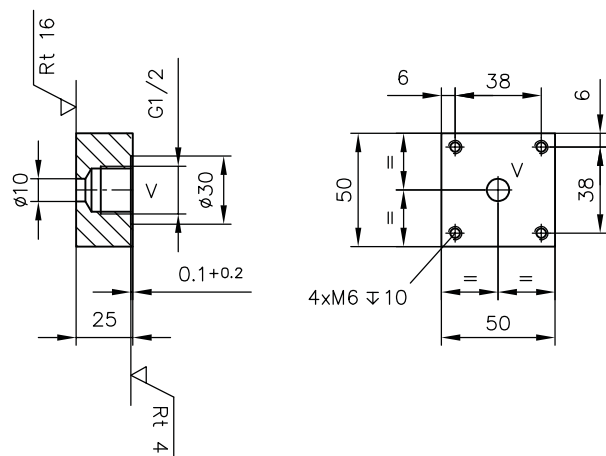
1 For setting instructions for throttle screw, see Chapter 6.2

Ports (ISO 228-1)

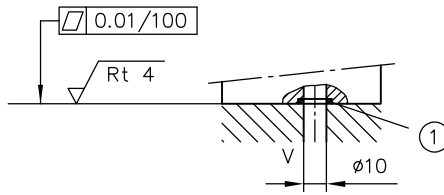
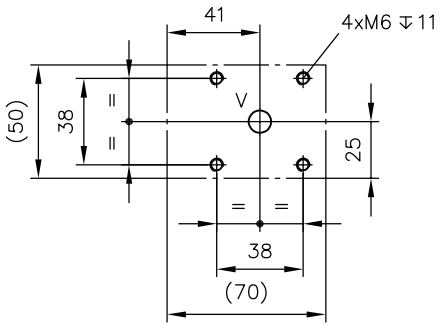
F, V	G 1/2
M, S, Z	G 1/4

LHDV 33 P-11-...-1/2

LHDV 33 P-11 extended to include connection block No. 7770 024 for use with direct pipe connection.



Hole pattern of the base plate

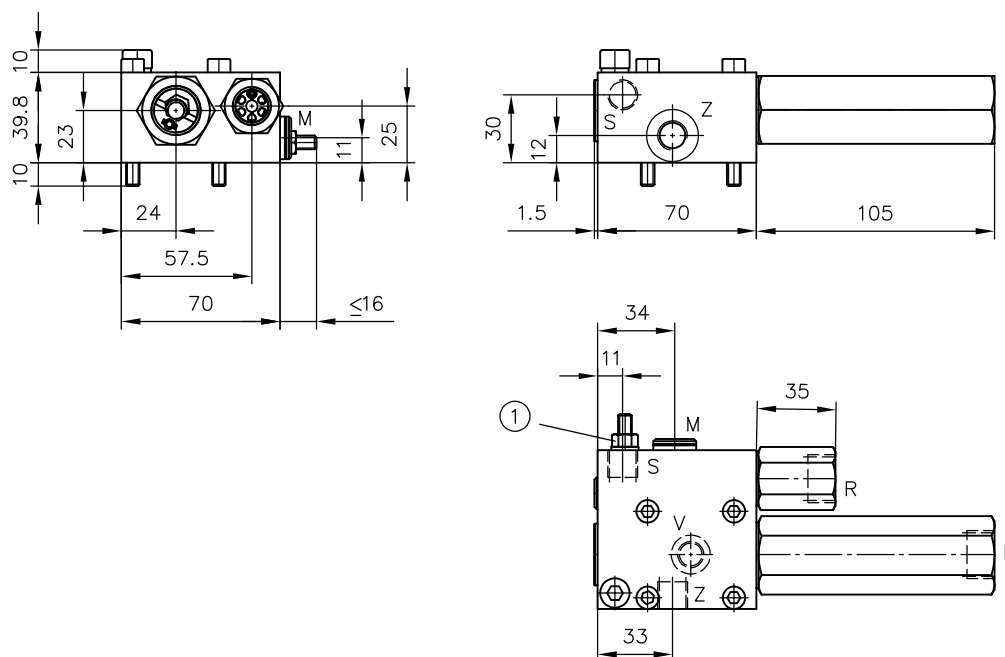


1 O-ring 12.37x2.62 NBR 90 Sh

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

LHDV 33 P-15



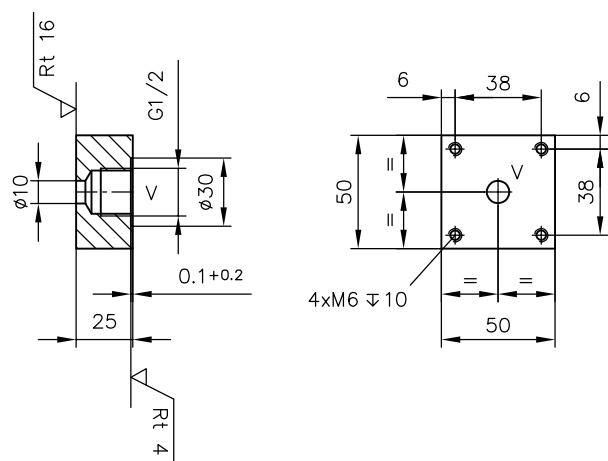
1 For setting instructions for throttle screw, see Chapter 6.2

Ports (ISO 228-1)

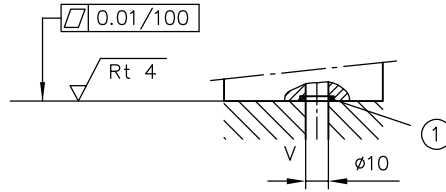
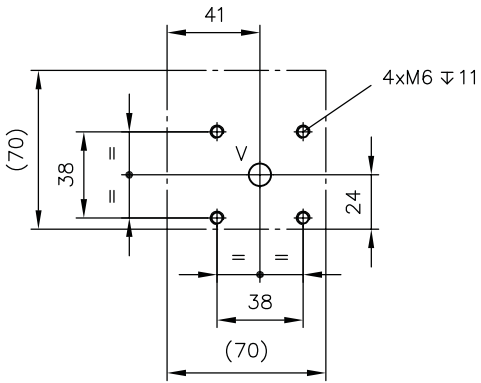
F, V	G 1/2
R	G 3/8
M, S, Z	G 1/4

LHDV 33 P-15-...-1/2

LHDV 33 P-15 extended to include connection block No. 7770 024 for use with direct pipe connection.



