Electric Drives and Controls | Hydraulics | Linear Motion and Assembly Technologies | Pneumatics | Service

Rexroth Bosch Group

Explosion-proof hydraulic valves, Type H-4WEH...XE

RE 24751-XE-B0/09.13
Replaces: 01.10

Operating instructions

Explosion-proof hydraulic products

RE 07010-X-B1/03.12
Replaces: 03.05

Operating Instructions

for explosion-proof
control valves
continuous valves

ATEX - units
For potentially explosive atmospheres

Operating Instructions
Part I General Information

CE

Ex

What you need to know about these Operating Instructions

These operating instructions apply to Rexroth explosion-proof hydraulic products and consist of the following three parts:

Part I General Information 07010-X-B1
Part II Data Sheet
Part III Product-specific instructions

For further information on the correct use of Rexroth hydraulic products please refer to our publication *General product information on hydraulic products, 07008.*

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1 Important basic information

1.1 Conventions used in this product information document

Cross-references are printed in *italics*.

⚠ DANGER

This symbol indicates a threat of danger which will result directly in death or very serious injury if not avoided.

⚠ WARNING

This symbol indicates a threat of danger which may result in death or very serious injury if not avoided.

⚠ CAUTION

This symbol indicates possible danger which may lead to minor or serious injury and/or material damage.

IMPORTANT

This symbol indicates additional information.

2 Responsibilities

2.1 Liability, warranty, guarantee

Bosch Rexroth AG shall not be liable for damages resulting from these Operating Instructions not being adhered to or not being adhered to in full.

Unauthorised tampering shall render the warranty null and void.

Bosch Rexroth shall only be liable if the scope of delivery was shown to be defective. Bosch Rexroth shall not be liable if a deficiency occurs that involves parts that are replaced by the customer with equivalent but not identical parts as specified by the manufacturer.

Please refer to our general terms of supply or your contract for details of the guarantee and manufacturer's warranty.

2.2 Operator/user responsibilities

Mineral-oil-based pressure fluid is hazardous to water and flammable.

It may be used only if the relevant safety datasheet from the manufacturer is available and all the measures stipulated therein have been implemented.

If there is a risk of fluid leaking from the hydraulic product and contaminating water or the ground, the hydraulic product in question must be placed in a suitable collecting trough.

The operator is responsible for ensuring that

- the hydraulic product is used only in accordance with the proper use as defined in these Operating Instructions;
- the hydraulic product is used only in accordance with the technical data, as well as the ambient and operating conditions indicated in these Operating Instructions, and in particular that the limiting values given in the *Data Sheet* are not exceeded;
- the applicable rules, regulations, and directives on explosion protection are complied with.

If the hydraulic product is part of another product, e.g. a hydraulic system, then the person or organisation responsible for this other product (e.g. the designer/constructor of the system) shall ensure that

- the hydraulic product is used only in accordance with the proper use as defined in these Operating Instructions;
- the hydraulic product is used only in such a manner that the technical data, as well as the ambient and operating conditions indicated in these Operating Instructions, are complied with, and in particular that the limiting values given in the *Data Sheet* are not exceeded as far as anyone can judge and are in compliance with its user's manual;
- the applicable regulations and directives on explosion protection are complied with.

2.3 Copyright

3 Important basic safety instructions

3.1 Requirements of personnel, duty of care

3.1.1 General requirements, qualifications

Persons under the age of 18 who are currently receiving instruction or training or are working under supervision may not work on Rexroth hydraulic products.

This does not apply to young persons of 16 or over if

- working on Rexroth hydraulic products is necessary in order for them to accomplish their training objective;
- their protection is guaranteed through the supervision of an experienced, specialist member of staff;
- they are only allowed to use tools, equipment, and protective gear that preclude the risk of injury.

Specialist personnel are those who, using their specialist training, knowledge, and experience as well as familiarity with the relevant conditions, can recognise possible dangers and undertake the necessary measures to eliminate possible accidents.

3.1.2 Requirements of maintenance personnel

It may be necessary to carry out maintenance tasks on the hydraulic product in order to keep it in proper working order. For details, please refer to *Part III, Product-specific Instructions*. Maintenance tasks include the inspection, servicing, and repair of hydraulic and electrical components. Personnel carrying out these various tasks must have certain minimum qualifications.

For the inspection of the hydraulic components, personnel must fulfil the following requirements:

- They must be instructed about the tasks.
- Specialist knowledge of hydraulics is not required.

For the servicing of the hydraulic components, personnel must fulfil the following requirements:

- They have been instructed in the relevant activity.
- Specialist knowledge of hydraulics is not required to carry out servicing work.

For the maintenance of the hydraulic components, personnel must fulfil the following requirements:

- They must be hydraulics experts instructed in the tasks as defined above.
- They must be familiar with the function of the hydraulic system as a whole, from subsystems to their interaction with the function of the machine as a whole.
- They must be able to read hydraulic circuit diagrams, interpret individual functions from their symbols, and understand function diagrams.
- They must possess knowledge of the function and construction of hydraulic elements.

The following applies to work on the electrical systems:

All work on electrical equipment may only be carried out by an authorised, qualified electrician, or by instructed persons under the guidance and supervision of an authorised qualified electrician, in accordance with the rules applicable to electro-technical products.

3.2 Ancillary dangers and protective measures

⚠ DANGER

Danger zone	Ancillary danger	Protective measure(s), safety instructions
Connections and pressure lines (pipes and conduits)	Risk of injury or loss of life from sprayed pressure fluid under high pressure during maintenance work.	Depressurise hydraulic system before starting maintenance work. Relieve any accumulators of pressure. Rectify leaks immediately.
Surfaces of components and pressure lines	Risk of burning due to high surface temperatures	Allow hydraulic parts to cool before commencing maintenance work. Wear protective clothing.
Electrical components	Electric shock Loss of explosion protection	Work on electrical components only in a non-powered state. Switch electrical connections off before assembly and disassembly work begins. All tasks that require product components to be dismantled may be performed only within the scope given in *Part III, Product-specific instructions*.
	Failure caused by excessive moisture penetration following cleaning with a high pressure cleaner	Shield the hydraulic product from the direct effect of high pressure water jets.

Handling pressure fluid without protection is hazardous to your health.

Please observe the manufacturer's *safety instructions* for the pressure fluid used and the associated *Safety Data Sheet*.

⚠ CAUTION

Danger zone	Ancillary danger	Protective measure(s), safety instructions
Connections and pressure lines (pipes and conduits)	Water or ground pollution due to leakage	Collecting trough. Rectify leaks immediately.

IMPORTANT

See also *2.2 Operator/user responsibilities.*

3.3 Proper use

Your hydraulic product has been conceived and designed for the transmission, open-loop control, or closed-loop control of energy and signals with the aid of the flow of oil. It fulfils the requirements of EU Directive 94/9/EC on Equipment used in Potentially Explosive Atmospheres (Atex). The equipment groups and categories can be found in the *Technical Data Sheet* under *Areas of use in accordance with Directive 94/9/EC*.

Safety components integrated in the Bosch Rexroth hydraulic product satisfy at least Safety Category B in accordance with EN ISO 13849-1:2008.

However, only by carefully observing this user's manual can accidents be prevented and the problem-free operation of your Bosch Rexroth hydraulic product be guaranteed.

Store the hydraulic product only in a dry, dust-free environment that is free of corrosive agents and vapours, has a low moisture content, and undergoes no large variations in temperature. We recommend the use of clean conservation oil for storage periods longer than six months.

IMPORTANT

The factory-applied corrosion protection is adequate for storage under the conditions given above, provided that no condensation or leaked water can penetrate the hydraulic product.

The hydraulic product is only to be used with the operating fluids listed in the *Data Sheet*. Information on using products with different pressure fluids is available on request.

Use the hydraulic product only if it is in perfect technical condition and only in accordance with the proper use as defined in these Operating Instructions. The connections, operating conditions and performance data defined in these Operating Instructions must not be changed.

IMPORTANT

Please contact Bosch Rexroth AG first should you wish to use the hydraulic product under other connection, usage, or performance data than those specified by Bosch Rexroth AG in these operating instructions. The hydraulic product may not be used with any other connection, usage, or performance data other than those described in these operating instructions without written permission from Bosch Rexroth AG.

The hydraulic product must only be converted within the scope given in *Part III*, *Product-specific Instructions*.

During setting up or maintenance work, the safety devices fitted by Bosch Rexroth AG must be present, properly installed, and in full working order, unless this is impossible. They must not be relocated, bypassed, or rendered ineffective.

Rexroth hydraulic products must never be operated or maintained by persons under the influence of alcohol, drugs, or other medication which can affect one's ability to react.

3.4 Use in areas endangered by explosion

⚠ DANGER

The hydraulic product is only to be used in the areas indicated in the *Data Sheet, Requirements for explosion protection* or in areas with lower requirements.

3.4.1 Zones, equipment groups, and categories

The user/operator must divide areas endangered by explosion into zones in accordance with EU Directive 1999/92/EC. The following table shows the equipment groups and categories alongside the zones.

The hydraulic product is to be used exclusively in the area and zone corresponding to the appropriate equipment group and category. Use of the product must also comply with the other Requirements for explosion protection in the *Data Sheet*.

Comparison of the equipment groups and categories in accordance with 94/9/EC and the associated zone in accordance with 1999/92/EC

Equipment group to 94/9/EC	Category to 94/9/EC	Area of use, characteristics (extract from the Directive)	Usable in zone according to 1999/92/EC
I	M1	Atmospheres endangered by firedamp (equipment group I), i.e. underground mines and their surface installations. Can remain operational in the presence of a potentially explosive atmosphere. Very high level of safety.	-
I	M2	Atmospheres endangered by firedamp (equipment group I), i.e. underground mines and their surface installations. Must be able to be switched off in the presence of a potentially explosive atmosphere. High level of safety.	-
II	1G	Potentially explosive atmospheres in which potentially explosive gases, mists, or vapours are present permanently, or frequently, or for long periods (equipment group II). Equates to Zone 0 in accordance with Directive 1999/92/EC. Very high level of safety.	0, 1, 2
II	2G	Potentially explosive atmospheres in which potentially explosive gases, mists, or vapours are occasionally present (equipment group II). Equates to Zone 1 in accordance with Directive 1999/92/EC. High level of safety.	1,2
II	3G	Potentially explosive atmospheres in which potentially explosive gases, mists, or vapours are normally not present, or present only infrequently, or for short periods (equipment group II). Equates to Zone 2 in accordance with Directive 1999/92/EC. Normal level of safety.	2
II	1D	Potentially explosive atmospheres in which potentially explosive dust/air mixtures are present permanently, or frequently, or for long periods (equipment group II). Equates to Zone 22 in accordance with Directive 1999/92/EC. Very high level of safety.	20, 21, 22
II	2D	Potentially explosive atmospheres in which potentially explosive dust/air mixtures are occasionally present (equipment group II). Equates to Zone 21 in accordance with Directive 1999/92/EC. High level of safety.	21, 22
II	3D	Potentially explosive atmospheres in which a potentially explosive atmosphere from raised dust is normally not present, or present only infrequently, or for short periods (equipment group II). Equates to Zone 22 in accordance with Directive 1999/92/EC. Normal level of safety.	22

3.4.2 Temperature classes in equipment group II

In potentially explosive atmospheres where a risk of explosion from explosive gases, mists, or vapours exists (zones **0, 1, 2**, applicable devices: equipment group **II**, categories **1G**, **2G** and **3G**), the maximum surface temperature of the hydraulic product must, in addition, be below the ignition temperature of the surrounding potentially explosive gases, mists, or vapours.

These hydraulic products are divided in accordance with EN 13463-1 into the temperature classes T1 to T6, in line with their maximum surface temperature. With hydraulic products of equipment group **II** and categories **1G**, **2G** and **3G**, the temperature class is a constituent of the explosion protection mark, see *Part II, Data Sheet*, providing information on the suitability of the hydraulic product for use in a particular potentially explosive atmosphere where there are potentially explosive gases, mists, or vapours.

Temperature class	Highest permissible surface temperature	Permissible ignition temperature of the gas, mist, or vapour
T1	450 °C	>450 °C
T2	300 °C	>300 °C
T3	200 °C	>200 °C
T4	135 °C	>135 °C
T5	100 °C	>100 °C
T6	85 °C	>85 °C

3.5 Improper use

⚠ DANGER

Modifications to the product are only permitted within the scope given in *Part III, Product-specific Instructions*.

The hydraulic product is pre-coated at the factory with a surface protection ready for service. This surface protection must not normally be altered – through the application of paint, for example – as this would render the explosion protection ineffective. Should, by way of exception, alteration to the surface protection be permitted, this will be expressly stipulated in *Part III, Product-specific Instructions*. Please observe the limitations specified here, where applicable.

3.6 Disposal

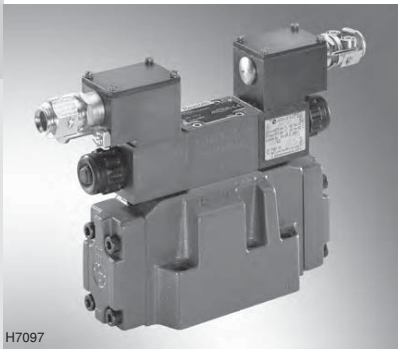
- Empty the hydraulic product and dispose of it as scrap metal.
- Collect residual oil and dispose of it in accordance with the instructions in the safety datasheet for hydraulic fluids.
- Dispose of any electronic components properly and in accordance with applicable regulations.

4/2 and 4/3 directional valves, internally pilot operated, externally pilot operated

RE 24751-XE-B2/09.13
Replaces: 01.10

Type H-4WEH...XE...

Sizes 10, 16, 25, 32
Component series 4X, 6X, 7X
Maximum operating pressure 350 bar
Maximum flow 1100 l/min



Actual product may differ

ATEX units
For explosive areas

Part II Data sheet

Information on the explosion protection:

- Area of application in accordance with the Explosion Protection Directive 94/9/EC: **II 2G**
- Type of protection of the valve solenoid: Ex e mb IIC T4 Gb according to EN 60079-7:2007 / EN 60079-18:2009

Special features of seawater-resistant valves

- The external metal parts are galvanized or treated with an anti-corrosion agent.
- The conditional seawater-resistance is defined by "SO329" in the ordering code.

