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Focused Delivery Program
Hydraulics

EDITION 03.2021
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**Intermediate Plates**

**Bankable Accessories**

**Bankable and Diverter Coils**

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The A1VO is a variable displacement axial piston pump in swashplate design for load sensing hydraulic circuits in the smaller classes of mobile working machinery. This cost-saving alternative to the traditional constant pump facilitates a simple, economical switch to a load sensing system that reduces fuel consumption by thousands of gallons over its service life. Its compact size and adaptability make it suitable for a wide array of mobile machines including tractors, forklifts and commercial vehicles.

**Features**

- Significant fuel savings of up to 15% compared to fixed systems
- Optimized efficiency, though same power at less fuel consumption
- Compact design with controller and connections integrated into port plate
- High flexibility: Pumps can be combined using interchangeable through-drive adapter
- Maximum flow of 105 l/min thanks to high self-suction speeds
- Detailed information: RE92650

**Technical Data**

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<td>$p_N$ bar (psi)</td>
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<tr>
<td>Peak pressure</td>
<td>$p_{max}$ bar (psi)</td>
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<tr>
<td>Displacement</td>
<td>$V_{g\ max}$ cm$^3$ (in$^3$)</td>
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<tr>
<td>Speed</td>
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<tr>
<td>Flow at $n_{max}$</td>
<td>$qV_{max}$ l/min (gpm)</td>
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<tr>
<td>Power $\Delta p = 250$ bar (3600 PSI)</td>
<td>$P_{max}$ kW</td>
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<tr>
<td>Torque $\Delta p = 250$ bar (3600 PSI)</td>
<td>$T_{max}$ Nm (lb-ft)</td>
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<td>Weight (approx.)</td>
<td>$m$ kg (lbs)</td>
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A10V(S)O & (A)A10VSO - Variable Displacement Pumps (Series 31)

Variable displacement axial piston pump (A)A10V(S)O, Series 31 in swashplate design is available for open circuit applications. It can be used in both mobile and industrial applications. Flow is proportional to the drive speed and the displacement. By adjusting the position of the swashplate, it is possible to steplessly vary the flow. Multiple forms of pressure, flow or electrohydraulic controls are available.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- Sizes 10 to 140
- Axial piston swashplate design
- Open circuit
- Series 31 (sizes 18, 28, 45, 71, 100, 140), Series 52 (sizes 10, 28, 45, 60, 85)
- Combination of pumps of up to the same size can be mounted to the through-drive (not with size 10)
- Pump version starting with special code ‘E’ available for use with water-content fluids
- Certain Parts benefit from Graduated Lead Time:
  - Quantity 10 or less, Lead Time 10 days
  - Quantity 11 to 30, Lead Time 30 days
  - Quantity 31+, Lead Time 40 days
- Detailed information: RE-A92701, RE-A92711

Technical Data

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<th>100</th>
<th>140</th>
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<td>280 (4000)</td>
<td>280 (4000)</td>
<td>280 (4000)</td>
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<tr>
<td>Peak pressure $p_{max}$ bar (psi)</td>
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<td>Displacement $V_g$ max cm$^3$ (in$^3$)</td>
<td>18 (1.10)</td>
<td>28 (1.71)</td>
<td>45 (2.75)</td>
<td>71 (4.33)</td>
<td>100 (6.10)</td>
<td>140 (8.54)</td>
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<td>Speed $n_{max}$ rpm</td>
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<td>3000</td>
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<td>Flow at $n_{max}$ $q_{v_{max}}$ l/min (gpm)</td>
<td>59 (15.59)</td>
<td>84 (22.19)</td>
<td>117 (31)</td>
<td>156 (41)</td>
<td>200 (53)</td>
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<td>73</td>
<td>93</td>
<td>118</td>
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<tr>
<td>Torque $\Delta p = 280$ bar (4000 PSI) $T_{max}$ Nm (lb-ft)</td>
<td>80 (59)</td>
<td>125 (92)</td>
<td>200 (148)</td>
<td>316 (233)</td>
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1) The values are valid at an absolute pressure of 1 bar (14.50 PSI) in suction port S.
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<td>EAA10VSO 71 DR /31R-VKC92N00</td>
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A10V(S)O - Variable Displacement Pumps (Series 52)

Variable displacement axial piston pump A10V(S)O, Series 52 in swashplate design is available for hydrostatic drives in an open circuit. The flow is proportional to the drive speed and displacement of the pump. Flow can be steplessly varied by adjusting the swashplate angle. Long service life, low noise, and a favorable power-to-weight ratio make it ideal for mobile and industrial applications requiring a compact drive.

Features
- Sizes 10 to 85 cc
- Axial piston swashplate design
- Open circuit
- Series 52
- Combination of pumps of up to same size can be mounted to the thru-drive (not with size 10)
- Graduated Lead Time:
  - Quantity 10 or less, Lead Time 10 days
  - Quantity 11+, Lead Time 40 days
- Detailed information:
  - RE-A92703

Technical Data

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<th>18</th>
<th>28</th>
<th>45</th>
<th>60</th>
<th>85</th>
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<tr>
<td>Nominal pressure $p_N$ (bar (psi))</td>
<td>250 (3600)</td>
<td>250 (3600)</td>
<td>250 (3600)</td>
<td>250 (3600)</td>
<td>250 (3600)</td>
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<tr>
<td>Peak pressure $p_{\text{max}}$ (bar (psi))</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
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<tr>
<td>Displacement $V_{\text{g max}}$ (cm³ (in³))</td>
<td>10.5 (0.64)</td>
<td>28 (1.71)</td>
<td>45 (2.75)</td>
<td>60 (3.66)</td>
<td>85 (5.18)</td>
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<tr>
<td>Speed $n_{\text{max}}$ (rpm)</td>
<td>3600</td>
<td>3000</td>
<td>2600</td>
<td>2700</td>
<td>2500</td>
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<tr>
<td>Flow at $n_{\text{max}}$ $q_{\text{V max}}$ (l/min (gpm))</td>
<td>38 (10.04)</td>
<td>84 (22)</td>
<td>117 (31)</td>
<td>163 (43)</td>
<td>212 (55)</td>
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<tr>
<td>Power $\Delta p = 250$ bar (3600 PSI) $P_{\text{max}}$ (kW)</td>
<td>16</td>
<td>35</td>
<td>49</td>
<td>68</td>
<td>89</td>
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<tr>
<td>Torque $\Delta p = 250$ bar (3600 PSI) $T_{\text{max}}$ (Nm (lb-ft))</td>
<td>42 (31)</td>
<td>111 (82)</td>
<td>179 (132)</td>
<td>238 (176)</td>
<td>338 (247)</td>
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<tr>
<td>Weight (approx.) $m$ (kg (lbs))</td>
<td>8 (18)</td>
<td>14 (31)</td>
<td>18 (40)</td>
<td>22 (49)</td>
<td>34 (75)</td>
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1) The values are valid at an absolute pressure of 1 bar (14.50 PSI) in suction port S.
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A10VSO - Variable Displacement Pumps (Series 32)

Variable displacement axial piston pump A10VSO, Series 32 in swashplate design is available for hydrostatic drives in an open circuit. The flow is proportional to the drive speed and displacement of the pump. It contains a port for pressure transducers in the pump outlet and is highly resistant to sudden drops and spikes in pressure, contributing to maximum efficiency. Generally used in industrial applications, the Series 32 has a low-noise design and features a Universal through-drive with coverplate.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- Sizes 71, 140, & 180 cc (A10VSO)
- Sizes 45 & 100 cc (A10VO)
- Axial piston swashplate design
- Open circuit
- Series 32
- Detailed information: RE-A92714 (A10VSO), RE92705 (A10VO)

Technical Data

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<th>140</th>
<th>180</th>
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<td>280 (4000)</td>
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<tr>
<td>Peak pressure $p_{max}$ bar (psi)</td>
<td>350 (5100)</td>
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<tr>
<td>Displacement $V_{g_{max}}$ cm³ (in³)</td>
<td>71 (4.33)</td>
<td>140 (8.54)</td>
<td>180 (10.98)</td>
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<td>Speed ¹) $n_{max}$ rpm</td>
<td>1800</td>
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<td>Flow at $n_{max}$ $q_{V_{max}}$ l/min (gpm)</td>
<td>128 (33.8)</td>
<td>252 (67)</td>
<td>324 (85.6)</td>
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<td>Power $\Delta p = 280$ bar (4000 PSI) $P_{max}$ kW</td>
<td>59.7</td>
<td>118</td>
<td>151</td>
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<td>Torque $\Delta p = 280$ bar (4000 PSI) $T_{max}$ Nm (lb-ft)</td>
<td>317 (234)</td>
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<td>802 (589)</td>
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<td>Weight (approx.) $m$ kg (lbs.)</td>
<td>47 (104)</td>
<td>73 (161)</td>
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<tr>
<td>Peak pressure $p_{max}$ bar (psi)</td>
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<tr>
<td>Displacement $V_{g_{max}}$ cm³ (in³)</td>
<td>45 (2.75)</td>
<td>100 (6.10)</td>
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<td>Speed ¹) $n_{max}$ rpm</td>
<td>3000</td>
<td>2300</td>
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<tr>
<td>Flow at $n_{max}$ $q_{V_{max}}$ l/min (gpm)</td>
<td>135 (35.7)</td>
<td>230 (60.8)</td>
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<td>Power $\Delta p = 280$ bar (4000 PSI) $P_{max}$ kW</td>
<td>83</td>
<td>107</td>
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<td>Torque $\Delta p = 280$ bar (4000 PSI) $T_{max}$ Nm (lb-ft)</td>
<td>200 (148)</td>
<td>446 (329)</td>
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<tr>
<td>Weight (approx.) $m$ kg (lbs.)</td>
<td>30 (66)</td>
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<td>A10VSO 71 LA6DG/32R-VSD72U00E</td>
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<td>A10VSO140 DRG /32R-VSD72U00E</td>
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A10FZO, A10FZG - Variable Displacement Pumps (Series 10)

Developed for use in speed-controlled drives, the A10FZO is built to withstand frequent changing of direction and start/stop operation. Even at the lowest speed between 0 and 200 rpm, they provide a constant pressure and offer extremely high efficiency in pressure holding operation. The A10FZO units can be used as pumps in one- and two-quadrant operation.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- For use in single- and double-quadrant operation
- Suitable for start/stop-operation
- Suitable for long pressure retention operation
- Well-tried A10 rotary group technology
- Through drive possibility
- High total efficiency
- Swashplate design
- Detailed information: RE91485

Technical Data

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<th>Size</th>
<th>( V_g ) cm(^3)</th>
<th>( p_{\text{nom}} ) bar (psi)</th>
<th>( p_{\text{max}} ) bar (psi)</th>
<th>( n_{\text{nom}} ) rpm</th>
<th>10</th>
<th>18</th>
<th>28</th>
<th>45</th>
<th>63</th>
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<td>Displacement geometric, per revolution</td>
<td>10.6 (0.65)</td>
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<td>63 (3.84)</td>
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<tr>
<td>Nominal pressure</td>
<td>315 (4600)</td>
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<td>Maximum pressure</td>
<td>350 (5100)</td>
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<td>Maximum speed</td>
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<td>3000</td>
<td>2600</td>
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<tr>
<td>Flow at ( n_{\text{nom}} )</td>
<td>( q_v ) l/min (gpm)</td>
<td>38.2 (10.1)</td>
<td>59.4 (15.7)</td>
<td>84 (22.2)</td>
<td>135 (35.7)</td>
<td>164 (43.3)</td>
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<tr>
<td>Power at ( n_{\text{nom}} ) and ( p_{\text{nom}} )</td>
<td>( P ) kW (HP)</td>
<td>20 (27)</td>
<td>31.2 (42)</td>
<td>44 (59)</td>
<td>71 (95)</td>
<td>86 (115)</td>
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<tr>
<td>Torque at ( p_{\text{nom}} )</td>
<td>( M ) Nm (lb-ft)</td>
<td>53 (39)</td>
<td>90.3 (66.5)</td>
<td>140.4 (103.5)</td>
<td>225.7 (166.5)</td>
<td>316 (233)</td>
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<tr>
<td>Weight (approx.)</td>
<td>( m ) kg (lbs.)</td>
<td>9 (20)</td>
<td>10 (22)</td>
<td>15.5 (34)</td>
<td>21 (46)</td>
<td>26 (57)</td>
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Variable displacement axial piston pump (A)A4VSO in swashplate design is available for open circuit applications. Sizes 40 & 71 are available in Series 10; sizes 125-250 are available in Series 30 and have the U99 Universal through-drive with coverplate. The flow is proportional to the input drive speed and displacement. By adjusting the swashplate angle, it is possible to infinitely vary the output flow. This rugged, low-noise pump is generally used in industrial 24/7 applications.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features
- Sizes 40 to 250 cc
- Series 10 & 30
- Open circuit
- HFC Seal Versions
- Special "F" variant available for water-content fluids - bearing flushing required
- Special "F2" variant available for water-content fluids - operation without bearing flushing (size 250 only)
- Detailed information: RA92050, RE-A92053 (HFC Fluids)

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>40</th>
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<tr>
<td>Nominal pressure</td>
<td>$p_N$ bar (psi)</td>
<td>350 (5100)</td>
</tr>
<tr>
<td>Peak pressure</td>
<td>$p_{\text{max}}$ bar (psi)</td>
<td>400 (5800)</td>
</tr>
<tr>
<td>Displacement</td>
<td>$V_{g\text{ max}}$ cm³ (in³)</td>
<td>40 (2.44)</td>
</tr>
<tr>
<td>Speed 1)</td>
<td>$n_{\text{max}}$ rpm</td>
<td>2600</td>
</tr>
<tr>
<td>Flow at $n_{\text{max}}$</td>
<td>$q_{\text{V max}}$ l/min (gpm)</td>
<td>104 (27.5)</td>
</tr>
<tr>
<td>Power $\Delta p = 350$ bar (5100 PSI)</td>
<td>$P_{\text{max}}$ kW</td>
<td>61</td>
</tr>
<tr>
<td>Torque $\Delta p = 350$ bar (5100 PSI)</td>
<td>$T_{\text{max}}$ Nm (lb-ft)</td>
<td>223 (165)</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>$m$ kg (lbs.)</td>
<td>39 (86)</td>
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<table>
<thead>
<tr>
<th>Size</th>
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<tr>
<td>Nominal pressure</td>
<td>$p_N$ bar (psi)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
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<tr>
<td>Peak pressure</td>
<td>$p_{\text{max}}$ bar (psi)</td>
<td>400 (5800)</td>
<td>400 (5800)</td>
</tr>
<tr>
<td>Displacement</td>
<td>$V_{g\text{ max}}$ cm³ (in³)</td>
<td>125 (7.63)</td>
<td>180 (11.0)</td>
</tr>
<tr>
<td>Speed 1)</td>
<td>$n_{\text{max}}$ rpm</td>
<td>1800</td>
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<tr>
<td>Flow at $n_{\text{max}}$</td>
<td>$q_{\text{V max}}$ l/min (gpm)</td>
<td>225 (59.4)</td>
<td>324 (85.6)</td>
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<tr>
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<td>$P_{\text{max}}$ kW</td>
<td>131</td>
<td>189</td>
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<tr>
<td>Torque $\Delta p = 350$ bar (5100 PSI)</td>
<td>$T_{\text{max}}$ Nm (lb-ft)</td>
<td>696 (516)</td>
<td>1002 (744)</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>$m$ kg (lbs.)</td>
<td>1391 (1032)</td>
<td>102 (225)</td>
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<tr>
<td>Part Number</td>
<td>Description</td>
<td>Max. Quantity</td>
<td>Shipment (Business Days)</td>
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<td>-------------</td>
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<td>-------------------------</td>
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<tr>
<td>R902406306</td>
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<td>3</td>
<td>10 day(s)</td>
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<td>A AA4VSO 71 DR /10R-PKD63N00 E</td>
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<td>R902446067</td>
<td>A AA4VSO 125 DR /30R-FKD75U99 E</td>
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<tr>
<td>R902446069</td>
<td>A AA4VSO 180 DR /30R-FKD75U99 E</td>
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<tr>
<td>R902446024</td>
<td>A AA4VSO 180 DR /30R-VKD75U99 E</td>
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<td>R902445974</td>
<td>A AA4VSO 250 DR /30R-FKD75U99 E</td>
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<td>R902445975</td>
<td>AHAA4VSO 250 DR /30R-VKD75U99 E</td>
<td>3</td>
<td>10 day(s)</td>
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<tr>
<td>R902480613</td>
<td>AHAA4VSO 250 DRG /30R-VKD75U99 E</td>
<td>3</td>
<td>10 day(s)</td>
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</table>
A15V(S,L)O - Variable Displacement Pumps (Series 10)

Variable displacement axial piston pump A15V(S,L)O, Series 10 in swashplate design is for hydrostatic drives in an open circuit. The pump is typically used in stationary applications where efficiency and compact design are required. It can work either as self-priming or with a charge pump. Other notable features include low noise operation, fast control response, overcenter operation and Universal through-drive with coverplate. The A15V(S,L)O is competitively priced compared to other industrial high-pressure designs.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- Sizes 145 to 280 cc
- Axial piston swashplate design
- Open circuit
- Series 10
- Typical used for stationary applications
- Detailed information: RA92800

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>110</th>
<th>145</th>
<th>175</th>
<th>210</th>
<th>280</th>
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<tbody>
<tr>
<td>Nominal pressure $p_N$ bar (psi)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
</tr>
<tr>
<td>Peak pressure $p_{max}$ bar (psi)</td>
<td>420 (6090)</td>
<td>420 (6090)</td>
<td>420 (6090)</td>
<td>420 (6090)</td>
<td>420 (6090)</td>
</tr>
<tr>
<td>Displacement $V_g_{max}$ cm³ (in³)</td>
<td>110 (6.71)</td>
<td>145 (8.8)</td>
<td>175 (10.7)</td>
<td>210 (12.8)</td>
<td>280 (17.1)</td>
</tr>
<tr>
<td>Speed $n_{max}$ rpm</td>
<td>2400</td>
<td>2300</td>
<td>2150</td>
<td>2100</td>
<td>1800 $^1$</td>
</tr>
<tr>
<td>Flow at $n_{max}$ $q_v_{max}$ l/min (gpm)</td>
<td>264 (70)</td>
<td>334 (88.2)</td>
<td>376 (99.3)</td>
<td>441 (116.5)</td>
<td>504 (133.1)</td>
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<tr>
<td>Power $\Delta p = 350$ bar (5100 PSI) $P_{max}$ kW</td>
<td>154</td>
<td>195</td>
<td>219</td>
<td>257</td>
<td>294</td>
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<tr>
<td>Torque $\Delta p = 350$ bar (5100 PSI) $T_{max}$ Nm (lb-ft)</td>
<td>613 (452)</td>
<td>808 (596)</td>
<td>975 (719)</td>
<td>1170 (863)</td>
<td>1560 (1151)</td>
</tr>
<tr>
<td>Weight (approx.) $m$ kg (lbs.)</td>
<td>64 (141)</td>
<td>79 (174)</td>
<td>97 (214)</td>
<td>111 (245)</td>
<td>143 (315)</td>
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For A15VLO versions (size 280 cc)
1) Max. speed = 2300 rpm