Hole pattern of the base plate

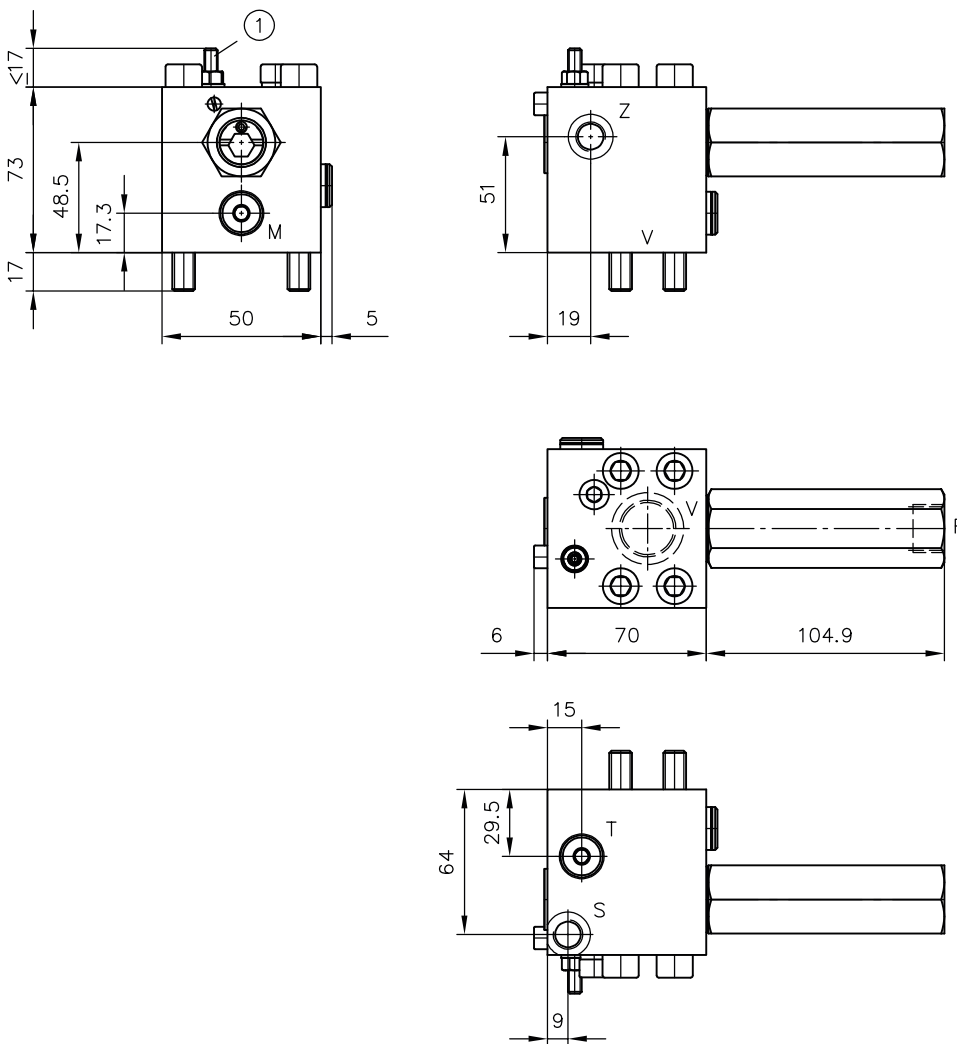


1 O-ring 12.37x2.62 NBR 90 Sh

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

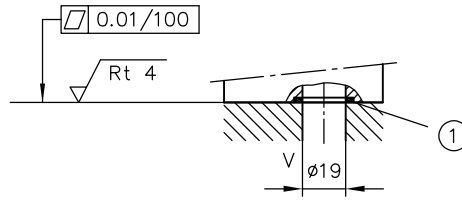
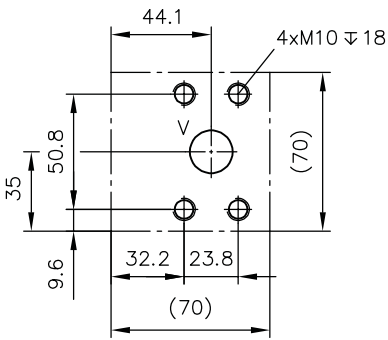
LHDV 33 SAE-11



1 For setting instructions for throttle screw, see [Chapter 6.2](#)

Ports (SAE J 514 or ISO 228-1)	
F	G 1/2
V	SAE 3/4-6000
M, S, Z, T	G 1/4

Hole pattern of the base plate



1 O-ring 24.99x3.53 NBR 90 Shore

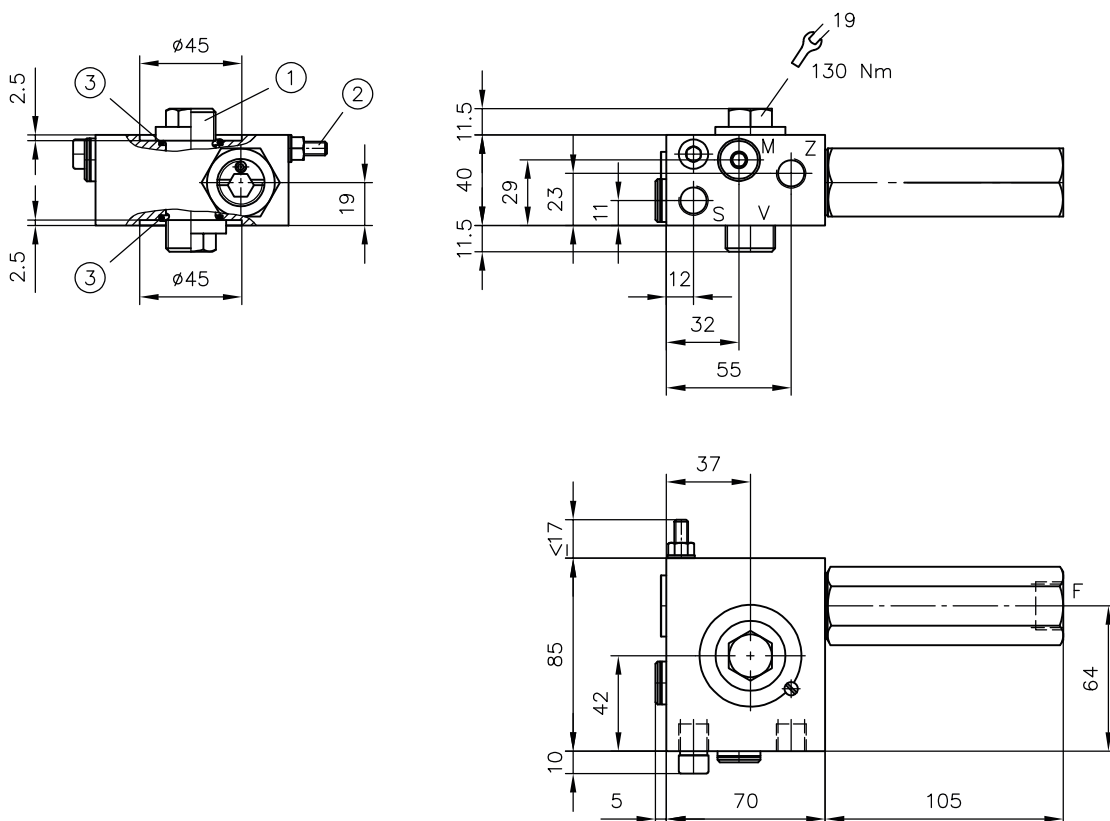
NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

NOTICE

- Upon delivery, tank connection T is sealed with a tapped plug.
- If $D2 = 0$, T must be connected to the tank! T must not exceed 50 bar at any time when V is depressurised!
- When using a differential circuit, T must be connected to the tank in the case of a corresponding valve.

