

Directional spool valves, direct operated,
with solenoid actuation

Type WE

RE 23178

Edition: 2019-01

Replaces: 2013-06,
23183, 23208
and 23178-00

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

**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

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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
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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"			Without	"N"
	"G12"	"G24"	"G24"	"G48"	"G12"	"G24"	"G26"		
"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									Protection class according to DIN EN 60529 ¹⁾	Protection class according to VDE 0580	
		12 V	24 V	26 V	48 V	96 V	110 V	125 V	205 V	220 V			
		G12	G24	G26	G48	G96	G110	G125	G205	G220			
Connector 3-pole (2 + PE) according to DIN EN 175301-803	<ul style="list-style-type: none"> ▶ Standard ▶ With potted-in plug base and sealing element 	K4	✓	✓	-	✓	✓	✓	✓	✓	✓	IP65	I ²⁾
		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	<ul style="list-style-type: none"> ▶ Pin assignment according to DESINA ▶ Standard 	K72L	-	✓	-	-	-	-	-	-	-	IP65	III ³⁾
		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			

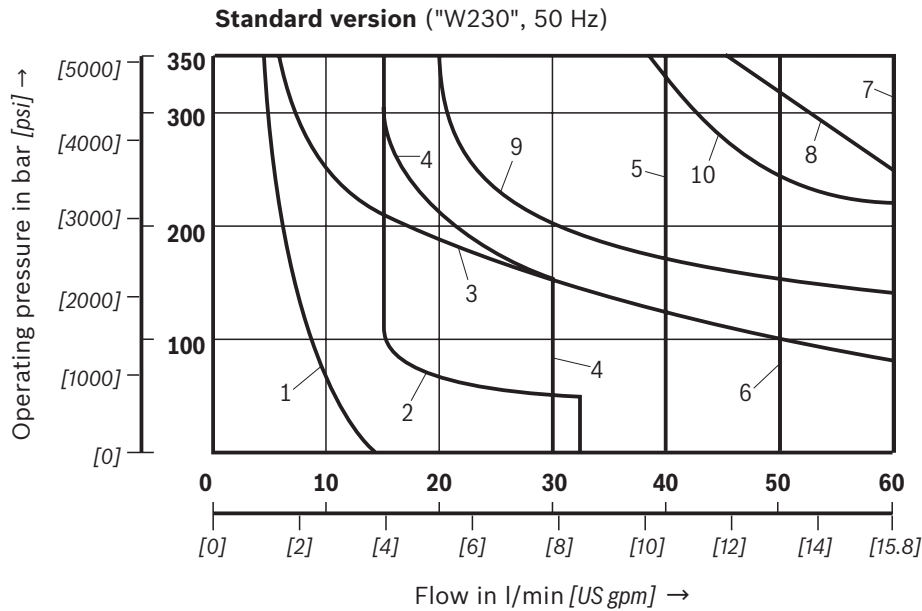
- 1) Only with correctly mounted valve with a mating connector suitable for the protection class.
- 2) Protection class I with properly connected protective grounding conductor (PE) and valve mounting surface connected to the protective grounding conductor system.
- 3) With protection class III, a protective 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.

Performance limits: AC voltage
 (measured with HLP46, $\vartheta_{oil} = 40 \pm 5 \text{ °C } [104 \pm 9 \text{ °F}]$)

see notice on page 15.

