

4/2, 4/3, and 5/2, 5/3 proportional directional valve, pilot operated, without electrical position feedback without/with integrated electronics (OBE)

Type .WRZ..., .WRZE... and .WRH...



Sizes 10 to 52
Component series 7X
Maximum operating pressure 350 bar
Maximum flow 2800 l/min

Type 4WRZE 10 ...-7X/...K31/...
with integrated electronics (OBE)

Type 4WRZ 10 ...-7X/...K4/...
with the corresponding control
electronics (separate order)

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Features

- Pilot operated, 2-stage proportional directional valve with integrated electronics (OBE) with type 4WRZE
- Control of flow direction and size
- Operation by means of proportional solenoids with central thread and detachable coil
- For subplate mounting:
Porting pattern according to ISO 4401
- Manual override, optional
- Spring-centered control spool
- Control electronics
 - Type .WRZE...
 - Integrated electronics (OBE) with voltage or current input (A1 and/or F1)
 - Type .WRZ...
 - Digital or analog amplifier in Euro-card format
 - Analog amplifier in modular design

Ordering codes (types 4WRZ and 4WRH; sizes 10 to 32 subplate mounting; size 52 flange connection)

4WR_						7X		/							
Hydraulic actuation	= H														
Electro-hydraulic actuation	= Z														
Type WRZ:															
For external electronics	= no code														
With integrated electronics	= E														
Size 10	= 10														
Size 16	= 16														
Size 25	= 25														
Size 32	= 32														
Size 52	= 52														
For control spool symbols , see page 3															
Rated flow in l/min at valve pressure differential $\Delta p = 10$ bar															
Size 10															
25 l/min	= 25														
50 l/min	= 50														
85 l/min	= 85														
Size 16															
100 l/min	= 100														
125 l/min	= 125														
150 l/min	= 150														
180 l/min	= 180														
Size 25															
220 l/min	= 220														
325 l/min	= 325														
Size 32															
360 l/min	= 360														
520 l/min	= 520														
Size 52															
1000 l/min	= 1000														
Component series 70 to 79 = 7X (70 to 79: Unchanged installation and connection dimensions)															
For subplate mounting = no code															
For flange connection (size 52 only) = F															
Pilot control valve size 6															
Proportional solenoid with detachable coil = 6E ¹⁾															
Supply voltage															
Direct voltage 24 V = G24 ¹⁾															
Without manual override = no code															
With concealed manual override = N9 ^{1, 2)}															
Without special type of protection = no code															
Seawater-resistant = J ³⁾															
Pilot oil supply and return															
External pilot oil supply, external pilot oil return = no code															
Internal pilot oil supply, external pilot oil return = E															
Internal pilot oil supply, internal pilot oil return = ET															
External pilot oil supply, internal pilot oil return = T															
(only possible without code for size 52 and type 4WRH)															

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">*</td> </tr> </table>						*	<p>For further details, see the plain text</p> <p>M = NBR seals V = FKM seals</p> <p>no code = Without pressure reducing valve D3 ¹⁾ = With pressure reducing valve ZDR 6 DP0-4X/40YM-W80 (not adjustable)</p> <p>A1 = F1 = no code =</p> <p>Electronics interface Command value ±10 V Command value 4 to 20 mA For types WRZ and WRH</p> <p>Electrical connection type WRZ: Without mating connector, with connector according to DIN EN 175301-803 Mating connector, separate order, see page 27</p> <p>Type WRZE: Without mating connector, with connector according to DIN EN 175201-804 Mating connector, separate order, see page 27</p>
					*		
<p>K4 ^{1, 4)} =</p>	<p>Without mating connector, with connector according to DIN EN 175301-803 Mating connector, separate order, see page 27</p>						
<p>K31 ^{1, 4)} =</p>	<p>Without mating connector, with connector according to DIN EN 175201-804 Mating connector, separate order, see page 27</p>						

¹⁾ Not applicable with types 4WRH

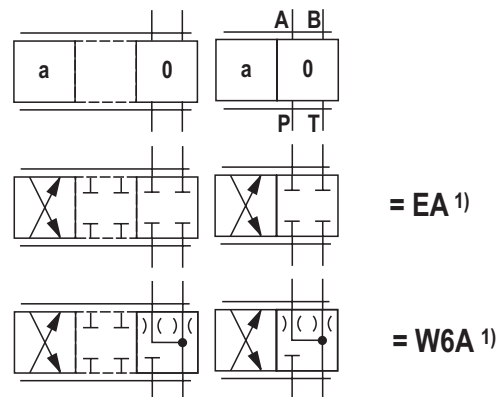
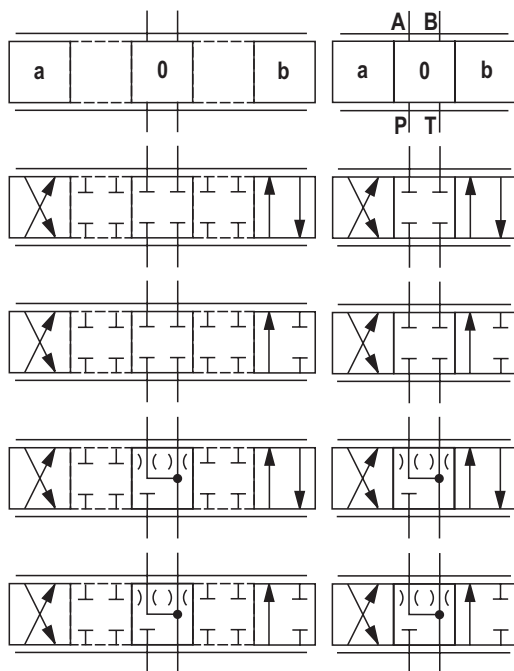
²⁾ For version "J" → "N" instead of "N9"