What you need to know about these operating instructions

These operating instructions apply to the explosion-proof version of Rexroth valves and consist of the following three parts:

Part I	General information 07010-X-B1	**Operating instructions 24751-XE-B0**
Part II	Data sheet 24751-XE-B2	
Part III	Product-specific instructions 24751-XE-B3	

You can find further information on the correct handling of Rexroth hydraulic products in our publication "General product information on hydraulic products" 07008.

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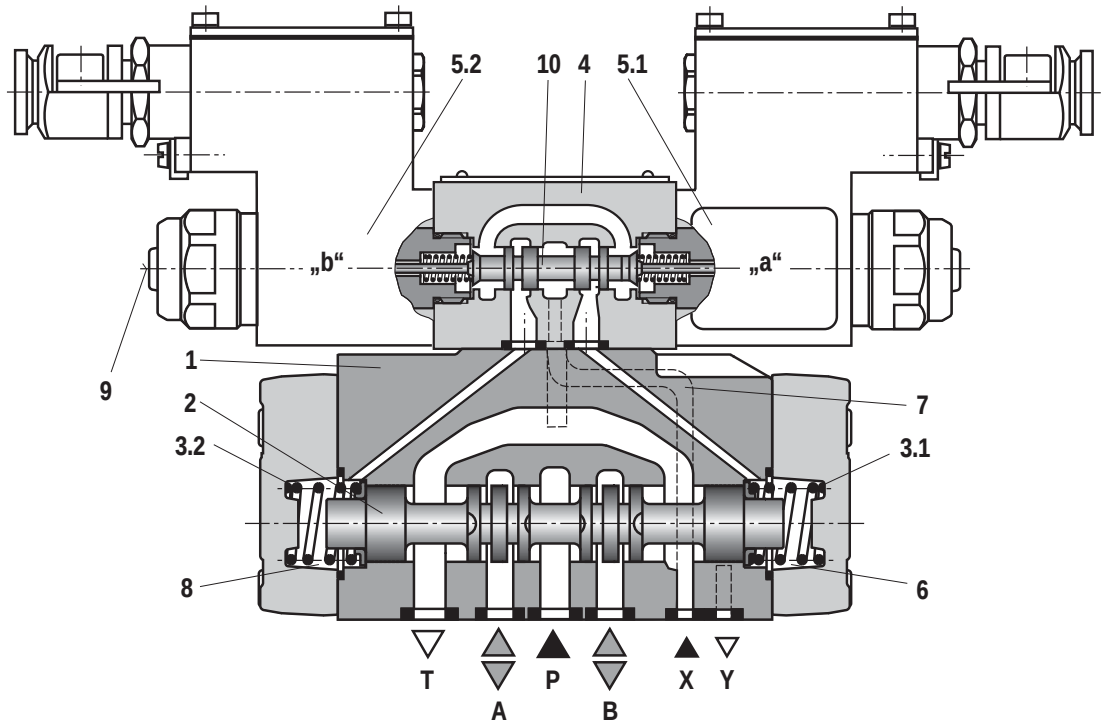
Features

- Valve to control the start, stop and direction of a flow, for proper use in explosive areas
- Electro-hydraulic actuation (WEH)
- For subplate mounting, porting pattern according to DIN 24340-A and ISO 4401, subplates available in FE/ZN version (see pages 20 to 23)
- Spring centering, spring end position or hydraulic end position
- Wet-pin DC or AC solenoids
- Solenoid coil can be rotated by 90°
- Manual override, optional
- Electrical connection as individual connection with cable gland
- Switching time adjustment, optional
- Preload valve in channel P of the main valve, optional

Function, section

Type H-4WEH 16...XE...



Directional valves type H-4WEH...

The valve type H-4WEH is a directional spool valve with electro-hydraulic actuation. It controls the start, stop and direction of a flow.

The directional valves basically consist of the main valve with housing (1), the main control spool (2), one or two return springs (3.1) and (3.2), as well as the pilot control valve (4) with one or two solenoids "a" (5.1) and/or "b" (5.2).

The main control spool (2) in the main valve is held in the zero or initial position by the springs or by means of pressurization. In the initial position, the two spring chambers (6) and (8) are connected with the tank in a depressurized form via the pilot control valve (4). The pilot control valve is supplied with pilot oil via the control line (7). Supply can be effected internally or externally (externally via port X).

Upon actuation of the pilot control valve, e.g. solenoid "a", the pilot control spool (10) is moved to the left and thus, the spring chamber (8) is pressurized with pilot pressure. The spring chamber (6) remains depressurized.

The pilot pressure acts on the left side of the main control spool (2) and moves it against the spring (3.1). This connects ports P with B and A with T in the main valve.

When the solenoid is switched off, the pilot control spool returns into the initial position (except for impulse spool). The spring chamber (8) is unloaded to the tank.

The pilot oil from the spring chamber is displaced into channel Y via the pilot control valve.

The pilot oil supply and return can be effected internally or externally.

The manual override (9) allows control spool (10) to be moved without solenoid energization.

Ordering code and scope of delivery

H	–	4	WEH				/	6E			XE	

Up to 350 bar = H

4-way version = 4

Directional valve, electro-hydraulically actuated = WEH

Size

Size 10 = 10
Size 16 = 16
Size 25 = 25
Size 32 = 32

Control spool return main valve

By means of springs = no code
Hydraulically [1] = H

For control spool symbols, see page 6

Component series 40 to 49 – size 10 = 4X
(40 to 49: Unchanged installation and connection dimensions)
Component series 60 to 69 – size 25 (4W.H 25.) and size 32 = 6X
(60 to 69: Unchanged installation and connection dimensions)
Component series 70 to 79 – size 16 = 7X
(70 to 79: Unchanged installation and connection dimensions)

Control spool return in the pilot control valve with 2 spool positions and 2 solenoids
only possible with control spool C, D, K, Z and hydraulic control spool return in the main valve:
Without spring return = O
Without spring return with detent = OF

Pilot control valve with wet-pin solenoids
High-power valve (RE 23178-XE-B2) = 6E

Direct voltage 24 V = G24
AC voltage 230, V 50/60 Hz = W230R
For further ordering codes for other voltages, see page 14

Without manual override = no code
With manual override (standard) = N

Explosion protection "increased safety" = XE
For details see information on the explosion protection, page 11

Pilot oil supply external, pilot oil return external [2] = no code
Pilot oil supply internal, pilot oil return external [3] = E
Pilot oil supply internal, pilot oil return internal [3] = ET
Pilot oil supply external, pilot oil return internal [2] = T

Included in the scope of delivery:

Valve operating instructions with declaration of conformity in Part III

Explanation of the footnotes, see page 5

Ordering code and scope of delivery

	Z2					

Surface protection
SO329 = Conditionally seawater-resistant
no code = Standard

no code = NBR seals
V = FKM seals
(other seals upon request)
Important:
Observe compatibility of seals with hydraulic fluid used.

no code = **Without** pressure reducing valve
D3 = **With** pressure reducing valve [4)]

Preload valve (not for size 10)
no code = **Without** preload valve
P4,5 = **With** preload valve ($p_ö$ = 4.5 bar)

Throttle insert
no code = Without throttle insert
B08 = Throttle Ø 0.8 mm
B10 = Throttle Ø 1.0 mm
B12 = Throttle Ø 1.2 mm
B15 = Throttle Ø 1.5 mm

Electrical connection
Z2 = Solenoid with terminal box and cable gland,
for details see chapter Electrical connection

no code = **Without** switching time adjustment
S = Switching time adjustment as supply control
S2 = Switching time adjustment as discharge control

[1)] 2 spool positions (hydraulic end position): Only control spool C, D, K, Z, Y

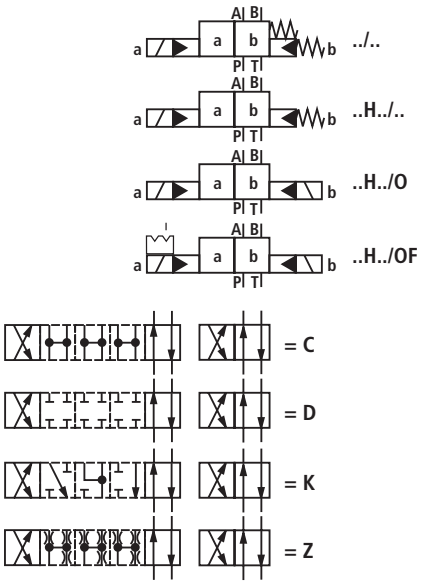
[2)] Pilot oil supply X or pilot oil return Y external:
- Observe the maximum pilot pressure according to page 10.

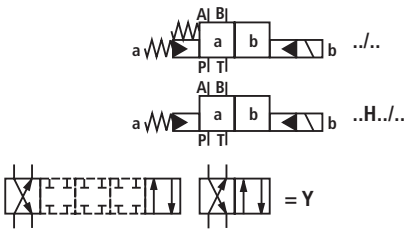
[3)] Pilot oil supply internal (version "ET" and "E"):
- Observe the minimum pilot pressure according to page 10.
- In order to prevent inadmissibly high pressure peaks, a throttle insert "B10" has to be provided in port P of the pilot control valve (see page 9).
- You must moreover provide the pressure reducing valve "D3".

[4)] Only in connection with throttle insert "B10"

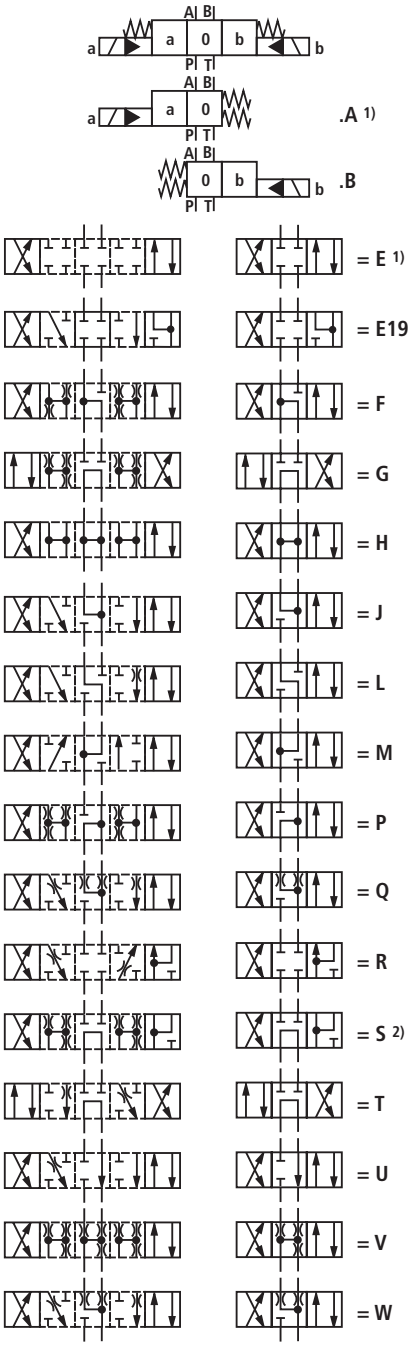
Control spool symbols

2 spool positions





3 spool positions

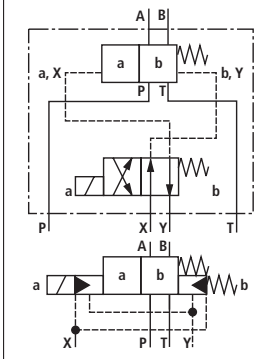
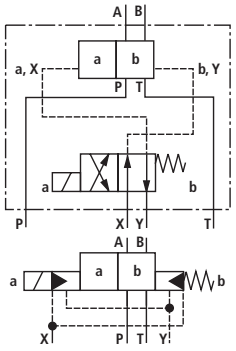
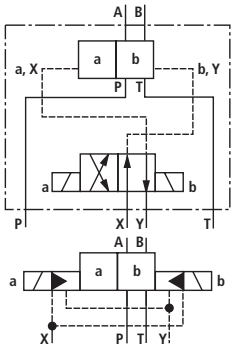
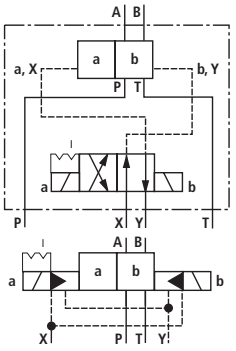
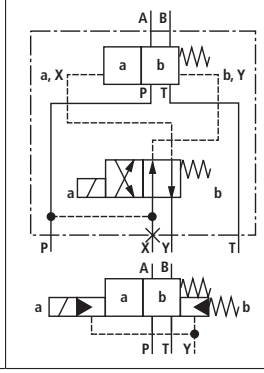
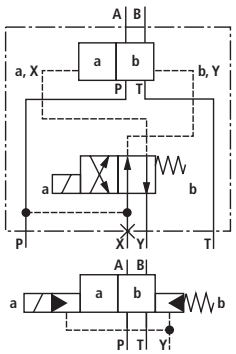
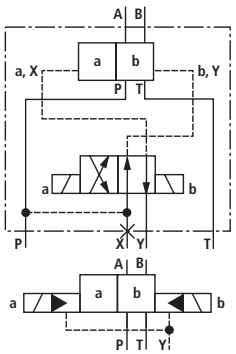
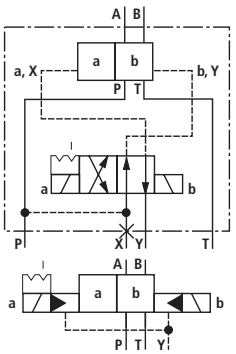


1) Example: Control spool E with spool position "a"
Order example:
H-4WEH 16 **EA**7X/6EG24N9XEETSZ2B10..V..

