Hitch control valves
EHR5-OC, EHR5-LS, EHR23-EM2

Features
▶ Proportional valves in flanged design (EHR5)
▶ Proportional valves in sandwich plate design (EHR23)
▶ EHR23 combinable with directional valves SB23 and SB33 for the work hydraulics

Fields of application
▶ Electro-hydraulic lifting unit control (EHR) for tractors and cutting table control for combines
▶ Hitch control valves for position, traction force, mix control, pressure and slip control as well as active vibration damping (transport mode)

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Hitch control valves for the electro-hydraulic lifting unit control EHR
Maximunm flow rate
- EHR5: 60 l/min
- EHR23: 100 l/min
Functional description EHR system

System components

<p>| | | | | | | | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
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<tr>
<td>Hydraulic pump</td>
<td>Hitch control valve rear</td>
<td>Hitch control valve front</td>
<td>Radar speed sensor</td>
<td>Speed sensor</td>
<td>Force sensor</td>
<td>Pressure sensor</td>
<td>Hitch cylinder</td>
<td>Position sensor</td>
<td>Operating unit rear</td>
<td>Operating unit front</td>
</tr>
<tr>
<td>12</td>
<td>13</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic control unit</td>
<td>Rear actuation buttons</td>
<td>Position sensor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mode of operation

The hydraulic pump (1) conveys an oil flow to the hitch control valve (2) which controls the hitch cylinders (8). These have an effect on the lower links so that attachments can be lifted, held or lowered.

The command value is recorded via the operating unit (10), the actual values are recorded via the sensors (9) and (6) and fed to the electronic control unit (12). The control deviation resulting from the target/actual comparison is processed in the control unit (12) and passed on to the hitch control valve (2). The lifting and lowering valve is adjusted via two proportional solenoids.

The following different operating modes are possible:

Position control

Hereby the controlled quantity is the position of the hitch. The position sensor (9) which is operated by a radial cam on the hitch delivers the actual value.

Traction force control

Hereby the controlled quantity is the force at the lower links. If it is kept constant, an ideal capacity utilization of the tug boat performance will be available, such as with plowing in uneven terrain and with inhomogeneous ground. The actual value is measured by the force sensors (6).

Regulation of the traction force is effected by change of the working depth of the attachment (e.g. plow).

Mix control

Hereby the control deviations from position and traction force are mixed in an adjustable ratio at the operating unit and processed as controlled quantity. The mix control can be used to reduce changes of the working depth due to different ground resistances which occur with the pure traction force control.

Vibration damper

In order to reduce the front axle load fluctuations when transporting heavy attachments and thus increase the steerability, the sensors (6) and (9) are used for measuring the controlled quantity. The evaluation is made via the electronic control unit (12) which delivers the corresponding electronic signals to the hitch control valve (2).

Slip control

The slip control offers the following advantages:

- Expenditure of time and fuel are reduced,
- The tire wear is reduced,
- The floor is protected,
- The driver is relieved,
- Getting stuck is avoided.

This function is realized by measuring the real driving speed (radar sensor (4)) and the drive speed (speed sensor (5)).

Pressure control

An ideal compression of the farmland with packer rollers can be reached by means of pressure control.

The output signals of the pressure sensor (7) are processed in the control unit (12) and passed on to the hitch control valve (2).

Front control

The command values for the front control are determined via the operating unit (11). The actual values are supplied via the sensors (7) and (14) the electronic control unit (12). The volume oil flow of the hitch control valve (3) is proportionally regulated in accordance with the resulting control deviation of the target/actual comparison in the control unit. The front control can be used to realize the functions position and pressure control.
**External control**

The position sensor at the attachment delivers the electrical signals which are evaluated in the control unit (12) and hitch control valve (2) so that the attachment is controlled in a defined position.

**Rear actuation**

The hitch can be operated upwards and downwards by means of the rear button (13).

**CAN bus in tractor**

Every future-oriented and efficient electronics concept puts high requirements on cross-system exchange of information with a high transmission reliability.