³⁾ For information on the seawater-resistant version, see data sheet 29115-M

⁴⁾ For version "J" = seawater-resistant **only** "K31"

Electric special types of protection available on request.

Control spool symbols



¹⁾ Not for type 4WRH

With symbols E1- and W8-: P → A: q_V B → T: $q_V/2$
P → B: $q_V/2$ A → T: q_V

With symbols E3- and W9-: P → A: q_V B → T: Blocked
P → B: $q_V/2$ A → T: q_V

(differential circuit, piston top at port A)

Notice: With symbols W6-, W8-, W9-, W6A, there is a connection from A → T and B → T with less than 2% of the respective nominal cross-section in switching position "0".

Ordering codes (types 4WRZ 52 and 4WRH 52; subplate mounting)

5WR_	52	1000	7X/															*
Hydraulic actuation	= H																	
Electro-hydraulic actuation	= Z																	
Type WRZ:																		
For external electronics	= no code																	
With integrated electronics	= E																	
Size 52	= 52																	
For control spool symbols , see page 5																		
Rated flow in l/min at valve pressure differential $\Delta p = 10$ bar																		
1000 l/min	= 1000																	
Component series 70 to 79 (70 to 79: Unchanged installation and connection dimensions)																		
	= 7X																	
Pilot control valve size 6																		
Proportional solenoid with detachable coil	= 6E ¹⁾																	
Supply voltage																		
Direct voltage 24 V	= G24 ¹⁾																	
Without manual override	= no code																	
With concealed manual override	= N9 ^{1, 2)}																	
Without special type of protection	= no code																	
Seawater-resistant	= J ³⁾																	
Electrical connection type WRZ:																		
Without mating connector, with connector according to DIN EN 175301-803	= K4 ^{1, 4)}																	
Mating connector, separate order, see page 27																		
Type WRZE:																		
Without mating connector, with connector according to DIN EN 175201-804	= K31 ^{1, 4)}																	
Mating connector, separate order, see page 27																		
Electronics interface																		
Command value ± 10 V	= A1																	
Command value 4 to 20 mA	= F1																	
For types WRZ and WRH	= no code																	
Without pressure reducing valve	= no code																	
With pressure reducing valve ZDR 6 DP0-4X/40YM-W80 (not adjustable)	= D3 ¹⁾																	
NBR seals	= M																	
FKM seals	= V																	
For further details, see the plain text																		

¹⁾ Not applicable with types 4WRH

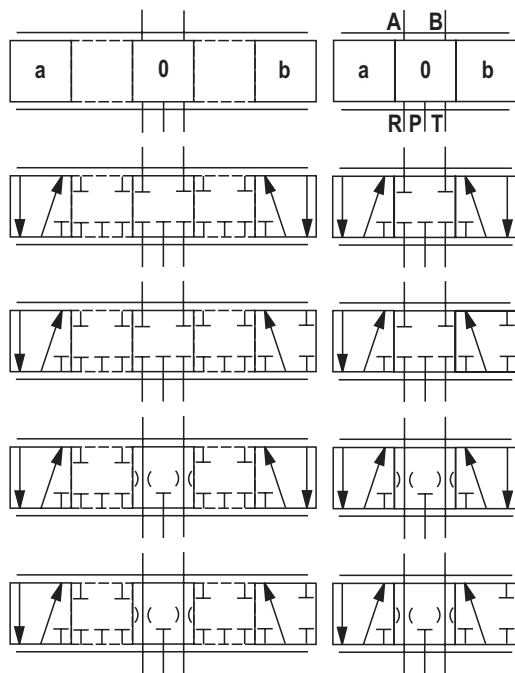
²⁾ For version "J" → "N" instead of "N9"

³⁾ For information on the seawater-resistant version, see data sheet 29115-M

⁴⁾ For version "J" = seawater-resistant **only** "K31"

Electric special types of protection available on request.