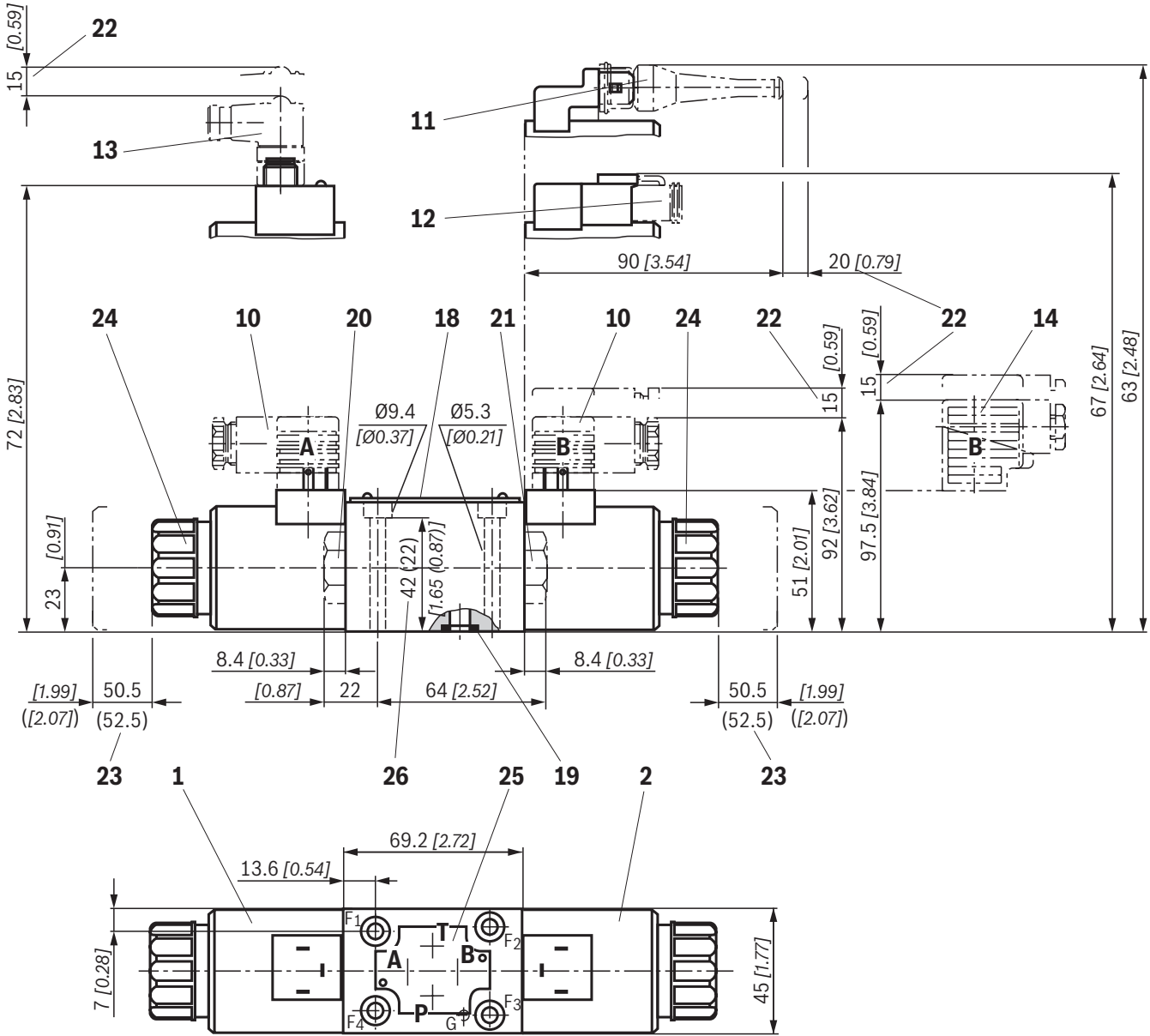


Characteristic curve	Symbol
1	A; B ¹⁾
2	V
3	A; B
4	F; P
5	G; T
6	H
7	C/O; C/OF; D/O; D/OF; E; E1 ⁻²⁾ ; J; M; R ³⁾
8	C; D; Y
9	J; L; U
10	A/O; A/OF; Q; W

Voltages see page 7 and 8.

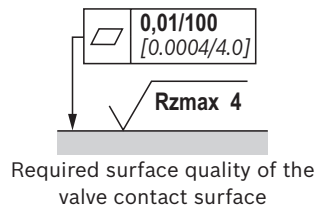
- 1) With manual override
- 2) P – A/B pre-opening
- 3) Return flow from actuator to tank

Dimensions: Direct voltage – individual connection
(dimensions in mm [inch])