LHDV 33 H-11
LHDV 33 H 1/2-11

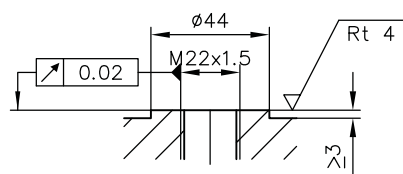


- 1 Banjo bolt can be mounted on both sides
- 2 For setting instructions for throttle screw, see Chapter 6.2
- 3 O-ring 23.47x2.62 NBR 90 Sh

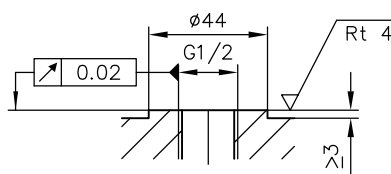
Ports (ISO 228-1)	
F	G 1/2
V	M22x1.5
R	G 3/8
M, S, Z	G 1/4

Centring base and mounting hole

LHDV 33 H-11



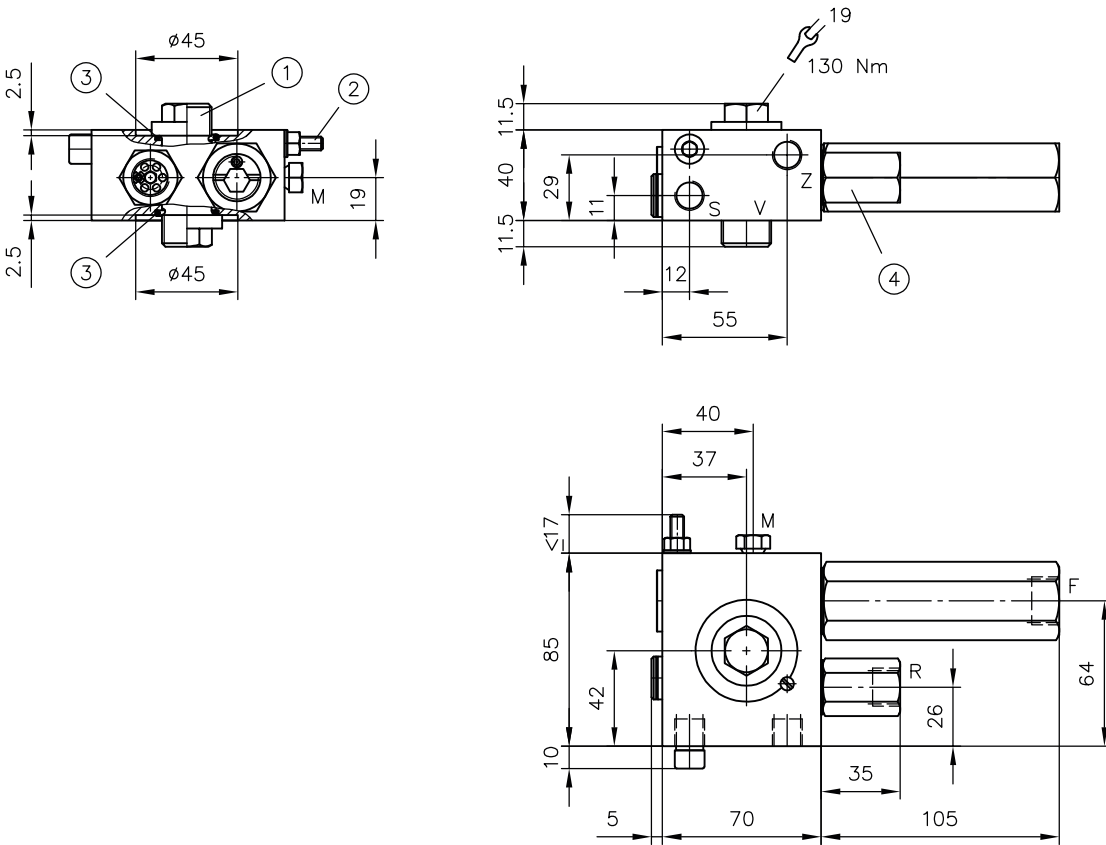
LHDV 33 H 1/2-11



NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

LHDV 33 H-15
LHDV 33 H 1/2-15

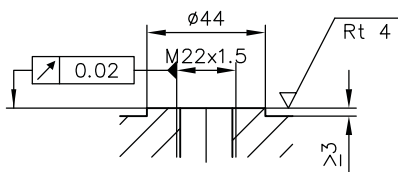


- 1 Banjo bolt can be mounted on both sides
- 2 For setting instructions for throttle screw, see Chapter 6.2
- 3 O-ring 23.47x2.62 NBR 90 Sh
- 4 Connection housing of shock valve

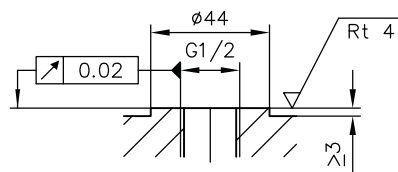
Ports (ISO 228-1)	
F	G 1/2
V	M22x1.5
R	G 3/8
M	M8x1
S, Z	G 1/4

Centring base and mounting hole

LHDV 33 H-15



LHDV 33 H 1/2-15

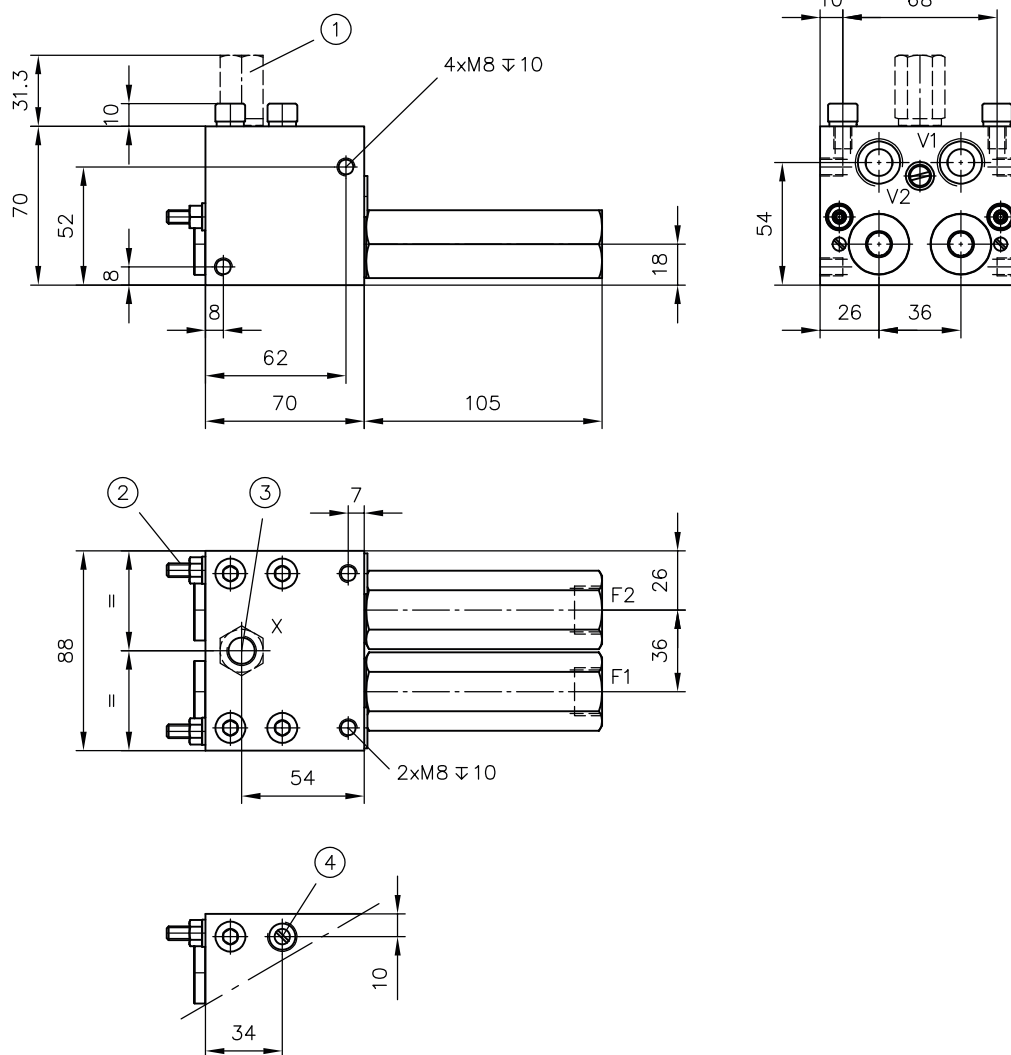


NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

4.2 Twin valves

LHDV 33-21
 LHDV 33-21L
 LHDV 33-21W
 LHDV 33-21WD
 LHDV 33-21WL



- 1 Restrictor check valve type BC 1-40 E in the case of type LHDV 33-21WD
- 2 For setting instructions for throttle screw, see [Chapter 6.2](#)
- 3 Port X in the case of type LHDV 33-21W(WL) with additional hex housing in the case of type LHDV 33-21WD
- 4 Port L in the case of type LHDV 33-21L(WL)