Control spool symbols

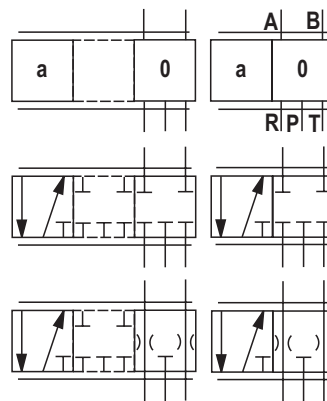


= E
E1-

= E3-

= W6-
W8-

= W9-



= EA 1)

= W6A 1)

1) Not for type 4WRH

With symbols E1- and W8-: P → A: q_V B → T: $q_V/2$

P → B: $q_V/2$ A → R: q_V

With symbols E3- and W9-: P → A: q_V B → T: Blocked

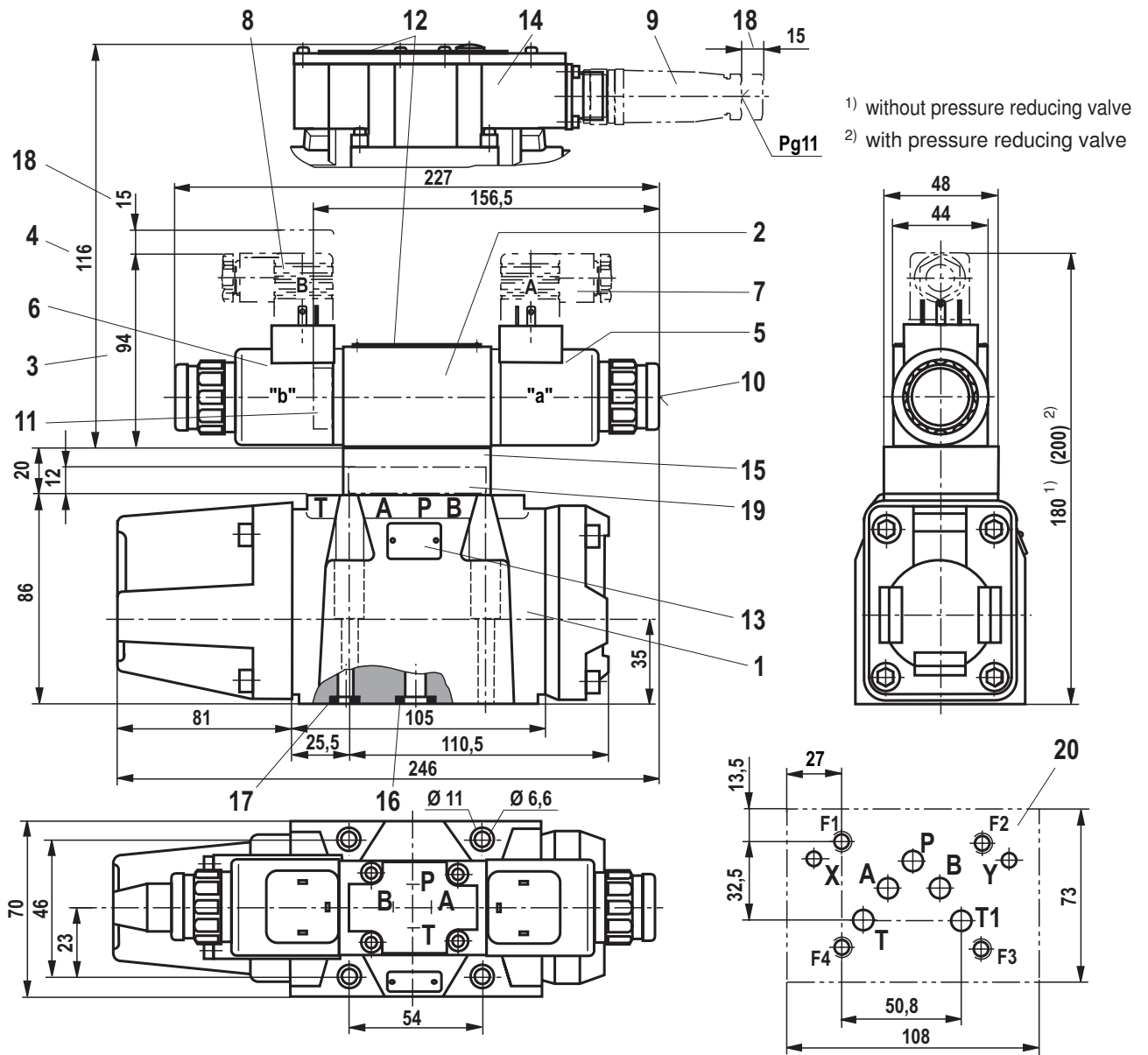
P → B: $q_V/2$ A → R: q_V

(differential circuit, piston top at port A)

Notice:

- Only external pilot oil supply and return possible
- With control spool W6-, W8-, W9-, W6A, there is a connection from A → R and B → T with less than 2% of the respective nominal cross-section in switching position "0".

