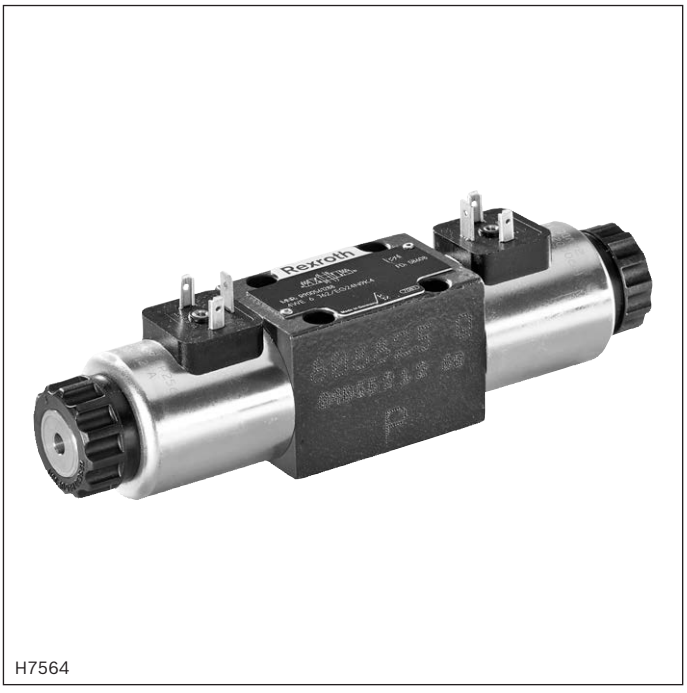
Directional spool valves, direct operated, with solenoid actuation

RE 23178
Edition: 2019-01
Replaces: 2013-06,
23183, 23208
and 23178-00

Type WE



H7564

- Size 6
- Component series 6X
- Maximum operating pressure 350 bar *[5076 psi]*
- Maximum flow: 80 l/min *[21 US gpm]* – DC
  60 l/min *[15.8 US gpm]* – AC

CE

Features

- 4/3-, 4/2- or 3/2-way version
- Porting pattern according to ISO 4401-03-02-0-05 (with or without locating hole) and NFPA T3.5.1 R2-2002 D03
- High-power solenoid, optionally rotatable by 90°
- Electrical connection as individual or central connection
- Manual override, optional
- Spool position monitoring, optional
- CE conformity according to the Low-Voltage Directive 2014/35/EU for electrical voltages > 50 VAC or > 75 VDC
- Solenoid coil as approved component with UR marking according to UL 906, edition 1982, optional
- Approval according to CSA C22.2 No. 139-1982, optional

Contents

Features	1
Ordering code	2 ... 8
Symbols	9
Function, section	10
Technical data	11 ... 13
Characteristic curves	14
Performance limits	15 ... 17
Dimensions	18 ... 23
Electrical connections, assignment	24 ... 26
Accessories	27
Project planning information	28
Further information	28

Ordering code

01	02	03	04	05		06	07	08	09	10	11	12		13	14	15	16	17	18	19	20	21
	WE	**6**		**6X**	**/**		**E**						**/**									*****

01	3 main ports	**3**
	4 main ports	**4**
02	Directional valve	**WE**
03	Size 6	**6**
04	Symbols; possible version see page 9	
05	Component series 60 ... 69 (60 ... 69: unchanged installation and connection dimensions)	**6X**
06	**With** spring return	**no code**
	Without spring return	**O**
	Without spring return with detent	**OF**
07	High-power wet-pin solenoid with detachable coil	**E**

Electrical voltages

08	For ordering code see page 5 ... 8	e.g. **G24**

Manual override [1] (see page 20)

09	**Without** manual override	**no code**
	With manual override	**N** [3]
	With manual override "mushroom button" (small)	**N2** [3]
	With lockable manual override "mushroom button" (small)	**N4** [2; 3]
	With lockable manual override "mushroom button" (large)	**N5** [2; 3; 4]
	With manual override "mushroom button" (large), not lockable	**N6** [3; 4]
	With lockable manual override "nut"	**N7** [2; 3]
	With concealed manual override (standard)	**N9**