2) Control spool S only for size 16

Other control spool variants upon request

Control spool symbols for valves with 2 spool positions

	Valves with spring end position	Valves with hydraulic end position		
	Type H-4WEH.../...	Type H-4WEH..H.../...	Type H-4WEH..H.../O...	Type H-4WEH..H.../OF...
X = external Y = external				
	Type H-4WEH.../...E...	Type H-4WEH..H.../...E...	Type H-4WEH..H.../O...E...	Type H-4WEH..H.../OF...E...
X = internal Y = external				

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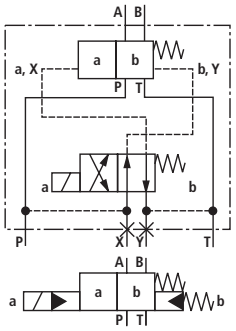
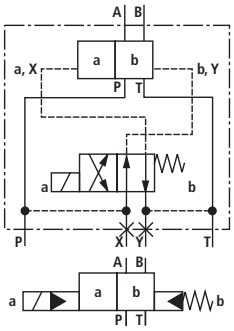
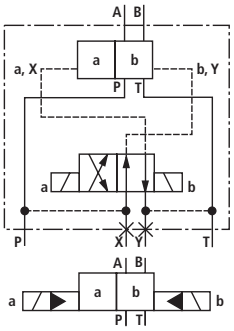
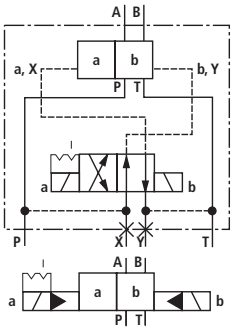
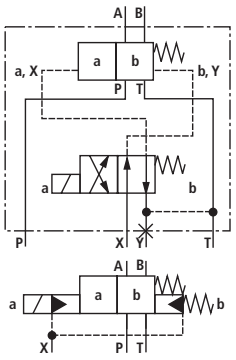
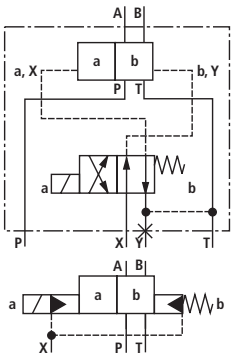
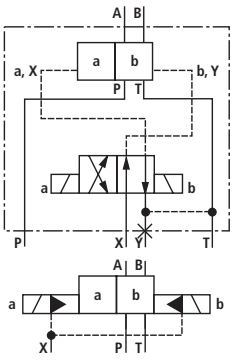
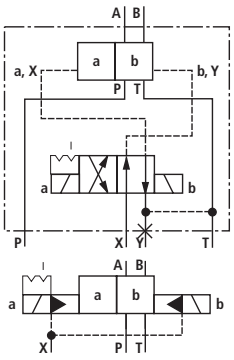
Control spool symbols for valves with 2 spool positions

Continuation from previous page

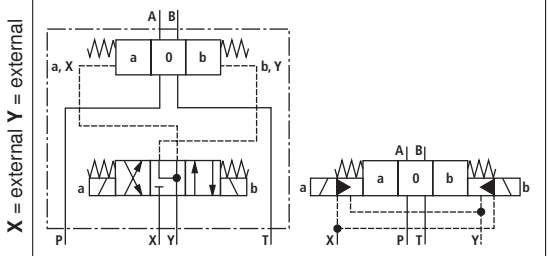
	Valves with spring end position	Valves with hydraulic end position		
	Type H-4WEH.../...ET...	Type H-4WEH..H.../...ET...	Type H-4WEH..H.../O...ET...	Type H-4WEH..H.../OF...ET...
X = internal Y = internal				
	Type H-4WEH.../...T...	Type H-4WEH..H.../...T...	Type H-4WEH..H.../O...T...	Type H-4WEH..H.../OF...T...
X = external Y = internal				

Control spool symbols for valves with 3 spool positions

Valves with spring-centered zero position

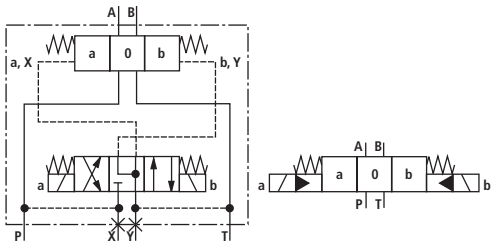
Type H-4WEH.../...

X = external Y = external



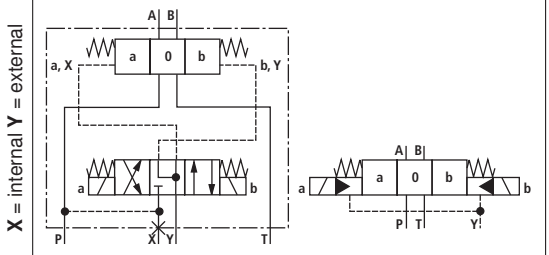
Type H-4WEH.../...ET...

X = internal Y = internal



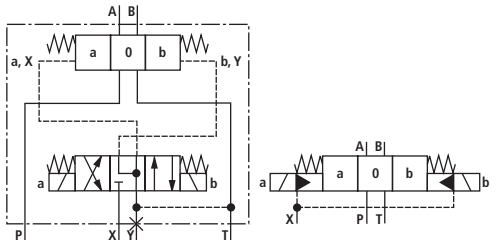
Type H-4WEH.../...E...

X = internal Y = external



Type H-4WEH.../...T...

X = external Y = internal



Pilot oil supply

Type H-4WEH...

The pilot oil supply is effected **externally** via the X channel from a separate circuit.

The pilot oil return is effected **externally** via the Y channel into the tank.

Type H-4WEH...E...

The pilot oil supply is effected **internally** from the P channel of the main valve.

The pilot oil return is effected **externally** via the Y channel into the tank. In the subplate, port X is closed.

Type H-4WEH...ET...

The pilot oil supply is effected **internally** from the P channel of the main valve.

The pilot oil return is effected **internally** via the T channel into the tank. In the subplate, ports X and Y are closed.

Type H-4WEH...T...

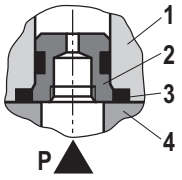
The pilot oil supply is effected **externally** via the X channel from a separate circuit.

The pilot oil return is effected **internally** via the T channel into the tank. In the subplate, port Y is closed.

Throttle insert

Use of the throttle insert (2) is necessary if the pilot oil supply in the P channel of the pilot control valve (1) is to be limited.

The throttle insert (2) is inserted in channel P of the pilot control valve (1).



1 Pilot control valve
2 Throttle insert
3 Seal ring
4 Main valve

Technical data

general

Installation position				Any; horizontal with valves with hydraulic control spool return "H" and control spool C, D, K, Z or Y		
Ambient temperature range			°C	–20 … +70 [1]		
Storage temperature range			°C	–20 ... +50		
Sizes			Size	**10**	**16**	**25**	**32**
Weight	Valve with one solenoid		kg	8.5	11	19	36.5
	Valve with two solenoids, spring-centered		kg	10.2	12.5	20.5	39
	Switching time adjustment		kg	0.8			
	Pressure reducing valve		kg	0.4			
Surface protection	Valve body	Pilot control valve		Galvanized coating			
		Main valve		Standard: Painting, layer thickness max. 100 µm SO329: Galvanically coated, Zn and passivated			
	Solenoid			Galvanized coating			

hydraulic

Sizes			Size	**10**	**16**	**25**	**32**
Maximum operating pressure							
	Ports P, A, B		bar	350			
	Port T	With pilot oil return Y external	bar	250			
		With pilot oil return Y internal	bar	210			
	Port Y	With pilot oil return external	bar	210			
Flow of the main valve			l/min	Up to 160	Up to 300	Up to 650	Up to 1100
Maximum pilot pressure			bar	250 (with a higher pilot pressure, use of a pressure reducing valve is required)			
Minimum pilot pressure – With pilot oil supply X external or internal (control spool D, K, E, E19, J, L, M, Q, R, U, W)							
	3-spool position valve, spring-centered		bar	10	14	13	8.5
	2-spool position valve, spring end position		bar	10	14	13	10
	2-spool position valve, hydraulic end position		bar	7	14	8	5
– With internal pilot oil supply (control spool C, F, H, P, T, V, Z, S [2])			bar	6.5 [3]	4.5 [4]	4.5 [4]	4.5 [4]
Pilot volume for switching process							
	3-spool position valve, spring-centered		cm^3	2.04	5.72	14.2	29.4
	2-spool position valve		cm^3	4.08	11.45	28.4	58.8
Pilot volume for shortest switching time			l/min	Approx. 35	Approx. 35	Approx. 35	Approx. 45
Hydraulic fluid				Mineral oil (HL, HLP) according to DIN 51524 [5], fast bio-degradable hydraulic fluids according to VDMA 24568 (see also RE 90221), HETG (rape seed oil) [5], HEPG (polyglycols) [6], HEES (synthetic esters) [6], flame-resistant hydraulic fluid HFC according to ISO 12922 [7], other hydraulic fluids on request Ignition temperature > 180 °C			
Hydraulic fluid temperature range			°C	–20 ... +80 (NBR seals)			
				–15 ... +80 (FKM seals)			
Viscosity range			mm^2/s	2.8 … 500			
Maximum admissible degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)				Class 20/18/15 [8]			

Footnotes, see page 11

Technical data

electric

Voltage type		Direct voltage	Alternating voltage
Available voltages	V	24, 48, 96, 110	110, 230
Voltage tolerance (nominal voltage)	%	±10	
Admissible residual ripple	%	< 5	–
Duty cycle/operating mode according to VDE 0580		S1 (continuous operation)	
Switching time according to ISO 6403		see page 12	
Switching frequency	1/h	Up to 15000	Up to 7200
Nominal power at ambient temperature 20 °C	W	17	
Maximum power with 1.1 x nominal voltage and ambient temperature 20 °C	W	20.6	
Protection class according to EN 60529		IP 66 [9]	

Important:
Solenoids for AC voltage are DC solenoids with integrated rectifier

Information on the explosion protection

Area of application in accordance with the Explosion Protection Directive 94/9/EC		II 2G
Type of protection Valve		c (EN 13463-5:2011)
Maximum surface temperature [10]	°C	135
Temperature class		T4
Type of protection Valve solenoid according to EN 60079-7:2007 / EN 60079-18:2009		Ex e mb IIC T4 Gb
Type examination certificate Solenoid		KEMA 02ATEX2240 X
"IECEx Certificate of Conformity" Solenoid		IECEx DEK 12.0068X
Ambient temperature range	°C	–20 … +70 [1]
Special conditions for safe use		– In case of valves with two solenoids, maximally one of the solenoids may be energized at a time. – Simultaneously energizing several valves in bank assembly is possible if the ambient temperature does not exceed 60 °C. – In case of bank assembly, if only one of the solenoids is energized at a time, and during individual operation, the maximum ambient temperature may not exceed 70 °C. – The maximum temperature of the valve casing surface is 120 °C. This has to be considered when selecting the connection cable and contact of the connection cable with the casing surface is to be prevented.

[1] Observe the "Special conditions for safe use" on page 11.

[2] Control spool S only for size 16

[3] For control spools C, F, G, H, P, T, V, Z, an internal pilot oil supply without preload valve is only possible if the flow from P → T in the central position (for 3-spool position valve) or while crossing the central position (for 2-spool position valve) is so large that the pressure differential of P → T reaches a value of at least 6.5 bar.

[4] For control spools C, F, G, H, P, T, V, Z, S [1] – by means of preload valve (not size 10) or correspondingly high flow.

[4] Suitable for NBR **and** FKM seals

[5] Suitable **only** for FKM seals

[7] Only in connection with NBR seals, max. admissible pressure 210 bar, Δp < 15 bar, hydraulic fluid temperature max. 60 °C
More information is available from our sales staff.

[8] The cleanliness classes specified for the components must be adhered to in hydraulic systems. Effective filtration prevents faults and at the same time increases the life cycle of the components.
For the selection of the filters see www.boschrexroth.com/filter.

[9] With correctly installed electrical connection

[10] Surface temperature > 50 °C, provide contact protection

Technical data

Switching times (= contacting at the pilot control valve until start of opening of the control edge in the main valve and change in the control spool stroke by 95 %)

Pilot pressure		bar	70	250	Spring
			ON		OFF
Size 10	without throttle insert	ms	50 ... 70	50 ... 70	30 ... 40
	with throttle insert	ms	70 ... 100	60 ... 80	30 ... 40
Size 16	without throttle insert	ms	60 ... 90	50 ... 70	60 ... 90
	with throttle insert	ms	120 ... 140	90 ... 110	60 ... 90
Size 25	without throttle insert	ms	80 ... 110	60 ... 80	110 ... 140
	with throttle insert	ms	210 ... 260	130 ... 160	110 ... 140
Size 32	without throttle insert	ms	90 ... 140	80 ... 110	150 ... 170
	with throttle insert	ms	430 ... 570	240 ... 360	150 ... 170

Important:

- The switching times are measured according to ISO 6403 with HLP46, ϑ_{oil}= 40 °C ± 5 °C.
  With different oil temperatures, deviations are possible.
- The switching times increase by approx. 30 ms if the pressure reducing valve "D3" is used.
- The switching times have been determined under ideal conditions and may differ in the system, depending on the application conditions.

Free flow cross-sections in zero position with control spools Q, V and W

Control spool **Q**	A – T, B – T	mm²	13	32	78	83	78
Control spool **V**	A – T, B – T	mm²	13	32	73	83	73
	P – A, P – B	mm²	13	32	84	83	84
Control spool **W**	A – T, B – T	mm²	2.4	6	10	14	20

Electrical connection

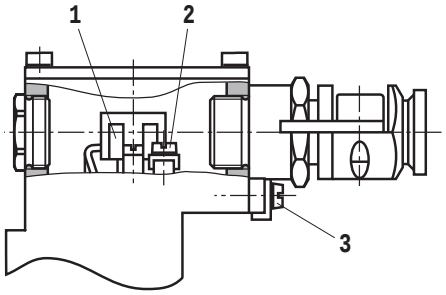
The type-examination tested valve solenoid of the valve is equipped with a terminal box and a type-tested cable gland.

The connection is polarity-independent.

Solenoids to be connected to AC voltage are equipped with an integrated rectifier.

Important

When establishing the electrical connection, the protective earthing conductor (PE ⏚) has to be connected properly.