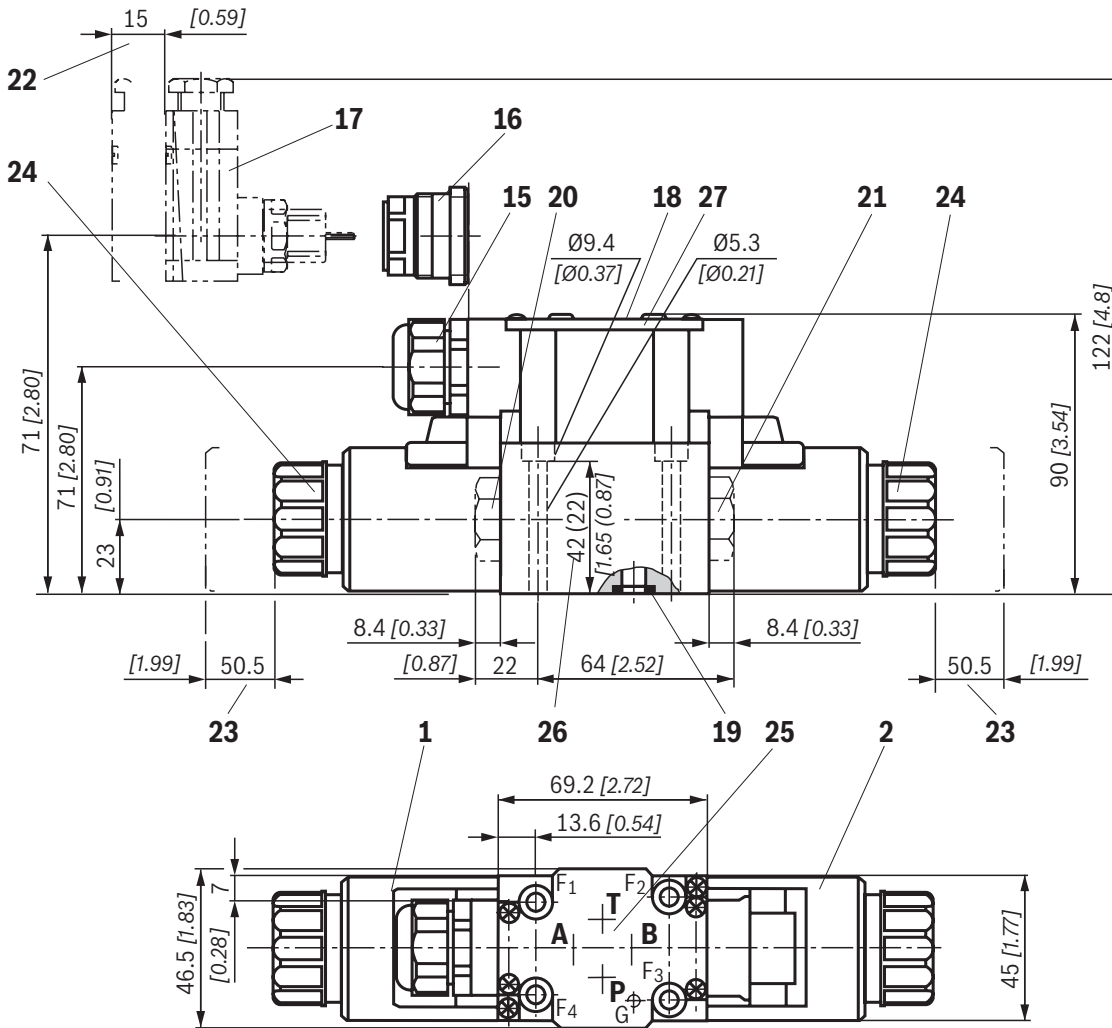


Dimensions for manual overrides see page 20.
For **item explanations**, **valve mounting screws** and **subplates** see page 23.

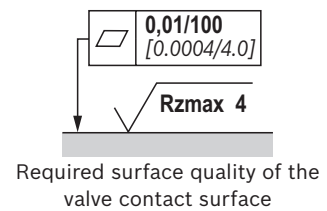
Notice:
The dimensions are nominal dimensions which are subject to tolerances.