The electronics proportion in the tractor has been growing continuously for years. This leads to a higher complexity of the electronics functions in control units the information of which has to be exchanged and/or coordinated for fulfilling the tasks. In this connection the data transmission via the common wiring harness often turns out to be unsuited.

The use of a serial data bus is a good solution which results in reducing the wiring harness and cable plugs. A suited bus system presents the Controller Area Network (CAN) developed by Bosch, because CAN connects equal stations via a serial data bus. Another advantage of CAN with regard to the common cabling is the fact that data errors which occur on an occasional basis due to electromagnetic radiation are recognized and automatically corrected by means of transmission repetition.

**CAN features**

- Definitely more functional safety for all electronic systems.
- High information and transmission rate.
- Linking and thus simultaneous communication of several sensors, control units and indicator units possible.
- Worldwide accepted standard, ISO 11898 and 11519-2 as well as SAEJ 1939.
- Due to less cabling smaller installation space, less costs and less accident-sensitive.
- Bigger fault tolerance and high interference resistance of the interface.

**Switch-on interlock**

The electronical control device has different monitoring installations apart from the control function and the processing of the actual value. A switch-on interlock ensures that no movement is carried out when switching on the hitch. Unlocking is carried out by the operating the excavation switch from stop to transport for the first time. The first movement is carried out with reduced speed.

The maximum lift height is additionally monitored. A potentiometer can be used to preselect the limitation. Monitoring the position sensor cable for interruption or short circuit results in switching off the electronic control unit in case of failure so that a movement of the hitch is prevented.

- Ideal diagnosis capability by means of displaying an error code.
- Highest possible resolution:
## Technical data

### General

<table>
<thead>
<tr>
<th>Design</th>
<th>EHR5</th>
<th>EHR23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EHR5-OC kg</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>EHR5-OC Subplate kg</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>EHR5-LS kg</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>EHR23 kg</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>Installation position</td>
<td>Axis Z–Z, max. 30 ° variation from the horizontal</td>
<td></td>
</tr>
<tr>
<td>Line connections</td>
<td>Screw-in threads see page 21</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>θ °C</td>
<td>–30 to +80</td>
</tr>
</tbody>
</table>

### Hydraulic

<table>
<thead>
<tr>
<th>Maximum operating pressure at the port</th>
<th>EHR5 max bar</th>
<th>EHR23 max bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>220</td>
<td>250</td>
</tr>
<tr>
<td>A</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>5, but smaller than load pressure</td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Flow rate q l/min</td>
<td>See table page 6 to 19</td>
<td>See table page 14 to 19</td>
</tr>
<tr>
<td>Maximum load drop off at port A cm³/min</td>
<td>4 (with 125 bar, viscosity 35mm²/s)</td>
<td></td>
</tr>
</tbody>
</table>

### Hydraulic fluid

- Mineral oil (HL, HLP) according to DIN 51524
- Additional hydraulic fluids, e.g. environmentally friendly fluids, upon request.

#### Hydraulic fluid temperature range

<table>
<thead>
<tr>
<th>Admissible range</th>
<th>θ °C</th>
<th>+20 to +90; +100 for a short time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admissible range for start</td>
<td>θ °C</td>
<td>–30</td>
</tr>
</tbody>
</table>

#### Viscosity range

<table>
<thead>
<tr>
<th>Admissible range</th>
<th>ν mm²/s</th>
<th>10 to 800</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended range</td>
<td>ν mm²/s</td>
<td>20 to 100</td>
</tr>
<tr>
<td>Admissible range for start</td>
<td>ν mm²/s</td>
<td>Up to 2000</td>
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</table>

### Electric

<table>
<thead>
<tr>
<th>Direct shutter actuation by means of proportional solenoids</th>
<th>U</th>
<th>V</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>I_max A</td>
<td></td>
<td></td>
<td>3.35</td>
</tr>
</tbody>
</table>

### Protection class

- Plug-in connection, 2-pole
- IP64A
EHR5-OC hitch control valves

1. 3-way pressure compensator
2. Lifting module
3. Lowering module
4. Check valve