Properties of the connection terminals

Position	Function	Connectable line cross-section
1	Operating voltage connection	Single-wire 0.75 … 2.5 mm² Finely stranded 0.75 … 1.5 mm²
2	Connection for protective earthing conductor	Single-wire max. 2.5 mm² Finely stranded max. 1.5 mm²
3	Connection for potential equalization conductor	Single-wire 4 … 6 mm² Finely stranded 4 mm²

Cable gland

Type approval		II 2G Ex e IIC Gb
Threaded connection		M20 x 1.5
Protection class according to EN 60529		IP66 [1]
Line diameter	mm	9 … 11
Sealing		Outer sheath sealing

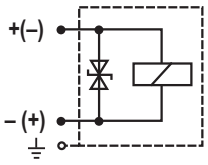
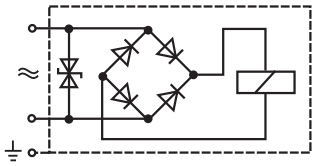
Connection line

Line type		**Non-armored** cables and lines (outer sheath sealing)
Temperature range	°C	–30 … > +110

[1] If installed properly

Electrical connection

Circuit diagrams

Direct voltage, polarity-independent	Alternating voltage
	

Over-current fuse and switch-off voltage peaks

Important

Corresponding to the rated current, a fuse according to DIN 41571 and EN / IEC 60127 has to be connected ahead of every valve solenoid (max. 3 x I_{rated}).

The shut-off threshold of the fuse has to match the prospective short-circuit current of the supply source.

The prospective short-circuit current of the supply source may amount to a maximum of 1500 A.

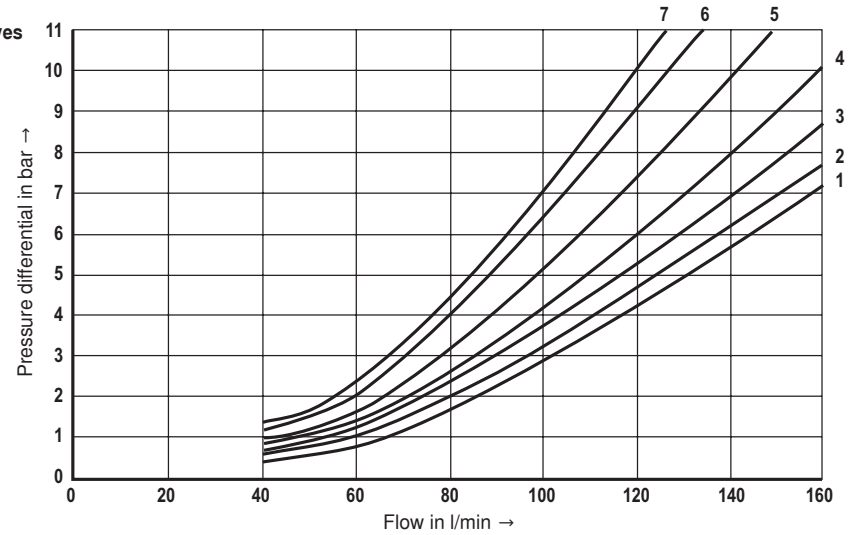
This fuse may only be installed outside the explosive area or must be of an explosion-proof design.

When inductivities are switched off, voltage peaks are the result which may cause faults in the connected control electronics. For this reason, the valve solenoids comprise an interference protection circuit which dampens this voltage peak to the voltage value shown in the table.

Voltage data in the valve type code	Nominal voltage valve solenoid	Rated current valve solenoid	Rated current external miniature fuse: Medium time-lag (M) according to DIN 41571 and EN/IEC 60127	Rated voltage of external miniature fuse: Medium time-lag (M) according to DIN 41571 and EN/IEC 60127	Maximum voltage value upon switch-off	Interference protection circuit
G24	24 V DC	0.708 A DC	800 mA	250 V	–90 V	Suppressor diode bi-directional
G48	48 V DC	0.354 A DC	400 mA	250 V	–200 V	
G96	96 V DC	0.177 A DC	200 mA	250 V	–370 V	
G110	110 V DC	0.155 A DC	200 mA	250 V	–390 V	
W110R	110 V AC	0.163 A AC	200 mA	250 V	–3 V	Bridge rectifier and suppressor diode
W230R	230 V AC	0.078 A AC	80 mA	250 V	–3 V	

Characteristic curves: Type H-4WEH 10… (measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C)

Δp - q_V characteristic curves



Characteristic curve selection

Control spool	Spool position P – A	P – B	A – T	B – T	Control spool	Zero position A – T	B – T	P – T
E, Y, D	2	2	4	5				
F	1	4	1	4	F	3	–	6
G, T	4	2	2	6	G, T	–	–	7
H, C	4	4	1	4	H	1	3	5
J, K	1	2	1	3				
L	2	3	1	4	L	3	–	–
M	4	4	3	4				
P	4	1	3	4	P	–	7	5
Q, V, W, Z	2	2	3	5				
R	2	2	3	–				
U	3	3	3	4	U	–	4	–

Performance limits: Type H-4WEH 10… (measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C)

2- and 3-spool position valves
Maximum flow q_V in l/min

Control spool	Operating pressure p_{max} in bar 200	250	315
E, J, L, M, Q, R, U, V, W, C, D, K, Z, Y	160	160	160
H	160	150	120
G, T	160	160	140
F, P	160	140	120

Important

The specified switching power limits are valid for operation with two directions of flow (e.g. from P → A and simultaneous return flow from B → T) in the ratio 1:1.

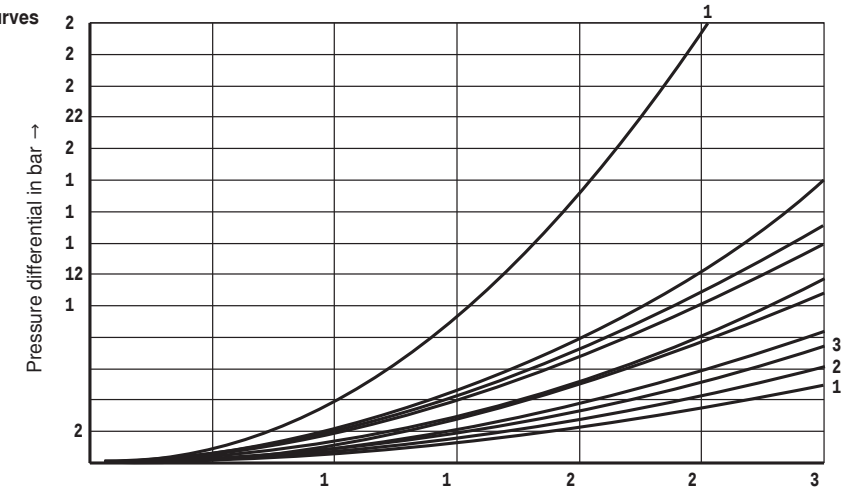
Due to the flow forces acting within the valves, the admissible switching power limit may be considerably lower with only one direction of flow (e.g. from P → A while port B is blocked or if there are simultaneous flows in different directions).

(In such cases, please consult us.)

The switching power limit was established while the solenoids were at operating temperature, at 10 % undervoltage and without tank preloading.

Characteristic curves: Type H-4WEH 16… (measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C)

Δp - q_V characteristic curves



Characteristic curve selection

Control spool	Spool position				
	P – A	P – B	A – T	B – T	P – T
E, Y, D	1	1	3	4	–
E19	–	6	8	7	–
F	1	1	5	4	–
G, T	4	1	5	5	9
H, C, Q, V, Z	1	1	5	6	–
J, K, L	1	1	5	6	–

Control spool	Spool position				
	P – A	P – B	A – T	B – T	P – T
M, W	1	1	3	4	–
R	1	1	3	–	–
U	2	2	3	5	–
S	3	3	3	–	10

Performance limits: Type H-4WEH 16… (measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C)

2-spool position valve
Maximum flows q_V in l/min

Control spool	Operating pressure p_{max} in bar				
	70	140	210	280	350
X external, spring end position in the main valve (with $p_{St\ min}$ = 12 bar)					
C, D, K, Y, Z	300	300	300	300	300
X external, spring end position in the main valve [1]					
C	300	300	300	300	300
D, Y	300	270	260	250	230
K	300	250	240	230	210
Z	300	260	190	180	160
X external, hydraulic end position in the main valve					
HC, HD, HK, HZ, HY	300	300	300	300	300

3-spool position valve
Maximum flows q_V in l/min

Control spool	Operating pressure p_{max} in bar				
	70	140	210	280	350
X external, spring centering in the main valve					
E, E19, H, J, L, M, Q, U, W, R	300	300	300	300	300
F, P	300	250	180	170	150
G, T	300	300	240	210	190
S	300	300	300	250	220
V	300	250	210	200	180

Important

See also "**Important**" page 15

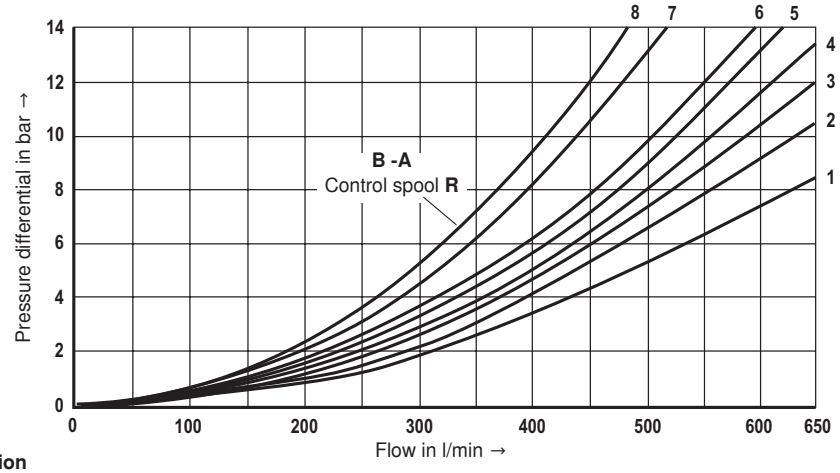
Important

[1] If the specified flow values are exceeded, the function of the return spring is no longer guaranteed if the pilot pressure fails.

- With pilot oil supply **X internal,** you must always use a preload valve due to the negative overlap of the control spools F, G, H, P, T, S, C and HC.
- With control spools V, Z and HZ, the preload valve is **not** required for flows > 180 l/min.

Characteristic curves: Type H-4WEH 25... (measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C)

Δp - q_V characteristic curves



7 Control spool **G**
central position **P – T**

8 Control spool **T**
central position **P – T**

Characteristic curve selection

Control spool	Spool position			
	P – A	P – B	A – T	B – T
E	1	1	1	3
F	1	4	3	3
G	3	1	2	4
H	4	4	3	4
J, Q	2	2	3	5

Control spool	Spool position			
	P – A	P – B	A – T	B – T
L	2	2	3	3
M	4	4	1	4
P	4	1	1	5
R	2	1	1	–

Control spool	Spool position			
	P – A	P – B	A – T	B – T
U	4	1	1	6
V	2	4	3	6
W	1	1	1	3
T	3	1	2	4

Performance limits: Type H-4WEH 25... (measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C)

2-spool position valve
Maximum flows q_V in l/min

Control spool	Operating pressure p_{max} in bar				
	70	140	210	280	350
X external, spring end position in the main valve (with $p_{St\ min}$ = 13 bar)					
C, D, K, Y, Z	700	700	700	700	650
X external, spring end position in the main valve [1]					
C	700	700	700	700	650
D, Y	700	650	400	350	300
K	700	650	420	370	320
Z	700	700	650	480	400
X external, hydraulic end position in the main valve					
HC, HD, HK, HZ, HY	700	700	700	700	700
HC../O.. HD../O.. HK../O.. HZ../O..	700	700	700	700	700
HC../OF.. HD../OF.. HK../OF.. HZ../OF..	700	700	700	700	700

Important

See also "**Important**" page 15

3-spool position valve
Maximum flows q_V in l/min

Control spool	Operating pressure p_{max} in bar				
	70	140	210	280	350
X external, spring centering in the main valve					
E, L, M, Q, U, W,	700	700	700	700	650
G, T	400	400	400	400	400
F	650	550	430	330	300
H	700	650	550	400	360
J	700	700	650	600	520
P	650	550	430	330	300
V	650	550	400	350	310
R	700	700	700	650	580

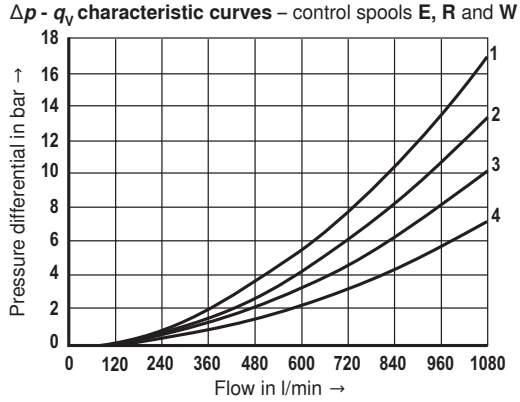
Important

[1] If the specified flow values are exceeded, the function of the return spring is no longer guaranteed if the pilot pressure fails.

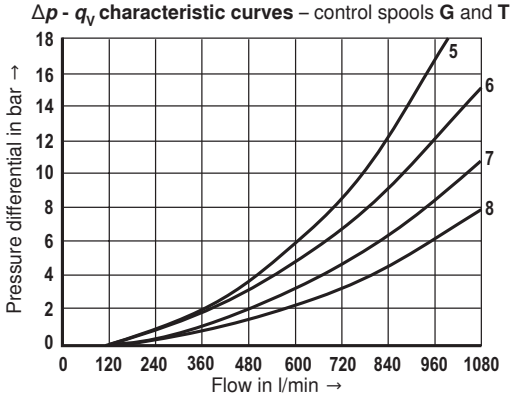
- With pilot oil supply **X internal,** a preload valve has to be used for flows < 180 l/min due to the negative overlap of the control spools Z, HZ and V.
- With pilot oil supply **X internal,** you must always use a preload valve due to the negative overlap of the control spools C, HC, F, G, H, P and T.