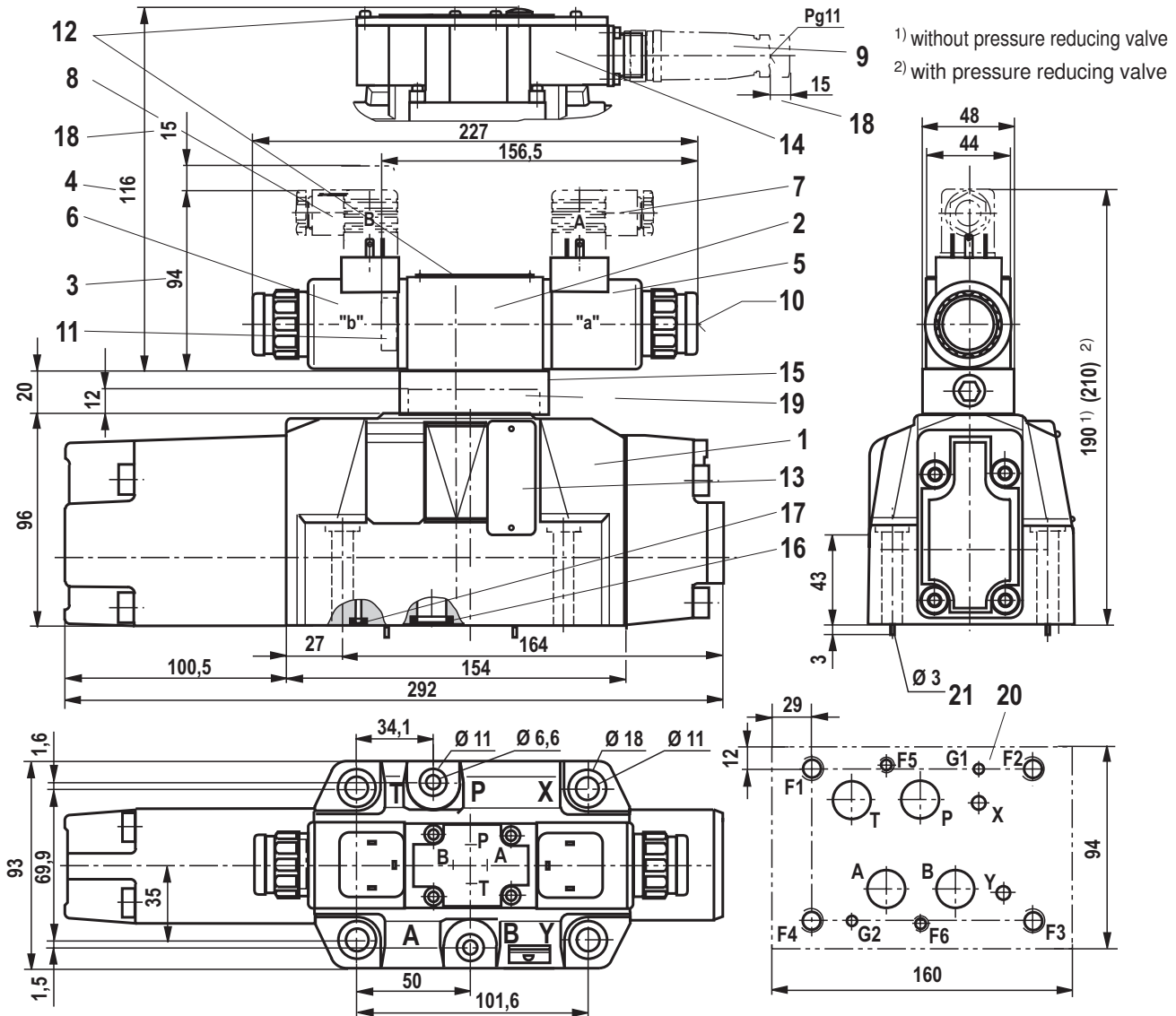
Dimensions: Size 10 (dimensions in mm)



1) without pressure reducing valve
2) with pressure reducing valve

- 1 Main valve
- 2 Pilot control valve
- 3 Dimension for version "4WRZ..." (not seawater-resistant)
- 4 Dimension for version "4WRZE..."
- 5 Proportional solenoid "a"
- 6 Proportional solenoid "b"
- 7 Mating connector "A", separate order, see page 27
- 8 Mating connector "B", separate order, see page 27
- 9 Mating connector, separate order, see page 27
- 10 Concealed manual override "N9"
- 11 Plug screw for valves with one solenoid
- 12 Name plate for pilot control valve
- 13 Name plate for main valve
- 14 Integrated electronics (OBE)
- 15 Pressure reducing valve "D3"
- 16 Identical seal rings for ports A, B, P, T, and T1
- 17 Identical seal rings for ports X and Y
- 18 Space required to remove the mating connector
- 19 Diversion plate (type 4WRH...)
- 20 Machined installation surface, porting pattern according to ISO 4401-05-05-0-05, ports X and Y as required