<table>
<thead>
<tr>
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<th>Description</th>
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<tbody>
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<td>10 day(s)</td>
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<tr>
<td>R902562181</td>
<td>A15VSO280LRDRS0A0V/11ARVE4T3PU0000 E</td>
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<td>10 day(s)</td>
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</table>
AA4VG - Variable Displacement Pumps (Series 32)

Variable displacement axial piston pump AA4VG, Series 32 in swashplate design is for hydrostatic closed circuit transmissions. The flow is proportional to drive speed and displacement which is infinitely variable depending on the swashplate angle. The pump is equipped with two pressure relief valves on the high pressure ports to protect the transmission from overload.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- Sizes 56 to 125 cc
- Axial piston swashplate design
- Closed circuit
- Series 32
- Integrated boost pump acts as feed and oil control pump
- Graduated Lead Time as follows:
  - Quantity 10 or less, Lead Time 10 days
  - Quantity 11+, Lead Time 40 days
- Detailed information: RE-A92003

Technical Data

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<td>Nominal pressure $p_N$ bar (psi)</td>
<td>400 (5800)</td>
<td>400 (5800)</td>
<td>400 (5800)</td>
<td>400 (5800)</td>
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<tr>
<td>Peak pressure $p_{max}$ bar (psi)</td>
<td>450 (6500)</td>
<td>450 (6500)</td>
<td>450 (6500)</td>
<td>450 (6500)</td>
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<tr>
<td>Displacement $V_{g_{max}}$ cm³ (in³)</td>
<td>56 (3.42)</td>
<td>71 (4.33)</td>
<td>90 (5.49)</td>
<td>125 (7.63)</td>
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<tr>
<td>Speed $n_{max}$ rpm</td>
<td>3600</td>
<td>3300</td>
<td>3050</td>
<td>2850</td>
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<tr>
<td>Flow at $q_{v_{max}}$ l/min (gpm)</td>
<td>202 (53.4)</td>
<td>234 (61.8)</td>
<td>275 (72.5)</td>
<td>356 (94.1)</td>
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<tr>
<td>Power $\Delta p = 400$ bar (5800 PSI) $p_{max}$ kW</td>
<td>134</td>
<td>156</td>
<td>183</td>
<td>237</td>
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<tr>
<td>Torque $\Delta p = 400$ bar (5800 PSI) $T_{max}$ Nm (lb-ft)</td>
<td>356 (263)</td>
<td>451 (333)</td>
<td>572 (422)</td>
<td>795 (587)</td>
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<td>Weight (approx.) $m$ kg (lbs.)</td>
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<td>50 (110)</td>
<td>60 (145)</td>
<td>80 (176)</td>
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<td>Shipment (Business Days)</td>
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<tr>
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<td>10 day(s)</td>
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AA10VG - Variable Displacement Pumps (Series 10)

Variable displacement axial piston pump AA10VG, Series 10 in swashplate design is available for hydrostatic closed circuit transmissions. The flow is proportional to the drive speed and displacement and is infinitely variable depending on the swashplate angle. The pump is equipped with two pressure relief valves on the high pressure ports to protect the transmission from overload.

**Features**

- Sizes 18 to 45 cc
- Axial piston swashplate design
- Closed circuit
- Series 10
- Pressure relief valves also function as boost valves
- Graduated Lead Time as follows:
  - Quantity 10 or less, Lead Time 10 days
  - Quantity 11+, Lead Time 40 days
- Detailed information: RA92750

**Technical Data**

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<th>45</th>
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<td>300 (4350)</td>
<td>300 (4350)</td>
<td>300 (4350)</td>
</tr>
<tr>
<td>Peak pressure $p_{max}$ (bar (psi))</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
</tr>
<tr>
<td>Displacement $V_{g \text{ max}}$ (cm³ (in³))</td>
<td>18 (1.10)</td>
<td>28 (1.71)</td>
<td>46 (2.81)</td>
</tr>
<tr>
<td>Speed $n_{max}$ (rpm)</td>
<td>4000</td>
<td>3900</td>
<td>3300</td>
</tr>
<tr>
<td>Flow at $n_{max}$ $q_{V \text{ max}}$ (l/min (gpm))</td>
<td>72 (19)</td>
<td>109 (28.8)</td>
<td>152 (40.2)</td>
</tr>
<tr>
<td>Power $\Delta p = 300 \text{ bar (4350 PSI)}$ $p_{max}$ (kW)</td>
<td>36</td>
<td>54.6</td>
<td>75.9</td>
</tr>
<tr>
<td>Torque $\Delta p = 300 \text{ bar (4350 PSI)}$ $T_{max}$ (Nm (lb-ft))</td>
<td>86 (63.5)</td>
<td>134 (99)</td>
<td>220 (162)</td>
</tr>
<tr>
<td>Weight (approx.) $m$ (kg (lbs.))</td>
<td>14 (31)</td>
<td>25 (55)</td>
<td>27 (60)</td>
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**Part Number**

<table>
<thead>
<tr>
<th>Part Number</th>
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<th>Shipment (Business Days)</th>
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<td>R90232801</td>
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<tr>
<td>R90232800</td>
<td>AA10VG45EP3D1/10R-NSC66F045DP-S</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
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</table>

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps
AZPF and AZPN - External Gear Pumps

Bosch Rexroth has been involved with the design, development and manufacture of gear pumps for many decades. Well-proven designs, the use of specially developed materials, constant testing and sophisticated mass production techniques ensure products of the very highest quality.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- AZPF - sizes 4 to 28 cc; AZPN - sizes 20 to 36 cc
- Plain bearings for high loads
- Drive shafts according to ISO or SAE and customer-specific standards
- Combination of several pumps possible
- Line connections: connecting flanges or female threads
- Detailed information: RA10089 - AZPF, RA10097 - AZPN

Technical Data

<table>
<thead>
<tr>
<th>AZPF – Size</th>
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<th>8</th>
<th>11</th>
<th>14</th>
<th>16</th>
<th>19</th>
<th>22</th>
<th>25</th>
<th>28</th>
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</thead>
<tbody>
<tr>
<td>Displacement $V_g$ max $(\text{cm}^3)$</td>
<td>4.1 (0.26)</td>
<td>5.6 (0.35)</td>
<td>8.2 (0.51)</td>
<td>11.3 (0.71)</td>
<td>14.3 (0.89)</td>
<td>16.5 (1.03)</td>
<td>19.5 (1.22)</td>
<td>22.9 (1.43)</td>
<td>25.4 (1.59)</td>
<td>28.5 (1.78)</td>
</tr>
<tr>
<td>Operating pressure, continuous $p_1$ max bar (psi)</td>
<td>250 (3600)</td>
<td>250 (3600)</td>
<td>250 (3600)</td>
<td>250 (3600)</td>
<td>250 (3600)</td>
<td>250 (3600)</td>
<td>210 (3045)</td>
<td>180 (2610)</td>
<td>200 (2800)</td>
<td>170 (2500)</td>
</tr>
<tr>
<td>Operating pressure, intermittent $p_3$ bar (psi)</td>
<td>280 (4100)</td>
<td>280 (4100)</td>
<td>280 (4100)</td>
<td>280 (4100)</td>
<td>280 (4100)</td>
<td>280 (4100)</td>
<td>230 (3335)</td>
<td>210 (3045)</td>
<td>220 (3200)</td>
<td>190 (2800)</td>
</tr>
<tr>
<td>Max. speed at $p_1$ $n$ rpm</td>
<td>3500</td>
<td>3500</td>
<td>3500</td>
<td>3000</td>
<td>2500</td>
<td>2500</td>
<td>2500</td>
<td>2000</td>
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<td>500</td>
<td>500</td>
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</tbody>
</table>

Note:
- Applicable to an oil viscosity of 25 mm²/s (116 SUS) and an oil temperature of 55 °C (131 °F) with HLP 46.
- The pressure in the suction port is 0.7 bar (10.2 PSI) min and 3 bar (43.5 PSI) max absolute.

<table>
<thead>
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<td>28.4 (1.73)</td>
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AZPG - External Gear Pumps

Bosch Rexroth has been involved with the design, development and manufacture of gear pumps for many decades. Well-proven designs, the use of specially developed materials, constant testing and sophisticated mass production techniques ensure products of the very highest quality.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- Sizes 32cc to 63cc
- Aluminum body design with cast iron end covers
- Drive shaft according to ISO or SAE and customer specific standards
- Combination pumps are possible
- Port connections, threaded or flanged
- Plain bearings for high loads
- Detailed information: RA10097

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AZPB - External Gear Pumps

Bosch Rexroth has been involved with the design, development and manufacture of gear pumps for many decades. Well-proven designs, the use of specially developed materials, constant testing and sophisticated mass production techniques ensure products of the very highest quality.

Features

- Sizes 1.0 cc to 7.1 cc
- Aluminum body design with cast iron end covers
- Drive shaft according to SAE and customer specific standards
- Combination pumps are possible|SAE threaded port connections
- Slide bearings for high loads

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<td>3</td>
<td>10 day(s)</td>
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</tbody>
</table>
Rexroth continues to offer advanced variable vane pump technology. Market conditions favor hydraulic components that operate at low noise levels without sacrificing efficiency or durability. VPV pumps feature an outstanding response to the needs of the market today and for the future.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotopumps

### Features

- Sizes 16 to 164
- Flows from 30 to 287 L/min (7.6 to 75.8 GPM) in single pumps
- Available in combination with other VPV pumps and Rexroth gear pumps
- Through-drive horsepower transfer is 100% to the second pump
- VPV pumps are available with through-shaft versions for quick combinations
- Pressures to 210 bar (3050 PSI)
- Continuous speeds from 1000 to 1800 rpm
- A variety of fluids can be used: mineral oil, phosphate ester, and environmentally friendly fluids
- Controls include standard pressure compensation, remote pressure compensation, load sense, solenoid 2-pressure, and solenoid vented

### Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>cc/rev (in²/rev)</th>
<th>16 (1.0)</th>
<th>25 (1.5)</th>
<th>32 (2.0)</th>
<th>45 (2.75)</th>
<th>63 (3.84)</th>
<th>80 (4.88)</th>
<th>100 (6.0)</th>
<th>130 (7.93)</th>
<th>164 (10.0)</th>
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<tbody>
<tr>
<td>Flow 1)</td>
<td>l/min (gpm)</td>
<td>30 (7.5)</td>
<td>43 (11.4)</td>
<td>57 (15.1)</td>
<td>79 (20.8)</td>
<td>110 (29.1)</td>
<td>140 (37.0)</td>
<td>172 (45.4)</td>
<td>227 (60.0)</td>
<td>287 (75.8)</td>
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<tr>
<td>Max. Pressure bar (psi)</td>
<td>210 (3000)</td>
<td>210 (3000)</td>
<td>210 (3000)</td>
<td>210 (3000)</td>
<td>210 (3000)</td>
<td>210 (3000)</td>
<td>210 (3000)</td>
<td>210 (3000)</td>
<td>210 (3000)</td>
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<tr>
<td>Speed range</td>
<td>1000 to 1800 rpm</td>
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<td>Sound Pressure Level 2)</td>
<td>67</td>
<td>69</td>
<td>69</td>
<td>68</td>
<td>69</td>
<td>71</td>
<td>74</td>
<td>76</td>
<td>77</td>
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</table>

1) 1750 rpm in GPM.
2) dB(A) at 3000 PSI, 1750 rpm, full flow in a hemi-anechoic chamber with microphone placed 1 meter away at 7 discrete locations. Sound pressure levels are spatially and time weighted averaged.
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
<tr>
<td>0513300403</td>
<td>0513R15A7VPV16SM21FY</td>
<td>3</td>
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</tr>
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<td>0513300405</td>
<td>0513R15A7VPV16SM21H2</td>
<td>3</td>
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<td>0513860250</td>
<td>0513R18C3VPV130SM21HYB04</td>
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<td>0513R18C3VPV164SM21HYB04</td>
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<td>0513300202</td>
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<td>10 day(s)</td>
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<tr>
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<td>0513R18C3VPV25SM21HYB04</td>
<td>3</td>
<td>10 day(s)</td>
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<td>0513500206</td>
<td>0513R18C3VPV32SM21FZB04</td>
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<td>0513500220</td>
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<td>0513R18C3VPV63SM21HYB05</td>
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<td>0513800248</td>
<td>0513R18C3VPV80SM21HYB05</td>
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<td>10 day(s)</td>
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<td>0513800238</td>
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PVV - Fixed Displacement Vane Pumps

Rexroth PVV product is a fixed displacement vane pump based on the cartridge principle. PVV pumps can be used in a wide spectrum of applications, from low pressure filter / cooler loops to higher pressure systems such as presses and injection molding machines. PVV fixed vane pumps are just one of the many pump options available from the extensive Rexroth portfolio of products.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotopumps

### Features

- 20 different displacement sizes ranging from 18cc/rev (1.1 cu-in/rev) to 193cc/rev (11.8 cu-in/rev)
- Hydraulically balanced design provides long bearing life
- Cartridge replacement simplifies service and repair
- Cartridges are interchangeable with competitive designs
- Displacement changes can be easily performed by swapping cartridges
- Rotational flexibility of port locations optimizes customer interface
- PVV pumps can be coupled to other Rexroth vane, piston and gear products

### Technical Data

<table>
<thead>
<tr>
<th>Mounting style</th>
<th>Flange mounting to SAE J744</th>
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<tr>
<td>Pipe connections</td>
<td>SAE flange version (fixing threads: UNC)</td>
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<tr>
<td>Drive</td>
<td>Clockwise and counter-clockwise</td>
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<tr>
<td>Direct, co-axial drive; radial and axial forces cannot be taken up</td>
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#### Build sizes 1 and 2 (pump cartridge)

<table>
<thead>
<tr>
<th>Nominal size (= V in cm³)</th>
<th>NS</th>
<th>18</th>
<th>27</th>
<th>36</th>
<th>40</th>
<th>46</th>
<th>40</th>
<th>45</th>
<th>55</th>
<th>60</th>
<th>68</th>
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</thead>
<tbody>
<tr>
<td>Max. flow at n = 1500 min⁻¹, ρ = 0.7 bar (10 PSI) and v = 25 mm²/s</td>
<td>l/min (gpm)</td>
<td>25 (6.6)</td>
<td>39 (10.3)</td>
<td>53 (14.0)</td>
<td>59 (15.6)</td>
<td>70 (18.5)</td>
<td>59 (15.6)</td>
<td>66 (17.4)</td>
<td>80 (21.1)</td>
<td>89 (23.5)</td>
<td>100 (26.4)</td>
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<tr>
<td>Outlet continuous for PVV, ρmax</td>
<td>bar (psi)</td>
<td>210 (3000)</td>
<td>160 (2300)</td>
<td>140 (2000)</td>
<td>140 (2000)</td>
<td>175 (2500)</td>
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<tr>
<td>Weight</td>
<td>kg (lb)</td>
<td>12 (26.4)</td>
<td>14.8 (32.6)</td>
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</tr>
<tr>
<td>Speed at 1 bar (14.5 PSI)</td>
<td>RPM</td>
<td>600–1800</td>
<td></td>
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<td></td>
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#### Build sizes 4 and 5 (pump cartridge)

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<th>82</th>
<th>98</th>
<th>113</th>
<th>122</th>
<th>139</th>
<th>154</th>
<th>162</th>
<th>183</th>
<th>193</th>
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<tbody>
<tr>
<td>Max. flow at n = 1500 min⁻¹, ρ = 0.7 bar (10 PSI) and v = 25 mm²/s</td>
<td>l/min (gpm)</td>
<td>101 (26.7)</td>
<td>120 (31.7)</td>
<td>141 (37.2)</td>
<td>167 (44.1)</td>
<td>177 (46.8)</td>
<td>203 (53.6)</td>
<td>223 (68.9)</td>
<td>234 (61.8)</td>
<td>267 (70.5)</td>
<td>285 (75.3)</td>
</tr>
<tr>
<td>Outlet continuous for PVV, ρmax</td>
<td>bar (psi)</td>
<td>175 (2500)</td>
<td>175 (2500)</td>
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<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg (lb)</td>
<td>23 (50.7)</td>
<td>34 (74.9)</td>
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</tr>
<tr>
<td>Speed at 1 bar (14.5 PSI)</td>
<td>RPM</td>
<td>600–1800</td>
<td></td>
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### Part Number | Description | Max. Quantity | Shipment (Business Days)
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<td>R900965314</td>
<td>PVV1-1X/036RJ15DMB</td>
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</table>
The PGH is a fixed displacement internal gear pump with an extremely versatile design, that’s increasing in popularity within many variable speed drive applications. Along with its high pressure rating and low-noise and pulsation levels, the PGH reduces energy consumption and boosts overall system efficiency by providing only the flow and pressure as the system demands.

