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

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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)

<table>
<thead>
<tr>
<th>4WR_</th>
<th>-7X</th>
<th></th>
</tr>
</thead>
</table>

**Hydraulic actuation**  
= H  

**Electro-hydraulic actuation**  
= Z

**Type WRZ:**  
For external electronics  
= no code  
With integrated electronics  
= E

<table>
<thead>
<tr>
<th>Size</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>52</td>
<td>52</td>
</tr>
</tbody>
</table>

**Rated flow** in l/min at valve pressure differential \( \Delta p = 10 \text{ bar} \)

<table>
<thead>
<tr>
<th>Size</th>
<th>Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 10</td>
<td>25 l/min</td>
</tr>
<tr>
<td>Size 16</td>
<td>100 l/min</td>
</tr>
<tr>
<td>Size 25</td>
<td>220 l/min</td>
</tr>
<tr>
<td>Size 32</td>
<td>360 l/min</td>
</tr>
<tr>
<td>Size 52</td>
<td>1000 l/min</td>
</tr>
</tbody>
</table>

**Component series 70 to 79**  
(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

**Supply voltage**  
Direct voltage 24 V  
= G24

**Without** manual override  
= no code

**With** concealed manual override  
= N9

**Without** special type of protection  
= no code

**Seawater-resistant**  
= J

**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)
Hydraulics

Electric special types of protection available on request.

Control spool symbols

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"

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)

<table>
<thead>
<tr>
<th>5WR_</th>
<th>52</th>
<th>1000</th>
<th>7X</th>
<th>*</th>
</tr>
</thead>
</table>

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 = 7X

Component series 70 to 79
(70 to 79: Unchanged installation and connection dimensions)

**Pilot control valve size 6**
Proportional solenoid with detachable coil = 6E

**Supply voltage**
Direct voltage 24 V = G24

- Without manual override = no code
- With concealed manual override = N9

- Without special type of protection = no code
- Seawater-resistant = J

**Electrical connection type WRZ:**
- Without mating connector, with connector according to DIN EN 175301-803 = K4
- Mating connector, separate order, see page 27

**Type WRZE:**
- Without mating connector, with connector according to DIN EN 175201-804 = K31
- Mating connector, separate order, see page 27

**Electronics interface**
- Command value \( \pm 10 \) 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

- 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

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: $q_v$ 注意：

(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".
Symbols (simplified)

With electro-hydraulic actuation and for external electronics

Type 4WRZE...-7X./... and type 4WRZE 52...-7XF/...

Type 5WRZ 52-7X./...

Type 4WRZ...-7X./... ET...

With electro-hydraulic actuation and for integrated electronics

Type 4WRZE...-7X./... and type 4WRZE 52...-7XF/...

Type 5WRZE 52-7X./...

Type 4WRZ...-7X./... ET...

With hydraulic actuation

Type 4WRH...-7X./... and type 4WRH 52...-7XF/...

Type 5WRH 52-7X.

Type 4WH...-7X./... ET...
**Dimensions:** Size 10 (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", 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

---

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

Required surface quality of the valve contact surface

- 0.01/100
- Rzmax 4
**Dimension:** Size 16 (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", 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

**Required surface quality of the valve contact surface**

Rzmax 4

0.01/100
Dimensions: Size 25 (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", 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

1) without pressure reducing valve
2) with pressure reducing valve
**Dimensions:** Size 32 (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", 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

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Required surface quality of the valve contact surface

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

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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

Required surface quality of the valve contact surface
**Dimensions:** Flange connection 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", 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. Space required to remove the mating connector
16. Adapter plate
17. Pressure reducing valve "D3"
18. Diversion plate (type 4WRH...)
19. Transport aid

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