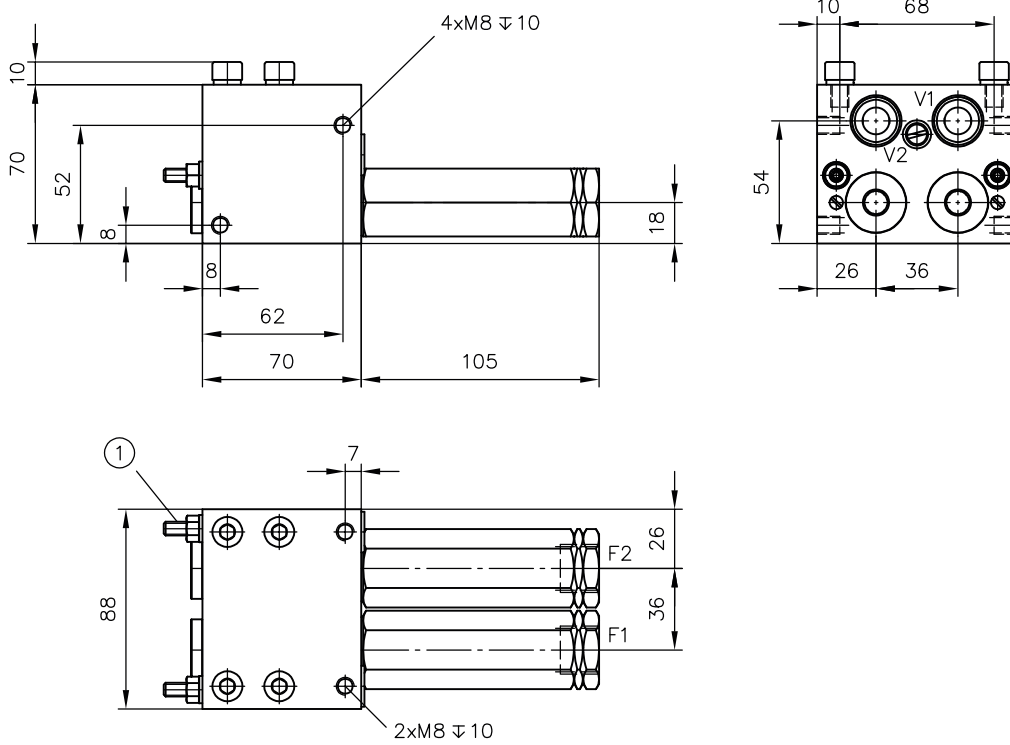
Ports (ISO 228-1)

F1, F2, V1, V2	G 1/2
L, X	G 1/4

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

LHDV 33 JIS-21



1 For setting instructions for throttle screw, see Chapter 6.2

Ports (ISO 228-1)