Characteristic curves: Type H-4WEH 32... (measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C)

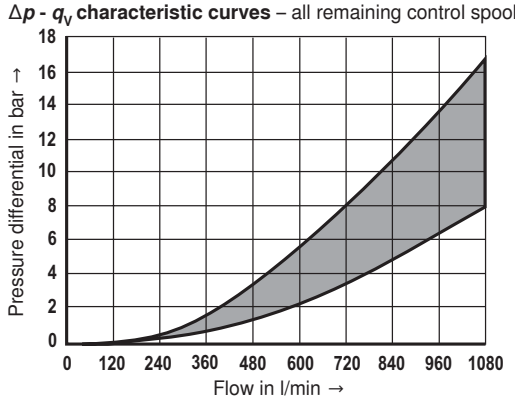
Δp - q_V characteristic curves – control spools **E, R** and **W**



Δp - q_V characteristic curves – control spools **G** and **T**



Δp - q_V characteristic curves – all remaining control spools



Control spool	Spool position				
	P – A	P – B	A – T	B – T	B – A
E	4	4	3	2	–
R	4	4	3	–	1
W	4	4	3	2	–

Control spool	Spool position				
	P – A	P – B	A – T	B – T	P – T
G	7	8	7	5	6
T	7	8	7	5	6

Performance limits: Type H-4WEH 32... (measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C)

2-spool position valve
Maximum flows q_V in l/min

Control spool	Operating pressure p_{max} in bar				
	70	140	210	280	350
X external, spring end position in the main valve (with $p_{St\ min}$ = 10 bar)					
C, D, K, Y, Z	1100	1040	860	750	680
X external, spring end position in the main valve [1]					
C	1100	1040	860	800	700
D, Y	1100	1040	540	480	420
K	1100	1040	860	500	450
Z	1100	1040	860	700	650
X external, hydraulic end position in the main valve					
HC, HD, HK, HZ, HY	1100	1040	860	750	680

3-spool position valve
Maximum flows q_V in l/min

Control spool	Operating pressure p_{max} in bar				
	70	140	210	280	350
X external, spring centering in the main valve					
E, J, L, M, Q, U, W, R	1100	1040	860	750	680
G, T, H, F, P	900	900	800	650	450
V	1100	1000	680	500	450

Important

[1] If the specified flow values are exceeded, the function of the return spring is no longer guaranteed if the pilot pressure fails.

- With pilot oil supply **X internal**, a preload valve has to be used for flows < 180 l/min due to the negative overlap of the control spools Z, HZ and V.
- With pilot oil supply **X internal,** you must always use a preload valve due to the negative overlap of the control spools C, HC, F, G, H, P and T.

Important

See also "**Important**" page 15

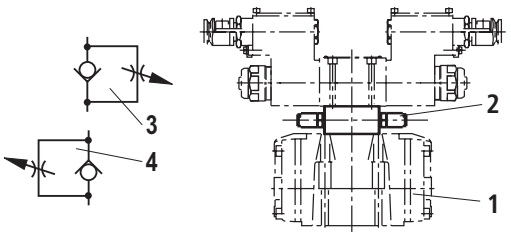
Switching time adjustment, pressure reducing valve, preload valve

Switching time adjustment "S/S2"

The switching time of the main valve (1) is influenced by using a twin throttle check valve (2), type Z2FS 6.

Symbol (3) shows the switching time adjustment "S" (supply control), symbol (4) shows the switching time adjustment "S2" (discharge control)

Type H-4WEH 10 ..4X/...S or S2

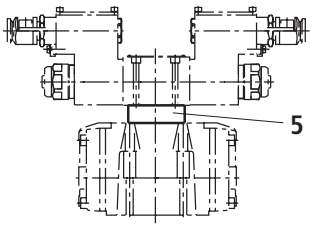


Pressure reducing valve "D3"

With the design internal pilot oil supply (ET or E) or external pilot oil supply and a pilot pressure of more than 250 bar, the valve must be ordered with a pressure reducing valve (5), type ZDR6PO, **and** a throttle insert "B10".

Ordering code: "B10..D3"

Type H-4WEH 10 ..4X/.../..D3



Preload valve "P4,5" (not for size 10)

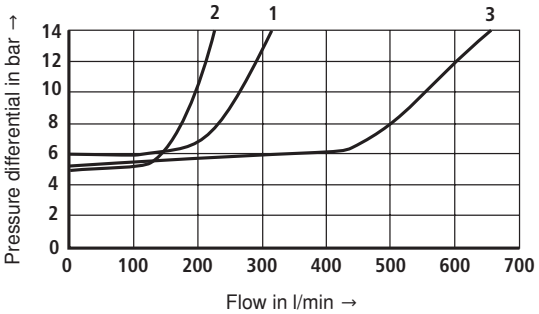
In case of valves with depressurized circulation and internal pilot oil supply, a preload valve is required in the P channel of the main valve in order to build up the minimum pilot pressure.

Ordering code: "P4,5"

The pressure differential of the preload valve is to be added to the pressure differential of the main valve (see characteristic curves) to result in one total value.

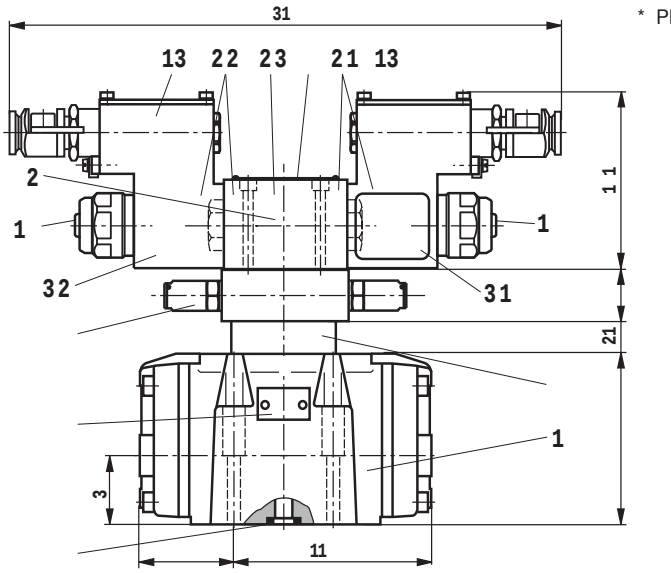
The cracking pressure amounts to approx. 4.5 bar.

Δp–q_V characteristic curve
(measured with HLP46, ϑ_{oil} = 40 °C ± 5 °C)

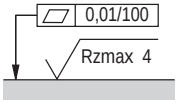


1 = size 16 2 = size 25 3 = size 32

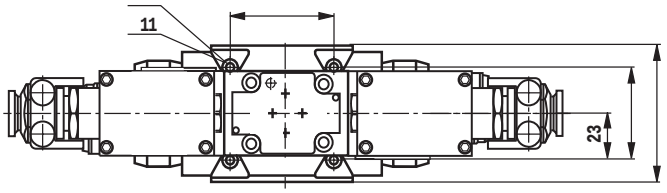
Dimensions: Type H-4WEH 10… (dimensions in mm)

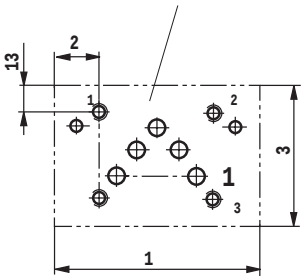


* Plus 2 x 80 mm for detaching the solenoid coils



Required surface quality of the valve contact surface





Subplates

- **without** ports X, Y G 534/01 FE/ZN (G3/4)
- **with** ports X, Y G 535/01 FE/ZN (G3/4)
  G 536/01 FE/ZN (G1)

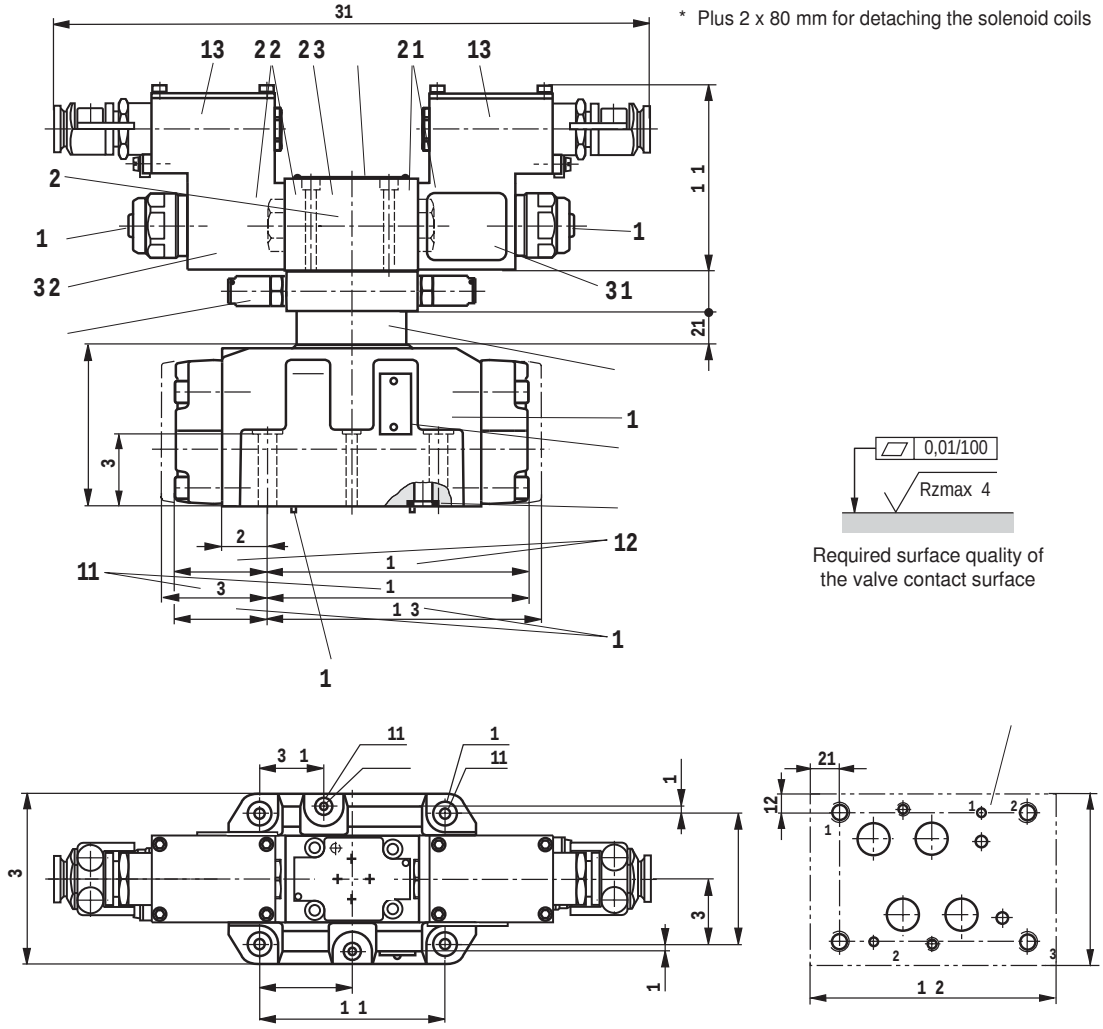
with dimensions as in the data sheet 45054
(must be ordered separately)

Item explanations and information on the subplates, see page 24

Valve mounting screws

For reasons of stability, exclusively use the following valve mounting screws:
4 hexagon socket head cap screws
ISO 4762-M6x45-10.9-flZn-240h-L
(friction coefficient total: 0.09-0.14 according to VDA 235-101)
(must be ordered separately)

Dimensions: Type H-4WEH 16... (dimensions in mm)



Subplates

G 172/01 FE/ZN (G3/4)
G 172/02 FE/ZN (M27 x 2)
G 174/01 FE/ZN (G1)
G 174/02 FE/ZN (M33 x 2)
G 174/08 FE/ZN (flange)

with dimensions as in the data sheet 45056
(must be ordered separately)

Item explanations and information on the subplates, see page 24

Valve mounting screws

For reasons of stability, exclusively use the following valve mounting screws:

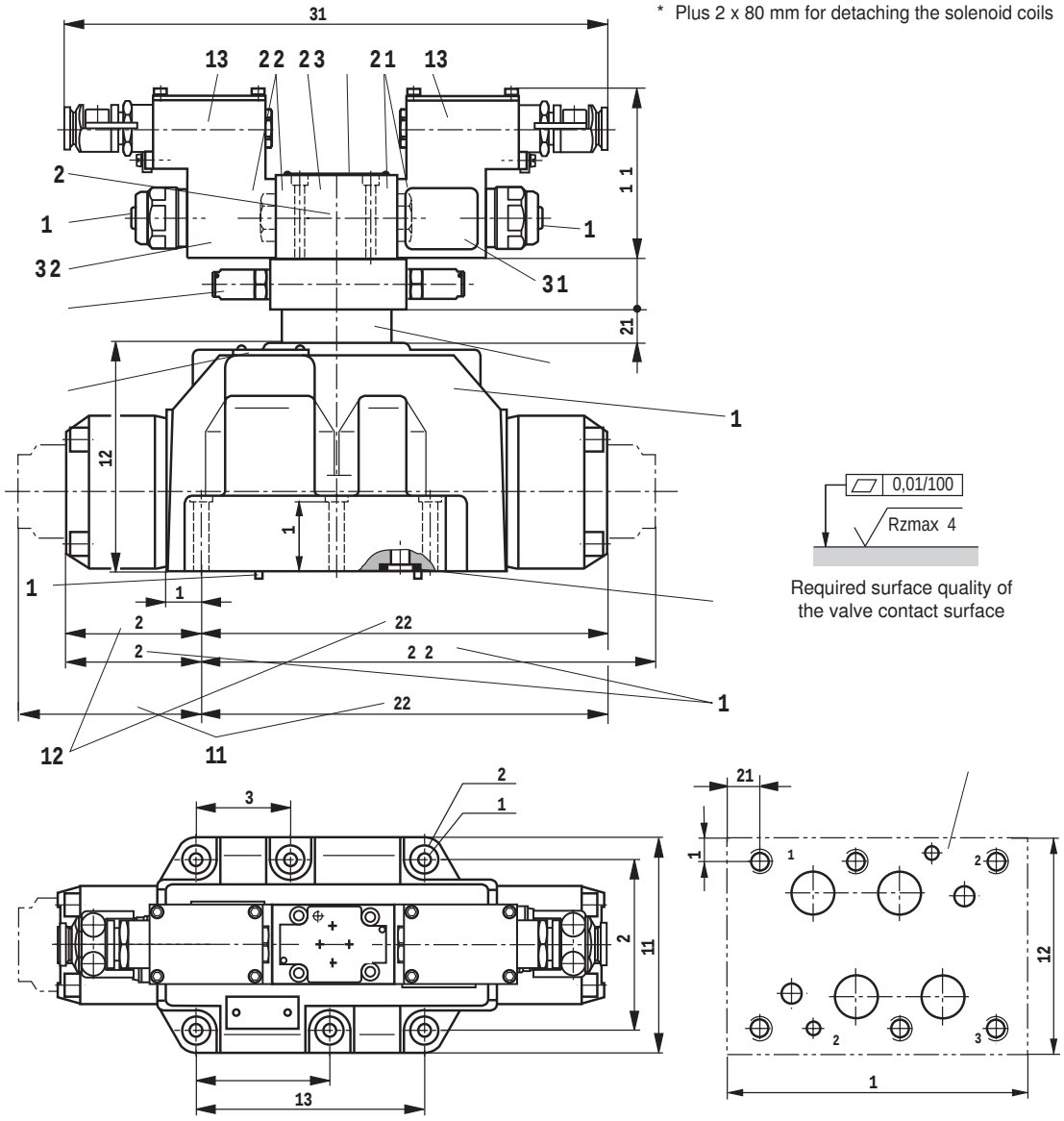
4 hexagon socket head cap screws
ISO 4762-M10x60-10.9-flZn-240h-L
(friction coefficient total: 0.09-0.14 according to VDA 235-101)