Corrosion resistance (outside) (for the availability, refer to the following table)

10	None (valve housing primed)	**no code**
	Improved corrosion protection (240 h salt spray test according to EN ISO 9227)	**J3**
	High corrosion protection (720 h salt spray test according to EN ISO 9227)	**J5**

Electrical connection

11	**Individual connection or central connection**	
	For ordering code see page 5 ... 8	e.g. **K4**

1) Operation of the manual override only possible up to 50 bar *[725 psi]* tank pressure. Avoid damage to the bore of the manual override. (Special tool for the operation, separate order, material no. **R900024943**). If the manual override is blocked, operation of the opposite solenoid is to be excluded.
The manual override cannot be allocated a safety function.

2) With tank pressures higher than 50 bar, it is not guaranteed that the valve remains in the position into which it was switched by the lockable manual override ("N4", "N5", "N7").

3) Only direct voltage; not for version "= UR"

4) Only direct voltage; not for version "SO407"

Available corrosion resistance

	Electrical connection							Manual override	
	"K4"		"DL"		"K40", "C4"				
	"G12"	"G24"	"G24"	"G48"	"G12"	"G24"	"G26"	Without	"N"
"J3"	✓	✓	✓	✓	–	–	–	✓	✓
"J5"	–	–	–	–	✓	✓	✓	✓	✓

Ordering code

01	02	03	04	05		06	07	08	09	10	11	12		13	14	15	16	17	18	19	20	21
	WE	**6**		**6X**	**/**		**E**						**/**									*****

Spool position monitoring (For more information, see data sheet 24830)

12	**Without** position switch	**no code**
	– Inductive position switch type QM (valves with 2 spool positions)	
	Monitored spool position "a"	**QMAG24**
	Monitored spool position "b"	**QMBG24**
	Monitored rest position	**QM0G24**
	– Inductive position switch type QR (valves with 3 spool positions)	
	Monitored rest position	**QR0G24S**
	Monitored spool position "a" and "b"	**QRABG24E**
	– Inductive position switch type QS	
	Monitored spool position "a"	**QSAG24W**
	Monitored spool position "b"	**QSBG24W**
	Monitored spool position "0"	**QS0G24W**
	Monitored spool position "0" and "a"	**QS0AG24W**
	Monitored spool position "0" and "b"	**QS0BG24W**
	Monitored spool position "a" and "b"	**QSABG24W**

Switching time increase

13	**Without** switching time increase	**no code**
	With switching time increase (only with direct voltage and only with version "N9" and symbol "73")	**A12**

Throttle insert

14	**Without** throttle insert (standard)								**no code**
	With throttle insert (when the admissible valve performance limit is exceeded, refer to page 15 ... 17):								
	Port	Throttle Ø in mm *[inch]*							
		0.6 *[0.024]*	0.8 *[0.031]*	1.0 *[0.039]*	1.2 *[0.047]*	1.5 *[0.059]*	2.0 *[0.079]*	2.5 *[0.098]*	3.0 *[0.120]*	4.0 *[0.160]*
	P	**= B06**	**= B08**	**= B10**	**= B12**	**= B15**	**= B20**	**= B25**	**= B30**	**= B40**
	A	**= H06**	**= H08**	**= H10**	**= H12**	**= H15**	**= H20**	**= H25**	**= H30**	**= H40**
	B	**= R06**	**= R08**	**= R10**	**= R12**	**= R15**	**= R20**	**= R25**	**= R30**	**= R40**
	A and B	**= N06**	**= N08**	**= N10**	**= N12**	**= N15**	**= N20**	**= N25**	**= N30**	**= N40**
	T	**= X06**	**= X08**	**= X10**	**= X12**	**= X15**	**= X20**	**= X25**	**= X30**	**= X40**

Clamping length

15	42 mm *[1.65 inch]* (standard)	**no code**
	22 mm *[0.87 inch]*	**Z**

Control spool play

16	Standard (recommended)	**no code**
	Minimum (selection for reduced leakage values; higher oil cleanliness required)	**T06**
	Increased (selection with high temperature difference hydraulic fluid/environment; leads to higher internal leakage values)	**T12**