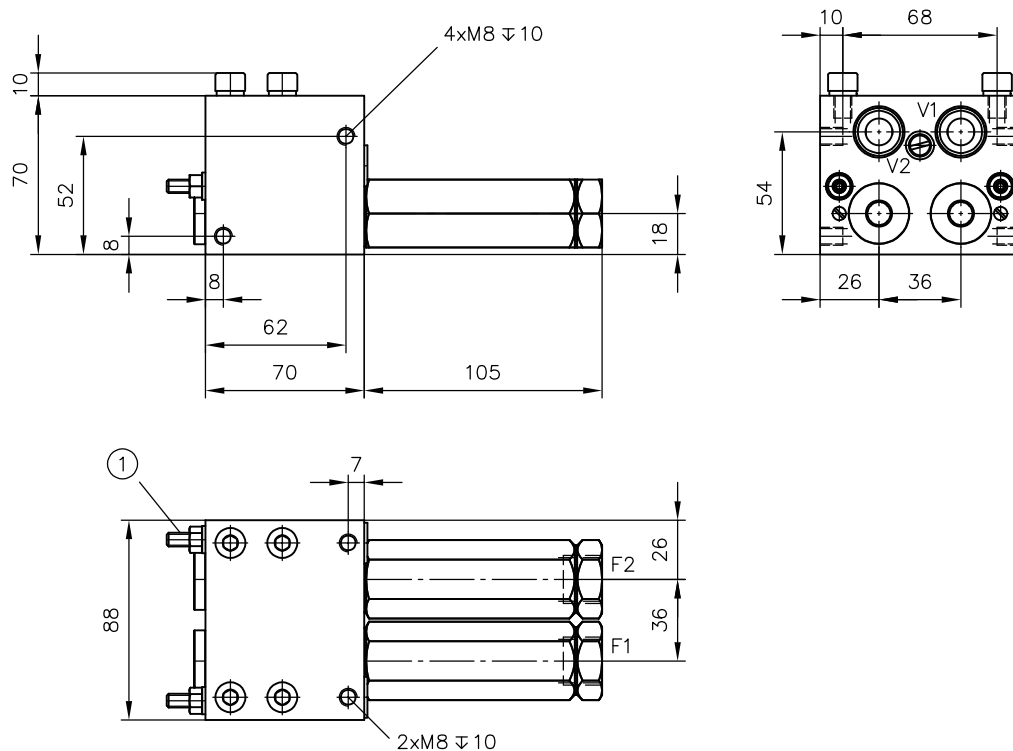
F1, F2, V1, V2

G 1/2 JIS Type 0

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

LHDV 33 UNF-21



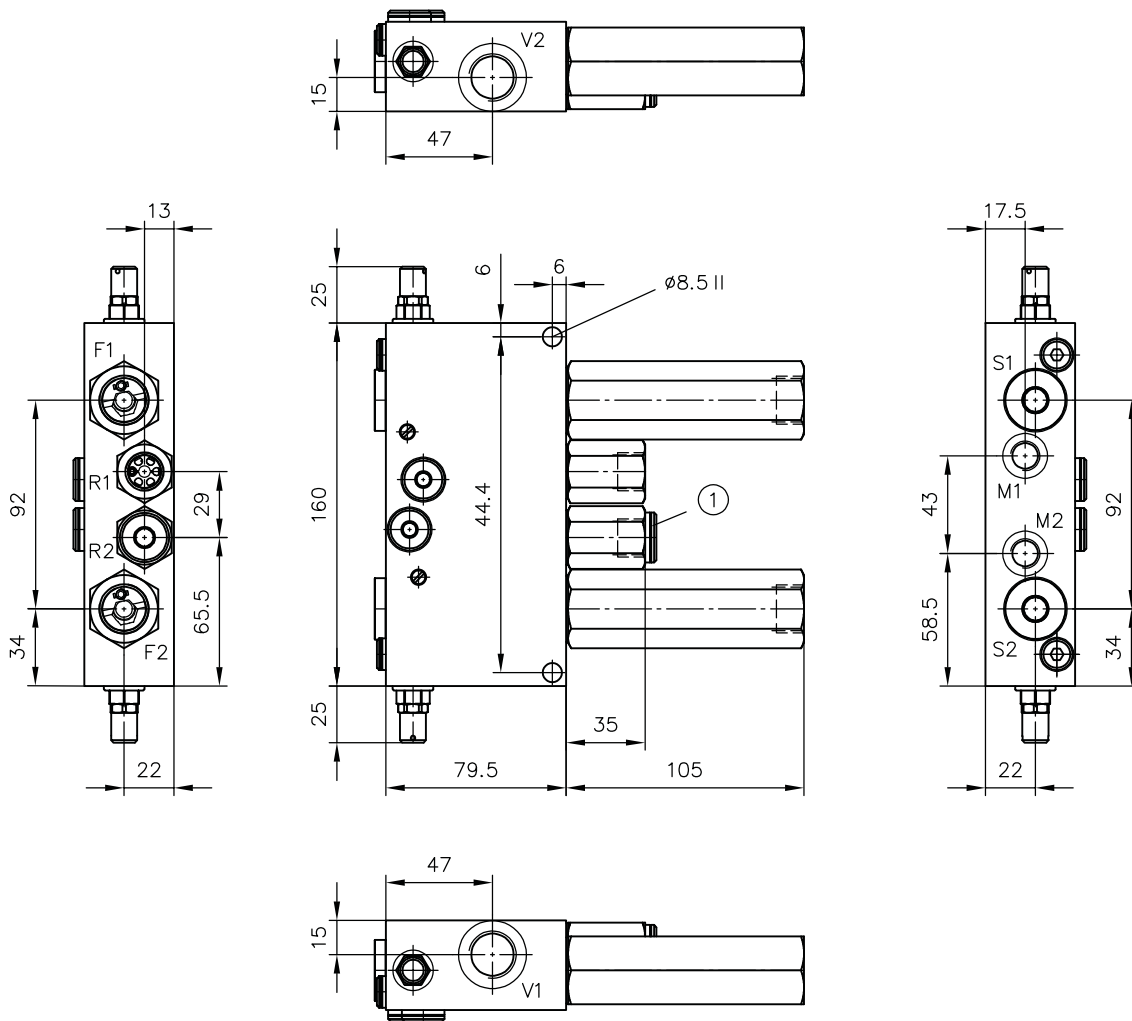
1 For setting instructions for throttle screw, see Chapter 6.2

Ports (SAE J 514)

F1, F2	7/8-14 UNF-2B (SAE 10)
V1, V2	3/4-16 UNF-2B (SAE 08)

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!



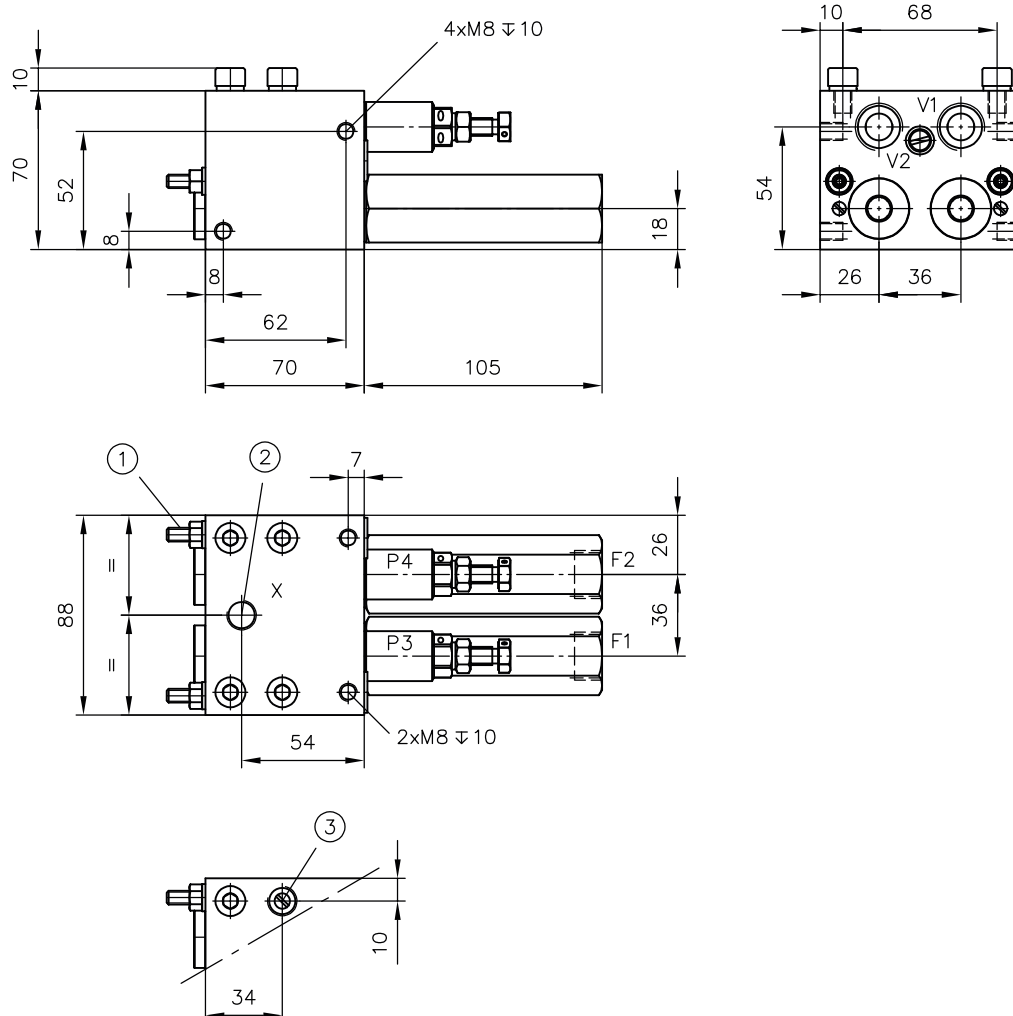
1 Tapped plug with sealing ring

Ports (ISO 228-1)	
F1, F2, V1, V2	G 1/2
R1, R2	G 3/8
M1, M2	G 1/4
S1, S2	M22x1.5

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

LHDV 33-25
 LHDV 33-25L
 LHDV 33-25W
 LHDV 33-25WL



- 1 For setting instructions for throttle screw, see [Chapter 6.2](#)
- 2 Port X in the case of type LHDV 33-25W(WL)
- 3 Port L in the case of type LHDV 33-25L(WL)