**Features**

- Sizes 5cc through 250cc
- Wide speed range, excellent for variable speed applications
- Radial and axial gap pressure compensation
- Larger sizes have built-in gauge / bleed port
- Flexible combination concept, all pumps have through drive
- Frame size 2 and 3: RE10223
- Frame size 4 and 5: RE10227

**Technical Data**

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<th>Frame Size</th>
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<td>Displacement ( V_g ) cm(^3)</td>
<td>5 6 8 11 13 16</td>
<td>20 25 32 40 50</td>
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</tr>
<tr>
<td>Allowable speed ( n ) rpm</td>
<td>600 – 3000</td>
<td>200 – 3000</td>
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</tr>
<tr>
<td>Maximum continuous operating pressure (std fluids) ( p_n ) psi</td>
<td>4568</td>
<td>3625</td>
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</tr>
<tr>
<td>Permitted viscosity range cSt</td>
<td>10 to 300 (restricted to 100 cSt for high speed 3000 rpm operation)</td>
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<td></td>
</tr>
<tr>
<td>Fluid temperature (std fluids) ( T ) °F</td>
<td>14 to 176</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight ( m ) lbs</td>
<td>9.5 9.7 10.1 10.6 11.1 11.7 30.9 32 33.1 35.3 37.5</td>
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<table>
<thead>
<tr>
<th>Frame Size</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>Displacement ( V_g ) cm(^3)</td>
<td>63 80 100 125 160 200 250</td>
</tr>
<tr>
<td>Allowable speed ( n ) rpm</td>
<td>200 – 3000</td>
</tr>
<tr>
<td>Maximum continuous operating pressure (std fluids) ( p_n ) psi</td>
<td>4568</td>
</tr>
<tr>
<td>Permitted viscosity range cSt</td>
<td>10 to 300 (restricted to 100 cSt for high speed 3000 rpm operation)</td>
</tr>
<tr>
<td>Fluid Temperature (std fluids) ( T ) °F</td>
<td>14 to 176</td>
</tr>
<tr>
<td>Weight ( m ) lbs</td>
<td>92.6 95.9 100.3 105.8 114.6 122.4 133.4</td>
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</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<td>R901147104</td>
<td>PGH4-3X/050RE11VU2</td>
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<td>10 day(s)</td>
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<td>R901147115</td>
<td>PGH5-3X/063RE11VU2</td>
<td>3</td>
<td>10 day(s)</td>
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</table>
Variable displacement motor (A)A6VM in axial tapered piston rotary group of bent-axis design is available for open and closed circuit applications. It can be used in both mobile and industrial applications. The output speed is dependent on the flow of the pump and the displacement of the motor. The output torque increases with the pressure differential between the high-pressure and low-pressure side and with increasing displacement.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomotors

**Features**

- Sizes 80, 107, 160
- Series 6
- Axial tapered piston, bent-axis design
- For use in mobile and stationary applications
- Wide control range, high speeds and torque
- Compact, robust motor with long service life
- Cost savings through elimination of gear shifts and possibility of using smaller pumps
- Wide selection of control devices; good starting characteristics
- Graduated Lead Time as follows:
  - Quantity 5 or less, Lead Time 10 days
  - Quantity 6+, Lead Time 40 days
- Detailed information Series 6: RE91604
## Technical Data

<table>
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<tr>
<th>Size</th>
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<th>107</th>
<th>160</th>
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<tbody>
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<td>Nominal pressure</td>
<td>bar (PSI)</td>
<td>400 (5800)</td>
<td>400 (5800)</td>
</tr>
<tr>
<td>Peak pressure</td>
<td>bar (PSI)</td>
<td>450 (6500)</td>
<td>450 (6500)</td>
</tr>
<tr>
<td>Displacement 1)</td>
<td>$V_{g,\text{max}}$ cm³ (in³)</td>
<td>80 (4.88)</td>
<td>107 (6.53)</td>
</tr>
<tr>
<td></td>
<td>$V_{g,\text{0}}$ cm³ (in³)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Max. speed 2)</td>
<td>$n_{\text{max}}$ at $V_{g,\text{max}}$ rpm</td>
<td>3900</td>
<td>3550</td>
</tr>
<tr>
<td>(while adhering to the maximum permissible flow)</td>
<td>$n_{\text{max}}$ at $V_{g} &lt; V_{g,\text{max}}$ rpm</td>
<td>6150</td>
<td>5600</td>
</tr>
<tr>
<td></td>
<td>$V_{g,\text{x}} = 0.63 \times V_{g,\text{max}}$ cm³ (in³)</td>
<td>51 (3.11)</td>
<td>68 (4.15)</td>
</tr>
<tr>
<td></td>
<td>$n_{\text{max}}$ at $V_{g,\text{0}}$ rpm</td>
<td>7350</td>
<td>6300</td>
</tr>
<tr>
<td>Max. flow</td>
<td>$q_{\text{V,\text{max}}}$ L/min (GPM)</td>
<td>312 (82)</td>
<td>380 (100)</td>
</tr>
<tr>
<td>Max. torque</td>
<td>$T_{\text{max}}$ at $V_{g,\text{max}}$ ³) Nm (lb-ft)</td>
<td>509 (375)</td>
<td>681 (502)</td>
</tr>
<tr>
<td>Rotary stiffness</td>
<td>$V_{g,\text{max}}$ to $V_{g,\text{2}}$</td>
<td>$\zeta_{\text{min}}$ Nm/rad (lb-ft/rad)</td>
<td>15500 (11432)</td>
</tr>
<tr>
<td></td>
<td>$V_{g,\text{2}}$ to $V_{g,\text{0}}$(interpolated)</td>
<td>$\zeta_{\text{max}}$ Nm/rad (lb-ft/rad)</td>
<td>47900 (35329)</td>
</tr>
<tr>
<td>Moment of inertia for rotary group</td>
<td>JTW kgm² (lb-ft²)</td>
<td>0.0080 (0.190)</td>
<td>0.0127 (0.301)</td>
</tr>
<tr>
<td>Maximum angular acceleration</td>
<td>$a$ rad/s²</td>
<td>24000</td>
<td>19000</td>
</tr>
<tr>
<td>Filling capacity</td>
<td>$V$ L (Gal)</td>
<td>1.2 (0.32)</td>
<td>1.5 (0.40)</td>
</tr>
<tr>
<td>Mass (approx.)</td>
<td>$m$ kg (lbs)</td>
<td>34 (75)</td>
<td>47 (104)</td>
</tr>
</tbody>
</table>

1) The minimum and maximum displacement are infinitely adjustable, see ordering code, page 3. (default settings for sizes 250 to 1000 unless specified in the order: $V_{g\,\text{min}} = 0.2 \times V_{g\,\text{max}}, V_{g\,\text{max}} = V_{g\,\text{max}}$.)

2) $V_{g\,\text{x}} = 0.75 \times V_{g\,\text{max}}$ (appr.)

3) Sizes 28 to 200: $\Delta p = 400$ bar (5800 PSI); sizes 250 to 1000: $\Delta p = 350$ bar (5100 PSI)

**Caution:** Exceeding the permissible limit values may result in a loss of function, a reduction in service life or in the destruction of the axial piston unit. Other permissible limit values with respect to speed variation, reduced angular acceleration as a function of the frequency and the permissible startup angular acceleration (lower than the maximum angular acceleration) can be found in data sheet RE90261.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
<tr>
<td>R902249618</td>
<td>A6VM080HP5000000G/65AWV0C2S7200-0</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
A10VM - Variable Displacement Motors

Variable dual displacement motor A10VM in axial swashplate design is available for both open and closed circuit applications. Output speed is directly proportional to inlet flow and inversely proportional to motor displacement and output torque increases proportional to the pressure difference between high and low pressure sides and increasing displacement. Heavy duty design allows for high output speeds, long service life, and high power to weight ratio.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomotors

Features

• Size 45 & 63
• Axial piston swash plate design
• Open and closed circuit
• High permissible output speeds
• Graduated Lead Time as follows:
  • Quantity 10 or less, Lead Time 10 days
  • Quantity 11+, Lead Time 40 days
• Detailed information: RA91703

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>$V_{g\text{ max}}$ (cm$^3$ (in$^3$))</th>
<th>45 (2.75)</th>
<th>63 (3.78)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>$n_{\text{max}}$ (rpm)</td>
<td>4000</td>
<td>3300</td>
</tr>
<tr>
<td>Flow</td>
<td>$\dot{q}^{\text{ max}}$ (l/min (GPM))</td>
<td>47.5 (180)</td>
<td>205 (54)</td>
</tr>
<tr>
<td>Power</td>
<td>$\Delta P = 280$ bar (4000 psi)</td>
<td>$P_{\text{max}}$ (kW)</td>
<td>84</td>
</tr>
<tr>
<td>Torque</td>
<td>$\Delta P = 280$ bar (4000 psi)</td>
<td>$T_{\text{max}}$ (Nm (lb/ft))</td>
<td>200 (146)</td>
</tr>
<tr>
<td>Weight (approx.)</td>
<td>$m$ (kg (lbs.))</td>
<td>18 (39.7)</td>
<td>26 (57.3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<td>R902505324</td>
<td>A10VM 45 HZ /52W2-VRC66N007</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902503914</td>
<td>A10VM 63 HZ /52W2-VWC60N000</td>
<td>10</td>
<td>10 day(s)</td>
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</table>
(A)A2FM - Fixed Displacement Motors

Fixed motor with axial tapered piston rotary group of bent axis design A(A)2FM, is available for hydrostatic drives in open and closed circuits. For use in mobile and stationary application areas, the output speed is dependent on the flow of the pump and the displacement of the motor. The output torque increases with the pressure differential between the high and low pressure sides. Careful selection of the displacements offered, permit sizes to be matched to practically every application.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotomotors

**Features**

- Series 6, Sizes 16 to 180
- Fixed motor with axial tapered piston rotary group of bent axis design
- Open and closed circuits
- High power density and overall efficiency
- Compact design
- Graduated Lead Time as follows:
  - Quantity 5 or less, Lead Time 10 days
  - Quantity 6+, Lead Time 40 days
- Detailed information: Series 6 - RE91001

**Technical Data**

<table>
<thead>
<tr>
<th>Size</th>
<th>Displacement $V_g$ (cm$^3$ in$^3$)</th>
<th>Max. speed $n_{max}$ rpm</th>
<th>Max. flow $q_{V_{max}}$ l/min (GPM)</th>
<th>Torque $\Delta p = 5100$ PSI (350 bar) $T$ Nm (lb-ft)</th>
<th>Torque $\Delta p = 5800$ PSI (400 bar) $T$ Nm (lb-ft)</th>
<th>Weight (approx.) $m$ kg (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>16 (0.98)</td>
<td>8000</td>
<td>128 (33.9)</td>
<td>88 (66)</td>
<td>100 (75)</td>
<td>5.4 (12)</td>
</tr>
<tr>
<td>28</td>
<td>28.1 (1.71)</td>
<td>6300</td>
<td>176 (46.8)</td>
<td>156 (115)</td>
<td>178 (132)</td>
<td>9.5 (21)</td>
</tr>
<tr>
<td>32</td>
<td>32 (1.95)</td>
<td>6300</td>
<td>201 (52.2)</td>
<td>178 (132)</td>
<td>254 (188)</td>
<td>9.5 (21)</td>
</tr>
<tr>
<td>45</td>
<td>45.6 (2.78)</td>
<td>5600</td>
<td>255 (67.4)</td>
<td>254 (188)</td>
<td>312 (231)</td>
<td>13.5 (30)</td>
</tr>
<tr>
<td>56</td>
<td>56.1 (3.42)</td>
<td>5000</td>
<td>280 (74.0)</td>
<td>312 (231)</td>
<td>350 (259)</td>
<td>18 (40)</td>
</tr>
<tr>
<td>63</td>
<td>56.1 (3.84)</td>
<td>5000</td>
<td>315 (83.1)</td>
<td>350 (259)</td>
<td>400 (295)</td>
<td>18 (40)</td>
</tr>
</tbody>
</table>

**Size**

<table>
<thead>
<tr>
<th>Size</th>
<th>Displacement $V_g$ (cm$^3$ in$^3$)</th>
<th>Max. speed $n_{max}$ rpm</th>
<th>Max. flow $q_{V_{max}}$ l/min (GPM)</th>
<th>Torque $\Delta p = 5100$ PSI (350 bar) $T$ Nm (lb-ft)</th>
<th>Torque $\Delta p = 5800$ PSI (400 bar) $T$ Nm (lb-ft)</th>
<th>Weight (approx.) $m$ kg (lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>4.91 (80.4)</td>
<td>4500</td>
<td>360 (95.8)</td>
<td>445 (332)</td>
<td>508 (377)</td>
<td>23 (51)</td>
</tr>
<tr>
<td>90</td>
<td>5.49 (90)</td>
<td>4500</td>
<td>405 (106.9)</td>
<td>501 (371)</td>
<td>572 (422)</td>
<td>23 (51)</td>
</tr>
<tr>
<td>107</td>
<td>6.51 (106.7)</td>
<td>4000</td>
<td>427 (112.7)</td>
<td>595 (440)</td>
<td>680 (500)</td>
<td>32 (71)</td>
</tr>
<tr>
<td>125</td>
<td>7.83 (125)</td>
<td>4000</td>
<td>500 (132.1)</td>
<td>697 (516)</td>
<td>796 (587)</td>
<td>32 (71)</td>
</tr>
<tr>
<td>160</td>
<td>9.79 (160.4)</td>
<td>3600</td>
<td>577 (152.5)</td>
<td>889 (682)</td>
<td>1016 (753)</td>
<td>45 (99)</td>
</tr>
<tr>
<td>180</td>
<td>10.98 (180)</td>
<td>3600</td>
<td>648 (171.1)</td>
<td>1001 (742)</td>
<td>1144 (844)</td>
<td>45 (99)</td>
</tr>
</tbody>
</table>

1) Intermittent maximum speed: overspeed at discharge and over-running travel operations, $t < 5$ s and $\Delta p < 2200$ psi (150 bar)
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<th>Shipment (Business Days)</th>
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<tbody>
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<td>R902137843</td>
<td>AA2FM107/61W-VSD510</td>
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<td>10 day(s)</td>
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<tr>
<td>R902138182</td>
<td>AA2FM125/61W-VSD510</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902137733</td>
<td>AA2FM125/61W-VSD520</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902197791</td>
<td>AA2FM16/61W-VSC530</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902193516</td>
<td>AA2FM160/61W-VSD520</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902193869</td>
<td>AA2FM180/61W-VSD510</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902193712</td>
<td>AA2FM180/61W-VSD520</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902198240</td>
<td>AA2FM28/61W-VSD520</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902193517</td>
<td>AA2FM28/61W-VSD530</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902197566</td>
<td>AA2FM28/61W-VSD540</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902193710</td>
<td>AA2FM32/61W-VBD540</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902202055</td>
<td>AA2FM32/61W-VSD520</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902198042</td>
<td>AA2FM32/61W-VSD540</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902193533</td>
<td>AA2FM45/61W-VPD510</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902193514</td>
<td>AA2FM45/61W-VSD510</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902196957</td>
<td>AA2FM45/61W-VSD520</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902160543</td>
<td>AA2FM56/61W-VBD510</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902161224</td>
<td>AA2FM63/61W-VSD510</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902160055</td>
<td>AA2FM63/61W-VSD520</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902137826</td>
<td>AA2FM80/61W-VSD510</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R902137579</td>
<td>AA2FM80/61W-VUDN520</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
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</table>
GoTo Focused Delivery Program: Motors

A10FM - Fixed Displacement Motors

Fixed displacement axial piston motor A10FM in swashplate design is available for both open and closed circuit applications. For use in a wide array of mobile and industrial applications, the well-proven A10-rotary group design boasts a high power to weight ratio along with long service life and low noise levels. The output speed is proportional to the inlet flow and torque increases with the pressure differential between the high and low pressure sides.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomotors

Features

- Sizes 23 to 63
- Axial piston swashplate design
- Open and closed circuit
- High permissible output speeds
- Graduated Lead Time as follows:
  - Quantity 10 or less, Lead Time 10 days
  - Quantity 11+, Lead Time 40 days
- Detailed information: RE91172

Technical Data

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<tr>
<th>Size</th>
<th>23</th>
<th>28</th>
<th>37</th>
<th>45</th>
<th>58</th>
<th>63</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement $V_{g \text{ max}}$ cm$^3$ (in$^3$)</td>
<td>23.5 (1.43)</td>
<td>28.5 (1.73)</td>
<td>36.7 (2.24)</td>
<td>44.5 (2.71)</td>
<td>58 (3.53)</td>
<td>63.1 (3.84)</td>
</tr>
<tr>
<td>Speed $n_{\text{max}}$ rpm</td>
<td>4900</td>
<td>4700</td>
<td>4200</td>
<td>4000</td>
<td>3600</td>
<td>3400</td>
</tr>
<tr>
<td>Flow at $n_{\text{max}}$ $q_{v \text{ max}}$ l/min (GPM)</td>
<td>115 (30.4)</td>
<td>134 (35.4)</td>
<td>154 (40.7)</td>
<td>178 (47)</td>
<td>209 (55.2)</td>
<td>215 (56.8)</td>
</tr>
<tr>
<td>Power $\Delta p = 280$ bar (4000 psi) $p_{\text{max}}$ kW</td>
<td>53.6</td>
<td>62.5</td>
<td>71.8</td>
<td>83.1</td>
<td>97.4</td>
<td>100.1</td>
</tr>
<tr>
<td>Torque $\Delta p = 280$ bar (4000 psi) $T_{\text{max}}$ Nm (lb/ft)</td>
<td>105 (77.4)</td>
<td>127 (93.7)</td>
<td>163 (120)</td>
<td>198 (146)</td>
<td>258 (190)</td>
<td>281 (207)</td>
</tr>
<tr>
<td>Weight (approx.) $m$ kg (lbs.)</td>
<td>12 (26.5)</td>
<td>12 (26.5)</td>
<td>17 (37.5)</td>
<td>17 (37.5)</td>
<td>22 (48.5)</td>
<td>22 (48.5)</td>
</tr>
</tbody>
</table>

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomotors
AZMF - External Gear Motors

Bosch Rexroth has been involved with the design, development and manufacture of gear motors for many decades. Well-proven designs, the use of specially developed materials, constant testing and sophisticated mass production techniques ensure products of the very highest quality.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotomotors

Features

- Sizes 8 to 22 cc
- High pressures with small installation space and low weight
- Wide speed ranges
- Wide viscosity and temperature ranges
- Reversible motors for 2- and 4-quadrant operation
- Plain bearings for high loads
- Consistently high quality owing to large-scale production
- Many design variants available

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>008</th>
<th>011</th>
<th>014</th>
<th>016</th>
<th>019</th>
<th>022</th>
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</thead>
<tbody>
<tr>
<td>Displacement cm³/rev (in³/rev)</td>
<td>8.2 (0.50)</td>
<td>11.3 (0.69)</td>
<td>14.3 (0.87)</td>
<td>16.5 (1.01)</td>
<td>19.5 (1.19)</td>
<td>22.9 (1.40)</td>
</tr>
<tr>
<td>Max. continuous pressure $p_1$ bar (PSI)</td>
<td>210 (3045)</td>
<td>210 (3045)</td>
<td>210 (3045)</td>
<td>210 (3045)</td>
<td>180 (2610)</td>
<td>180 (2610)</td>
</tr>
<tr>
<td>Max. starting pressure $p_2$ bar (PSI)</td>
<td>280 (4060)</td>
<td>280 (4060)</td>
<td>280 (4060)</td>
<td>280 (4060)</td>
<td>210 (3045)</td>
<td>210 (3045)</td>
</tr>
<tr>
<td>Min. rotational speed $p_1$ min⁻¹</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Max. rotational speed</td>
<td>4000</td>
<td>3500</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
<td>3000</td>
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<tr>
<td>Motor outlet pressure $p_a$ bar (PSIA)</td>
<td>$p_a \leq 3$ bar (43.5 PSI)*</td>
<td></td>
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<tr>
<td>Leakage-oil line pressure $p_L$ bar (PSIA)</td>
<td>$p_L \leq 3$ bar (43.5 PSI)*</td>
<td></td>
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*) Short-term when starting 10 bar (145 PSI)
<table>
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<tr>
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<td>9511290015</td>
<td>AZ-M-F-12-014-UQR12ML-S0022</td>
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<td>9511290029</td>
<td>AZ-M-F-12-019-UQR12ML-S0018</td>
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<td>9511290035</td>
<td>AZ-M-F-12-019-UQR12ML-S0030</td>
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<td>0511625001</td>
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<td>9511290013</td>
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<tr>
<td>9511290014</td>
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<td>3</td>
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</tr>
<tr>
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<td>AZMF-12-022-UQR12ML-S0022</td>
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</table>
The SV & SL valves are hydraulic pilot operated check valves of poppet type design which may be opened to permit flow in the reverse direction. These valves are used for the isolation of operating circuits which are under pressure, i.e. as a safe guard against the lowering of a load when a line break occurs or against creeping movement of hydraulically locked actuators. The valve basically comprises of the housing, the poppet, a compression spring, the control spool as well as optional decompression feature as a ball poppet valve.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotocheck

Features

• Sizes 10 to 30
• For subplate mounting
• Connection location to ISO 5781
• With internal SV or external SL pilot oil drain
• With or without decompression feature, optional
• Version with decompression feature for dampened decompression (minimizing possible pressure shocks)

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>20</th>
<th>30</th>
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<tr>
<td>Maximum operating pressure $p_{\text{max}}$ bar (PSI)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
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<tr>
<td>Control pressure bar (PSI)</td>
<td>5 to 315 (72.5 to 4600)</td>
<td>5 to 315 (72.5 to 4600)</td>
<td>5 to 315 (72.5 to 4600)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
<tr>
<td>R900483371</td>
<td>SL 10 PA1-4X/</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
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<td>R900587559</td>
<td>SL 20 PA1-4X/</td>
<td>5</td>
<td>10 day(s)</td>
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<tr>
<td>R900501547</td>
<td>SL 20 PA1-4X/V</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
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<td>R900587560</td>
<td>SL 30 PA1-4X/</td>
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<td>SL 30 PA1-4X/V</td>
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<td>R900587557</td>
<td>SV 20 PA1-4X/</td>
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<td>10 day(s)</td>
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</table>
Z1S - Check Valves

Valve type Z1S is a direct operated check valve of sandwich plate design. They provide line contact closure in one direction and allows free flow in the opposite direction. The check function can be in one of several ports, or dual ports. The check function orientation can also be defined by model coding.