Seal material (observe compatibility of seals with hydraulic fluid used, see page 12)

17	NBR seals	**no code**
	FKM seals	**V**
	Recommended for operation with HFC hydraulic fluids together with high temperatures	**MH**
	Low-temperature version (only with version "Without manual override")	**MT**

Ordering code

01	02	03	04	05		06	07	08	09	10	11	12		13	14	15	16	17	18	19	20	21
	WE	**6**		**6X**	**/**		**E**						**/**									*****

18	Standard	**no code**
	Solenoid coil as approved component with UR marking according to UL 906, edition 1982 [5]	**= UR**
	Approval according to CSA C22.2 No. 139-1982	**= CSA**
	Porting pattern according to ANSI B93.9 [6]	**= AN**

19	**Without** locating hole	**no code**
	With locating hole and locking pin ISO 8752-3x8-St	**/62**

20	Standard	**no code**
	With reduced electric power consumption (only versions "G24" as well as "K4", "DL" and "DKL")	**SO407**

21	Further details in the plain text	*****

[5] Only for version "K4" with "G12", "G24" and "W110"

[6] With power supply to

- solenoid "a", channel P is connected to a
- solenoid "b", channel P is connected to B

Ordering code: DC voltage – individual connection

Electrical connections and available voltages

(special voltages upon request)

Connector		Ordering code	Electrical voltages 12 V – Ordering code G12	24 V – G24	26 V – G26	48 V – G48	96 V – G96	110 V – G110	125 V – G125	205 V – G205	220 V – G220	Protection class according to DIN EN 60529 [1]	Protection class according to VDE 0580
Connector 3-pole (2 + PE) according to DIN EN 175301-803	▶ Standard	**K4**	✓	✓	–	✓	✓	✓	✓	✓	✓	IP65	I [2]
	▶ With potted-in plug base and sealing element	**K4K**	✓	✓	✓	–	–	–	–	–	–	IP65	I [2]
Connector 2-pole, DT04-2PA (Deutsch type)		**K40**	✓	✓	✓	–	–	–	–	–	–	IP69K	III [3]
Connector, 4-pole, M12x1 according to DIN EN 61076-2-101 with suppressor diode, coding A	▶ Pin assignment according to DESINA	**K72L**	–	✓	–	–	–	–	–	–	–	IP65	III [3]
	▶ Standard	**K73L**	–	✓	–	–	–	–	–	–	–	IP65	III [3]
Connector 2-pole (Junior-Timer type)	▶ Connector parallel to the valve axis	**C4**	✓	✓	✓	–	–	–	–	–	–	IP66	III [3]

Maximum admissible overvoltages according to DIN EN 60664-1:2008-01 (VDE 0110-1) (overvoltage category II):										
Nominal voltage U_{Nom}	in V	12	24	26	48	96	110	125	205	220
Rated current I_{Nom}	in A	2.5	1.25	1.17	0.66	0.33	0.25	0.17	0.16	0.14
Maximum admissible switch-off overvoltage according to VDE 0580	in V	500	500	500	500	500	500	500	500	500
Recommended interference protection circuit with 2 x mains voltage	in V	24	48	52	96	192	220	250	410	440