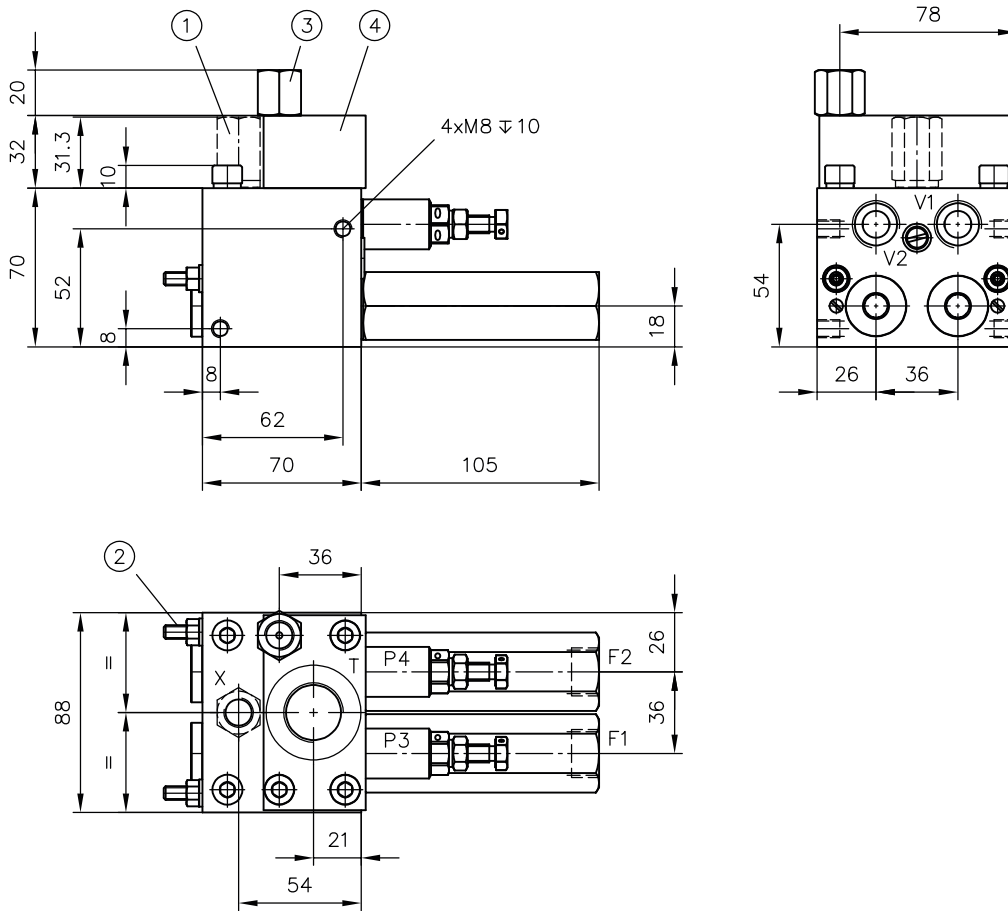
Ports (ISO 228-1)

F1, F2, V1, V2	G 1/2
L, X	G 1/4

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

LHDV 33-25WD
LHDV 33-25WDL
LHDV 33-25WDN
LHDV 33-25WDNL



- 1 Restrictor check valve type BC 1-40 E in the case of type LHDV 33-25WD(N)
- 2 For setting instructions for throttle screw, see [Chapter 6.2](#)
- 3 Port L in the case of type LHDV 33-25WD(N)L
- 4 Anti-cavitation valve 7770 040 in the case of type LHDV 33-25WDN
Anti-cavitation valve 7770 060 in the case of type LHDV 33-25WDNL

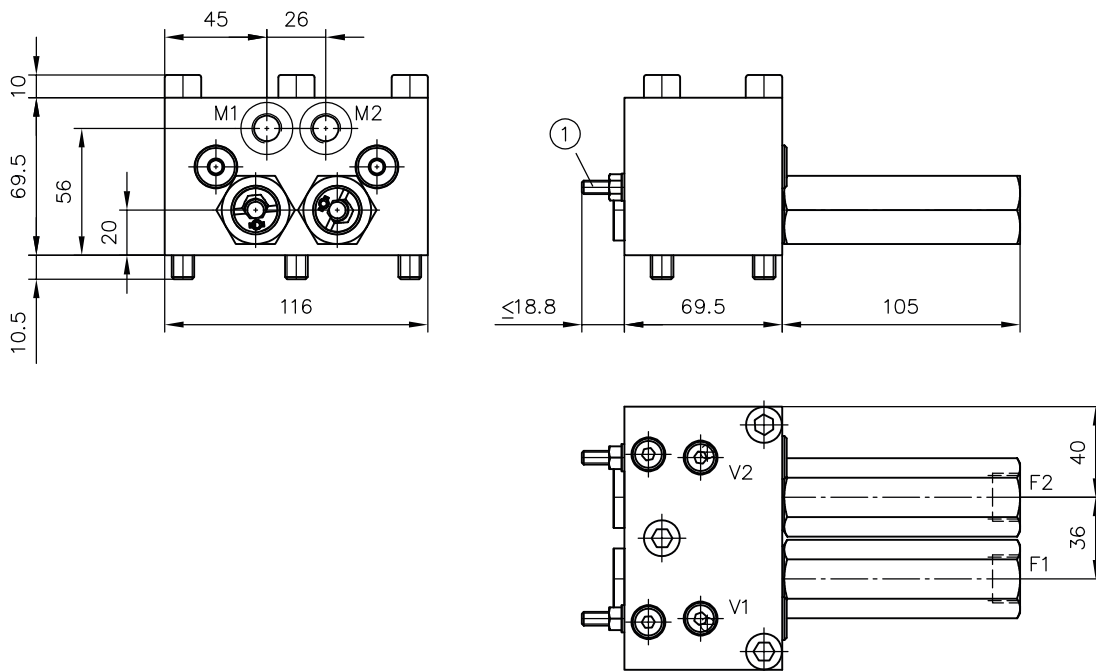
Ports (ISO 228-1)