Features

- Size 6 and 10
- For size 6 mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B 93.7 D 03
- For size 10 mounting: porting pattern according to ISO 4401-5, NFPA T3.5.1M R1, and ANSI B93.7 D 05
- Various isolating functions
- Various cracking pressures
- Check valve made of carbon fiber-reinforced plastic
- Excellent compatibility with various hydraulic fluids

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>6</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure $p_{\text{max}}$ (bar (PSI))</td>
<td>350 (5100)</td>
<td>315 (4600)</td>
</tr>
<tr>
<td>Cracking pressure (bar (PSI))</td>
<td>0.5 (7.25), 1.5 (21.75), 3.0 (43.5), 5.0 (72.5)</td>
<td>0.5 (7.25), 3.0 (43.5), 5.0 (72.5)</td>
</tr>
<tr>
<td>Flow $q_{V_{\text{max}}}$ (l/min (GPM))</td>
<td>40 (10.6)</td>
<td>100 (26.4)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<td>Z1S 6 P05-4X/V</td>
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Z2S - Piloted-to-Open Check Valves

Models Z2S are pilot operated check valves in a sandwich plate design. They provide line contact closure in one or two actuator ports, even during idle periods. Piloted to open, utilizing a pressure signal from the opposite actuator port provides a self-contained function.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotocheck

Features

- Sizes 6 to 22
- Porting pattern according to ISO 4401-3, 5, 7, 8; NFPA T3.5.1M R1, and ANSI B93.7 D 03, D 05, D 07, D 08
- For the leak-free isolation of one or two actuator ports
- Various cracking pressures

Technical Data

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<th>Component series</th>
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<th>3X</th>
<th>5X</th>
<th>5X</th>
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<tr>
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<td>315 (4600)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td></td>
</tr>
<tr>
<td>Cracking pressure bar (PSI)</td>
<td>1.5, 3, 7 (22, 42, 102)</td>
<td>1.5, 3, 6, 10 (22, 42, 87, 145)</td>
<td>3.5, 7.5, 10 (42, 92.5, 109, 145)</td>
<td>3.5, 7.5, 10 (42, 92.5, 109, 145)</td>
<td></td>
</tr>
<tr>
<td>Flow $q_{\text{V max}}$ l/min (GPM)</td>
<td>60 (15.9)</td>
<td>120 (31.7)</td>
<td>300 (79.3)</td>
<td>450 (118.9)</td>
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<table>
<thead>
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<th>Part Number</th>
<th>Description</th>
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<th>Shipment (Business Days)</th>
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<td>Z2S 10-1-3X/</td>
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<tr>
<td>R900407439</td>
<td>Z2S 10-1-3X/V</td>
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<td>10 day(s)</td>
</tr>
<tr>
<td>R900412459</td>
<td>Z2S 16-1-5X/V</td>
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<td>R900436495</td>
<td>Z2S 22-1-5X/V</td>
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<tr>
<td>R900347495</td>
<td>Z2S 6-1-6X/</td>
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<td>10 day(s)</td>
</tr>
<tr>
<td>R900347504</td>
<td>Z2S 6-1-6X/V</td>
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<td>10 day(s)</td>
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</table>
ZSF - Filling Valves

The valve type ZSF is a pilot operated check valve in sandwich plate design. It is used for the leakage-free isolation of pressurized working circuits (e.g. pressing cylinders). Due to its favorable flow characteristics and the low cracking pressure of the main poppet, it is particularly suitable on presses.

Features

- Sizes 32 to 200
- Pilot operated check valve in sandwich plate design
- With or without pre-opening, optional
- Control by built-on directional spool valve or directional seat valve, optional
- Integrated high-pressure connection (size 32 to 160)
- Integrated throttle check valve (size 200)

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Max. Quantity</th>
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<tr>
<td>Maximum operating pressure</td>
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<td></td>
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<tr>
<td>- Port B, P bar (PSI)</td>
<td>350 (5100)</td>
<td></td>
</tr>
<tr>
<td>- Port X bar (PSI)</td>
<td>150 (2175)</td>
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</tr>
<tr>
<td>- Port A bar (PSI)</td>
<td>16 (232)</td>
<td></td>
</tr>
<tr>
<td>Control pressure bar (PSI)</td>
<td>~0.12 (~1.74)</td>
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</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
-------------|-------------|---------------|--------------------------|
R901089756   | ZSF 125 F1-1-2X/M/01 | 5             | 10 day(s)                |
SFA - Prefill Valves

Isolator valves that block the flow in one direction safely and leakage-free and simultaneously allow for free flow in the opposite direction (check valves, prefill valves and shut-off valves).

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotocheck

Features

• Size 25 ... 80
• Pilot operated check valve
• For threaded connection (size 25 and 32)
• For flange connection according to ISO 6162-1 (from size 40)
• For direct attachment to the working cylinder
• With and without pre-decompression, optional
• Integrated high-pressure connection
• Detailed information: RE20485

Technical Data

| Maximum operating pressure | – Port B, P | bar 350 |
| – Port X | bar 150 |
| – Port A | bar 16 |
| Cracking pressure | bar ~0.12 |
| Hydraulic fluid temperature range (at the valve working ports) | °C –30 ... +80 |
| Viscosity range | mm²/s 10 ... 800 |

<table>
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<td>SFA 50 FT0-1X/M/01</td>
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</table>
Directional control valves, model SED and SEW, are direct (SED) or lever (SEW) actuated directional poppet valves with solenoid actuation. They control the start, stop, and direction of fluid flow. Poppet valves, or seat valves, provide a line contact closure for applications where spool valve leakage or silting is not desirable.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotodirectional

**Features**

- Size 6 and 10
- For size 6 mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B 93.7 D 03
- For size 10 mounting: porting pattern according to ISO 4401-5, NFPA T3.5.1M R1, and ANSI B93.7 D 05
- Blocked port is leak-free when completely shifted
- Solenoids with detachable coil
- Pressure-tight chamber does not have to be opened for changing the coil (type SED)
- Reliable switching when under pressure over longer periods of standstill

**Technical Data**

<table>
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<tr>
<th>Type SED</th>
<th>Size</th>
<th>Operating pressure ($P_{max}$) bar (PSI)</th>
<th>Flow ($Q_{max}$) l/min (GPM)</th>
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<tbody>
<tr>
<td></td>
<td>6</td>
<td>350 (5100)</td>
<td>25 (6.6)</td>
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<td></td>
<td>10</td>
<td>350 (5100)</td>
<td>40 (10.6)</td>
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<table>
<thead>
<tr>
<th>Type SEW</th>
<th>Size</th>
<th>Operating pressure ($P_{max}$) bar (PSI)</th>
<th>Flow ($Q_{max}$) l/min (GPM)</th>
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<tr>
<td></td>
<td>6</td>
<td>420/630 (6100/9100)</td>
<td>25 (6.6)</td>
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<table>
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<tr>
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<td>M-3SEW 6 C3X/420MG24N9K4</td>
<td>5</td>
<td>10 day(s)</td>
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<td>R900049834</td>
<td>M-3SEW 6 C3X/420MG24N9K4/V</td>
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4WMM & 4WMR - Directional Spool Valves

Directional valves type WMM are lever operated directional spool valves. They control the start, stop, and direction of a flow. These directional valves basically consist of housing; lever; control spool; return springs. A full array of spools are possible with variations for distended operation on both 2-position or 3-position functions. Flow and pressure rates from 4000 PSI to 5000 PSI and 16 GPM to 32 GPM cover a wide range of applications.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotodirectional

Features
• Size 6 and 10
• For mounting Size 6: Porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B 93.7 D 03
• For mounting Size 10: Porting pattern according to ISO 4401-5, NFPA T3.5.1M R1, and ANSI B93.7 D 05
• Operation by means of manual lever or roller/plunger
• Detailed information: Size 6 - RE22280, Size 10 - RE22334

Technical Data

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</thead>
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<tr>
<td>Operating pressure $p_{\text{max}}$ bar (PSI)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
</tr>
<tr>
<td>Flow $q_{\text{v, max}}$ l/min (GPM)</td>
<td>60 (16)</td>
<td>180 (42.3)</td>
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<td>R900405611</td>
<td>4WMM 6 E5X/F</td>
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<td>10 day(s)</td>
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<tr>
<td>R900471209</td>
<td>4WMM 6 G5X/</td>
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<td>10 day(s)</td>
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<tr>
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<td>4WMM 6 G5X/F</td>
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<tr>
<td>R900469302</td>
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<td>10 day(s)</td>
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<tr>
<td>R900465984</td>
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</tr>
<tr>
<td>R900918059</td>
<td>H-4WMM 16 E7X/</td>
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<td>10 day(s)</td>
</tr>
</tbody>
</table>
WE - Directional Spool Valves

Directional valves type WE are solenoid operated directional spool valves. They control the start, stop, and direction of a flow. These directional valves consist of housing; one or two solenoids; control spool; and no, one, or two return springs. A full array of spools are possible with variations in voltage and electrical connection, all within the program. Flow and pressure rates from 4000 PSI to 5000 PSI and 21 GPM to 32 GPM cover a wide range of applications.

Select FM-approved explosion-proof variants (WE...VP1) now available through the GoTo Program. Intended for environments according to Explosion Protection Directive 2014/34/EU: I M2; II 2G, with protection class: Ex ib I Mb / Ex ib IIC T6 Gb according to EN 60079-0 / EN 60079-11.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToDirectional

Features

- Sizes 6 to 10
- For size 6 subplate mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B93.7 D 03
- For size 10 subplate mounting: porting pattern according to ISO 4401-5, NFPA T3.5.1M R1, and ANSI B93.7 D 05
- Wet-pin AC or DC solenoids
- Solenoids with detachable coil
- Electrical connection as individual or central connection
- Optional spool position monitoring (RE24830)
- Smooth switching characteristics 3)
- For WE...VPi explosion-proof variant:
  - FM Approval Certificate: 3055770 (US) & 3055770C (Canada)

Technical Data

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<tr>
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<tr>
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<tr>
<td>Version</td>
<td>1)</td>
<td>2)</td>
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<tr>
<td>Operating pressure $p_{\text{max}}$ bar (PSI)</td>
<td>315 (4600)</td>
<td>350 (5100)</td>
</tr>
<tr>
<td>Flow $q_{v, \text{nom}}$ l/min (GPM)</td>
<td>60 (15.8)</td>
<td>80 (21)</td>
</tr>
</tbody>
</table>

1) Standard valve, size 6 (DC solenoid only) 5) Standard valve, size 10
2) Heavy duty valve 6) 5-chamber version (DC solenoid only)
3) Soft switch valves 7) Explosion-proof variant
4) Reduced electrical power consumption

"="AN": solenoid identity is to ANSI guidelines, wherein "A" solenoid energized produces flow from "P" to "A"
"SO 407": indicates the solenoid power consumption is 8 watts
"K72": defines an M12 molded electrical connection on each solenoid vs a single connection to a conduit/central box arrangement.
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4WEH - Directional Spool Valves

Directional valves type WEH are solenoid operated directional spool valves. They control the start, stop, and direction of a flow. These pilot operated directional valves consist of a pilot control valve and main stage with spring or hydraulic centering options. Additionally, the pilot and drain configuration may be selected. A full array of spools are possible with variations in voltage and electrical connection, all within the program. Flow and pressure rates from 4000 PSI to 5000 PSI and 42 GPM to 120 GPM cover a wide range of applications.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToDirectional

Features

• Sizes 10 to 22
• Porting pattern according to DIN 24340 form A and ISO 4401-5, 7, 8; NFPA T3.5.1M R1, and ANSI B93.7 D 05, D 07, D 08
• Wet-pin AC or DC solenoids
• Spring and/or pressure return of the main spool to its initial position
• Spring centering (size 10, 16 & 22)
• Spring or pressure centering (sizes 16 & 22)
• Electrical connection as individual connection or central connection
• Optional switching time adjustment
• Stroke limitation of the main spool, optional
• CSA certified part numbers available in all sizes
• Detailed information: RE24751

Technical Data

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<th>Operating pressure $p_{\text{max}}$ (bar (PSI))</th>
<th>Flow $q_{V_{\text{max}}}$ (l/min (GPM))</th>
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<td>10</td>
<td>16</td>
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<tr>
<td>10</td>
<td>350/280 (5100/4060)</td>
<td>160 (42.3)</td>
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<td>16</td>
<td>350/280 (5100/4080)</td>
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<td>22</td>
<td>350/280 (5100/4060)</td>
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<td>Description</td>
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<tr>
<td>R900943462</td>
<td>4WEH 10 D4X/6EG24N9ETK4/B10</td>
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<td>R900948924</td>
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<td>R900923875</td>
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<td>R900948924</td>
<td>4WEH 16 E7X/6EG24N9K4/B10</td>
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<td>4WEH 16 HD7X/O6EG24N9ETK4/B10</td>
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<td>4WEH 16 J7X/6EG24N9ETK4/B10</td>
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<td>R900939187</td>
<td>4WEH 16 J7X/6EW110N9ETK4/B10</td>
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<td>R978913434</td>
<td>4WEH 22 D7X/6EW110N9EDAL/B10</td>
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<td>R978891260</td>
<td>4WEH 22 E7X/6EG24N9EK4 SO43A-1058A</td>
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<td>R900932659</td>
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<td>H-4WEH 25 J6X/6EG24N9ETK4/B10D3</td>
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WP & WN - Directional Valves w/ Fluid Actuation

Valves of type WP and WN are directional spool valves with fluid actuation. They control the start, stop, and direction of flow. A full array of spools are available for both the WP and WN operator.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToDirectional

Features

- Size 6 and 10
- Direct operated directional spool valve
- Porting pattern according to DIN 24340 form A (without locating hole)
- Porting pattern according to ISO 4401-03-02-0-05 and NFPA T3.5.1 R2-2002 D03 (with locating hole)
- Detailed information: Size 6 RE22282, Size 10 - RE22334

Technical Data

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<tr>
<td>R978917418</td>
<td>4WP 6 D6X/5</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978917419</td>
<td>4WP 6 E6X/5</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978917421</td>
<td>4WP 6 J6X//5</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901470636</td>
<td>4WN 10 E5X//V/5</td>
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</table>
Valve type Z4WEH are directional spool valves with electrohydraulic actuation. They control the start and stop of a flow, and function as an emergency on-off isolating valve or on-off isolating/bypass valve, primarily used for servo/proportional systems.

Features

- Sizes 10
- Directional spool valve, pilot operated
- Electrohydraulic (type WEH) actuation
- Hydraulic (type WH) actuation
- Function as shut-off through-valve or shut-off/through valve/short-circuit valve
- Free flow in P and T in every spool position
- Porting pattern to ISO 4401-05-04-0-05
- Wet-pin DC or AC voltage solenoids, optional
- Manual override, optional
- Electrical connection as individual or central connection
- Switching time adjustment, optional
- Stroke adjustment of main spool, optional
- Inductive position switch and proximity sensors

Technical Data

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<th>Size</th>
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<th>10</th>
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<tr>
<td></td>
<td>$p_{\text{max}}$ bar (PSI)</td>
<td>315 (4600)</td>
</tr>
<tr>
<td></td>
<td>$q_{V_{\text{max}}}$ l/min (GPM)</td>
<td>160 (42)</td>
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<table>
<thead>
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<td>10 day(s)</td>
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LC + LFA - Logic valves for direction functions

Logic valves consist of a cartridge (LC) and cover (LFA) which are ordered separately. The directional valve cartridges have area ratios to suit application needs. LC..A has a 50% or (2:1) area ratio. LC..B has a 7% (14.3:1) area ratio. Cracking pressure is determined by spring code (ex: 00 = no spring, 10 = 1 bar). The LC without damping nose has option E. The LC with damping nose has option D. The LFA for direction functions have many configurations (D, WEA, GWA, KWA) with various options. When the cover accepts a directional pilot valve, this (4WE6, SEW, SED) must be specified separately. The standard LFA includes metric fasteners.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToDirectional

Features

- Sizes 16, 25, 32, 40, 50, 63
- Mounting cavity and connections to DIN ISO 7368
- LC has 2 area ratios, various springs, optional damping nose
- Control cover with remote control port
- Control cover for mounting directional spool or poppet valve
- Detailed information: RE21010 (LC..A, B)

Technical Data

<table>
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<tr>
<th>Size</th>
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<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
<th>63</th>
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<tr>
<td>Maximum pressure without directional valve</td>
<td>bar</td>
<td></td>
<td></td>
<td></td>
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<td>420</td>
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<td>Maximum pressure ports A, B, X, Z1, Z2**</td>
<td>bar</td>
<td></td>
<td></td>
<td></td>
<td>315, 350, 420 (according to build-on)</td>
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<tr>
<td>Maximum pressure ports Y**</td>
<td>bar</td>
<td></td>
<td></td>
<td></td>
<td>(according to build-on)</td>
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<tr>
<td>Max. Flow @10 bar delta-p (w/o damping nose)*</td>
<td>Lpm</td>
<td></td>
<td></td>
<td></td>
<td>320</td>
<td>800</td>
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<td>Max. Flow @10 bar delta-p (with damping nose)*</td>
<td>Lpm</td>
<td>600</td>
<td>1300</td>
<td>2200</td>
<td>2800</td>
<td>3400</td>
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<td>R900906337</td>
<td>LC 32 A20E7X/</td>
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<td>10 day(s)</td>
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<td>R900937999</td>
<td>LC 40 A20D7X/</td>
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<td>R900927973</td>
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<td>R900912712</td>
<td>LFA 32 WEA-7X/</td>
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<td>10 day(s)</td>
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<td>R900938107</td>
<td>LFA 40 E-7X/CA40DQMG24F</td>
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LC + LFA - Logic valves for pressure functions

Logic valves consist of a cartridge (LC) and cover (LFA) which are ordered separately. The LC..DB is a pressure relief cartridge. Cracking pressure is determined by spring code (ex: 40 = 4 bar). The LC without damping nose has option E. The LC with damping nose has option D. The LFA for pressure functions have many configuration. LFA..DB includes a manual relief valve. LFA..DBEM has mounting provision for a proportional relief valve. The standard LFA includes metric fasteners.