0,01/100
Rzmax 4
Required surface quality of the valve contact surface

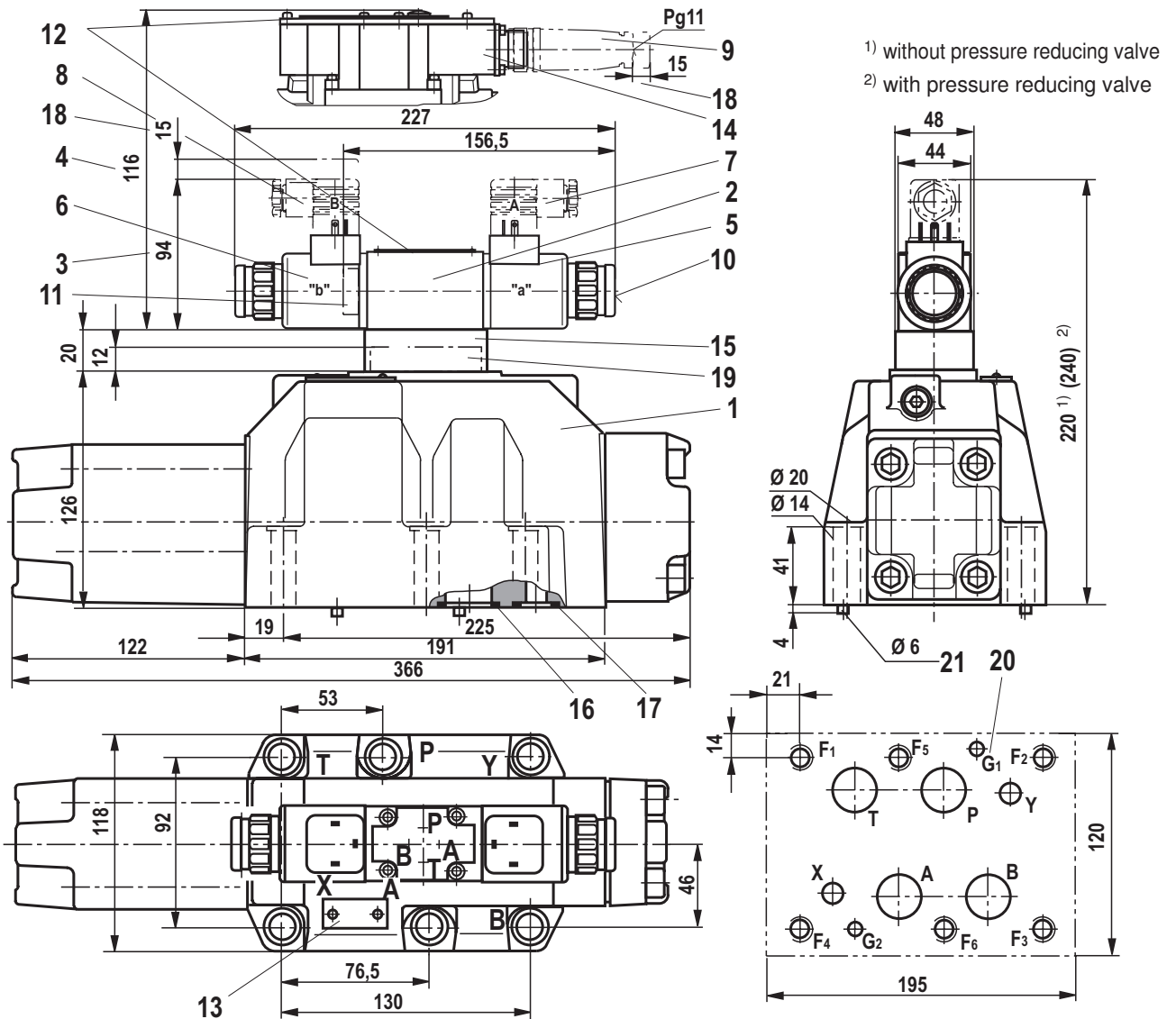
Dimensions: Size 16 (dimensions in mm)

- 1) without pressure reducing valve
2) with pressure reducing valve

- 1 Main valve
2 Pilot control valve
3 Dimension for version "4WRZ..." (**not** seawater-resistant)
4 Dimension for version "4WRZE..."
5 Proportional solenoid "a"
6 Proportional solenoid "b"
7 Mating connector "A", separate order, see page 27
8 Mating connector "B", separate order, see page 27
9 Mating connector, separate order, see page 27
10 Concealed manual override "N9"
11 Plug screw for valves with one solenoid
12 Name plate for pilot control valve
13 Name plate for main valve
14 Integrated electronics (OBE)
15 Pressure reducing valve "D3"
16 Identical seal rings for ports A, B, P, and T
17 Identical seal rings for ports X and Y
18 Space required to remove the mating connector
19 Diversion plate (type 4WRH...)
20 Machined installation surface, porting pattern according to ISO 4401-07-07-0-05, ports X and Y as required deviating from the standard: Ports A, B, P, T Ø20 mm.
21 Locking pin

0,01/100
Rzmax 4
Required surface quality of the valve contact surface

Dimensions: Size 25 (dimensions in mm)