2 hexagon socket head cap screws
ISO 4762-M6x60-10.9-flZn-240h-L
(friction coefficient total: 0.09-0.14 according to VDA 235-101)

(must be ordered separately)

Dimensions: Type H-4WEH 25… (dimensions in mm)

* Plus 2 x 80 mm for detaching the solenoid coils



Required surface quality of the valve contact surface

Subplates

G 151/01 FE/ZN (G1)
G 154/01 FE/ZN (G1 1/4)
G 154/08 FE/ZN (flange)
G 156/01 FE/ZN (G1 1/2)

with dimensions as in the data sheet 45058
(must be ordered separately)

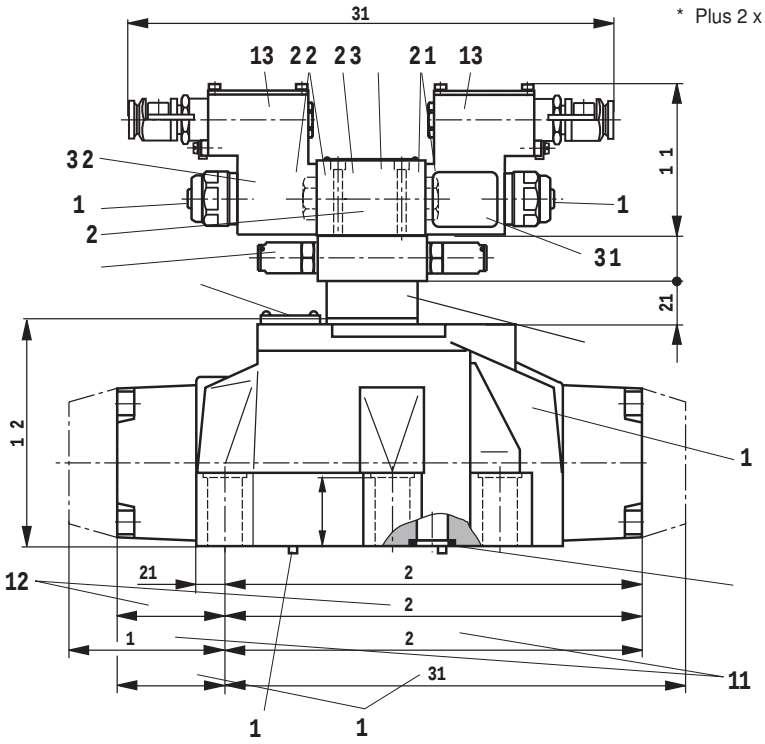
Item explanations and information on the subplates, see page 24

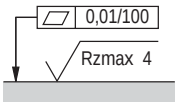
Valve mounting screws

For reasons of stability, exclusively use the following valve mounting screws:
6 hexagon socket head cap screws
ISO 4762-M12x60-10.9-flZn-240h-L
(friction coefficient total: 0.09-0.14 according to VDA 235-101)
(must be ordered separately)

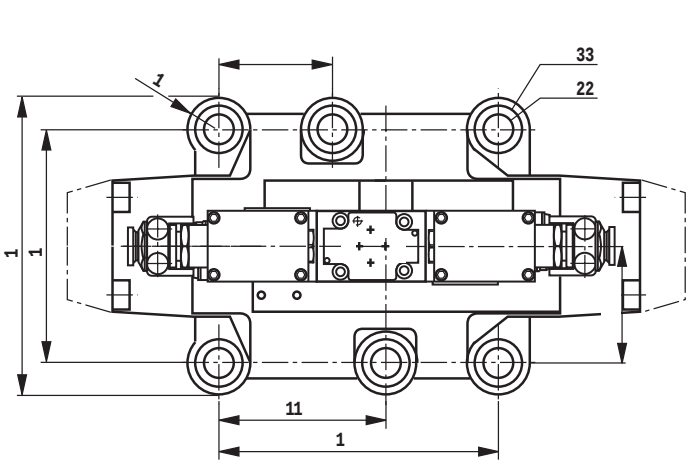
Dimensions: Type H-4WEH 32... (dimensions in mm)

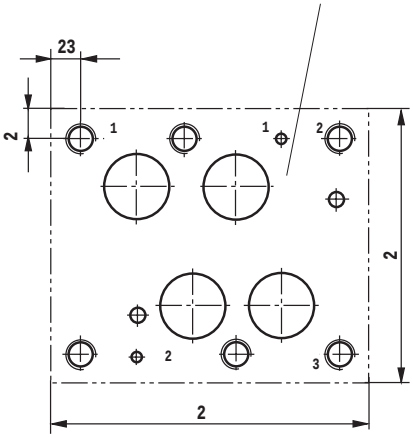
* Plus 2 x 80 mm for detaching the solenoid coils





Required surface quality of the valve contact surface





Subplates

G 157/01 FE/ZN (G1 1/2)
G 157/02 FE/ZN (M48 x 2)
G 158/10 FE/ZN (flange)
with dimensions as in the data sheet 45060
(must be ordered separately)

Item explanations and information on the subplates, see page 24

Valve mounting screws

For reasons of stability, exclusively use the following valve mounting screws:
6 hexagon socket head cap screws
ISO 4762-M20x80-10.9-flZn-240h-L
(friction coefficient total: 0.09-0.14 according to VDA 235-101)
(must be ordered separately)

Dimensions: Item explanations and notice

Item explanations regarding the unit dimensions on pages 20 to 23

1 Main valve

2 Pilot control valve type 4WE 6…XE according to data sheet 23178-XE-B2

2.1
- Pilot control valve type 4WE 6 D… (1 solenoid "a") for main valves with Control spools C, D, K, Z / Control spool HC, HD, HK, HZ
- Pilot control valve type 4WE 6 JA... (1 solenoid "a") for main valves with control spools EA, FA, etc., spring return

2.2
- Pilot control valve type 4WE 6 Y... (1 solenoid "b") for main valves with Control spool Y / Control spool HY
- Pilot control valve type 4WE 6 JB... (1 solenoid "b") for main valves with control spools EB, FB, etc., spring return

2.3
- Pilot control valve type 4WE 6J… (2 solenoids) for main valves with 3 spool positions, spring-centered

3.1 Valve solenoid "a"

3.2 Valve solenoid "b"

4 Switching time adjustment, optional

5 Pressure reducing valve, optional

6 Machined valve contact surface

Porting pattern according to:
DIN 24340-A10 and
ISO 4401-05-05-0-05 for size 10

DIN 24340-A16 and
ISO 4401-07-07-0-05 for size 16

DIN 24340-A25 and
ISO 4401-08-08-0-05 for size 25

DIN 24340-A32 and
ISO 4401-10-09-0-05 for size 32

7 Name plate for the pilot control valve

8 Name plate for the complete valve

9 R-rings/O-rings

10 2-spool position valves with spring end position in the main valve (C, D, K, Z)

11 2-spool position valves with spring end position in the main valve (Y)

12 3-spool position valves, spring-centered
2-spool position valves with hydraulic end position in the main valve

13 Terminal box

14 Locking pin

15 Manual override, optional

Important:

Subplates are no components in the sense of directive 94/9/EC and can be used after the manufacturer of the overall system has assessed the risk of ignition.

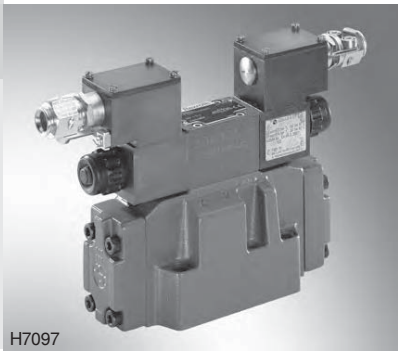
The G...FE/ZN versions are free from aluminum and/or magnesium and galvanized.

4/2 and 4/3 directional valves, internally pilot operated, externally pilot operated

RE 24751-XE-B3/09.13
Replaces: 01.10

Type H-4WEH...XE...

Sizes 10, 16, 25, 32
Component series 4X, 6X, 7X
Maximum operating pressure 350 bar
Maximum flow 1100 l/min


H7097

Actual product may differ

ATEX units
For explosive areas

Operating instructions
Part III Product-specific instructions

What you need to know about these operating instructions

These operating instructions apply to the explosion-proof version of Rexroth valves and consist of the following three parts:

Part I	General information 07010-X-B1	**Operating instructions 24751-XE-B0**
Part II	Data sheet 24751-XE-B2	
Part III	Product-specific instructions 24751-XE-B3	

You can find further information on the correct handling of Rexroth hydraulic products in our publication "General product information on hydraulic products 07008".

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2.2	Special residual risks and protective measures	7
2.3	Adjustment works and modifications	8
3	**Assembly and (initial) commissioning**	**9**
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3.2	Turning the solenoid coil by 90°	9
3.3	Assembly	9
3.4	Establishing the electrical connection	10
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5	**Operation**	**13**
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6	**Troubleshooting**	**14**
7	**Inspection and maintenance**	**15**
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8.4	Contacts for repair and spare parts	16
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1 Scope of delivery

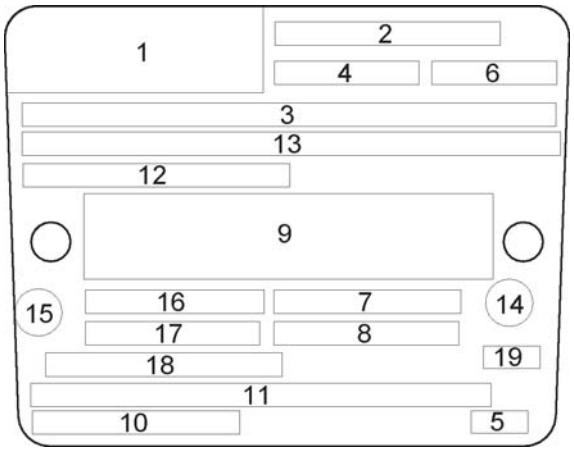
For the scope of delivery of the valve, please refer to the "data sheet" of this valve (Part II of these operating instructions).

2 Amending general safety instructions

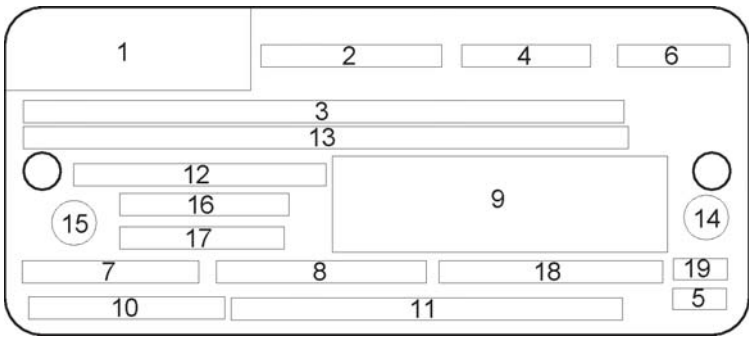
2.1 Information on the name plate and the valve solenoid housing

The meaning of the information on the name plate applicable to the non-electrical part of the valve can be seen from the numbered fields of the following table.

Name plate for valves of size 10

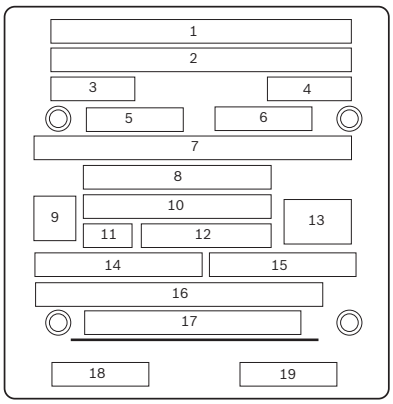


Name plate for valves of sizes 16, 25 and 32



No.	Type of information	Information or example
1	Manufacturer's logo	**Rexroth**
2	Material number of the valve (= order number)	e.g.: **MNR: R901034038**
3	Type designation of the complete valve	e.g.: **H-4WEH10H4X/6BW230RNXEZ2**
4	Serial number of the valve	e.g.: **SN: 0002111**
5	Manufacturer's factory number	e.g.: **7081**
6	Date of manufacture (year and week)	e.g.: **FD: 03W01**
7	Maximum operating pressure	e.g.: **pmax = 350 bar**
8	Ambient temperature range	**–20 °C ≤ Ta ≤ +60 °C**
9	Hydraulic symbol according to ISO 1219	Graphic
10	Designation of origin	**Made in Germany**
11	Name and address of the manufacturer	**BOSCH REXROTH AG D–97816 LOHR**
12	Customer's or production order number	e.g.: **123456789012345678**
13	Customer material number or additional information	e.g.: **CNR: 1234567890**
14	CE mark	**CE**
15	Explosion protection mark	**Ex**
16	Mark for protection class according to Explosion Protection Directive 94/9/EC and mark for the type of protection of the mechanical part according to EN 13463-5:2011	**I M2 cX**
17	Additional mark for protection class according to Explosion Protection Directive 94/9/EC and mark for the type of protection of the mechanical part according to EN 13463-5:2011	**II 2G c T4X**
18	---	---
19	---	---

The meaning of the information on the name plate of the valve solenoid(s) mounted on the valve can be read in the correspondingly numbered fields of the following table.