Features

• Sizes 16, 25, 32, 40
• Mounting cavity and connections to DIN ISO 7368
• LC has optional damping nose
• Control cover with DB relief cartridge
• Control cover for mounting DBET proportional relief valve
• Detailed information: RA21050 (LC..DB)

Technical Data

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<th>40</th>
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<td>Maximum pressure LC without pilot valve</td>
<td>bar</td>
<td></td>
<td></td>
<td>420</td>
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<tr>
<td>Pressure limit, determined by pilot valve</td>
<td>bar</td>
<td></td>
<td>50, 100, 200, 315, 350, 420</td>
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</tr>
<tr>
<td>Maximum Flow (w/o damping nose E)</td>
<td>Lpm</td>
<td>300</td>
<td>450</td>
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<tr>
<td>Maximum Flow (with damping nose D)</td>
<td>Lpm</td>
<td>175</td>
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<td>450</td>
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Part Number | Description | Max. Quantity | Shipment (Business Days) |
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<td>LFA 25 DBW2-7X/200/12</td>
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<td>10 day(s)</td>
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</table>
5-WE - Directional Spool Valves

The 5-chamber directional valve type 5-WE is a solenoid operated directional spool valve influencing the switching time. It controls the start, stop and direction of a flow. Directional spool valves connect or isolate the connections by moving a control spool in a housing bore.

Features

- Size 10
- Porting pattern according to ISO 4401-05-04-0-05 and NFPA T3.5.1 R2-2002 D05
- Wet-pin DC solenoids with detachable coil
- Solenoid coil can be rotated by 90°
- Coil can be replaced without opening pressure tight chamber
- Single or double valve mating connectors (see RE08006)
- Detailed information: RE23352

Technical Data

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<td></td>
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<td>150 (39.6)</td>
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<thead>
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3WRCBH - Directional High-Response Cartridge Valves, pilot operated

In connection with pilot control valves, valves of type 3WRCBH are pilot-operated directional high-response cartridge valves with 2 control edges in servo quality, P–A / A–T. They control size and direction of a flow.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToDirectional

Features

- Size 50
- Component series 1X
- Maximum operating pressure 315 bar
- Maximum flow 2250 l/min
- Detailed information: RE29217

Technical Data

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<td>Mass kg</td>
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<td>Min. pilot pressure bar</td>
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<td>Maximum flow l/min</td>
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<td>Pilot flow l/min</td>
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<tr>
<td>Leakage flow (at 100 bar) cm³/min</td>
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<tr>
<td>Main stage cm³/min</td>
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<td>Hydraulic fluid temperature range °C</td>
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</table>
DBD - Pressure Relief Valves

The DBD pressure relief valves are direct operated type relief valves. They are used to limit the pressure in a hydraulic system. DBD type relief valves offer line contact sealing for minimal leakage at closure and a full array of pressure capacities are available.

Features

- Sizes 6
- For threaded connection ("G")
- As cartridge valve ("K")
- Optional adjustment types: screw with hexagon socket and protective cap
- Optional adjustment types: rotary knob / hand wheel

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>6</th>
<th>10</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure $p_{\text{max}}$ bar (PSI)</td>
<td>100 (1450)</td>
<td>100 (1450)</td>
<td>400 (5800)</td>
</tr>
<tr>
<td></td>
<td>400 (5800)</td>
<td>630 (9150)</td>
<td></td>
</tr>
<tr>
<td>Flow $q_{\text{V max}}$ l/min (GPM)</td>
<td>50 (13)</td>
<td>120 (32)</td>
<td>250 (66)</td>
</tr>
<tr>
<td>Version “G” port size SAE</td>
<td>–4; 7/16-20</td>
<td>–8; 3/4-16</td>
<td>–16; 1-5/8-12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R900345310</td>
<td>DBDH 6 G1X/200/12</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900458278</td>
<td>DBDH 6 G1X/315/12</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900385305</td>
<td>DBDH 6 G1X/400/12</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901250064</td>
<td>DBDH 6 G1X/400/12 SO147</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
ZDB & Z2DB - Pressure Relief Valves

Pressure relief valve types ZDB and Z2DB are pilot sandwich type pressure controls. ZDB versions offer single port pressure control, while Z2DB models offer dual port pressure control. Z2DB models can be configured as either port relief or cross port relief. The ZDB program offers multiple spring options.

Features

- Sizes 6
- For size 6 mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B93.7 D 03
- For size 10 mounting: porting pattern according to ISO 4401-5, NFPA T3.5.1M R1, and ANSI B93.7 D05
- Four pressure ratings: 50 bar (725 PSI), 100 bar (1450 PSI), 200 bar (2900 PSI), and 315 bar (4600 PSI)
- Five pressure relief functions: A -> T; P -> T; B -> T; A -> T as well as A+B -> T; A -> B and B -> A
- Adjustment type: rotary knob with scale

Technical Data

<table>
<thead>
<tr>
<th>ZDB &amp; Z2DB</th>
<th>Size</th>
<th>6</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure $P_{\text{max}}$ bar (PSI)</td>
<td>315 (4600)</td>
<td>350 (4600)</td>
<td></td>
</tr>
<tr>
<td>Flow $QV_{\text{max}}$ l/min (GPM)</td>
<td>60 (15.9)</td>
<td>100 (26.4)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
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<tbody>
<tr>
<td>R900411312</td>
<td>Z2DB 6 VC2-4X/200V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900409898</td>
<td>ZDB 6 VP2-4X/315V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Pressure control valves of type DB are pilot operated pressure relief valves. They are used for the limitation of the operating pressure. Pressure relief valves basically consist of a main valve with main spool insert and pilot valve with pressure adjustment element.

**Features**

- Sizes 10, 20 & 30
- For mounting: porting pattern according to ISO 6264-AT-10-2-A

**Technical Data**

<table>
<thead>
<tr>
<th>Size</th>
<th>10</th>
<th>20</th>
<th>30</th>
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</thead>
<tbody>
<tr>
<td>Operating pressure $p_{\text{max}}$ bar (PSI)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
</tr>
<tr>
<td>Flow $q_{V_{\text{max}}}$ l/min (GPM)</td>
<td>250 (66)</td>
<td>500 (132)</td>
<td>650 (172)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
<tr>
<td>R900720169</td>
<td>DBW 20 BG1-4X/315-6EG24N9K4/12 W65</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
ZDR - Pressure-Reducing Valves

Models ZDR are 3-way direct operated pressure reducing-relieving valves. They maintain a “reduced” pressure in a branch circuit and permit “relieving” pressure spike occurrences in the reduced branch circuit. Options for pressure ranges and operator adjustment options are within the scope of the modular reducing valve portfolio.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotopressure

Features

- Sizes 6 and 10
- For size 6 mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M Ra, and ANSI B93.7 D 03
- For size 10 mounting: porting pattern according to ISO 4401-05, NFPA T3.5.1M R1, and ANSI B93.7 D 05
- Pressure reduction in channel A, B or P
- Four pressure ratings: 25 bar (360 PSI), 75 bar (1100 PSI), 150 bar (2175 PSI), 210 bar (3050 PSI)
- Adjustment type: rotary knob
- Check valve, optional

Technical Data

<table>
<thead>
<tr>
<th>ZDR</th>
<th>Size</th>
<th>6</th>
<th>10</th>
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<tbody>
<tr>
<td>Component series</td>
<td></td>
<td>4X</td>
<td>5X</td>
</tr>
<tr>
<td>Operating pressure $p_{\text{max}}$ bar (PSI)</td>
<td>210 (3050)</td>
<td>210 (3050)</td>
<td></td>
</tr>
<tr>
<td>Flow $q_{\text{V, max}}$ l/min (GPM)</td>
<td>50 (13.2)</td>
<td>80 (21.1)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R900483787</td>
<td>ZDR 6 DP2-4X/150YM</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900404754</td>
<td>ZDR 6 DP2-4X/150YM/12</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900433350</td>
<td>ZDR 6 DP2-4X/210YM/12</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900483786</td>
<td>ZDR 6 DP2-4X/75YM</td>
<td>5</td>
<td>10 day(s)</td>
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<tr>
<td>R900401216</td>
<td>ZDR 6 DP2-4X/75YM/12</td>
<td>5</td>
<td>10 day(s)</td>
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<tr>
<td>R900512452</td>
<td>ZDR 10 VP5-3X/200YM/12</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Z2FS - Double Throttle Check Valves

Flow control valves, Model Z2FS(K), are double throttle/check sandwich type valves. They restrict flow to or from actuator ports (A & B) of a directional valve. Two throttle/check valves, symmetrically arranged in the housing, restrict flow with adjustable throttles in one direction while providing free flow in the opposite direction.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoflow

**Features**

- Sizes 6 to 22
- For size 6 mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B93.7 D 03
- For size 10 mounting: porting pattern according to ISO 4401-5, NFPA T3.5.1M R1, and ANSI B93.7 D 05
- For size 16 mounting: porting pattern according to ISO 4401-7, NFPA T3.5.1M R1, and ANSI B93.7 D 07
- For size 22 mounting: porting pattern according to ISO 4401-8, NFPA T3.5.1M R1, and ANSI B93.7 D 08
- For limiting the main or pilot flow of one or two actuators
- Meter-in or meter-out throttling
- Adjustment type: softscrew with locknut

**Technical Data**

<table>
<thead>
<tr>
<th>Z2FS</th>
<th>Size</th>
<th>6</th>
<th>10</th>
<th>16</th>
<th>22</th>
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</thead>
<tbody>
<tr>
<td>Operating pressure $p_{max}$</td>
<td>bar (PSI)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td>350 (5100)</td>
<td>350 (5100)</td>
</tr>
<tr>
<td>Flow $q_{v,nom}$</td>
<td>l/min (GPM)</td>
<td>80 (21)</td>
<td>160 (42)</td>
<td>250 (66)</td>
<td>360 (95)</td>
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</table>

<table>
<thead>
<tr>
<th>Z2FSK</th>
<th>Size</th>
<th>6</th>
<th>10</th>
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</thead>
<tbody>
<tr>
<td>Operating pressure $p_{max}$</td>
<td>bar (PSI)</td>
<td>210 (3000)</td>
<td>210 (3000)</td>
</tr>
<tr>
<td>Flow $q_{v,nom}$</td>
<td>l/min (GPM)</td>
<td>40 (10.5)</td>
<td>80 (21)</td>
</tr>
</tbody>
</table>

**Part Number** | **Description** | **Max. Quantity** | **Shipment (Business Days)**
---|---|---|---
R900517812 | Z2FS 10-5-3X/V | 5 | 10 day(s)
R900517866 | Z2FS 22-8-3X/S2V | 5 | 10 day(s)
R900474580 | Z2FS 22-8-3X/SV | 5 | 10 day(s)
R900481621 | Z2FS 6-2-4X/1Q | 5 | 10 day(s)
R900481623 | Z2FS 6-2-4X/1QV | 5 | 10 day(s)
R900481624 | Z2FS 6-2-4X/2QV | 5 | 10 day(s)
2FRM - 2-Way Flow Control Valves

Pressure compensated flow controls Model 2FRM are two-way restrictive-style flow regulators. They accurately control flow, independent of changes in fluid viscosity or pressure drop across the valve. This valve maintains a constant actuator speed independent of changes in load induced pressure. Sharp edged throttle openings reduce the influence of flow variations from temperature change.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoflow

Features

- Sizes 6, 10 and 16
- For size 6 subplate mounting: porting pattern according to ISO 6263-03 and NFPA T3.5.1M R1 2 FO 3
- For size 10 subplate mounting: porting pattern according to ISO 6263-06-2 and NFPA T3.5.1M R1 2 FO 6
- For size 16 subplate mounting: porting pattern according to ISO 6263-07-2 and NFPA T3.5.1M R1 2 FO 7
- Manual dial adjustment
- With external closure of the pressure compensator, optional (size 6)
- Check valve, optional (size 6)
- Pressure compensator stroke limitation for reducing start-up jumps, optional (size 10)

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Operating pressure $P_{\text{max}}$ (bar (PSI))</th>
<th>Pilot pressure $P_{\text{St}}$ (bar (PSI))</th>
<th>Flow $q_{\text{max}}$ (l/min (GPM))</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6</td>
<td>10</td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td></td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>32 (8.45)</td>
<td>50 (13.21)</td>
<td>160 (42.27)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
-------------|-------------|---------------|--------------------------|
R900205507   | 2FRM 6 B36-3X/1,5QRV | 5             | 10 day(s)                |
R900205510   | 2FRM 6 B36-3X/16QMV  | 5             | 10 day(s)                |
GoTo Focused Delivery Program: Proportional Valves

4WRA & 4WRAE - Proportional Directional Valves

The 4WRA(E) direct operated proportional valve with integral feedback is available with or without on-board electronics (OBE). Individual valve amplifiers are available for the non-OBE version. Positive overlap spools reduce leakage at center and OBE models can be configured to either a voltage or current command.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- Sizes 6 and 10
- For size 6 subplate mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B 93.7 D 03
- For size 10 subplate mounting: Porting pattern according to ISO 4401-5, NFPA T3.5.1M R1, and ANSI B93.7 D 05
- Control of the direction and magnitude of a flow
- Proportional solenoid operation
- Spring-centered control spool
- Different spool overlaps possible
- Integral electronics (OBE) for type 4WRAE

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>( \Delta p = 10 ) bar (145 PSI)</th>
<th>( q_{\text{nom}} ) l/min (GPM)</th>
<th>6</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure</td>
<td>( \Delta p = 10 ) bar (145 PSI)</td>
<td>( q_{\text{nom}} ) l/min (GPM)</td>
<td>315 (4600)</td>
<td>315 (4600)</td>
</tr>
<tr>
<td>Nominal flow</td>
<td>( \Delta p = 10 ) bar (145 PSI)</td>
<td>( q_{\text{nom}} ) l/min (GPM)</td>
<td>7, 15, 30</td>
<td>30, 60</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>OBE</td>
<td>( U ) V</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>Comm. value signal</td>
<td>OBE</td>
<td>( U ) V</td>
<td>0 to 10 / ±10</td>
<td>0 to 10 / ±10</td>
</tr>
<tr>
<td>Control electronics</td>
<td>Type 4WRA</td>
<td>Card, analog</td>
<td>VT-VSPA2-1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Card, digital</td>
<td>VT-VSPD-1</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Module, analog</td>
<td>VT-MSPA2-1</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R909092097</td>
<td>4WRA 10 E60-2X/G24N9K4/V</td>
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<td>10 day(s)</td>
</tr>
<tr>
<td>R909097650</td>
<td>4WRA 10 W60-2X/G24N9K4/V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R909092940</td>
<td>4WRA 6 E30-2X/G24N9K4/V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900558356</td>
<td>4WRAE 10 E60-2X/G24N9K31/A1V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R90909988</td>
<td>4WRAE 10 W60-2X/G24N9K31/A1V</td>
<td>5</td>
<td>10 day(s)</td>
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<tr>
<td>R90909389</td>
<td>4WRAE 6 E15-2X/G24N9K31/A1V</td>
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<td>10 day(s)</td>
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<td>R900558355</td>
<td>4WRAE 6 E30-2X/G24N9K31/A1V</td>
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<tr>
<td>R909090987</td>
<td>4WRAE 6 W30-2X/G24N9K31/A1V</td>
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<td>10 day(s)</td>
</tr>
</tbody>
</table>
4WRA(E)B - Proportional Directional Valves

4WRAB6 type direct operated proportional valves are available with or without on-board electronics (OBE). Suitable for open loop applications, the WRAB6 does not have integral feedback; however, provides proportional flow output dependant on a commanded value. The WRAB6 may also be used with a DC switching signal, if the application requires throttled shifting without full proportional control.

Features

- Size 6
- Direct operated proportional directional control valves, which control both the direction and volume of a fluid flow
- Mounts on standard ISO 4401-3, NFPA T3.5.1MR1 D 03 and ANSI B 93.7 D 03 interface
- Two piece solenoid design with removable coils
- Integrated electronics available
- For subplates, see RE 45 052

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure</td>
<td>$P_{\text{max}}$ bar (PSI)</td>
</tr>
<tr>
<td>Ports A, B, P</td>
<td>210 (3100)</td>
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<tr>
<td>Port T</td>
<td>30 (8)</td>
</tr>
<tr>
<td>Maximum flow</td>
<td>l/min (GPM)</td>
</tr>
<tr>
<td>Maximum hysteresis</td>
<td>%</td>
</tr>
<tr>
<td>Step response</td>
<td>$T_u + T_g$ ms</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>$U$ vdc</td>
</tr>
<tr>
<td>Associated electronic amplifier cards (some restrictions apply)</td>
<td>MDSD*</td>
</tr>
</tbody>
</table>

* The MDSD1 or MDSD will operate the 4 WRA B/G12 with 14 to 28 vdc from the power supply. The MDSD can be used with 10 to 14 vdc power, but valve performance may be affected. At higher temperatures, increased solenoid resistance may reduce the available flow. An amplifier is not required when using the 4 WRA B/G12 as a non-proportional (switching) valve at 12 vdc ±10%.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
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<td>4WRAB6E12-1X/G12N9K4/MR</td>
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<td>10 day(s)</td>
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<td>4WRAB6E25-1X/G12N9K4/MR</td>
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<td>10 day(s)</td>
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<td>3</td>
<td>10 day(s)</td>
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<tr>
<td>R978877472</td>
<td>4WRAB6W25-1X/G12N9K4/MR</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R97887558</td>
<td>4WRAEB6E25-1X/G24N9DK26/MR</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R97887559</td>
<td>4WRAEB6W25-1X/G24N9DK26/MR</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
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</table>
4WREE - Proportional Directional Valves

WRE(E) direct operated proportional directional control with integral feedback are available with or without on-board electronics (OBE). Positive overlap spools reduce leakage at center, while underlap spools can be utilized for closed-loop functions. Individual amplifiers are available, while OBE models are possible with either a voltage or current command.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

• Sizes 6 to 10
• For size 6 mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B 93.7 D 03
• For size 10 mounting: porting pattern according to ISO 4401-5, NFPA T3.5.1M R1, and ANSI B93.7 D 05
• Control of the direction and magnitude of a flow
• Proportional solenoid operation
• Spring-centered control spool
• Different spool overlaps possible
• Integrated control electronics (OBE) for type 4WREE