Characteristic curves

- Characteristic curve lowering
- Characteristic curve lifting

Notice
Measured at $\Delta p_{\text{A} \rightarrow \text{R}} = 15$ bar; $\theta = 50 ^\circ C$
## Available variants

<table>
<thead>
<tr>
<th>Material number</th>
<th>Drawing number</th>
<th>Line connections:</th>
<th>Line connections:</th>
<th>Lowering ( q_{SN} ) [l/min]</th>
<th>Lifting ( q_{HN} ) [l/min]</th>
<th>Manual override</th>
<th>Position solenoid plug</th>
<th>Symbol see page 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 521 222 002</td>
<td>RA 501 595 47</td>
<td>M22 x 1.5 –</td>
<td>M22 x 1.5</td>
<td>II</td>
<td>60</td>
<td>40</td>
<td>with</td>
<td>1</td>
</tr>
<tr>
<td>0 521 222 005</td>
<td>RA 501 581 63</td>
<td>M22 x 1.5 –</td>
<td>M22 x 1.5</td>
<td>II</td>
<td>60</td>
<td>40</td>
<td>without</td>
<td>1 + 4</td>
</tr>
<tr>
<td>0 521 222 009</td>
<td>RA 501 586 30</td>
<td>M22 x 1.5 –</td>
<td>M22 x 1.5</td>
<td>II</td>
<td>60</td>
<td>40</td>
<td>with</td>
<td>2</td>
</tr>
<tr>
<td>R917007846</td>
<td>A 521 023 253</td>
<td>M22 x 1.5 –</td>
<td>M22 x 1.5</td>
<td>II</td>
<td>60</td>
<td>60</td>
<td>with</td>
<td>1</td>
</tr>
<tr>
<td>R91700878</td>
<td>RA 501 587 22</td>
<td>M22 x 1.5 –</td>
<td>Flange</td>
<td>I</td>
<td>60</td>
<td>60</td>
<td>without</td>
<td>1</td>
</tr>
<tr>
<td>R917005088</td>
<td>RA 501 586 29</td>
<td>M22 x 1.5 –</td>
<td>Flange</td>
<td>II</td>
<td>60</td>
<td>60</td>
<td>with</td>
<td>1</td>
</tr>
<tr>
<td>R917006052</td>
<td>RA 501 595 45</td>
<td>M22 x 1.5 –</td>
<td>Flange</td>
<td>II</td>
<td>20</td>
<td>40</td>
<td>with</td>
<td>1</td>
</tr>
<tr>
<td>R917006650</td>
<td>RA 501 595 45</td>
<td>M22 x 1.5 x</td>
<td>Flange</td>
<td>II</td>
<td>60</td>
<td>40</td>
<td>with</td>
<td>1</td>
</tr>
<tr>
<td>R917007147</td>
<td>RA 501 595 45</td>
<td>M22 x 1.5 x</td>
<td>Flange</td>
<td>II</td>
<td>60</td>
<td>60</td>
<td>with</td>
<td>1</td>
</tr>
</tbody>
</table>

1 = as shown, see page 7
2 = Lifting and lowering - solenoid rotated by 90°
4 = Lifting and lowering - solenoid plug with different coding

### Ports EHR5-OC

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Pump</td>
</tr>
<tr>
<td>A, A'</td>
<td>Actuator (cylinder)</td>
</tr>
<tr>
<td>R1</td>
<td>Return flow actuator (cylinder)</td>
</tr>
<tr>
<td>R2</td>
<td>Return flow</td>
</tr>
</tbody>
</table>
Dimensions [mm]

**EHR5-OC**

Dimensions:

1. Flange connection P
2. Threaded connection P
3. Lifting
4. Lowering
5. O-ring is included in the scope of delivery
6. Three mounting bores; \(M_a = 25\text{Nm}\)

Counterface \(R_{\text{max}}\) 6 ground or \(R_{\text{max}}\) 8 milled
### Subplate for EHR5-OC