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



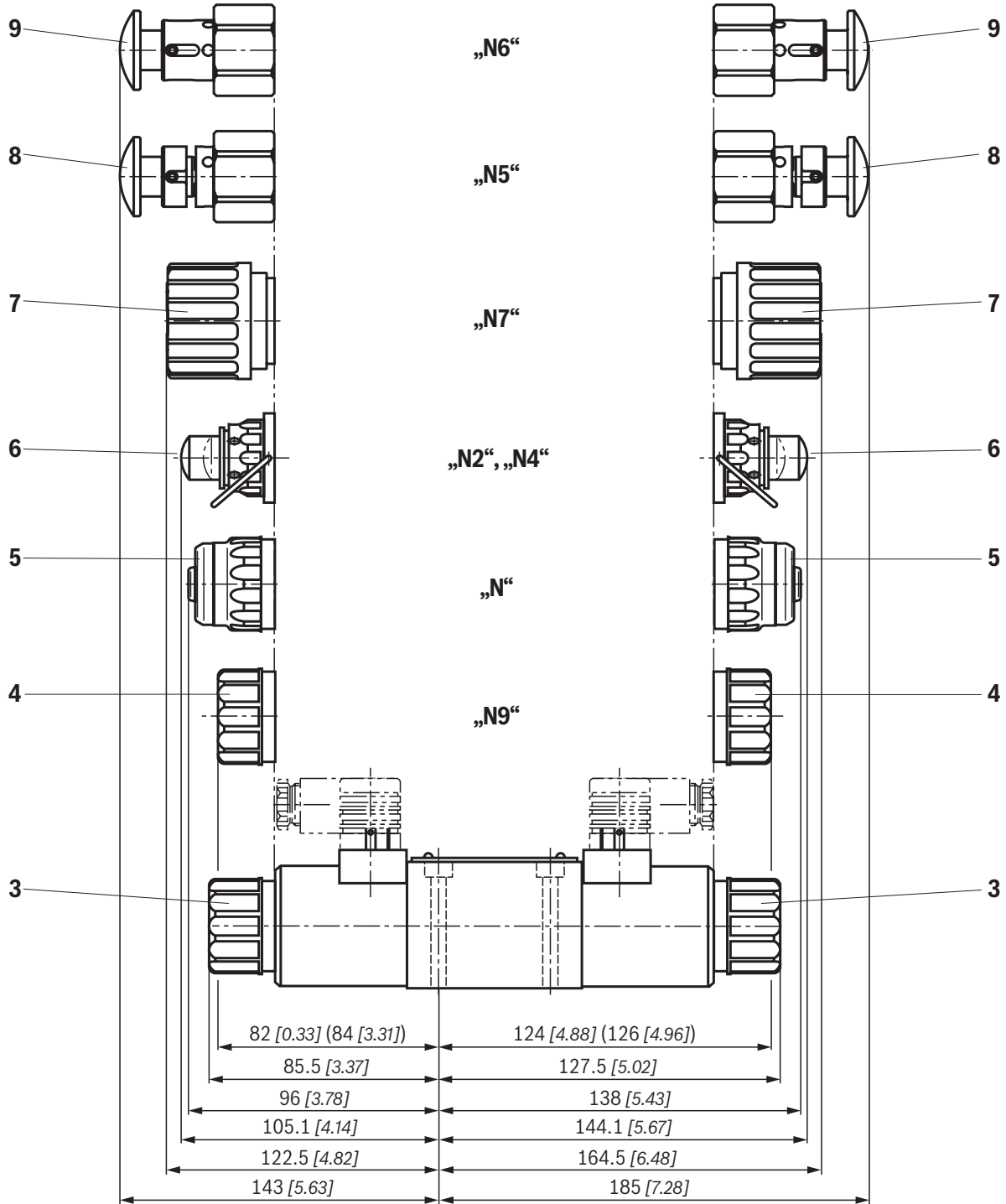
Dimensions for manual overrides see page 20.
For **item explanations, valve mounting screws** and **subplates** see page 23.



Notice:

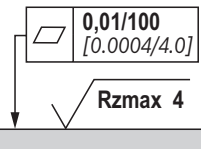
The dimensions are nominal dimensions which are subject to tolerances.