No.	Type of information	Information or example
1	Name / logo of the valve solenoid manufacturer	**HYDAC electronic GMBH**
2	Address of the valve solenoid manufacturer	**66128 Saarbrücken, Hauptstr. 27 Germany**
3	Internal identification number	e.g.: **EX-1516-000**
4	Material number of the solenoid coil	e.g.: **R1234567891**
5	Nominal voltage	e.g.: **24 VDC**
6	Rated current	e.g.: **0,708 A**
7	Electrical characteristic values: Duty cycle according to IEC 34-1 (VDE 0580) and frequency	e.g.: **S1(DB) 50 Hz**
8	Admissible ambient temperature range	e.g.: **–20 °C ≤ Ta ≤ +55 °C** [2)]
9	Explosion protection mark	**Ex**
10	Type examination certificate number	**KEMA 02ATEX2240 X**
11	Mark for protection class according to Explosion Protection Directive 94/9/EC	**II 2G**
12[1)]	Mark for the type of protection according to EN 60079-7:2007 or EN 60079-18:2009	**Ex e mb IIC T4 Gb**
13	CE mark and identification of notified body	**CE 0158**
14	IECEx Certificate of Conformity	**IECEx DEK 12.0068X**
15[1)]	Mark for the type of protection according to EN 60079-7:2007 or EN 60079-18:2009	**Ex e mb IIC T4 Gb**
16	Serial number of the valve solenoid and date of production	e.g.: **X110125 / 302**
17	Application note	**Leitung/Cable ≥ 110 °C**
18	Rated current for external miniature fuse	e.g.: **800 mA**
19	Rated voltage for external miniature fuse	e.g.: **250 V**

[1)] The product complies with the requirements of the Explosion Protection Directive 94/9/EC.

[2)] Depending on valve sizes and solenoid coil positions, higher ambient temperatures are admissible.
In connection with the valve housing used here, ambient temperatures of up to 70 °C are admissible.
See EC type examination certificate KEMA 02ATEX2240 X edition no. 2
Please also observe the "Special conditions for safe use" in Part II.

2.2 Special residual risks and protective measures

⚠ WARNING

Danger zone	Residual risk	Protective measure(s), safety instructions
Valve	Explosion hazard from hot surfaces due to switching while running empty	Never switch the valve while running empty. In case of valves with two solenoids, maximally one of the solenoids may be energized at a time! Simultaneously energizing several valves in bank assembly is possible if the ambient temperature does not exceed 60 °C. In case of bank assembly, if only one of the solenoids is energized at a time, and during individual operation, the maximum ambient temperature may not exceed 70 °C.
Valve solenoid	Risk of burning from hot surfaces	Provide for a suitable touch guard. Allow the valve solenoid to cool down to room temperature before touching it directly during maintenance works. Put on heat-protective gloves before touching it, if necessary.

2.2.1 Changes at the surface protection of the valve

⚠ WARNING

Explosion hazard!

The valve solenoid must not be painted or otherwise coated with non-conductive substances!

Any change at the surface protection will lead to loss of the explosion protection!

Additional painting may only be applied according to the provisions of EN 13463-1:2009, section 6.7; otherwise, explosion protection can no longer be ensured.

2.2.2 Notes on the valve use

Observe the following information during project planning:

⚠ WARNING

During operation, the surface temperature of the valve solenoid exceeds 50 °C. Provide for suitable and satisfactory touch guard.

Be aware of possible pressure intensification if the valve is connected to the chamber on the piston rod side of a differential cylinder. If the outflow of the hydraulic fluid from this chamber is obstructed, pressure on the cylinder may result in pressure intensification that may damage the cylinder chamber, supply line, and valve.

Make sure that there is adequate mechanical protection against any high-pressure water jet that may be used during cleaning work.

Special application conditions for the safe application (marking X) stipulate that in case of valves with two solenoids, maximally one solenoid is operated at a time in all operating states. The simultaneous operation of both solenoids leads to malfunctions, excessive heating and will result in loss of explosion protection. Simultaneously energizing several valves in bank assembly is possible if the ambient temperature does not exceed 60 °C. In case of bank assembly, if only one of the solenoids is energized at a time, and during individual operation, the maximum ambient temperature may not exceed 70 °C. The maximum temperature of the valve casing surface is 120 °C. This has to be considered when selecting the connection cable and/or a contact of the connection cable with the casing surface is to be prevented.

The solenoid coil may only be commissioned if mounted to the valve including pole tube and mounting nut and if the protective earthing conductor and the potential equalization conductor are connected.

Corresponding to the rated current, a fuse according to DIN 41571 and EN / IEC 60127 has to be connected ahead of every valve solenoid (max. 3 x I_{rated}). The shut-off threshold of the fuse has to match the prospective short-circuit current of the supply source. The prospective short-circuit current of the supply source may not exceed 1500 A.
This fuse may only be installed outside the explosive area or must be of an explosion-proof design.
The fuse can be accommodated in the related supply unit or must be separately connected upstream.

For information on the prescribed pre-fuse, see "Over-current fuse and switch-off voltage peaks" in Part II.

IMPORTANT

To ensure proper functioning, the pressure chamber of the valve solenoid always has to be filled with hydraulic fluid; it must moreover be ensured that the values for the minimum pilot pressure specified in the "data sheet, Technical data, hydraulic" are complied with.

Pressure peaks in the joint return line of more than one valve may cause unintended control spool movements and thus unintended switching processes. This particularly holds true when valves with detent are used. It is recommended to use separate return lines.

Ports P, A, B and T as well as the pilot oil ports X and Y are clearly assigned according to their function and must not be arbitrarily exchanged or closed. The flow is only admissible in the direction of arrow specified in the "data sheet".

Switching off the valve solenoid results in a voltage peak due to the inductive effect. The valve solenoid already contains a suppression circuit dampening this voltage peak. However, additional external switching measures have to be taken if required, in order to avoid connected electric circuits being influenced by the residual voltage peak. The values for the residual voltage peak depend on the valve solenoid used, see data sheet.

2.2.3 Working safely at the valve

⚠ DANGER

Before carrying out any work at the valve, you must first make sure that an explosive atmosphere cannot occur during the period of the work.

2.3 Adjustment works and modifications

⚠ WARNING

Modifications exceeding the extent described in these operating instructions are not permitted.

The pilot control valve must particularly not be exchanged or replaced by another one.

Additional components like e.g. throttles, preload or pressure reducing valves must not be installed into the valve.

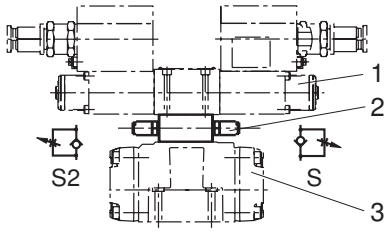
Such changes may only be carried out by persons authorized by the manufacturer.

2.3.1 Setting the switching time

With valves, which have been equipped with a twin throttle check valve (see figure) ex factory (type **...S...** or **...S2...**, see "data sheet, Type code"), you can adjust the switching time yourself.

With type **...S...**, the throttle is installed **in the supply** to the main valve.

With type **...S2...**, the throttle is installed **in the discharge** of the main valve.



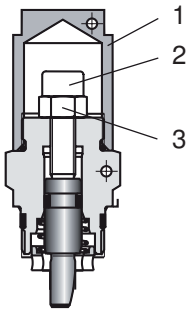
1 Pilot control valve

2 Twin throttle check valve

3 Main valve

Setting the switching time:

1. Remove the protective cap (1).
2. Loosen the lock nut (3) (wrench size 10).
3. Change the switching time by rotating the set screw (2).
   - ➢ Clockwise rotation extends the switching time.
   - ➢ Counterclockwise rotation shortens the switching time.
4. Tighten the lock nut (3) with a tightening torque of 8 ± 2 Nm.
5. Re-attach the protective cap (1).



1 Protective cap

2 Set screw

3 Lock nut, wrench size 10

3 Assembly and (initial) commissioning

3.1 Safety instructions for assembly and (initial) commissioning

⚠ DANGER

Before any work such as assembly or disassembly is carried out at the valve, the hydraulic system must be depressurized and the electrical control de-energized.

In order to avoid dangers caused by static charges, the base and/or subplate on which the valve is to be fitted must be electrically conductive and included in the equipotential bonding according to EN 60079-14 and IEC 60364-4-41.

3.2 Turning the solenoid coil by 90°

Solenoid coils can be mounted around the pole tube, i.e. the longitudinal axis of the valve, with a 90° offset.

IMPORTANT

The pole tube of the valve solenoid is completely sealed towards the oil circuit. The solenoid coil can therefore still be twisted if the valve has already been installed.

When turning the solenoid coil, make sure that it does not project over the valve connection surface. Make sure that the solenoid coil moves freely and does under no circumstance rest on the base plate to avoid damage to the valve.

⚠ WARNING

Explosion hazard!

Strictly observe the modification instructions as improper assembly will result in loss of the explosion protection.

1. Detach the mounting nut of the valve solenoid at the pole tube (hexagon nut, wrench size 32).
2. Remove the solenoid coil and the O-ring from the valve and rotate it by 90° in the desired direction.
3. Re-attach the solenoid coil in the desired position so that the locating pin of the solenoid coil enters the corresponding locating hole of the valve housing.
4. Mount the O-ring to the pole tube and push it to the solenoid coil.
5. Re-tighten the mounting nut of the valve solenoid (hexagon nut, wrench size 32).
   Tightening torque: 4 + 1 Nm

3.3 Assembly

⚠ WARNING

Explosion hazard!
Check whether the explosion protection marks on the name plate of the valve match the information in these operating instructions.

Check

- **based on the type designation on the name plate of the valve,**
- **based on the information on the name plate of the valve solenoid,**

whether the valve type is correct.

Also check the scope of delivery for completeness and possible transport damage. Also observe the safety instructions in "2.2 Special residual risks and protective measures" as well as "2.2.2 Notes on the valve use" and "2.2.3 Working safely at the valve".

Check whether the operating instructions for the valve are complete. Contact us if the operating instructions are incomplete.

Before any assembly and disassembly work starts, the surroundings must be cleaned so that no dirt can get into the oil circuit. Only non-linting cloth or special paper may be used for cleaning.

1. Check valve contact surface for required surface quality (see "data sheet, Unit dimensions"). Remove the protective plate from the valve and keep it safe for returns in case any repairs become necessary later.
2. Check the seal rings at the valve connection surface for completeness. Other sealants are inadmissible.
3. Place the valve on the valve contact surface.
4. When using the subplates mentioned under "9.1 Available accessories" or in case of assembly on comparable cast iron installation surfaces, tighten all valve mounting screws using a torque power screwdriver (admissible tolerance see table) and the specified tightening torque. This tightening torque refers to the maximum admissible operating pressure.
   If the valve is to be used at a reduced maximum pressure and in this connection is to be mounted on mounting surfaces of a different material, it might be necessary to use a lower tightening torque in order to avoid any damage.

Bolt dimension and tightening torque with admissible tolerance		
Size 10	M6 × 45-10.9	12.5 Nm ± 10 %
Size 16	M10 × 60-10.9	58.0 Nm ± 10 %
	M6 × 60-10.9	12.5 Nm ± 10 %
Size 25	M12 × 60-10.9	100.0 Nm ± 10 %
Size 32	M20 × 80-10.9	340.0 Nm ± 10 %

⚠ WARNING

For reasons of stability, exclusively the valve mounting screws specified in "9.1 Available accessories" may be used.

Always fasten the valve with all valve mounting screws as otherwise, leak-tightness is not guaranteed.

Number of valve mounting screws	
Size 10	4
Size 16...32	6

⚠ DANGER

Check the set-up of the hydraulic product using the circuit diagrams, device lists and assembly drawings.

Clarify possible differences with the responsible persons.

5. Make sure that pipes and/or hoses are connected to all ports and/or that the ports are closed with plug screws.
6. Carry out a special check to make sure that the cap nuts and flanges are correctly tightened at the pipe fittings and flanges.

IMPORTANT

Mark all checked fittings, e.g. using a permanent marker.

7. Make sure that all pipes and hose lines and every combination of connection pieces, couplings or connection points with hoses or pipes are checked for their operational safety by a person with appropriate knowledge and experience.

3.4 Establishing the electrical connection

⚠ CAUTION

Connection lines at valve solenoids with terminal box may only be connected by or under the supervision of a specialized electrician.

De-energize the connection line before the assembly.

Use finely stranded conductors only if they have pressed-on wire end ferrules.

Use only lines satisfying the requirements on the terminal areas of the connection terminals, see "data sheet".

The maximum temperature of the valve casing surface is 120 °C. This has to be considered when selecting the connection cables and/or contact of the connection cable with the casing surface is to be prevented.

Avoid sharp bends in connection lines and litz wires to prevent short-circuits and interruptions.

Only assemble the cable and line entry according to the assembly instructions. Check before assembly whether the individual components of the cable and line entry are complete and whether the sealing elements are undamaged.

During installation, ensure leak-tightness between cable, cable and line entry as well as terminal box. Pass the connection line in a pull-relieved way. The first mounting point must be within 15 cm of the cable entry.

IMPORTANT

The following applies to all valve solenoids:
The connection is polarity-independent.
With valve solenoids for connection to alternating voltage, a bridge rectifier is integrated in the valve solenoid.