#### Symbol

1. Two mounting bores
2. Three mounting threads

<table>
<thead>
<tr>
<th>Material number</th>
<th>DBV p [bar]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 525 503 641</td>
<td>205(^{10})</td>
</tr>
</tbody>
</table>

**Dimensions [mm]**

![Diagram of subplate dimensions and symbols](image-url)
EHR5-LS hitch control valves

1 3-way pressure compensator
2 Lifting module
3 Lowering module
4 Check valve

Notice
Characteristic curve lowering measured at Δp A → R = 15 bar; θ = 50 °C
### Available variants

<table>
<thead>
<tr>
<th>Material number</th>
<th>Drawing number</th>
<th>Material number</th>
<th>Line connections: A A’ in flange (max. 25 l/min)</th>
<th>P</th>
<th>Threaded version see page 21</th>
<th>Lowering ( q_{\text{DN}} ) [l/min]</th>
<th>Lifting ( q_{\text{DN}} ) [l/min]</th>
<th>Manual override</th>
<th>Position solenoid plug</th>
<th>Symbol see page 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 521 222 101</td>
<td>RA 501 586 33</td>
<td>RA 501 586 33</td>
<td>M22 x 1.5</td>
<td>x</td>
<td>Flange II</td>
<td>60</td>
<td>60</td>
<td>with</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>R917008251</td>
<td>RA 500 214 45</td>
<td>M22 x 1.5</td>
<td>Flange II</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>without</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>R917008250</td>
<td>RA 500 082 43</td>
<td>RA 500 082 43</td>
<td>M22 x 1.5</td>
<td>x</td>
<td>Flange II</td>
<td>60</td>
<td>60</td>
<td>without</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>R917006510</td>
<td>RA 501 669 77</td>
<td>RA 501 669 77</td>
<td>M22 x 1.5</td>
<td>x</td>
<td>Flange II</td>
<td>60</td>
<td>60</td>
<td>with</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>0 521 222 100</td>
<td>RA 501 586 33</td>
<td>RA 501 586 33</td>
<td>M22 x 1.5</td>
<td>x</td>
<td>Flange I</td>
<td>60</td>
<td>60</td>
<td>with</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

1 = As shown, see page 11
2 = Lifting and lowering - solenoid rotated by 90°
3 = Lifting and lowering - solenoid rotated by 60°
4 = Lifting and lowering - solenoid plug with different coding

### Ports EHR5-LS

<table>
<thead>
<tr>
<th>P</th>
<th>Pump</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, A’</td>
<td>Actuator (cylinder)</td>
</tr>
<tr>
<td>R1</td>
<td>Return flow actuator (cylinder)</td>
</tr>
</tbody>
</table>
Dimensions

**EHR5-LS**

1. Lifting
2. Lowering
3. O-ring is included in the scope of delivery
4. Three mounting bores; \( M_a = 25 \text{ Nm} \)

Counterface \( R_{max} \) 6 ground

or \( R_{max} \) 8 milled
EHR23-EM2 and EHR23-ERV hitch control valves

**EM2:** Direct electromagnetic operation, proportional

**ERV:** End hitch control valve
- With flange surface on the O-ring side (symbol 6)
- With flange surface on the O-ring counterside (symbol 7)

**Notice**
Do not use symbol 6 and 7 as end valve in the control block.

1. 3-way pressure compensator
2. Lifting module
3. Lowering module
4. Check valve
5. Secondary pressure relief valve
6. Shuttle valve

![Diagram of EHR23-EM2 and EHR23-ERV hitch control valves](image-url)
**Characteristic curves**

- Characteristic curve lowering

![Characteristic curve lowering](image1)

- Characteristic curve lifting

![Characteristic curve lifting](image2)

**Notice**

Characteristic curve lowering measured at $\Delta p_{A \to R} = 15$ bar; $\theta = 50$ °C