F1, F2, V1, V2	G 1/2
T	G 3/4
L, X	G 1/4

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

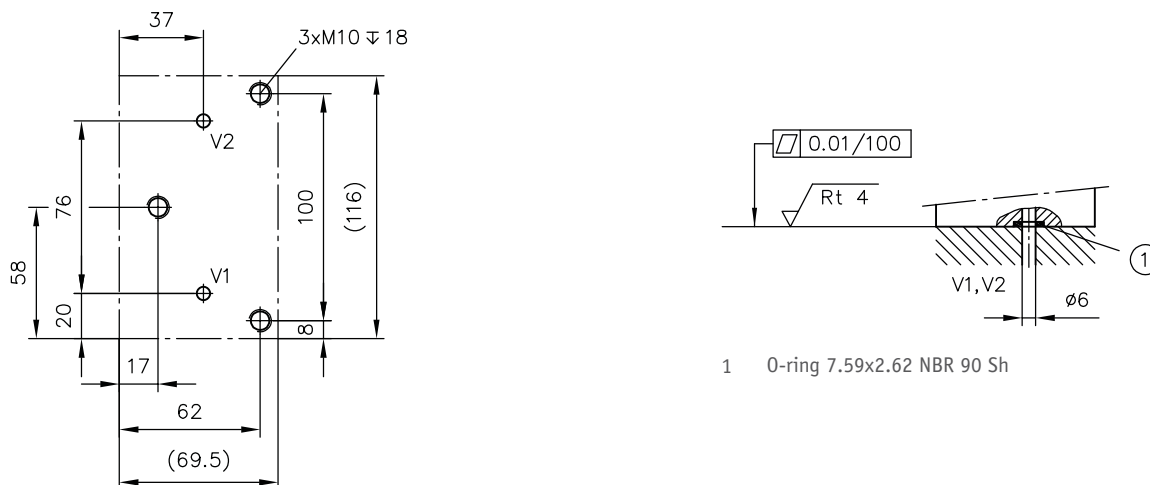
LHDV 33 P-21



1 For setting instructions for throttle screw, see Chapter 6.2

Ports (ISO 228-1)	
F1, F2	G 1/2
M1, M2	G 1/4

Hole pattern of the base plate

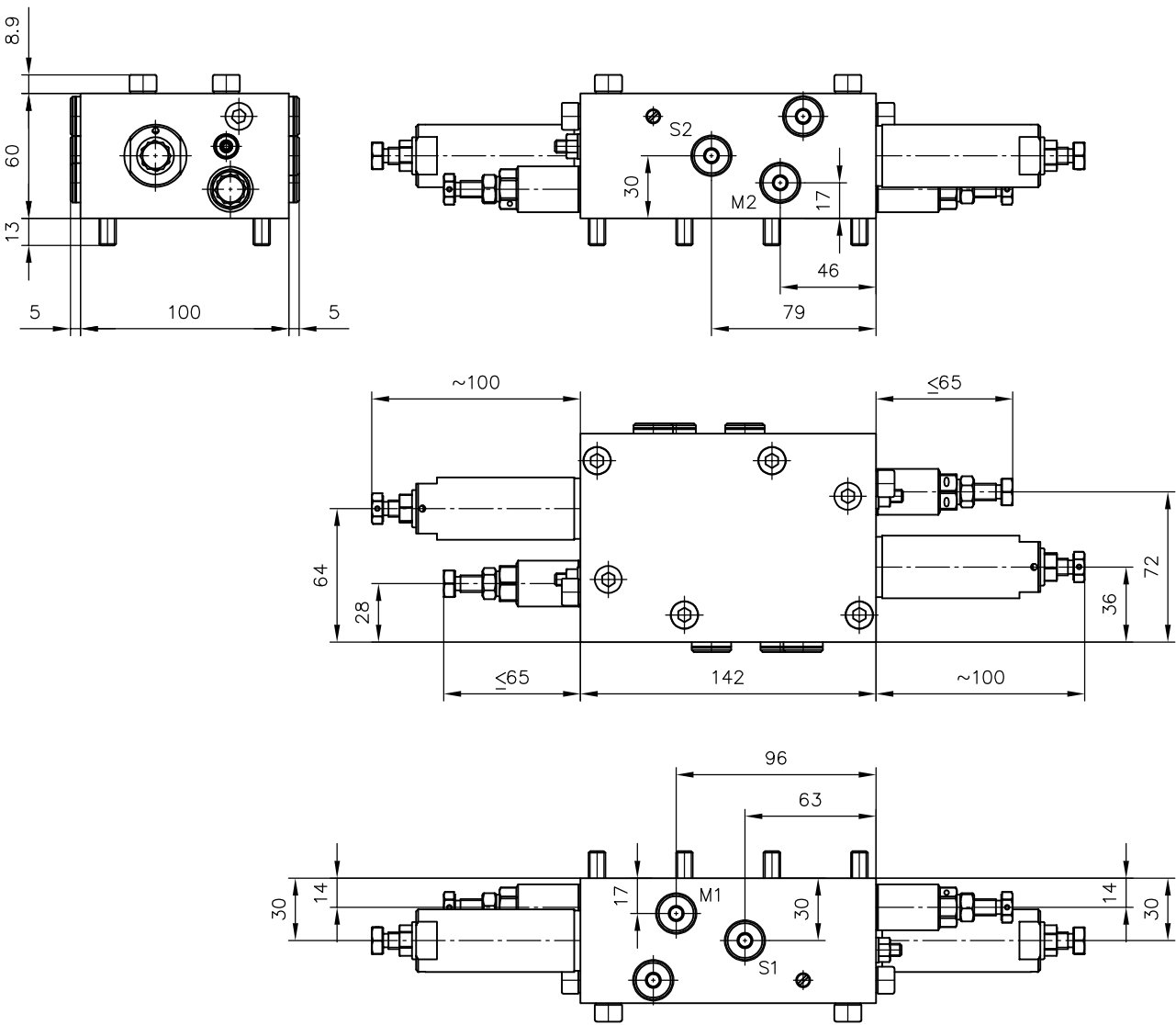


1 O-ring 7.59x2.62 NBR 90 Sh

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

LHDV 30 P-23

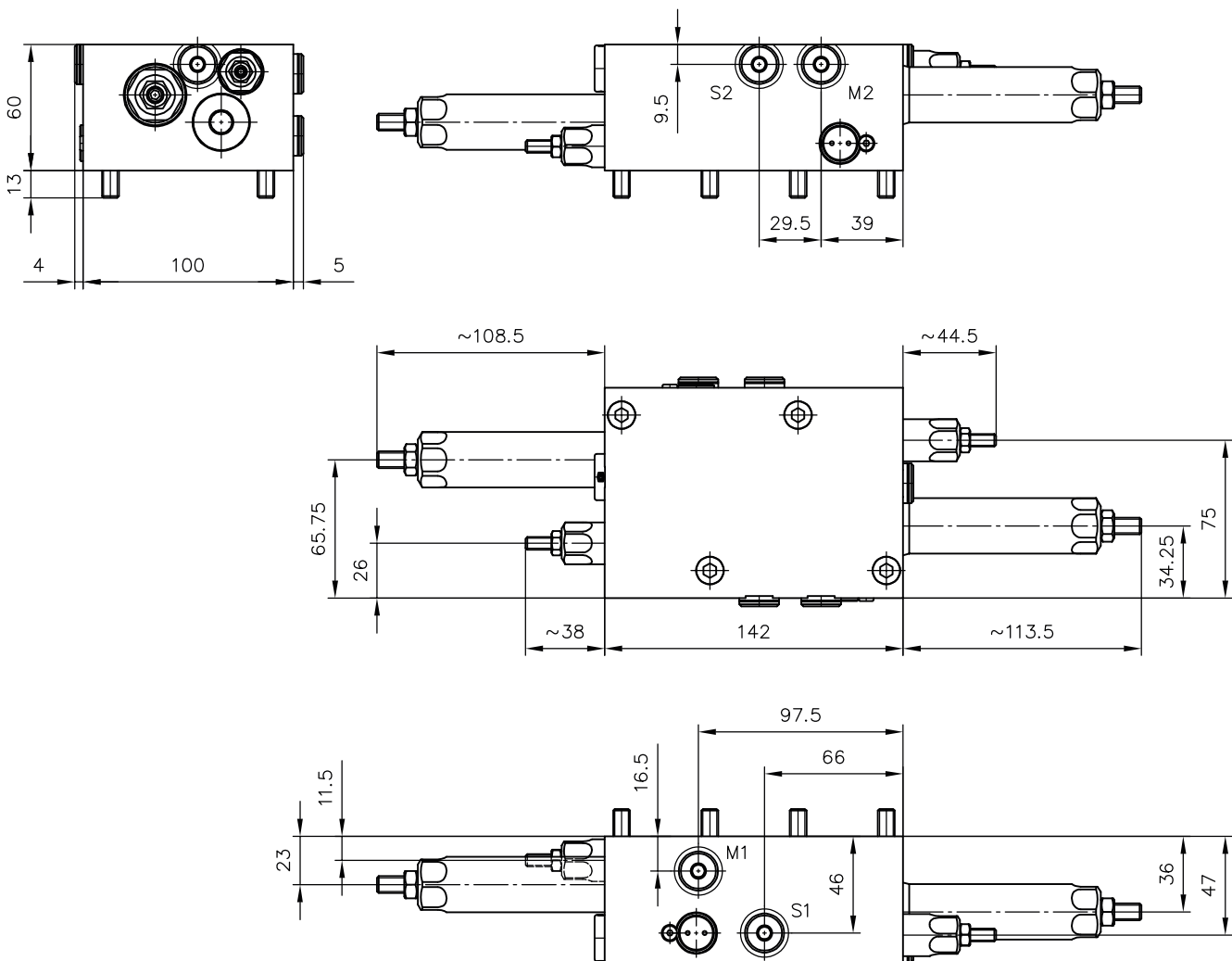


Ports (ISO 228-1)