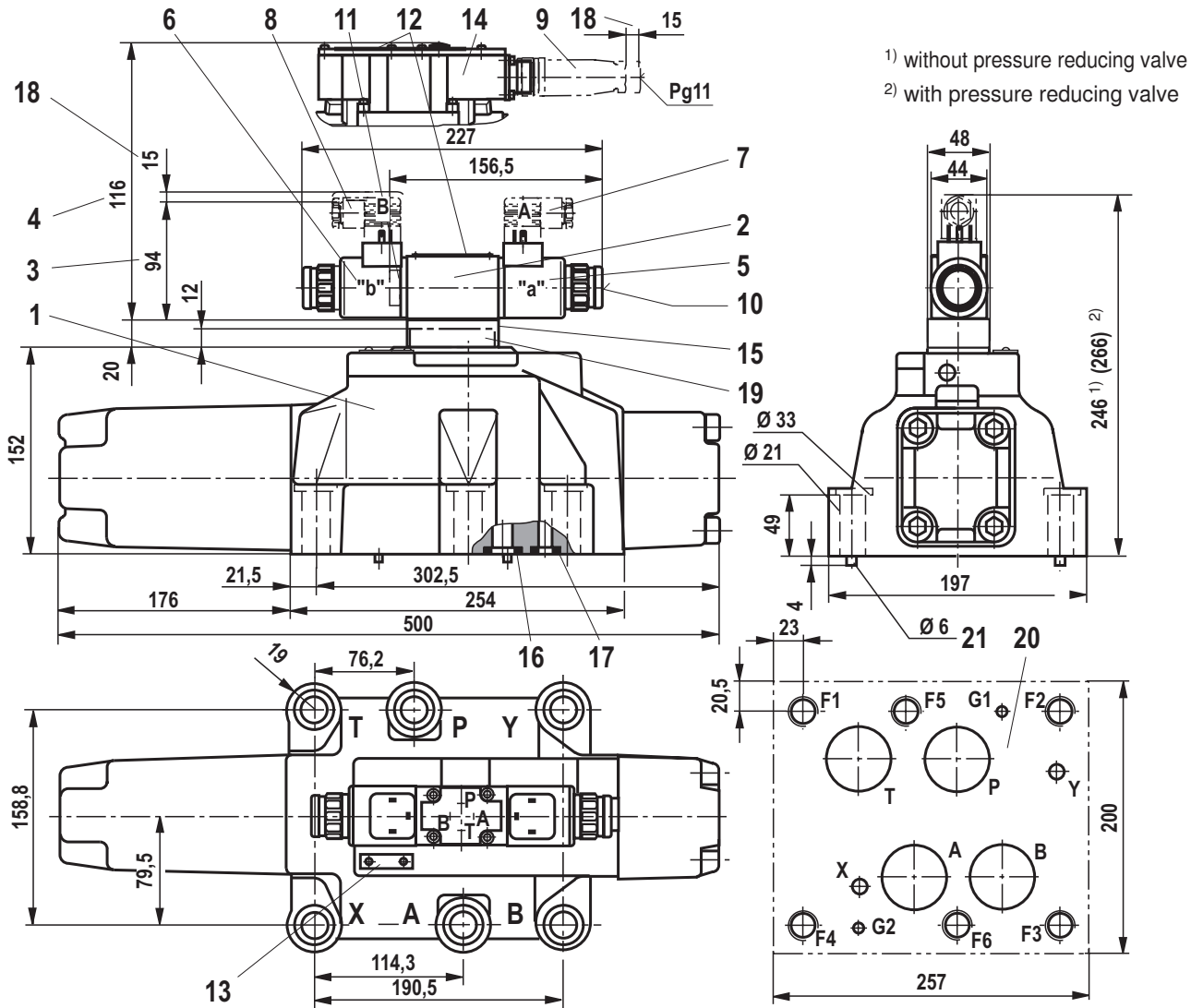
1) without pressure reducing valve
2) with pressure reducing valve

- 1 Main valve
- 2 Pilot control valve
- 3 Dimension for version "4WRZ..." (not seawater-resistant)
- 4 Dimension for version "4WRZE..."
- 5 Proportional solenoid "a"
- 6 Proportional solenoid "b"
- 7 Mating connector "A", separate order, see page 27
- 8 Mating connector "B", separate order, see page 27
- 9 Mating connector, separate order, see page 27
- 10 Concealed manual override "N9"
- 11 Plug screw for valves with one solenoid
- 12 Name plate for pilot control valve
- 13 Name plate for main valve
- 14 Integrated electronics (OBE)

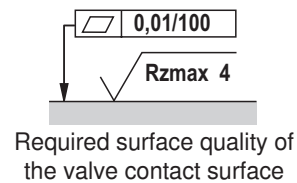
- 15 Pressure reducing valve "D3"
- 16 Identical seal rings for ports A, B, P, and T
- 17 Identical seal rings for ports X and Y
- 18 Space required for removing the mating connector
- 19 Diversion plate (type 4WRH...)
- 20 Machined installation surface, porting pattern according to ISO 4401-08-08-0-05, ports X and Y as required
- 21 Locking pin

0,01/100
Rzmax 4
Required surface quality of the valve contact surface

Dimensions: Size 32 (dimensions in mm)