**Ports EHR23**

<table>
<thead>
<tr>
<th>Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Pump</td>
</tr>
<tr>
<td>A1, A2</td>
<td>Actuator (cylinder)</td>
</tr>
<tr>
<td></td>
<td>Tightening torque of the fitting $M_a = 125^{\pm 13}$ Nm</td>
</tr>
<tr>
<td>R</td>
<td>Return flow</td>
</tr>
<tr>
<td>R1</td>
<td>Return flow, lowering flow rate</td>
</tr>
<tr>
<td></td>
<td>Tightening torque of the fitting $M_a = 125^{\pm 13}$ Nm</td>
</tr>
<tr>
<td>Y</td>
<td>Controller option for control pumps</td>
</tr>
</tbody>
</table>
EHR | Hitch control valves
EHR23-EM2 and EHR23-ERV hitch control valves

Dimensions

### EHR23-EM2, standard with R1- and A1-threaded connection

<table>
<thead>
<tr>
<th>Material number</th>
<th>Line connections:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1</td>
</tr>
<tr>
<td>R917006918</td>
<td>M22 x 1.5</td>
</tr>
<tr>
<td>R917005455</td>
<td>M22 x 1.5</td>
</tr>
<tr>
<td>R917006003</td>
<td>M22 x 1.5</td>
</tr>
<tr>
<td>R917006449</td>
<td>M22 x 1.5</td>
</tr>
<tr>
<td>R917005001</td>
<td>M22 x 1.5</td>
</tr>
<tr>
<td>R917008132</td>
<td>M22 x 1.5</td>
</tr>
</tbody>
</table>

1 = As shown
2 = Lifting - solenoid plug direction O-ring side
3 = Lowering - solenoid plug direction O-ring side
**Hitch control valves**

**EHR23-EM2 and EHR23-ERV hitch control valves**

### EHR23-EM2, with manual override and lateral A2 threaded connection

1. Solenoid A (lifting)
2. Solenoid B (lowering)
3. Three continuous mounting bores; tightening torque for tie rod lubricated/non-lubricated: 
   - Mₐ = 25.5 / 30 Nm; tie rod at least property class 10.9
4. With manual override
5. Plug pull-off measurement

### Material number

<table>
<thead>
<tr>
<th>Material number</th>
<th>Line connections:</th>
<th>Threaded version see page 21</th>
<th>Lowering qₛⁿ [l/min]</th>
<th>Lifting qₘₐₜ [l/min]</th>
<th>DBV pₛᵥ [bar]</th>
<th>Symbol see page 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>R917005125</td>
<td>A2 M22 x 1.5</td>
<td>R1 M22 x 1.5</td>
<td>65</td>
<td>80</td>
<td>220¹⁰</td>
<td>3</td>
</tr>
</tbody>
</table>

---

RE 66125/07.2013, Bosch Rexroth AG
**EHR | Hitch control valves**

EHR23-EM2 and EHR23-ERV hitch control valves

---

**EHR23-EM2 with two A1 threaded connections**

![Diagram of EHR23-EM2]

- **1** Solenoid A (lifting)
- **2** Solenoid B (lowering)
- **3** Three continuous mounting bores; tightening torque for tie rod lubricated/non-lubricated: \( M_a = 25.5 \times 2.5 / 30 \times 3 \) Nm; tie rod at least property class 10.9
- **4** Without manual override

---

<table>
<thead>
<tr>
<th>Material number</th>
<th>Line connections:</th>
<th>Lowering ( q_{\text{L}} ) [l/min]</th>
<th>Lifting ( q_{\text{H}} ) [l/min]</th>
<th>DBV ( p_{\text{UV}} ) [bar]</th>
<th>Symbol see page</th>
</tr>
</thead>
<tbody>
<tr>
<td>R917005120</td>
<td>A1 M22 x 1.5 R1</td>
<td>65</td>
<td>90</td>
<td>218(^{22})</td>
<td>4</td>
</tr>
</tbody>
</table>

Bosch Rexroth AG, RE 66125/07.2013
**EHR23-EM2, with manual override, lateral A2 threaded connection and R1 flange connection**

1. Solenoid A (lifting)
2. Solenoid B (lowering)
3. Three continuous mounting bores; tightening torque for tie rod lubricated/non-lubricated: $M_A = 25.5^\pm 2.5 / 30^\pm 3$ Nm; tie rod at least property class 10.9
4. With manual override
5. Plug pull-off measurement