Technical Data

<table>
<thead>
<tr>
<th>Feature</th>
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<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure</td>
<td>Ports A, B, P</td>
<td></td>
</tr>
<tr>
<td>Nominal flow</td>
<td>$\Delta p = 10$ bar (145 PSI)</td>
<td>$q_{\text{nom}}$ (l/min) in (GPM)</td>
</tr>
<tr>
<td>Maximum hysteresis</td>
<td>%</td>
<td>0.1</td>
</tr>
<tr>
<td>Step response</td>
<td>0 to 90%</td>
<td>$T_u + T_g$ (ms)</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>$U$ (V)</td>
<td>24</td>
</tr>
<tr>
<td>Comm. value signal</td>
<td>Type 4WREE</td>
<td>$U$ (V)</td>
</tr>
<tr>
<td>(alternative)</td>
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<td>$I$ (mA)</td>
</tr>
<tr>
<td>Part Number</td>
<td>Description</td>
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<tr>
<td>-------------</td>
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<td>---------------</td>
</tr>
<tr>
<td>R900954092</td>
<td>4WRE 6 E16-2X/G24K4/V</td>
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<td>R900927231</td>
<td>4WREE 10 E50-2X/G24K31/A1V</td>
<td>5</td>
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<tr>
<td>R900927230</td>
<td>4WREE 10 E75-2X/G24K31/A1V</td>
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<td>R900927235</td>
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<tr>
<td>R900924607</td>
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<tr>
<td>R900931371</td>
<td>4WREE 10 W50-2X/G24K31/A1V</td>
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<tr>
<td>R900927233</td>
<td>4WREE 10 W75-2X/G24K31/A1V</td>
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<tr>
<td>R900912156</td>
<td>4WREE 6 E08-2X/G24K31/A1V</td>
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<tr>
<td>R900920567</td>
<td>4WREE 6 E16-2X/G24K31/A1V</td>
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<tr>
<td>R900907114</td>
<td>4WREE 6 E32-2X/G24K31/A1V</td>
<td>5</td>
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<tr>
<td>R900913433</td>
<td>4WREE 6 EA16-2X/G24K31/A1V</td>
<td>5</td>
</tr>
<tr>
<td>R900909367</td>
<td>4WREE 6 V08-2X/G24K31/A1V</td>
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</tr>
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<td>R900931195</td>
<td>4WREE 6 V16-2X/G24K31/A1V</td>
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<tr>
<td>R900907440</td>
<td>4WREE 6 V16-2X/G24K31/A1V</td>
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<tr>
<td>R900911681</td>
<td>4WREE 6 V32-2X/G24K31/A1V</td>
<td>5</td>
</tr>
<tr>
<td>R900923000</td>
<td>4WREE 6 W08-2X/G24K31/A1V</td>
<td>5</td>
</tr>
<tr>
<td>R900925657</td>
<td>4WREE 6 W16-2X/G24K31/A1V</td>
<td>5</td>
</tr>
<tr>
<td>R900911004</td>
<td>4WREE 6 W32-2X/G24K31/A1V</td>
<td>5</td>
</tr>
</tbody>
</table>
4WRZE - Proportional Directional Valves

Valves of type 4WRZE are pilot operated 4-way directional valves with operation by proportional solenoids. They control the direction and magnitude of flow.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

• Sizes 16
• Pilot operated 2-stage proportional directional valves with integrated electronics (OBE)
• Control the direction and magnitude of flow
• Manual override
• Spring-centered control spool

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Operating pressure</th>
<th>Return flow pressure</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bar (PSI)</td>
<td>Port T (Port R)</td>
<td>16</td>
<td>10 day(s)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(external pilot oil drain)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Port T (internal pilot oil drain)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Port Y</td>
<td>bar (PSI)</td>
<td>up to 30 (1300)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flow of the main valve</td>
<td>l/min (GPM)</td>
<td>480 (121.5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R901263889</td>
<td>4WRZ 16 E150-7X/6EG24N9ETK4/D3M-674</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900946595</td>
<td>4WRZ 16 W6-150-7X/6EG24N9ETK4/V</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900944187</td>
<td>4WRZ 25 W6-325-7X/6EG24N9K4/V</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900945995</td>
<td>4WRZE 16 E150-7X/6EG24N9ETK31/A1V</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
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</table>
4WRPE - Proportional Directional Valves (Series 2X)

The 4/3 proportional valves are directly controlled components of subplate mounting design. They are actuated by proportional solenoids with an integrated linear feedback to assure accurate positioning related to a command signal. The valves are available with integrated valve electronics.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

• Sizes 6
• For size 6 subplate mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B 93.7 D 03
• Control of the direction and magnitude of a flow
• Position sensing of the control spool via an inductive position transducer
• Detailed information: RE29025

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Operating pressure</th>
<th>Nominal flow $\Delta p = 10$ bar (145 PSI)</th>
<th>Maximum hysteresis</th>
<th>Operating voltage</th>
<th>Comm. value signal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$p_{\text{max}}$ bar (PSI)</td>
<td>$q_{V \text{nom}}$ l/min (GPM)</td>
<td>%</td>
<td>OBE</td>
<td>OBE</td>
</tr>
<tr>
<td>6</td>
<td>315 (4600)</td>
<td>8 to 32 (2.1 to 8.45)</td>
<td>≤0.3</td>
<td>$U$</td>
<td>$U$</td>
</tr>
<tr>
<td></td>
<td>$q_{V \text{nom}}$ l/min (GPM)</td>
<td>$q_{V \text{nom}}$ l/min (GPM)</td>
<td>%</td>
<td>$U$</td>
<td>$V$</td>
</tr>
<tr>
<td></td>
<td>8 to 32 (2.1 to 8.45)</td>
<td>8 to 32 (2.1 to 8.45)</td>
<td>≤0.3</td>
<td>$U$</td>
<td>$V$</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<th>Shipment (Business Days)</th>
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<tr>
<td>0811404141</td>
<td>4WRPE 6 E32SJ-2X/G24K0/A1M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
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</table>
4WRPE10 Series 3X is high performance, direct operated, proportional valve. It is suitable for demanding open loop and closed loop applications like position, velocity, and pressure control. It is even more robust than the previous design.

**Features**

- Size 10
- Nominal flow at 10 bar drop: 50 to 80 Lpm
- Spool in housing
- Direct operated by onboard electronic solenoids
- Standard 7-pin connector
- Mounts on ISO 4401-3, ANSI B93.8 D03
- Detailed information: RE29122

**Technical Data**

<table>
<thead>
<tr>
<th></th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure</td>
<td></td>
</tr>
<tr>
<td>Ports P, A, B</td>
<td>$p_{max}$ bar (PSI)</td>
</tr>
<tr>
<td>Nominal flow</td>
<td>$q_{V max}$ l/min (GPM)</td>
</tr>
<tr>
<td>Maximum hysteresis</td>
<td>%</td>
</tr>
<tr>
<td>Response sensitivity</td>
<td>%</td>
</tr>
<tr>
<td>Frequency response</td>
<td>V</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>V</td>
</tr>
<tr>
<td>Command value signal</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>mA</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>°C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R901396513</td>
<td>4WRPE 10 E50SJ-3X/M/24A1</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901396520</td>
<td>4WRPE 10 EA80SJ-3X/M/24A1</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901401546</td>
<td>4WRPE 10 V50S-3X/M/24A1</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901392641</td>
<td>4WRPE 10 V80S-3X/M/24A1</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901396519</td>
<td>4WRPE 10 W6-80SJ-3X/M/24A1</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
4WRPH & 4WRPEH - High-Response Directional Valves (Series 2X)

4WRPH and 4WRPEH type proportional directional valves offer fast response, minimal hysteresis, and are excellent performers in closed loop applications. Available with or without on-board electronics, these valves may be used in a variety of applications and environments. The robust design is also applicable to circuits where vibration may be a concern.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- Sizes 6 and 10
- For size 6 subplate mounting: porting pattern according to ISO 4401-3, NFPA T3.5.1M R1, and ANSI B 93.7 D 03
- For size 10 subplate mounting: porting pattern according to ISO 4401-5, NFPA T3.5.1M R1, and ANSI B93.7 D 05
- Control of the direction and magnitude of a flow
- Use for position, velocity and pressure control
- Actuation through control solenoid
- Position sensing of the control spool via an inductive position transducer
- Characteristic curves with and without inflection
- Spool and sleeve in servo-type quality
- Integral electronics (OBE) for type 4WRPEH
- Detailed information: 4WRPH (size 6) RE29028 & 4WRPH (size 10) RE29032; 4WRPEH (size 10) RE29037

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Operating pressure</th>
<th>Operating voltage</th>
<th>Max. flow</th>
<th>Max. Pressure</th>
<th>Nominal flow</th>
<th>Max. Hysteresis</th>
<th>Comm. value signal</th>
<th>Control electronics</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>$p_{\text{max}}$</td>
<td>$U$</td>
<td>$q_{\text{nom}}$</td>
<td>315 (4500)</td>
<td>2 to 40 (0.5 to 11)</td>
<td>&lt;0.2</td>
<td>OBE</td>
<td>Type 4WRPH Card, analog</td>
</tr>
<tr>
<td>10</td>
<td>$p_{\text{max}}$</td>
<td>$U$</td>
<td>$q_{\text{nom}}$</td>
<td>315 (4500)</td>
<td>50 to 100 (13 to 26)</td>
<td>&lt;0.2</td>
<td>OBE</td>
<td>VT-VRRA1-527</td>
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<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
<tr>
<td>0811404801</td>
<td>4WRPEH 10 C3 B100L-2X/G24K0/A1M</td>
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<td>10 day(s)</td>
</tr>
<tr>
<td>0811404817</td>
<td>4WRPEH 10 C3 B100L-2X/G24K0/F1M</td>
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<td>10 day(s)</td>
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<tr>
<td>0811404803</td>
<td>4WRPEH 10 C4 B100L-2X/G24K0/A1M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>0811404802</td>
<td>4WRPEH 10 C4 B50L-2X/G24K0/A1M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>0811404901</td>
<td>4WRPH 10 C1 B100L-2X/G24K0/M-750</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>0811404034</td>
<td>4WRPH 6 C3 B12L-2X/G24Z4/M</td>
<td>5</td>
<td>10 day(s)</td>
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<tr>
<td>0811404047</td>
<td>4WRPH 6 C3 B15P-2X/G24Z4/M</td>
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<tr>
<td>0811404036</td>
<td>4WRPH 6 C3 B40L-2X/G24Z4/M</td>
<td>5</td>
<td>10 day(s)</td>
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<tr>
<td>0811404037</td>
<td>4WRPH 6 C4 B12L-2X/G24Z4/M</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
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</table>
For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTopumps

Features

- Size 6
- Nominal flow at 70 bar drop: 4 to 40 Lpm
- Precise sleeve and spool
- Fail-safe position of control spool in off condition
- Direct operated by onboard electronic solenoid
- Standard 7-pin connector
- Mounts on ISO 4401-3, ANSI B93.8 D03
- Detailed information: RE29121

Technical Data

<table>
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<th>Feature</th>
<th>Value</th>
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<tbody>
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<td>Size</td>
<td>6</td>
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<tr>
<td>Nominal flow at 70 bar drop</td>
<td>4 to 40 Lpm</td>
</tr>
<tr>
<td>Precise sleeve and spool</td>
<td></td>
</tr>
<tr>
<td>Fail-safe position</td>
<td></td>
</tr>
<tr>
<td>Frequency response</td>
<td>120 Hz</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>24 V</td>
</tr>
<tr>
<td>Command voltage signal</td>
<td>±10 mA</td>
</tr>
<tr>
<td>Maximum hysteresis</td>
<td>&lt; 0.1 %</td>
</tr>
<tr>
<td>Response sensitivity</td>
<td>&lt; 0.05 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
<tr>
<td>R901382345</td>
<td>4WRPEH 6 C3 B04L-3X/M/24A1</td>
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<td>10 day(s)</td>
</tr>
<tr>
<td>R901382312</td>
<td>4WRPEH 6 C3 B12L-3X/M/24A1</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901382323</td>
<td>4WRPEH 6 C3 B15P-3X/M/24A1</td>
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<td>10 day(s)</td>
</tr>
<tr>
<td>R901382313</td>
<td>4WRPEH 6 C3 B24L-3X/M/24A1</td>
<td>5</td>
<td>10 day(s)</td>
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<tr>
<td>R901382315</td>
<td>4WRPEH 6 C3 B40L-3X/M/24A1</td>
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<td>10 day(s)</td>
</tr>
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<td>R901382350</td>
<td>4WRPEH 6 C3 B40L-3X/M/24F1</td>
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<tr>
<td>R901382318</td>
<td>4WRPEH 6 C4 B12L-3X/M/24A1</td>
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<td>10 day(s)</td>
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<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901382319</td>
<td>4WRPEH 6 C4 B40L-3X/M/24A1</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>

4WRPEH 6 is a high performance, direct operated, servo-solenoid valve. It is suitable for closed loop applications like position, velocity, and pressure control. It is even more robust than the previous design. Series-3X is not designed for pilot operated applications, 3WRCBH, or 4WRLE.
Pilot operated, proportional directional valves type 4WRLE are high response control valves with spool position feedback. The series 4X has a new on-board electronics (OBE) that improves performance and reliability. It has an increased temperature range, and it’s even more robust to mechanical shock and vibration. The optimized spool and housing allow higher nominal flow ratings in all sizes. The improved dynamic response is well suited for a wide range of demanding closed loop applications, involving pressure, force, position, and velocity control.

**Features**

- Size 10 to 25
- Higher nominal flows per size, 60 to 400 Lpm
- Maximum pressure to 350 bar
- Improved dynamic performance and stability
- Even more robust onboard electronics
- Porting pattern according to ISO 4401-05, 07, 08
- Detailed information: RE29123

**Technical Data**

<table>
<thead>
<tr>
<th>Size</th>
<th>Nominal flow $\Delta p = 10$ bar (145 psi) $q_{nom}$ lpm (gpm)</th>
<th>10</th>
<th>16</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$q_{nom}$ @ $\Delta p = 10$ bar (145 psi) [lpm (gpm)]</td>
<td>60</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>$q_{max}$ @ $\Delta p = 10$ bar (145 psi) [lpm (gpm)]</td>
<td>300</td>
<td>300</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>Phase response @ $-90$ degrees (signal $\pm 100%$ to $\pm 1%$) $f$ Hz</td>
<td>28 to 65</td>
<td>26 to 62</td>
<td>22 to 60</td>
</tr>
<tr>
<td></td>
<td>Max. Operating Pressure $p_{max}$ bar (psi)</td>
<td>350 (5000)</td>
<td>350 (5000)</td>
<td>350 (5000)</td>
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<tr>
<td></td>
<td>Hysteresis $%$</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**Part Number** | **Description** | **Max. Quantity** | **Shipment (Business Days)**
--- | --- | --- | ---
R901477667 | 4WRLE 10 V100L-4X/MPT/24A1 | 3 | 10 day(s) |
R901473285 | 4WRLE 16 V1-250L-4X/MPT/24A1 | 3 | 10 day(s) |
R901404331 | 4WRLE 16 V250L-4X/MXY/24A1 | 3 | 10 day(s) |
R901396318 | 4WRLE 25 E400LJ-4X/MXY/24A1 | 3 | 10 day(s) |
R901404337 | 4WRLE 25 V400L-4X/MXY/24A1 | 3 | 10 day(s) |
R901491104 | 4WRLE 25 W4-350SJ-4X/MPT/24A1-247 | 3 | 10 day(s) |
**5WRPE - High-Response Directional Valves**

The 5WRPE 5/3 high-response directional control valve is a directly operated component. The valve is actuated by control solenoids with integral position feedback and on-board electronics. Electronics are factory calibrated.

**Features**

- Size 10
- Directly operated servo solenoid valve, with 5/3-way symbol in servo quality
- Actuated on one side, A-T fail-safe position when switched off
- Suitable for electrohydraulic controllers in production and testing systems
- Mounts on standard ISO 4401-5, NFPA T3.5.1MR1 and ANSI B93.7 D 05 interface

**Technical Data**

<table>
<thead>
<tr>
<th>Size</th>
<th>Port P, A, B</th>
<th>Port T</th>
<th>Operating pressure</th>
<th>210 (3045)</th>
<th>50 (725)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>bar (psi)</td>
<td>bar (psi)</td>
<td>Max permissible flow</td>
<td>70 (18.49)</td>
<td>≤0.3</td>
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<tr>
<td></td>
<td>Δp = 11 bar</td>
<td>$q_{\text{nom}}$</td>
<td>L/min (GPM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$q_{\text{nom}}$</td>
<td>Maximum hysteresis</td>
<td>%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Part Number**

<table>
<thead>
<tr>
<th>Part Number</th>
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<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
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<tbody>
<tr>
<td>0811402107</td>
<td>5WRPE 10 F1B 70L -2X/G24K0/A1M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
STW - Proportional Directional Valves, direct operated, with $pQ$ functionality

The STW valve is a proportional directional valve with field bus interface and integrated axis control. The built in pressure sensor and spool position feedback enables excellent control versatility by providing both pressure and flow control capabilities.

Features

- Sizes 6 and 10
- 3-way proportional directional valve with integrated IAC-P digital control electronics
- Completely adjusted unit consisting of position-controlled valve, pressure sensor and field bus connection
- Operation via a proportional solenoid with central thread and detachable coil
- Valve spool, position-controlled
- Integrated pressure sensor plate (optional)
- ISO 4401 porting pattern
- Analog interfaces for command and actual values
- Design for CAN bus with DS 408 CANopen protocol or DP Profibus
- Quick commissioning via PC and WINPED commissioning software
- Detailed information: RE29014

Technical Data

<table>
<thead>
<tr>
<th>Operating pressure</th>
<th>▶ Ports P, A, B (with sensor)</th>
<th>▶ Port T (with sensor)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“3” bar 50</td>
<td>“3” bar 50</td>
</tr>
<tr>
<td></td>
<td>“5” bar 160</td>
<td>“5” bar 160</td>
</tr>
<tr>
<td></td>
<td>“8” bar 250</td>
<td>“8” bar 210</td>
</tr>
</tbody>
</table>

| Ambient temperature range | °C | -20 ... +50 |
| Storage temperature range | °C | -20 ... +80 |

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R90070577B</td>
<td>STW 0196-1X/1V5-24CF6</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
2WFCE - Proportional Flow Control Valves

2WFCE is a DIN cavity, pilot operated proportional throttle valve with on-board electronics (OBE). When compared to its predecessor FESXE, maximum flow has increased in all sizes, with improved response and stability. The 2WFCE model A1 (10 vdc) can easily replace most FESXE (7-pin connector). FEE and FESE use 12-pin connectors. See data sheet for wiring changes or 12-pin connector options.

Features

- Size 16 to 50
- Nominal flow 1500 Lpm @ 5 bar Δp
- Pilot operated
- 420 bar
- Improved performance and stability
- Bi-directional flow (x port to inlet)
- Detailed information: RE26871

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Δp = 5 bar (73 psi)</th>
<th>qv nom (lpm)</th>
<th>16</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal flow</td>
<td></td>
<td></td>
<td>160 (42)</td>
<td>330 (87)</td>
<td>650 (172)</td>
<td>940 (248)</td>
<td>1500 (396)</td>
</tr>
<tr>
<td>Flow</td>
<td>Δp = 20 bar (290 psi)</td>
<td>qv max (lpm)</td>
<td>320 (85)</td>
<td>620 (164)</td>
<td>1270 (336)</td>
<td>1850 (489)</td>
<td>see curve</td>
</tr>
<tr>
<td>Phase response @ –90 degrees approx.</td>
<td>f (Hz)</td>
<td>10</td>
<td>12</td>
<td>10</td>
<td>11</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>Max. Operating Pressure</td>
<td>pmax (bar)</td>
<td>420 (6090)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hysteresis</td>
<td>%</td>
<td>&lt; 0.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Sensitivity</td>
<td>%</td>
<td>&lt; 0.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoproportional

Part Number | Description | Max. Quantity | Shipment (Business Days)
-------------|-------------|---------------|---------------------|
R901436213 | 2WFCE 25 S330L-1X/M/24A1 | 3 | 10 day(s) |
R901388128 | 2WFCE 40 S500L-1X/M/24A1 | 3 | 10 day(s) |
R901388132 | 2WFCE 50 S1000L-1X/M/24A1 | 3 | 10 day(s) |
DBE6X - Proportional Pressure Relief Valves

Type DBE6X proportional pressure relief valves are pilot operated pressure relief valves. The valves are actuated by means of a proportional solenoid. With these valves, the system pressure that needs to be limited can be infinitely adjusted in relation to the solenoid current.