Dimensions: Direct voltage – manual overrides
(dimensions in mm [inch])



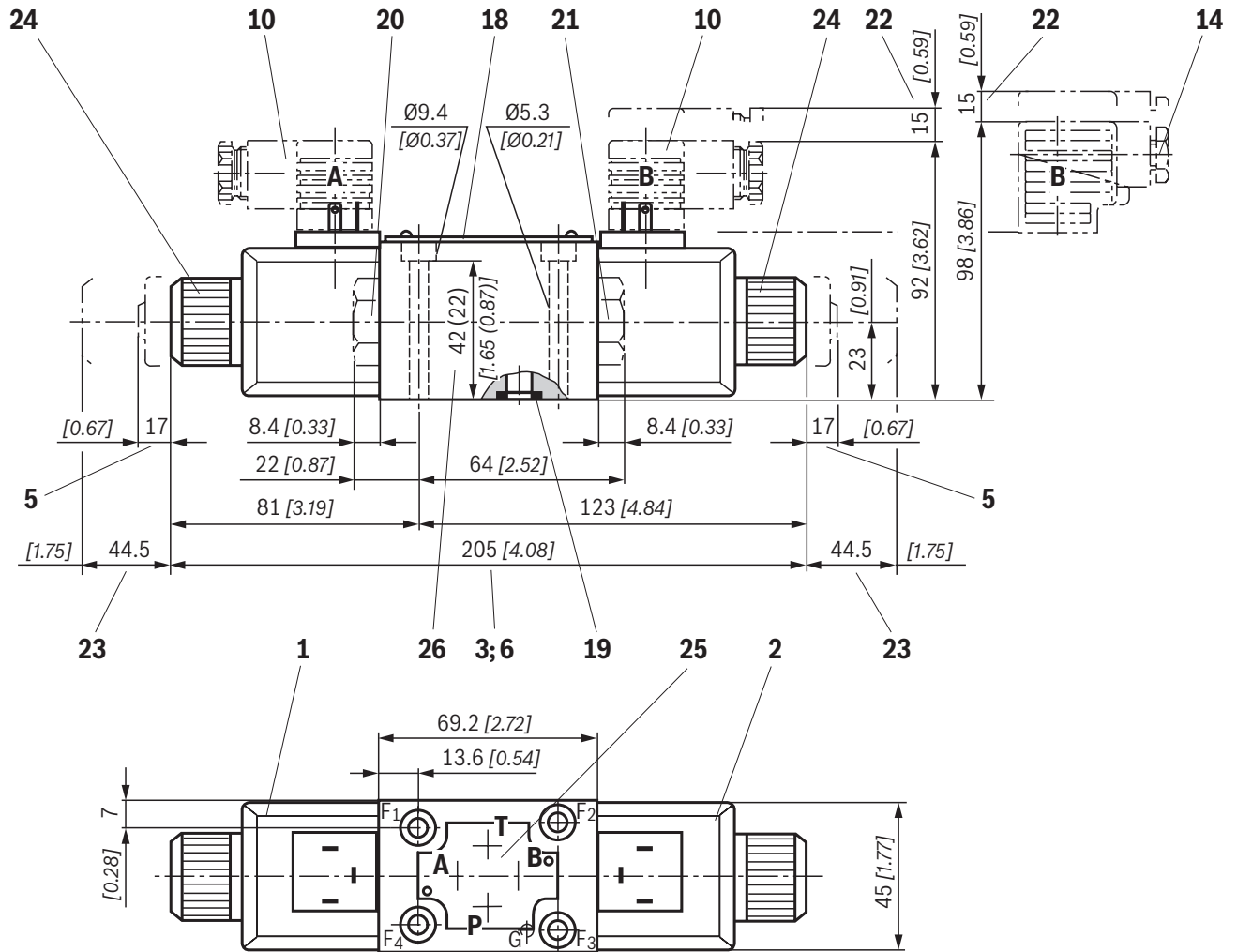
For item explanations, valve mounting screws and subplates see page 23.

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



Required surface quality of the valve contact surface

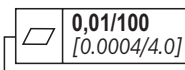
Dimensions: Alternating voltage – individual connection
(dimensions in mm [inch])



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

Notice:

The dimensions are nominal dimensions which are subject to tolerances.



Required surface quality of the valve contact surface