### Dimensions [mm]

- Ø12
- 5920
- Made in Germany
- 170.3 ± 2
- 18.7
- 61.6
- 64.7
- 28.3
- Ø12 (3x)
- 38.3
- 3.5 ± 1 Nm
- 2x
- 81.4
- 112.5
- 112.8
- 134.1
- 141.5
- 112.4
- 133.6
- 17.5
- 242.4 ± 2
- Ø24.3
- 2x
- Ø24.3
- Ø13.6
- Ø11.4
- 65 ± 5 Nm
- Ø27 (3x)
- 42.8
- 11
- 6.5
- 57.5
- 70.3
- 77
- 86.7
- 98.7 ± 1.5
- 11.3
- 113.3
- 6.5
- 57.5
- 86.7
- Ø12 (2x)
- 41.7
- 6.5
- 57.5
- 6.5
- 57.5
- 11.3
- 5
- 65
- 86.7
- Ø24.3
- 38.3
- 38.3
- 65 ± 10 Nm
- Ø11.4
- 38.3
- 38.3
- 65 ± 10 Nm
- Ø11.4
- 5

### Material number

<table>
<thead>
<tr>
<th>Material number</th>
<th>Line connections:</th>
<th>Threaded version see page 21</th>
<th>Lowering $q_{\text{HN}}$ [l/min]</th>
<th>Lifting $q_{\text{HN}}$ [l/min]</th>
<th>DBV $p_{\text{DBV}}$ [bar]</th>
<th>Symbol see page 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>R917005129</td>
<td>M22 x 1.5 Flange</td>
<td>III</td>
<td>65</td>
<td>80</td>
<td>220±20</td>
<td>5</td>
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</table>
### EHR23-ERV, end hitch control valve with flange surface on the O-ring side

1. Solenoid A (lifting)
2. Solenoid B (lowering)
3. Three continuous mounting bores; tightening torque for tie rod lubricated/non-lubricated: $M_A = 25.5^2.5 / 30^3$ Nm; tie rod at least property class 10.9
4. With manual override
5. Plug pull-off measurement

<table>
<thead>
<tr>
<th>Material number</th>
<th>Line connections:</th>
<th>Threaded version see page 21</th>
<th>Lowering $q_{SN}$ [l/min]</th>
<th>Lifting $q_{SN}$ [l/min]</th>
<th>DBV $p_{LSV}$ [bar]</th>
<th>Position solenoid plug</th>
<th>Symbol see page 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>R917004244</td>
<td>M22 x 1.5 Flange</td>
<td>III</td>
<td>65</td>
<td>80</td>
<td>220$^{20}$</td>
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<tr>
<td>R917005640</td>
<td>M22 x 1.5 Flange</td>
<td>III</td>
<td>65</td>
<td>100</td>
<td>220$^{20}$</td>
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<td>6</td>
</tr>
</tbody>
</table>

1. As shown
2. direction of the lifting and lowering solenoid plug with regard to the flange surface
### Hitch control valves | EHR

#### EHR23-EM2 and EHR23-ERV hitch control valves

- **EHR23-ERV**, end hitch control valve with flange surface on the O-ring counterside

![Diagram of EHR23-ERV hitch control valve]

1. Solenoid A (lifting)
2. Solenoid B (lowering)
3. Three continuous mounting bores; tightening torque for tie rod lubricated/non-lubricated: $M_A = 25.5^{+2.8} / 30^{+4.8}$ Nm; tie rod at least property class 10.9
4. With manual override
5. Plug pull-off measurement