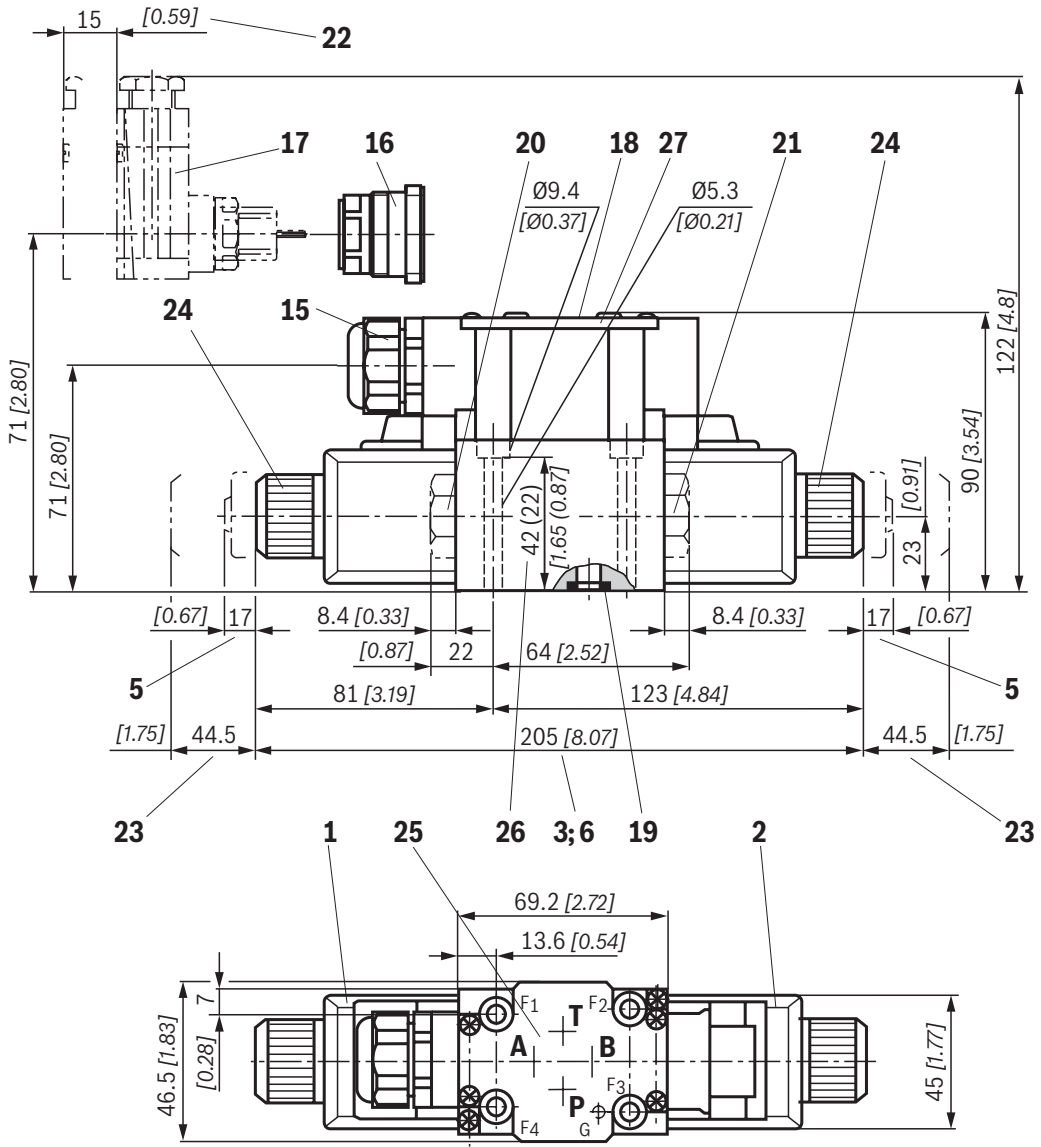
1) Only with correctly mounted valve with a mating connector suitable for the protection class.

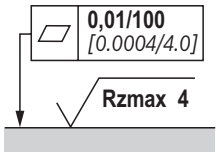
2) Protection class I with properly connected protective grounding conductor (PE) and valve mounting surface connected to the protective grounding conductor system.

3) With protection class III, a protective extra-low voltage with isolation transformer (PELV, SELV) is to be provided.

☞ **Notice:**
Solenoid valves induce voltage peaks during switch-off. In order to prevent electro-magnetic interference at the system and damage to the valve control, an interference protection circuit has to be provided on the system side. Alternatively, you can also select a connector with integrated interference protection circuit.

Dimensions: Alternating voltage – **central connection**
(dimensions in mm *[inch]*)





Required surface quality of the valve contact surface

☞ **Notice:**
The dimensions are nominal dimensions which are subject to tolerances.

For **item explanations, valve mounting screws** and **subplates** see page 23.