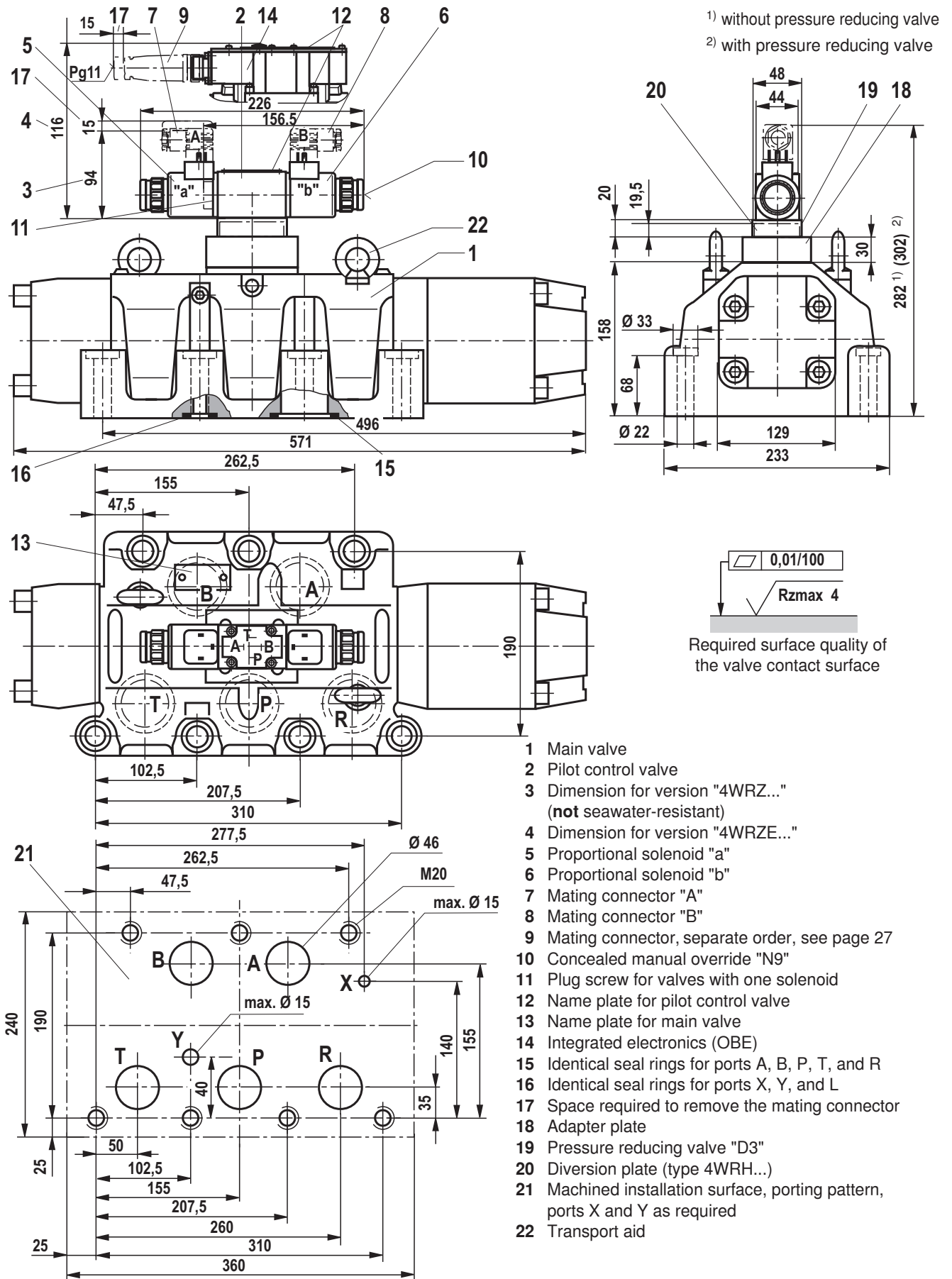


1) without pressure reducing valve
2) with pressure reducing valve

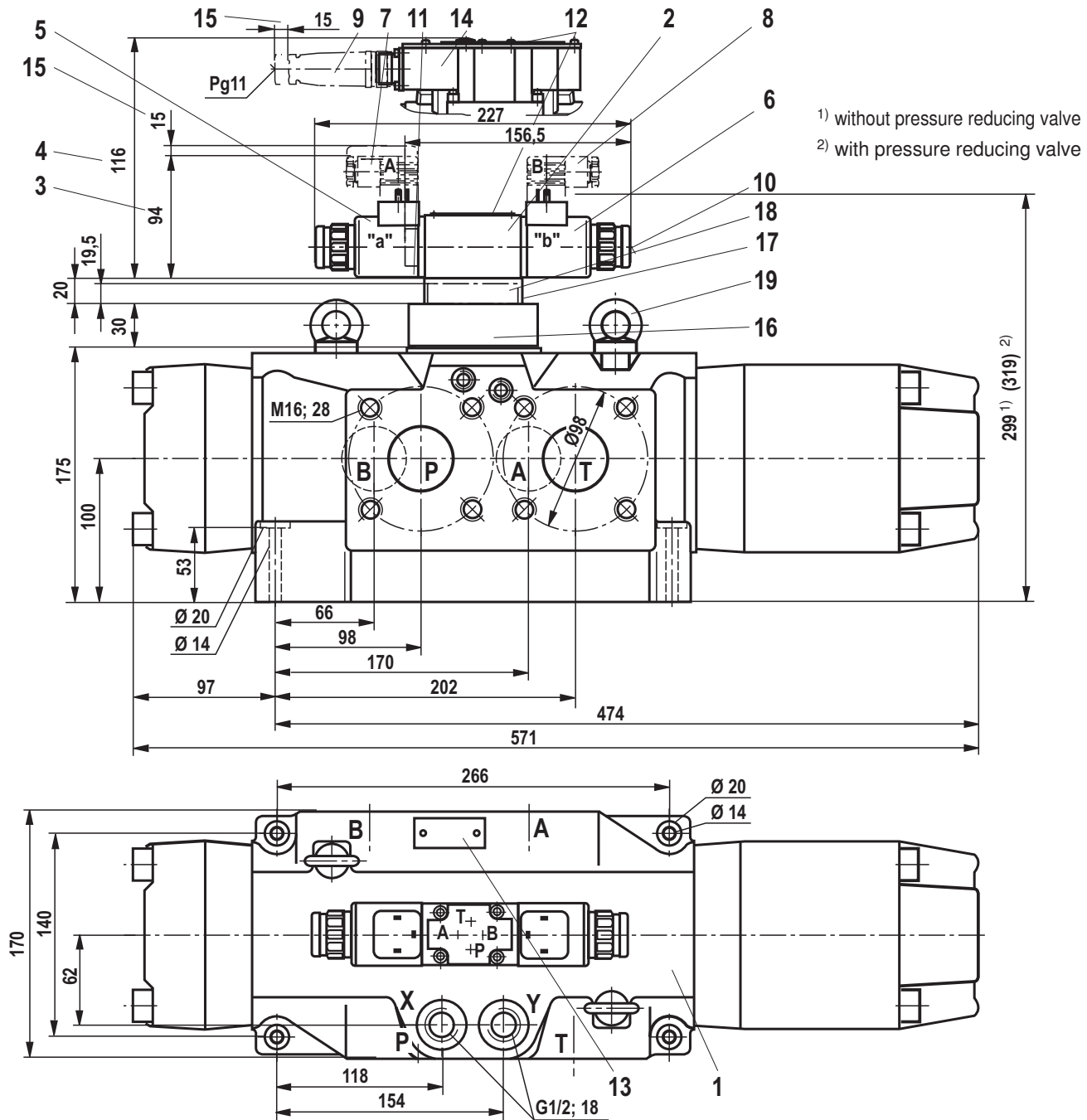


- 1 Main valve
- 2 Pilot control valve
- 3 Dimension for version "4WRZ..." (**not** seawater-resistant)
- 4 Dimension for version "4WRZE..."
- 5 Proportional solenoid "a"
- 6 Proportional solenoid "b"
- 7 Mating connector "A", separate order, see page 27
- 8 Mating connector "B", separate order, see page 27
- 9 Mating connector, separate order, see page 27
- 10 Concealed manual override "N9"
- 11 Plug screw for valves with one solenoid
- 12 Name plate for pilot control valve
- 13 Name plate for main valve
- 14 Integrated electronics (OBE)
- 15 Pressure reducing valve "D3"
- 16 Identical seal rings for ports A, B, P, and T
- 17 Identical seal rings for ports X and Y
- 18 Space required for removing the mating connector
- 19 Diversion plate (type 4WRH...)
- 20 Machined installation surface, porting pattern according to ISO 4401-10-09-0-05, ports X and Y as required deviating from the standard:
 - Ports A, B, T and P Ø38 mm.
- 21 Locking pin

Dimensions: Subplate mounting size 52 (dimensions in mm)



- 1 Main valve
- 2 Pilot control valve
- 3 Dimension for version "4WRZ..."
(not seawater-resistant)
- 4 Dimension for version "4WRZE..."
- 5 Proportional solenoid "a"
- 6 Proportional solenoid "b"
- 7 Mating connector "A"