<table>
<thead>
<tr>
<th>Material number</th>
<th>Line connections:</th>
<th>Threaded version see page 21</th>
<th>Lowering $q_{LM}$ [l/min]</th>
<th>Lifting $q_{LN}$ [l/min]</th>
<th>DBV $p_{LSV}$ [bar]</th>
<th>Position solenoid plug</th>
<th>Symbol see page 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>R917006959</td>
<td>M22 x 1.5 Flange</td>
<td>I</td>
<td>65</td>
<td>80</td>
<td>220^{+20}</td>
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<td>M22 x 1.5 Flange</td>
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<td>100</td>
<td>220^{+20}</td>
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<td>7</td>
</tr>
</tbody>
</table>

1. As shown
2. Lowering - solenoid plug direction line connection A1

---

RE 66125/07 2013, Bosch Rexroth AG
EHR23 Subplate for variable displacement pump with throttle check valve see data sheet SB23-EHS (66134)

Notice
For control blocks with hitch control valve EHR23-EM2 a throttle check valve in the port Y of the AP is to be provided in systems with variable displacement pump. We recommend the use of material number 1527410106 or 1527410132.

DRV, material number 1527410106

DRV, material number 1527410132

Line connections

Version I
DIN 3852-1
▶ For seal ring sealing

Version II
DIN 3852-3
▶ For O-ring sealing

Version III
EN ISO 6149-1
▶ For O-ring sealing
Installation information

The valves have to be completely filled with pressurizing agent during commissioning and operation. For practical use the proportion of dispersed air in oil should be little, since it can lead to interferences of the function and damages to the hydraulic components. According to the state of the art proportions of undissolved air in oil are regarded as risk-free in the area of 0.2 to 0.5 volume percent with normal pressure. In the case of bigger volume proportions a field test under worst case conditions has to be carried out and documented.

Information on plug-in connection

Guarantee for the reliable function of the connector system only when using the mating connector prescribed by Bosch Rexroth. Connector system according to customer specification: The customer is responsible for function and reliability. Bosch Rexroth does not take over any warranty in case of deficiencies. Further information with regard to the condition of the counterface of the flange and recommendations for the solenoid mating connector, see advice in the quotation drawing.

Related documents

<table>
<thead>
<tr>
<th>Title</th>
<th>Document number</th>
<th>Document type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hitch control valves EHR5 and EHR23 for mobile applications</td>
<td>66125-B2</td>
<td>Operating instructions</td>
</tr>
<tr>
<td>Hitch control valves EHR 5-OC and EHR5-LS</td>
<td>66125-30-R</td>
<td>Repair instructions</td>
</tr>
<tr>
<td>Hitch control valves EHR23-EM2</td>
<td>66130-30-R</td>
<td>Repair instructions</td>
</tr>
<tr>
<td>Bleeding directional valves</td>
<td>MH 121</td>
<td>Commissioning information</td>
</tr>
<tr>
<td>Supplied installation drawing/hydraulic scheme</td>
<td>Available from your machine or plant manufacturer</td>
<td>Quotation drawing</td>
</tr>
<tr>
<td>Hydraulic fluids on mineral oil basis</td>
<td>90220</td>
<td>Data sheet</td>
</tr>
</tbody>
</table>

Abbreviations

The following abbreviations are used in this documentation:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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</thead>
<tbody>
<tr>
<td>AP</td>
<td>Subplate</td>
</tr>
<tr>
<td>DBV</td>
<td>Pressure relief valve</td>
</tr>
<tr>
<td>DRV</td>
<td>Throttle check valve</td>
</tr>
<tr>
<td>EHR</td>
<td>Electro-hydraulic hitch control</td>
</tr>
<tr>
<td>EHS</td>
<td>Pilot operated electro-hydraulic actuating unit</td>
</tr>
</tbody>
</table>
Spare parts

For spare parts, visit
www.boschrexroth.com/spc

Contacts for accessories and spare parts
Accessories and spare parts are available
- From the vehicle manufacturer (specialty retailer),
- From the system manufacturer, and
- From your Bosch Rexroth specialty retailer.

Please find Bosch Rexroth distribution partners at
www.boschrexroth.com/addresses

If you have questions regarding spare parts, please contact your local Rexroth service or the service department of the control block manufacturer.

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Fax +49 (0) 711-811-28 11
Service.ma.schwieberdingen@boschrexroth.de