M1, M2, S1, S2

G 1/4

LHDV 30 BP-23

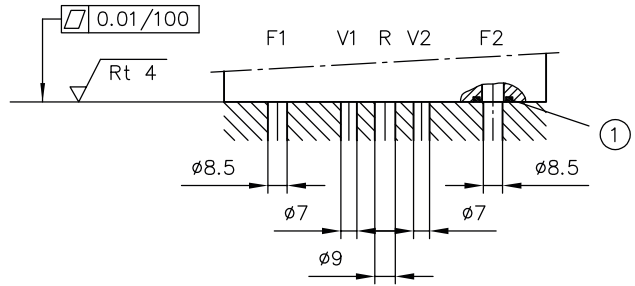
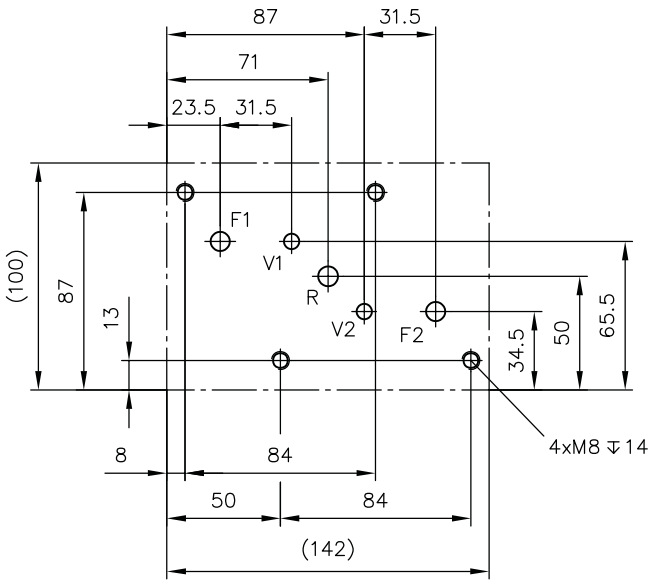


Ports (ISO 228-1)

M1, M2, S1, S2

G 1/4

Hole pattern of the base plate



1 O-ring 12.37x2.62 NBR 90 Sh

NOTICE

When assembling the connection fittings, hold the hexagonal spring housing in place!

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.

All installation, set-up, maintenance and repairs must be performed by authorised, qualified and trained staff.

The use of this product beyond the specified performance limits, operation with non-specified fluids and/or use of non-genuine spare parts will invalidate the warranty.



NOTICE

When assembling and disassembling the valve, it must be ensured that no transverse forces occur.

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.

⚠ DANGER

Risk of serious injury or death.

Protect load-holding valves from external influences and forces, otherwise the fastening screws or spring housing may come loose. This can cause the load to drop suddenly.

⚠ WARNING

Overloading components due to incorrect pressure settings.

Risk of serious injury or death.

- Pay attention to the maximum operating pressure of the pump and the valves.
- Only trained personnel are permitted to set and change the pressure and they must always monitor the pressure gauge when doing so.

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

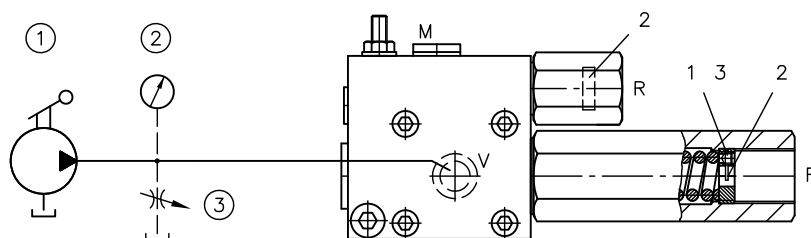
5.4 Maintenance information

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).

6 Other information

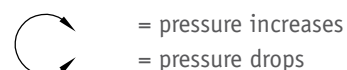
6.1 Adjusting the pressure setting



- 1 Hand-pump test bench
 - 2 Pressure gauge
 - 3 Bypass throttle valve required in the case of a motor pump test bench!
- Set pump to idle circulation via opened throttle valve, then slowly close throttle valve until LHDV just barely responds (avoid larger flow rates as otherwise the valve will squeak).

Setting the pressure:

1. Undo the headless screw (anti-adjustment guard of 2)
2. Adjust washer with hex wrench, Size 6 - load-holding valve
Size 5 - shock valve



3. After making the setting:
Re-tighten the headless screw 1

WARNING

Overloading components due to incorrect pressure settings.

Risk of serious injury or death.

- Pay attention to the maximum operating pressure of the pump and the valves.
- Only trained personnel are permitted to set and change the pressure and they must always monitor the pressure gauge when doing so.

Pressure setting

Component	Pressure p_{max} (bar)	Pressure change	
		Δp /revolution (bar/R)	Δp /height (bar/mm)
Load-holding valve	50 - 250	45	25
	251 - 350	50	27.5
	351 - 420	62	34
Shock valve	50 - 450	106	80

WARNING

The valves are supplied with a factory setting. The customer always assumes responsibility if they make any adjustments to the factory setting.

Adjusting the pressure

- may cause a failure,
- may cause functional restrictions,
- may endanger personnel in the surrounding area,
- will void the warranty.

6.2 Adjusting the damping elements

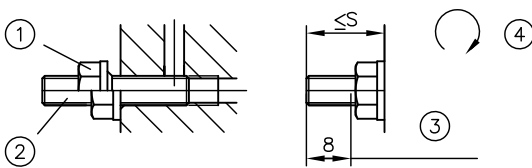
Valves in the LHDV range are supplied as standard with a series of damping elements. These can be individually adjusted to match the respective application (even retroactively).

If vibrations occur, proceed as follows:

Adjusting the thread type throttle

A thread type throttle slows down the speed of the control stroke in the opening and closing direction. It can be adjusted on the valve.

1. Before adjusting the throttle screw: undo lock nut size 10 (seal-lock nut)
2. Change the throttle setting by unscrewing the throttle screw
Clockwise = throttle effect increases
3. Re-tighten the lock nut; tightening torque 1.5 + 0.5 Nm



- 1 Lock nut
- 2 Throttle screw
- 3 available throttle setting
- 4 clockwise = throttle effect increases

Valve type	S_{max} (mm)
Single valve	17
Twin valve	19



WARNING

Risk of serious injury.

- Damping elements must only be adjusted by trained personnel.
- There is a risk of the load dropping suddenly when adjusting the damping elements.



NOTICE

Do not unscrew the thread type throttle beyond S_{max} . Due to the design, it cannot be secured inside the device!

Changing the orifice combination

An inflow orifice (D1) and an outflow orifice (D2) are installed in the control oil channel. The outflow orifice connects the control oil channel to the reflux and generates a continuous small leakage flow. This is required to generate an influenceable pressure signal in the control chamber by means of all damping elements.

The standard combination $D1 : D2 = 0.5 : 0.6$ results in a dynamic pilot ratio of 1 : 2.9.

1. Change the pilot ratio by replacing outflow orifice D2, see Chapter 2.1.4, "Bypass orifice and pilot ratio"
2. Reduce the pilot ratio in the case of pronounced pitching and pendulum vibrations!



NOTICE

The leakage flow increases in the case of a small pilot ratio. The fine control range of the directional spool valve may shift.

6.3 Accessories, spare and individual parts

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

References

Additional versions

- Load-holding valve type OSCA-D: D 7920 D
- Load-holding valve type LHK: D 7100
- Load-holding valve type LHT: D 7918
- Load-holding valve type CLHV: D 7918-VI-C
- Load-holding valve type CLHV: D 7918-VI-PIB