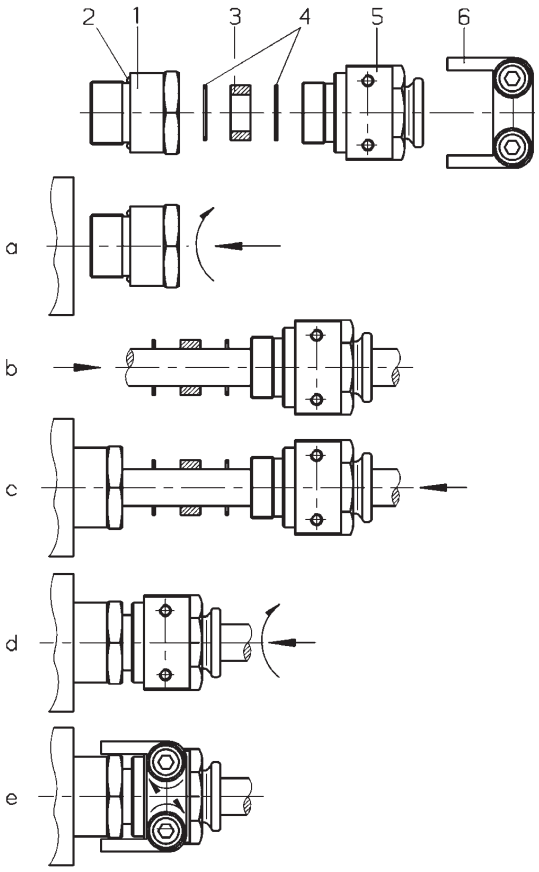
1. Open the terminal box (internal hexagon, wrench size 3).
2. Assemble the cable entry as shown in the drawing.
   - Screw the adapter (1) of the line entry including O-ring (2) into the terminal box, see (a). (Hexagon nut, wrench size 27, tightening torque 13...15 Nm). When tightening the adapter, ensure the solenoid coil is suitably supported.
   - Slide the screw-in bushing (5), the seal ring (3) as well as the pressure rings (4) onto the line (b), insert it through the adapter (1) into the terminal box (c) and screw it in tightly (d). (Hexagon nut, wrench size 27). When tightening the screw-in bushing, ensure the solenoid coil is suitably supported or stabilize it at the adapter (1) using an open-end wrench. The required tightening torque for the screw-in bushing depends on the line diameter.
   - Assemble and tightly screw in the screws of the clamping collar (6) to relieve any strain on the connection line (e). (internal hexagon, wrench size 4)
3. Tighten the clamping screws to fix the line ends. Tightening torques of the clamping screws:

Operating voltage connection	0.4...0.45 Nm
Connection for protective earthing conductor	1.0...1.2 Nm
Connection for potential equalization conductor	2.0...2.4 Nm

4. Assemble the cover with the seal beneath it. Tighten the mounting screws with their spring washers diagonally, one after the other. Tightening torque of the cover screws: 1...1.1 Nm.

Assemble the cable entry on the opposite side of the terminal box:

1. Disassemble the solenoid coil, see "3.2 Turning the solenoid coil by 90°" on page 9.
2. Open the terminal box.
3. Disassemble the plug screw (hexagon, wrench size 22).
4. Disassemble cable entry.
5. Install the cable entry at the opposite side, tighten adapter using a tightening torque of 13...15 Nm. Mount the plug screw, tightening torque 7...9 Nm.
6. Assemble the solenoid coil, see "3.2 Turning the solenoid coil by 90°" on page 9.



1 Adapter
2 O-ring
3 Seal ring
4 Pressure ring
5 Screw-in bushing
6 Clamping collar

3.5 Initial commissioning, re-commissioning

3.5.1 Checking electrical connections / replacing seals

Electrical connections in the terminal box must be checked for proper condition by or under the guidance and supervision of a specialized electrician before the initial or any re-commissioning.

Seals are subject to a natural aging process and for this reason, the seals must be checked for damage and replaced, if necessary, every time the terminal box is opened. This test must at least be carried out **every 3 years from the date of manufacture of the valve.**

For ordering details for seal kits, please refer to "8.3 Available spare parts".

3.5.2 Bleeding the hydraulic system

IMPORTANT

Observe the operating instructions of the device and/or system into which the valve is installed.

1. Switch the valve several times under operating pressure before putting it into full operation. This will press out any remaining air from the valve. Thus, mechanical damage caused by inadmissibly high acceleration of the fluid and the control spool is avoided and the life cycle of the valve is extended.

   IMPORTANT

   You can also achieve the switching movement of the control spool necessary for the bleeding procedure by manually actuating the manual override. For further information, see "5.1 Operating the optional manual override".

3.5.3 Performing a leak test

Check whether during operation, hydraulic fluid leaks at the valve or at the connections.

4 Disassembly

⚠ DANGER

Ensure before disassembly that the hydraulic system is depressurized and the electrical control de-energized.

1. Loosen the electrical connections professionally.
2. Prepare a container for collecting the escaping hydraulic fluid.
3. Only loosen the valve mounting screws using a suitable tool.
4. Remove the valve mounting screws and take off the valve from the valve contact surface.

   IMPORTANT

   Do not loosen the fitting between pilot control valve and main valve.

5. Collect the escaping hydraulic fluid in the provided container and dispose of it properly.
6. If the valve is to be returned to the manufacturer for repair, close the valve connection surface using the protective plate supplied or protect it using equivalent packaging in order to avoid contamination and damage.
7. Seal the subplate in order to avoid contamination.

5 Operation

5.1 Operating the optional manual override

The valves are equipped with a manual override which is covered by a protective cap. Using this manual override, the switching function of the valve can also be triggered if the valve solenoid is not energized.

The manual override is only intended for manual operation.

The manual override is located on the side of the valve solenoid facing away from the valve.

IMPORTANT

A manual override is only useful if the pressure in the tank channel of the valve does not exceed 50 bar. Above this pressure value, the required actuating force is too large and there is a risk of injury if the tool slips.

⚠ DANGER

Only operate the manual override if it is ensured that this will not trigger any dangerous working movement of the connected actuator!

⚠ CAUTION

Do not use sharp-edged tools to operate the manual override!

There is a risk of damaging sealing surfaces at the solenoid.

The manual override is only intended for short-time manual actuation and must not be brought into a certain spool position for a longer period or permanently by means of mechanical devices.

The manual override is not suitable for frequently recurring manual operations!

6 Troubleshooting

The valve is not sensitive to faults as long as the specified application conditions are complied with, in particular the oil quality.

Error	Possible cause(s)	Remedy
Valve does not switch	Electrical connection interrupted, no current continuity	
	• Cable break	Replace the connection cable
	• Electrical defect in valve solenoid	Remove valve and have it repaired
	• No pressure at P	Check and/or reapply pressure at port P
	• Control spool is jammed due to contamination	If possible, try to release the control spool by manually actuating the manual override. See "5.1 Operating the optional manual override" If this is not successful: Remove valve and replace it with a new one.
	Required minimum pilot pressure is not achieved	Check whether the pressure at port X with external pilot oil supply or at port P with internal pilot oil supply achieves the value for the minimum pilot pressure specified in the "data sheet, technical data, hydraulic". Restoring/establishing the minimum pilot pressure.
	Pilot pressure is too high (> 250 bar)	Reduce the pilot pressure or use a valve with already installed pressure reducing valve.
External leakage	Seal defective	
	• Seal at the connection surface is defective	Remove the valve and replace the seals
	• Other leakage	Remove valve and replace it with a new one

Following faults due to contamination, it is - in addition to the repair - essential to check the oil quality and improve it, if necessary, by suitable measures such as flushing or the additional installation of filters.

7 Inspection and maintenance

The following inspection, testing and maintenance works are to be carried out regularly. Also considering the operating conditions, the corresponding intervals are to be chosen so that defects that can reasonably be expected are dealt with in good time. The check must, however, at least be carried out every **three years from the date of manufacture of the valve.** The date of manufacture of the valve can be seen from the name plate, see "2.1 Information on the name plate and the valve solenoid housing".

IMPORTANT

The check is also to be carried out if the valve is only stored, but not used!

For ordering details for seal kits, please refer to "8.3 Available spare parts".

1. De-energize the connection line.
2. Remove coarse dirt from the exterior.

   ⚠ CAUTION

   In order to avoid electrostatic charging, only clean the valve solenoid and the connection using a damp cloth.
3. Check valve for external leakage, replace the seals if necessary, see "8.2 Rectifying external leakages".
4. Check all external fittings for completeness and tight seat.
5. Check cable gland, plug screw, external earthing connection and connection line for tight seat.
6. Open the terminal box and replace damaged seals, if necessary.
7. Check the inside of the terminal box for corrosion. Corrosion is an indication of leakage. Remove the valve and have it repaired if there is any visible corrosion.
8. Check the potting compound and internal lines and litz wires of the valve solenoid for visible damage. Remove the valve and have it repaired if there is any visible damage.
9. Check all screws and connections for a tight seat.
10. Check all connection lines for damage. Replace the connection line if there is any visible damage.
11. All the associated sealing elements are to be replaced with new ones each time the cable or line entries are released.
    The sealing elements are only intended for single use.
12. Re-assemble the cover of the terminal box with the seal beneath it. Tighten the mounting screws with their spring washers diagonally, one after the other. Tightening torque of the cover screws: (internal hexagon, wrench size 3) 1...1.1 Nm.

8 Repair and spare parts

8.1 Safety instructions regarding repairs

⚠ DANGER

In the interests of your safety, please observe all safety instructions carefully and at any time.

- **For repair works, the valve may only be disassembled to the extent described in this "Product-specific instruction".**
- **Defective parts may only be replaced by new, interchangeable, tested components in original equipment quality.**
- **Clean the external environment of fittings and devices before the disassembly. Do not use cotton waste for the cleaning.**
- **Close all openings using protective caps.**

8.2 Rectifying external leakages

External leakage at the valve connection surface can be rectified on site. Other leakages have to be rectified by specialists of the manufacturer.

8.2.1 Rectifying leakage at the valve connection surface

1. Remove the valve, see "4 Disassembly".
2. Check the seal ring recesses on the valve connection surface for cleanliness and damage.
3. Assemble the new seals.

8.3 Available spare parts

- NBR seal kit for the valve connection surface,

Valve type	Mat. no.
H-4WEH10...	R961001132
H-4WEH16...	R961001255
H-4WEH25...	R961001257
H-4WEH32...	R961001259

- FKM seal kit for the valve connection surface,

Valve type	Mat. no.
H-4WEH10...V...	R961001131
H-4WEH16...V...	R961001256
H-4WEH25...V...	R961001258
H-4WEH32...V...	R961001260

- Seal kit terminal box,
  mat. no. R961008228 includes:
  1 × seal kit for line entry
  1 × flat seal for terminal box
  1 × plug screw with O-ring
  4 × spring washers for terminal box
  4 × hexagon socket head cap screws for terminal box

IMPORTANT

Make sure the sealing materials are suitable for the hydraulic fluid used!
See "data sheet".

8.4 Contacts for repair and spare parts

Bosch Rexroth AG
Service Industriehydraulik
Bürgermeister-Dr. Nebel-Str. 8
97816 Lohr am Main
Germany

Phone +49 (9352) 18-1164
Fax +49 (9352) 18-3363

www.boschrexroth.com/service

9 Accessories

9.1 Available accessories

➢ Valve mounting screws:
For reasons of stability, exclusively use the following valve mounting screws.

Hexagon socket head cap screws
4762-MXX×XX-10.9-flZn-240h-L
(friction coefficient 0.09...0.14 according to VDA 235-101),

Valve type	Quantity	Size	Mat. no.
H-4WEH10...	4	M6 × 45	R913000258
H-4WEH16...	4	M10 × 60	R913000116
	2	M6 × 60	R913000115
H-4WEH25...	6	M12 × 60	R913000121
H-4WEH32...	6	M20 × 80	R901035246

➢ Locating pins for porting pattern according to ISO 4401

- Locating pin 3 × 8 according to EN ISO 8752, mat. no. R900005694

➢ Subplates with dimensions as specified in the data sheet; the relevant numbers of the data sheets are also listed in the table.

Valve type	Type	Mat. no., data sheet
H-4WEH10... without ports X,Y	G 534/01 FE/ZN (G3/4)	R900382284, 45054
H-4WEH10... with ports X,Y	G 535/01FE/ZN (G3/4)	R900336998, 45054
H-4WEH16...	G 172/01 FE/ZN (G3/4)	Upon request 45056
	G 172/02 FE/ZN (M27 × 2)	Upon request 45056
	G 174/01 FE/ZN (G1)	R900433461 45056
	G 174/02 FE/ZN (M33 × 2)	Upon request 45056
	G 174/08 FE/ZN (flange)	Upon request 45056
H-4WEH25...	G 151/01 FE/ZN (G1)	Upon request 45058
	G 154/01 FE/ZN (M48 × 2)	Upon request 45058
	G 154/08 FE/ZN (flange)	Upon request 45058
	G 156/01 FE/ZN (G1 1/2)	R900050356 45058
H-4WEH32...	G 157/01 FE/ZN (G1 1/2)	Upon request 45060
	G 157/02 FE/ZN (M48 × 2)	Upon request 45060
	G 158/10 FE/ZN (flange)	Upon request 45060

9.2 Address for ordering accessories and valves

Headquarters:
Bosch Rexroth AG
Hydraulics
Zum Eisengießer 1
97816 Lohr am Main
Germany

Phone +49 (9352) 18-0

or the respectively competent sales organizations. You can find the addresses on the Internet at:

www.boschrexroth.com

10 EC Declaration of Conformity

Rexroth
Bosch Group

Declaration of Conformity

Date: 16.09.2013

- ☐ in accordance with Machinery Directive 2006/42/EC
- ☐ in accordance with Low Voltage Directive 2006/95/EC
- ☐ in accordance with EMC Directive 2004/108/EC
- ☐ in accordance with Pressure Equipment Directive 97/23/EC
- ☒ in accordance with ATEX Directive 94/9/EC
- ☐

The manufacturer

Bosch Rexroth AG, Zum Eisengiesser 1, 97816 Lohr am Main

hereby declares that the products below

Name:	**4/2 and 4/3 directional valves, pilot operated**	
Type:	**H-4WEH...XE...**	**RE24751-XE**
Marking:	**Ⓔx II 2G c T4 X**	

was developed, designed and manufactured in compliance with the above-mentioned EU Directive(s).

EC type examination certificate no. of the valve solenoid: Issued by:	**KEMA 02ATEX2240 X** **DEKRA Certification B.V.** **Utrechtsweg 310, 6812 AR Arnhem** **P.O. Box 5185, 6802 ET Arnhem** **Niederlande**
IECEx Certificate of Conformity of the valve solenoid: Issued by:	**IECEx DEK 12.0068X** **DEKRA Certification B.V.** **Utrechtsweg 310, 6812 AR Arnhem** **P.O. Box 5185, 6812 ET Arnhem** **Niederlande**

Harmonized Standards applied:

Electrical part	**EN 60079-0: 2009, EN 60079-7: 2007, EN 60079-18: 2009**
Non-electrical part	**EN 13463-1: 2009, EN 13463-5: 2011**

National Standards and Technical Specifications applied:

Further explanations:

Taking account of RE24751-XE

Lohr am Main (Place), dated 16.09.2013 (Date) pp. H. Leusch Head of Development pp. Head of Production

We reserve the right to make changes to the content of the Declaration of Conformity. Current issue on request.