Features

• Size 6
• Pilot operated valves (pilot valves) for limiting system pressure (pilot oil internal only)
• Adjustable by means of the solenoid current
• Solenoid versions Imax = 0.8 A
• Pressure limitation to a safe level even with faulty electronics (solenoid current I > Imax)
• For subplate attachment, mounting hole configuration to ISO 4401-03-02-0-94

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum set pressure (at ( Q = 1 \text{l/min (0.26 GPM)} ))</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Minimum pressure (at ( Q = 1 \text{l/min (0.26 GPM)} ))</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum working pressure Port P</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum pressure Port T</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum flow</td>
<td>l/min (GPM)</td>
</tr>
<tr>
<td>Valve with solenoid type</td>
<td></td>
</tr>
<tr>
<td>Maximum solenoid current</td>
<td>( I_{\text{max}} )</td>
</tr>
<tr>
<td>Coil resistance ( R_{20} )</td>
<td>Ω</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>%</td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0811402043</td>
<td>DBE 6X-1X/315G24-8NZ4M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
DBEE6 - Proportional Pressure Relief Valves

The pilot operated proportional pressure relief valves of the type DBEE are operated by means of a proportional solenoid. These valves are used to limit a system pressure. With these valves it is possible to steplessly adjust the system pressure to be limited depending on the electrical command value.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

Features

- Size 6
- Pilot operated valve for limiting a system pressure
- Operation by means of proportional solenoids
- Proportional solenoid with rotatable and detachable coil
- For subplate mounting or sandwich plate design: Porting pattern according to ISO 4401-03-02-0-05 and DIN 24340

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum operating pressure Port P; P1 – P2; A1 – A2; B1 – B2</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Port T</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum setting pressure Pressure rating 315 bar</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum flow</td>
<td>l/min (GPM)</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>%</td>
</tr>
<tr>
<td>Repeatability</td>
<td>%</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>Nominal voltage</td>
</tr>
<tr>
<td>Inputs</td>
<td>Voltage</td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R901323940</td>
<td>DBEE 6-2X/315G24K31A1M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
DBETX - Proportional Pressure Relief Valves

DBETX proportional pressure relief valves limit pressure for piloting applications. Pressure is limited by changing current to the proportional solenoid from an external amplifier.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

Features

• Size 6
• Porting pattern according to ISO 4401-3, NFPA T3.5.1M R, and ANSI B93.7 D 03
• Directly operated valves (pilot valves) for limiting system pressure
• Adjustable by means of the solenoid current
• Solenoid versions Imax = 0.8 A or Imax = 2.5 A
• Pressure limitation to a safe level even with faulty electronics (solenoid current I > Imax)

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>DBETX</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>Port P $p_{\text{max}}$</td>
</tr>
<tr>
<td></td>
<td>Port T $p_{\text{max}}$</td>
</tr>
<tr>
<td>Flow</td>
<td>$q_{\text{min}}$</td>
</tr>
<tr>
<td>Maximum hysteresis</td>
<td>%</td>
</tr>
<tr>
<td>Control electronics</td>
<td>Plug</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Module</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Card</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0811402017</td>
<td>DBETX-1X/180G24-8NZ4M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>0811402019</td>
<td>DBETX-1X/250G24-8NZ4M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
DBETA - Proportional Pressure Relief Valves

DBETA proportional pressure relief valves are for high performance applications up to 5 Lpm. Combine DBETA with logic valves (like LC + LFA.. DB) for high flow pressure circuits. Pilot remote pressure control on axial piston pumps (DRG control A4V, A10V, A15V).

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

Features

• Size 6
• Nominal Pressure 200, 350 Bar
• Maximum Flow 5 Lpm
• Integral pressure sensor, controller, and amplifier
• Detailed information: RE29262

Technical Data

<table>
<thead>
<tr>
<th>Nominal Rated Pressure</th>
<th>200</th>
<th>350</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure</td>
<td>bar</td>
<td>500</td>
</tr>
<tr>
<td>Maximum flow</td>
<td>Lpm</td>
<td>5</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>% *</td>
<td>&lt;1 nom p</td>
</tr>
<tr>
<td>Response sensitivity</td>
<td>% *</td>
<td>&lt;0.25 nom p</td>
</tr>
<tr>
<td>Linearity</td>
<td>% *</td>
<td>±1 nom p</td>
</tr>
<tr>
<td>Step response</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(0.8 Lpm 20 cm³)</td>
<td>10% – 90%</td>
<td>ms</td>
</tr>
<tr>
<td></td>
<td>90% – 10%</td>
<td>ms</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>VDC</td>
<td>24</td>
</tr>
<tr>
<td>Input command</td>
<td>Voltage</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>Current</td>
<td>mA</td>
</tr>
</tbody>
</table>

(* flow > 0.2 Lpm and command > 10%)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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</thead>
<tbody>
<tr>
<td>R901338404</td>
<td>DBETA-6X/P200G24K31A1V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901352135</td>
<td>DBETA-6X/P350G24K31A1V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Type DBETBEX proportional pressure relief valves are remote-controlled (pilot) valves in conical seat design. They are used to limit system pressure. The valves are actuated by means of a proportional solenoid with on-board electronics. With these valves, rapid response times with low hysteresis can be achieved.

**Features**

- Size 6
- Directly operated valves with position feedback and on-board electronics for limiting system pressure
- Adjustable through the position of the armature against the compression spring
- Detailed information: RE29151

**Technical Data**

<table>
<thead>
<tr>
<th></th>
<th>Unit</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature range</td>
<td>°C</td>
<td>-20...+50</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>2.7</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm²/s</td>
<td>20...100</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10...800</td>
</tr>
<tr>
<td>Pressure fluid temperature range</td>
<td>°C</td>
<td>-20...+70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0811402073</td>
<td>DBETBEX-1X/250G24K31A1M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
DBET & DBETE - Proportional Pressure Relief Valves

DBET proportional pressure relief valves for piloting applications. Pressure is limited by changing current to the proportional solenoid from an external amplifier or internal electronics (DBETE).

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

Features

- Size 6
- Porting pattern according to ISO 4401-3, NFPA T3.5.1M R, and ANSI B93.7 D 03
- Valve for limiting a system pressure
- Proportional solenoid operation
- For subplate mounting
- Linearized pressure/command value characteristic curve
- Also available as screw-in cartridge valve
- Integral electronics (OBE) for type DBETE

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure $p_{\text{max}}$ bar (PSI)</td>
<td>420 (6100)</td>
</tr>
<tr>
<td>Flow $q_{\text{max}}$ l/min (GPM)</td>
<td>2 (0.5)</td>
</tr>
<tr>
<td>Maximum hysteresis</td>
<td>&lt;4</td>
</tr>
<tr>
<td>Step response 0 to 100 % $T_u+T_g$ ms</td>
<td>70</td>
</tr>
<tr>
<td>100 to 0 % $T_u+T_g$ ms</td>
<td>70</td>
</tr>
<tr>
<td>Operating voltage OBE $U$ V</td>
<td>24</td>
</tr>
<tr>
<td>Comm. value signal OBE $U$ V</td>
<td>0 to 10</td>
</tr>
<tr>
<td>$I$ mA</td>
<td>4 to 20</td>
</tr>
<tr>
<td>Control electronics Type DBET</td>
<td>Card, analog VT-VSPA1-2-1X</td>
</tr>
<tr>
<td>Card, digital VT-VSPD-1-2X</td>
<td></td>
</tr>
<tr>
<td>Module, analog VT-MSPA1-1-1X</td>
<td></td>
</tr>
<tr>
<td>Plug, analog VT-SSPA1-1-1X</td>
<td></td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
--- | --- | --- | --- |
R901000848 | DBET-6X/350G24K4V | 5 | 10 day(s) |
R901029968 | DBETE-6X/200G24K31A1V | 5 | 10 day(s) |
R901029969 | DBETE-6X/315G24K31A1V | 5 | 10 day(s) |
R901029970 | DBETE-6X/350G24K31A1V | 5 | 10 day(s) |
Proportional pressure relief valve type DBETR is a remote control valve. In design terms it is a direct operated pressure relief valve of poppet design. This valve regulates pressure in proportion to the electrical command value.

**Features**

- Size 6
- Valve for electrical remote control of pressure
- Direct operated proportional pressure relief valve, of poppet design
- Proportional solenoid actuation with inductive position transducer (pressure balanced)
- Electrical closed loop position control of the spring pretension, hence low hysteresis
- Good repeatability
- Valve and electronic control from one source
- Detailed information: RA29166

**Technical Data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature range</td>
<td>ºC (F)</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>– Port P</td>
</tr>
<tr>
<td></td>
<td>bar (PSI)</td>
</tr>
<tr>
<td></td>
<td>... 350 (5076)</td>
</tr>
<tr>
<td></td>
<td>– Port T, with pressure control</td>
</tr>
<tr>
<td></td>
<td>bar (PSI)</td>
</tr>
<tr>
<td></td>
<td>... 2 (29)</td>
</tr>
<tr>
<td></td>
<td>– Without pressure control, T port</td>
</tr>
<tr>
<td></td>
<td>bar (PSI)</td>
</tr>
<tr>
<td></td>
<td>... 100 (1450)</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm³/s (SUS)</td>
</tr>
<tr>
<td></td>
<td>15 ... 380 (69.5 ... 1761)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R900370146</td>
<td>DBETR-1X/230G24K4M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
DBEME - Proportional Pressure Relief Valves

DBEME, series 7X proportional pressure relief valves limit pressure in hydraulic systems, where higher flow may be required.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

Features

• Size 10
• Pilot operated for limiting system pressure
• Operation by means of proportional solenoid
• Valve and control electronics from a single source
• Type DBEME with integrated electronics (OBE)
• For subplate mounting: Porting pattern according to ISO 6264

Technical Data

<table>
<thead>
<tr>
<th>Hydraulic</th>
<th>Size</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>kg</td>
<td>4.7 (10.4)</td>
</tr>
<tr>
<td>Installation orientation</td>
<td></td>
<td>Any</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>°C (°F)</td>
<td>-20 to +50 (-4 to +122)</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>bar (PSI)</td>
<td>350 (5100)</td>
</tr>
<tr>
<td>- Ports A, B and X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Port T</td>
<td>bar (PSI)</td>
<td>315 (4500)</td>
</tr>
<tr>
<td>- Port Y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. set pressure (at 315 bar [4500 PSI])</td>
<td>bar (PSI)</td>
<td>315 (4500)</td>
</tr>
<tr>
<td>Maximum pressure relief function (at 315 bar [4500 PSI])</td>
<td></td>
<td>350 (5100)</td>
</tr>
<tr>
<td>Max. flow</td>
<td>l/min (GPM)</td>
<td>275 (72.6)</td>
</tr>
<tr>
<td>Hydraulic fluid temperature range</td>
<td>°C (°F)</td>
<td>-20 to +80 (-4 to +176)</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>%</td>
<td>≤ 5 of max. set pressure</td>
</tr>
<tr>
<td>Tolerance of command value</td>
<td>%</td>
<td>± 1.5 of max. set pressure</td>
</tr>
<tr>
<td>Linearity</td>
<td>%</td>
<td>± 3.5 of max. set pressure</td>
</tr>
</tbody>
</table>

Electrical

Supply voltage V 24 DC

Part Number Description Max. Quantity Shipment (Business Days)

R901363308 DBEME 10-7X/315YG24K31A1V 5 10 day(s)
Proportional pressure relief valves of type DBEP are directly operated by means of proportional solenoids. They are used for converting electrical input signals into a proportional pressure output signal. These valves are used for limiting the pressure in a system. The proportional solenoids are controllable wet pin DC solenoids. They convert electrical currents proportionally into a mechanical force. An increase in the current results in a corresponding increase in the solenoid force. The set solenoid force remains constant over the entire control stroke.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

Features
- Size 6
- Valve for limiting the system pressure
- Operated via proportional solenoids
- Valve and control electronics from one supplier
- Detailed information: RE29164

Technical Data

<table>
<thead>
<tr>
<th>Storage temperature range</th>
<th>°C</th>
<th>-20 to +80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature range</td>
<td>°C</td>
<td>-20 to +70</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>Port P</td>
<td>bar</td>
</tr>
<tr>
<td></td>
<td>Ports A, B</td>
<td>bar</td>
</tr>
<tr>
<td></td>
<td>Port T</td>
<td>bar</td>
</tr>
<tr>
<td>Pressure fluid temperature range</td>
<td>°C</td>
<td>-20 to +80</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm²/s</td>
<td>2.8 to 380</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
<tr>
<td>R900955082</td>
<td>DBEP 6 C06-1X/45AG24K4M</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
DRE6X - Proportional Pressure Reducing Valves

Model DRE6X proportional pressure reducing valves are pilot operated with a 3-way main stage. The pilot valve (pressure relief valve pilot stage) is supplied internally with a controlled flow of pilot oil. The valves are actuated by a proportional solenoid acting against a spring. The solenoid armature is cushioned to aid stability.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

Features

- Size 6
- Pilot operated valves for reducing system pressure at the consumer (pilot oil internal only)
- 3-way version (P-A/A-T), pmin = p in T
- Adjustable by means of the solenoid current
- Solenoid type Imax = 0.8 A
- Pressure limitation to a safe level even with faulty electronics (solenoid current I > Imax)
- For subplate attachment, mounting hole configuration to ISO 4401-03-02-0-94
- Plug-in connector to DIN 43650-AM2 included in scope of delivery
- External trigger electronics with ramps and valve calibration (order separately)

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature range</td>
<td>°C (°F)</td>
</tr>
<tr>
<td>Weight</td>
<td>kg (lbs.)</td>
</tr>
<tr>
<td>Pressure fluid temperature range</td>
<td>°C (°F)</td>
</tr>
<tr>
<td>Max. set presur in A (at Qmin = 1 L/min (0.26 GPM))</td>
<td>bar (Psi)</td>
</tr>
<tr>
<td>Minimum pressure in A</td>
<td>bar (Psi)</td>
</tr>
<tr>
<td>Minimum inlet pressure in P</td>
<td>bar (Psi)</td>
</tr>
<tr>
<td>Maximum working pressure</td>
<td>bar (Psi)</td>
</tr>
<tr>
<td>Maximum pressure</td>
<td>bar (Psi)</td>
</tr>
<tr>
<td>Maximum flow</td>
<td>L/min (GPM)</td>
</tr>
<tr>
<td>Maximum solenoid current</td>
<td>Imax</td>
</tr>
<tr>
<td>Coil resistance R20</td>
<td>Ω</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>%</td>
</tr>
<tr>
<td>Manufacturing tolerance for pmax</td>
<td>%</td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
--- | --- | --- | --- |
0811402055 | DRE 6X-1X/175MG24-8NZ4M | 5 | 10 day(s) |
DREBE6X - Proportional Pressure Reducing Valves

DREBE6X is a pilot operated pressure reducing/relieving valve for high performance applications. Pressure in port A is controlled by a proportional solenoid using position feedback with on-board electronics (OBE).

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

Features

- Sizes 6
- Porting pattern according to ISO 4401-3, NFPA T3.5.1M R, and ANSI B93.7 D 03
- Valve for reducing a system pressure
- Proportional solenoid operation
- Adjustable by specifying the position of the solenoid armature
- Integral electronics (OBE)

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Type</td>
<td>6</td>
<td>DREBE6X</td>
</tr>
<tr>
<td>Operating pressure</td>
<td>Port P</td>
<td>$p_{\text{max}}$</td>
</tr>
<tr>
<td></td>
<td>Port T</td>
<td>$p_{\text{max}}$</td>
</tr>
<tr>
<td>Flow</td>
<td>$q_{\text{V max}}$</td>
<td>l/min (GPM)</td>
</tr>
<tr>
<td>Maximum hysteresis</td>
<td></td>
<td>%</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>OBE</td>
<td>$U$</td>
</tr>
<tr>
<td>Command value signal</td>
<td>OBE</td>
<td>$U$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I$</td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0811402080</td>
<td>DREBE 6X-1X/175MG24K31A1M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Type DRE(M) and DRE(M)E valves are pilot operated pressure reducing valves, used to reduce operating pressure. Available without maximum pressure limitation (DRE.) or with maximum pressure limitation (DREM.) and with or without integrated control electronics. This valve reduces operating pressure by means of proportional solenoids.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

### Features
- Size 10
- Valve for reducing an operating pressure
- Proportional solenoid with rotatable and detachable coil
- Linearized command value-pressure characteristic curve
- Maximum pressure limitation optional
- For subplate mounting: Porting pattern according to ISO 5781

### Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Maximum working pressure Port A and B bar (PSI)</th>
<th>Maximum working pressure Port Y bar (PSI)</th>
<th>Maximum set pressure in channel A Pressure rating (bar [PSI]):</th>
<th>Minimum set pressure (command value = 0) bar (PSI)</th>
<th>Maximum pressure limit Pressure rating (bar [PSI]):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Separately and to the tank at zero pressure</td>
<td></td>
<td></td>
<td>2 (30)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maximum flow l/min (GPM)</th>
<th>200 (52.8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating voltage V</td>
<td>24 DC</td>
</tr>
<tr>
<td>Hysteresis %</td>
<td>± 3.5 of the max. setting pressure</td>
</tr>
<tr>
<td>Repeatability %</td>
<td>&lt; ± 2 of the max. setting pressure</td>
</tr>
<tr>
<td>Linearity %</td>
<td>± 2 of the max. setting pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R901272516</td>
<td>DREE 10-6X/200YMG24K31A1M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
3DREP(E) - Proportional Pressure Reducing Valves

3DREP6 is a pressure reducing/relieving valve for very low pressures in special applications. The dual solenoid model-C regulates port A or port B. The most common application is 25 bar (360 PSI) on the 4WRZ(E) 10..32 proportional directional valve. Pressure is directly controlled by changing current to a proportional solenoid by external amplifier or by integrated electronics (3DREPE6).

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToProportional

Features

• Size 6
• Porting pattern according to ISO 4401-3, NFPA T3.5.1M R, and ANSI B93.7 D 03
• Valve for reducing a system pressure
• Proportional solenoid operation
• For subplate mounting
• Integrated electronics (OBE) for type 3DREPE

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>Operating pressure $P_{\text{max}}$ bar (PSI)</th>
<th>Flow $q_{v_{\text{max}}}$ l/min (GPM)</th>
<th>Maximum hysteresis %</th>
<th>Operating voltage OBE $U$ V</th>
<th>Command value signal OBE $U$ V</th>
<th>Control electronics</th>
<th>Part Number Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>100 (1450)</td>
<td>15 (4.0)</td>
<td>5</td>
<td>24</td>
<td>±10</td>
<td>Card, digital</td>
<td>3DREP 6 C-2X/25EG24N9K4/M</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Module, analog</td>
<td>3DREP 6 C-2X/25EG24N9K4/M-M-674</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3DREP 6 C-2X/25EG24N9K4/V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3DREP 6 C-2X/25EG24N9K31/A1V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3DREP 6 C-2X/25EG24N9K31/F1V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
4WS2EM - Directional Servo Valves

Valves of type 4WS(E)2EM10-5X/... are electrically operated, 2-stage directional servo-valves. They are mainly used to control position, force and velocity.