- 8 Mating connector "B"
- 9 Mating connector, separate order, see page 27
- 10 Concealed manual override "N9"
- 11 Plug screw for valves with one solenoid
- 12 Name plate for pilot control valve
- 13 Name plate for main valve
- 14 Integrated electronics (OBE)
- 15 Identical seal rings for ports A, B, P, T, and R
- 16 Identical seal rings for ports X, Y, and L
- 17 Space required to remove the mating connector
- 18 Adapter plate
- 19 Pressure reducing valve "D3"
- 20 Diversion plate (type 4WRH...)
- 21 Machined installation surface, porting pattern,
ports X and Y as required
- 22 Transport aid

Dimensions: Flange connection size 52 (dimensions in mm)


- | | |
|--|--|
| 1 Main valve | 11 Plug screw for valves with one solenoid |
| 2 Pilot control valve | 12 Name plate for pilot control valve |
| 3 Dimension for version "4WRZ..." (not seawater-resistant) | 13 Name plate for main valve |
| 4 Dimension for version "4WRZE..." | 14 Integrated electronics (OBE) |
| 5 Proportional solenoid "a" | 15 Space required to remove the mating connector |
| 6 Proportional solenoid "b" | 16 Adapter plate |
| 7 Mating connector "A", separate order, see page 27 | 17 Pressure reducing valve "D3" |
| 8 Mating connector "B", separate order, see page 27 | 18 Diversion plate (type 4WRH...) |
| 9 Mating connector, separate order, see page 27 | 19 Transport aid |
| 10 Concealed manual override "N9" | |