Features

- Size 6
- Valve to control position, force, pressure or velocity
- 2-stage servo valve with mechanical or mechanical and electric return
- 1st stage as nozzle flapper plate amplifier
- Dry control motor, no pollution of the solenoid gaps by the hydraulic fluid
- Can also be used as 3-way version
- Wear-free control spool return element
- Valve and integrated control electronics are adjusted and tested
- Control spool with flow force compensation
- Control sleeve centrically fixed; thus low susceptibility to temperature and pressure
- Pressure chambers at the control sleeve with gap seal, no wear of the seal ring
- Detailed information: RE29583

Technical Data

<table>
<thead>
<tr>
<th></th>
<th>°C</th>
<th>bar</th>
<th>Up to 315</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage temperature range</td>
<td>-20 to +80</td>
<td>10 to 210 or 10 to 315</td>
<td>Pressure peaks &lt; 100 permitted, static &lt; 10</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>-20 to +60 valve with OBE</td>
<td>Up to 315</td>
<td></td>
</tr>
<tr>
<td>Operating pressure</td>
<td>-30 to +100 valve without OBE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot control stage, pilot oil supply</td>
<td>10 to 210 or 10 to 315</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main valve, port P, A, B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return flow pressure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot oil return internal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot oil return external</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port Y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure fluid temperature range</td>
<td>-15 to +80, preferably +40 to +50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity range</td>
<td>15 to 380, preferably 30 to 45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days)
-------------|-------------|---------------|------------------------
R900772317   | 4WS2EM10-5X/60B11T315K31CV-114 | 3            | 10 day(s)
SYDFEE - Pressure & Flow Control System

The control system is used for the electro-hydraulic control of swivel angle, pressure and power (partially optional) of an axial piston variable displacement pump.

Features

- With axial piston variable displacement pump A10VSO.../31
- Size 140
- Component series 2X
- Maximum operating pressure 280 bar
- Function: Swivel angle control, pressure control, torque limitation, master/slave
- Communication: Sercos, PROFINET, EtherCAT, EtherNET/IP, POWERLINK, VARAN, analog
- Detailed information: RE30030

Technical Data

<table>
<thead>
<tr>
<th>Size</th>
<th>18</th>
<th>28</th>
<th>45</th>
<th>71</th>
<th>100</th>
<th>140</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement cm³</td>
<td>18</td>
<td>28</td>
<td>45</td>
<td>71</td>
<td>100</td>
<td>140</td>
</tr>
<tr>
<td>Speed</td>
<td>rpm</td>
<td>3300</td>
<td>3000</td>
<td>2600</td>
<td>2200</td>
<td>2000</td>
</tr>
<tr>
<td></td>
<td>rpm</td>
<td>3900</td>
<td>3600</td>
<td>3100</td>
<td>2600</td>
<td>2400</td>
</tr>
<tr>
<td>Minimum speed rpm</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum flow</td>
<td>l/min</td>
<td>59.4</td>
<td>84</td>
<td>117</td>
<td>156</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>l/min</td>
<td>27</td>
<td>42</td>
<td>68</td>
<td>107</td>
<td>150</td>
</tr>
<tr>
<td>Maximum torque (Δp = 280 bar) Nm</td>
<td>80.1</td>
<td>125</td>
<td>200</td>
<td>316</td>
<td>445</td>
<td>623</td>
</tr>
<tr>
<td>Maximum operating pressure bar</td>
<td>280</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Admissible inlet pressure bar</td>
<td>0.8 ... 10.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic fluid temperature range °C</td>
<td>-20 ... +70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R901076539</td>
<td>SYDFEE-2X/140R-PSB12KD3-0000-A0A1VXX</td>
<td>1</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
SYHDFEE - Pressure & Flow Control System

The control system is used for the electro-hydraulic control of swivel angle, pressure and power (partially optional) of an axial piston variable displacement pump.

**Features**
- Size 250
- Component series 1X
- Maximum operating pressure 350 bar
- With axial piston variable displacement pump A4VSO
- Function: Swivel angle control, pressure control, torque limitation, master/slave
- Communication: Sercos, PROFINET, EtherCAT, EtherNET/IP, POWERLINK, VARAN, analog
- Detailed information: RE30035

**Technical Data**

<table>
<thead>
<tr>
<th>Size</th>
<th>40</th>
<th>71</th>
<th>125</th>
<th>180</th>
<th>250</th>
<th>355</th>
</tr>
</thead>
<tbody>
<tr>
<td>Displacement cm³</td>
<td>40</td>
<td>71</td>
<td>125</td>
<td>180</td>
<td>250</td>
<td>355</td>
</tr>
<tr>
<td>Speed rpm</td>
<td>2600</td>
<td>2200</td>
<td>1800</td>
<td>1800</td>
<td>1900</td>
<td>1700</td>
</tr>
<tr>
<td>Maximum at Vₖ max and HFC Fluids rpm</td>
<td>-</td>
<td>2200</td>
<td>1800</td>
<td>1800</td>
<td>1500</td>
<td>1500</td>
</tr>
<tr>
<td>Minimum speed rpm</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Maximum flow l/min | 104 | 156 | 225 | 324 | 450 | 533 |
| Maximum torque (Δp = 280 bar) Nm | 223 | 395 | 696 | 1002 | 1391 | 1976 |
| Maximum operating pressure bar | 350 |
| Minimum operating pressure bar | ≥ 20 |
| Admissible inlet pressure bar | 0.8 ... 30.0 |
| Hydraulic fluid temperature range °C | -20 ... +70 |

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R901076538</td>
<td>SYHDFEE-1X/250R-VZB25U99-0000-A0A1V</td>
<td>1</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Industrial hydraulic manifolds are used to interconnect various components within a hydraulic system. Standard hydraulic manifolds include a variety of proven manifold designs for a wide range of industrial hydraulic applications. Standard manifolds may improve the assembly & test time of your system, save cost, reduce leak points and improve the serviceability and aesthetics of your system compared to alternate connection methods.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomanifolds

Features

• ABM6PN: Size 6 (D03), normal flow
• AB10PN: Size 10 (D05), normal flow with bottom-ported P & T
• Sandwich plates, tap-in connection, SAE-4 port
• Ductile iron and aluminum

Technical Data

<table>
<thead>
<tr>
<th>Model Code</th>
<th>ABM6PN-1X/02D2-01GM</th>
<th>ABM6PN-1X/03D2-01GM</th>
<th>ABM10PN-1X/03D3-01GBM</th>
<th>ABM10PN-1X/05D3-01GBM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of stations</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Description</td>
<td>Automotive bar manifold with bottom ported P &amp; T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circuit</td>
<td>Parallel circuit, normal flow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>Size 6 (D03)</td>
<td>Size 10 (D05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Ductile iron (65-45-12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. pressure (psi)</td>
<td>5000</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ports</td>
<td>BSPP</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Details</td>
<td>Metric mounting taps</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See technical data sheet RA 09907 for detailed technical data.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R978908745</td>
<td>ABM6PN-1X/02D2-01GM</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978908746</td>
<td>ABM6PN-1X/03D2-01GM</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978908747</td>
<td>ABM6PN-1X/04D2-01GM</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978908748</td>
<td>ABM6PN-1X/05D2-01GM</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978006336</td>
<td>ABM10PN-1X/03D3-01GBM</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978006338</td>
<td>ABM10PN-1X/05D3-01GBM</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978052637</td>
<td>MAN ASSY AGA17006 INLET WITH LS DRAIN</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
BM - Parallel Bar Manifolds

Industrial hydraulic manifolds are used to interconnect various components within a hydraulic system. Standard hydraulic manifolds include a variety of proven manifold designs for a wide range of industrial hydraulic applications. Standard manifolds may improve the assembly and test time of your system, save cost, reduce leak points and improve the serviceability and aesthetic of your system compared to alternate connection methods.

Features

- BM6PH: Size 6 (D03), high flow
- BM10PX: Size 10 (D05), extra high flow with X & Y ports
- BM_PN: Sizes 6 (D03), 10 (D05), 16 (D07), normal flow
- Sandwich plates, tap-in connection, SAE-4 port
- Ductile iron and aluminum

Technical Data

<table>
<thead>
<tr>
<th>Model Code</th>
<th>BM6PN</th>
<th>BM6PH</th>
<th>BM10PN</th>
<th>BM10PX</th>
<th>BM16PN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of stations</td>
<td>6</td>
<td></td>
<td>10</td>
<td></td>
<td>16</td>
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<tr>
<td>Circuit</td>
<td>Normal</td>
<td>High</td>
<td>Normal</td>
<td>Extra High</td>
<td>Normal</td>
</tr>
<tr>
<td>Size</td>
<td>Size 6 (D03)</td>
<td>Size 10 (D05)</td>
<td>Size 16 (D07)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Ductile Iron (65-45-12), Aluminum (6061-T6)</td>
<td></td>
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Note: GoTo deliveries do not include Relief Valve or Isolation options

Manifold Mounting Kit

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Industrial Hydraulic manifolds are used to interconnect various components within a hydraulic system. Standard hydraulic manifolds include a variety of proven manifold designs for a wide range of industrial hydraulic applications. Standard manifolds may improve the assembly & test time of your system, save cost, reduce leak points and improve the serviceability and aesthetic of your system compared to alternate connection methods.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomanifolds

Features

- Sizes: 6 (D03), 10 (D05) & 16 (D07)
- Aluminum and ductile iron
- SAE-threaded side ports
- Includes mounting kit for the subplate

Technical Data

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CP6, CP10, & CP16 - Cover Plates

Industrial Hydraulic manifolds are used to interconnect various components within a hydraulic system. Standard hydraulic manifolds include a variety of proven manifold designs for a wide range of industrial hydraulic applications. Standard manifolds may improve the assembly & test time of your system, save cost, reduce leak points and improve the serviceability and aesthetic of your system compared to alternate connection methods.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomanifolds

Features
• Cover plates, all ports blocked
• Size 6 (DO3); Size 10 (DO5); Size 16 (DO7)
• Ductile iron and aluminum
• Detailed information: RA09907

Technical Data

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For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomanifolds

Features

- Sandwich plates, tap-in connection. SAE-4 port
- Size 6 (DO3); Size 10 (DO5)
- Ductile iron and aluminum
- Detailed information: RA09907

Technical Data

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AP6, AP10, & AP16 - Adapter Plates

Industrial Hydraulic manifolds are used to interconnect various components within a hydraulic system. Standard hydraulic manifolds include a variety of proven manifold designs for a wide range of industrial hydraulic applications. Standard manifolds may improve the assembly & test time of your system, save cost, reduce leak points and improve the serviceability and aesthetic of your system compared to alternate connection methods.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomanifolds

Features
- Valve adapters
- AP6-10: D03 (size 6) to D05 (size 10)
- AP6-16: D03 (size 6) to D07 (size 16)
- AP10-16: D05 (size 10) to D07 (size 16)
- Ductile iron and aluminum

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For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomanifolds

Features

- Flange sizes: 3/4 to 1-1/2
- SAE flange or O-ring ports
- High and Normal Pressure options available
- DBDS Pressure relief valve (RE25402) ordered separately

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<td>Industrial hydraulic pump relief block</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circuit</td>
<td></td>
<td>Normal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flange size</td>
<td>3/4</td>
<td>1</td>
<td>1 1/4</td>
<td>1 1/2</td>
</tr>
<tr>
<td>Relief Valve</td>
<td></td>
<td>DBDS10</td>
<td>DBDS20</td>
<td>DBDS30</td>
</tr>
<tr>
<td>Material</td>
<td>Ductile iron (65-45-12), Aluminum (6061-T6)</td>
<td></td>
<td>Ductile Iron (65-45-12)</td>
<td></td>
</tr>
<tr>
<td>Max Pressure (psi)</td>
<td>5000 (Ductile iron), 3000 (Aluminum)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threads bolts</td>
<td>SAE O-ring</td>
<td>SAE Flanged &amp; SAE O-ring</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R978906523</td>
<td>RVB 1 1/2H1X/D 07V</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978906521</td>
<td>RVB 1 1/4H1X/D 07V</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978838228</td>
<td>RVB 1 1/4H1X/D 20-12V 42-13</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978904348</td>
<td>RVB 1N1X/A 16-12V 42-13</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978906513</td>
<td>RVB 1N1X/D 07V</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978839333</td>
<td>RVB 1N1X/D 16-12V</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978904346</td>
<td>RVB 3/4N1X/A 12-12V 42-13</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978838222</td>
<td>RVB 3/4N1X/D 12-12V 42-13</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
VT-MACAS - Analog Positioning Module

Analog position controller type VT-MACAS supports simple position or velocity control loops for hydraulic motion systems, in combination with Rexroth servo cylinders and analog position measurement systems (potentiometers).

### Features
- DIN-rail mountable
- Open-circuit detection for feedback signal cable
- Short-circuit-proof interfaces
- Measurement taps on front panel
- Deadband compensation can be deactivated
- Position: PT₁ control
- Detailed information: RE30050

### Technical Data

<table>
<thead>
<tr>
<th>Supply voltage</th>
<th>Nominal 24 V = Battery voltage 21...40 V, Rectified alternating voltage Ueff = 21...28 V (one-phase, full-wave rectifier)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current consumption, max.</td>
<td>mA 200</td>
</tr>
</tbody>
</table>
| Controller type | Position: PT₁  
Velocity: P₁ |
| Zero point valve | % ±5 |
| Special features | - Switchable from position to velocity control  
- Switchable position window  
- Test points on front plate  
- Interfaces short-circuit-proof |
| Format/design | mm (86 x 110 x 95.5) / module |
| Mounting | Top hat rail TH35-7,5 or G rail G32 according to EN 60715 |
| Connection | Connectors + terminals |
| Ambient temperature | °C 0...+70 |
| Storage temperature range | °C -20...+70 |
| Weight | m 0.38 kg |

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0811405139</td>
<td>VT-MACAS-500-10/V0</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
VT-MRPA1-100 - Analog Amplifier

The amplifier modules are snapped onto top hat rails according to EN 60715. The electrical connection is established via screw terminals. The modules are operated at 24 V direct voltage. The amplifier modules have a power supply unit with making current limiter. This unit supplies all internally required positive and negative supply voltages. The making current limiter prevents high making current peaks.

Features

- Component series 1X
- Analog, modular design
- Intended for controlling direct operated proportional pressure relief valves with electrical position feedback (type DBETR-1X) or proportional flow control valves with electrical position feedback (type 2FRE...)
- Detailed information: RE30221

Technical Data

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>24 VDC + 40% − 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating range:</td>
<td></td>
</tr>
<tr>
<td>- Upper limit value</td>
<td>$u_B(t)_{\text{max}}$</td>
</tr>
<tr>
<td>- Lower limit value</td>
<td>$u_B(t)_{\text{min}}$</td>
</tr>
<tr>
<td>Power consumption</td>
<td>$P_S$</td>
</tr>
<tr>
<td>Current consumption</td>
<td>$i$</td>
</tr>
<tr>
<td>Type of connection</td>
<td>12 screw terminals</td>
</tr>
<tr>
<td>Type of mounting</td>
<td>Top hat rail TH35:7.5 according to EN 60715</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP20 according to EN 60529</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>mm</td>
</tr>
<tr>
<td>Admissible operating temperature range</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>°C</td>
</tr>
<tr>
<td>Weight</td>
<td>m</td>
</tr>
</tbody>
</table>

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R900779644</td>
<td>VT-MRPA1-100-1X/V0/0</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
The amplifier modules are to be snapped onto top hat rails according to EN 60715. The electrical connection is made by means of screw terminals. The modules are operated at 24V DC. The amplifier modules are provided with a power supply unit with switch-on current limiter. The power supply unit provides all internally required positive and negative supply voltages. The switch-on current limiter prevents high switch-on current peaks.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

Features

• Component series 1X
• Suitable for controlling direct operated 4/3 and 4/2 proportional directional valves with electrical position feedback, type 4WRE, sizes 6 and 10, component series 2X
• Command value input ±10 V (VT-MRPA2), 0 to 10 V (VT-MRPA1)
• Ramp generator with separately adjustable "up/down" ramp times
• Detailed information: RE30219

Technical Data

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>24 VDC + 40% – 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating range:</td>
<td></td>
</tr>
<tr>
<td>– Upper limit value</td>
<td>$u_{B(t)}_{\text{max}}$</td>
</tr>
<tr>
<td>– Lower limit value</td>
<td>$u_{B(t)}_{\text{min}}$</td>
</tr>
<tr>
<td>Power consumption</td>
<td>$P_S$</td>
</tr>
<tr>
<td>Current consumption</td>
<td>$I$</td>
</tr>
<tr>
<td>Type of connection</td>
<td>12 screw terminals</td>
</tr>
<tr>
<td>Type of mounting</td>
<td>Top hat rail TH35-7.5 according to EN 60715</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP20 according to EN 60529</td>
</tr>
<tr>
<td>Dimensions (W x H x D)</td>
<td>mm</td>
</tr>
<tr>
<td>Admissible operating temperature range</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>°C</td>
</tr>
<tr>
<td>Weight</td>
<td>m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R900249895</td>
<td>VT-MRPA2-1-1X/V0/0</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
VT3002 - Card Holder

The VT-3002 card holder is available in either a 32-pin or 48-pin connection format (Form D or Form F). Individual screw terminals aid in robust field connections while the VT-3002 provides a stable platform to anchor field connections. Push buttons on each side permit releasing an amplifier board without incurring undue stress on an amplifier’s faceplate.

Features

- Card holders allow the simple installation and wiring of individual electronic cards in Euro format, e.g. in switching cabinets
- Can be screwed on or snapped onto DIN rails
- Vertical mounting onto a DIN rail, possible with an additional adaptor (included within the scope of supply)
- Stable base
- Card locking and releasing by lever operation
- Connection via screw terminals

Technical Data

<table>
<thead>
<tr>
<th>Terminal voltage to VDE 0110 C</th>
<th>U</th>
<th>VAC</th>
<th>Max. 48 VAC/DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current loading capacity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- VT 3002-1-2X/32D</td>
<td>A</td>
<td></td>
<td>4 A</td>
</tr>
<tr>
<td>- VT 3002-1-2X/32F</td>
<td>A</td>
<td></td>
<td>4 A</td>
</tr>
<tr>
<td>- VT 3002-1-2X/48F</td>
<td>A</td>
<td></td>
<td>4 A</td>
</tr>
<tr>
<td>Cross-section connection</td>
<td></td>
<td></td>
<td>Plug-in screw terminals max. 4 mm²</td>
</tr>
<tr>
<td>Connection type:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(socket connection)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- VT 3002-1-2X/32D</td>
<td></td>
<td></td>
<td>32-pin socket connector, form D, DIN 41612</td>
</tr>
<tr>
<td>- VT 3002-1-2X/32F</td>
<td></td>
<td></td>
<td>32-pin socket connector, form F, DIN 41612</td>
</tr>
<tr>
<td>- VT 3002-1-2X/48F</td>
<td></td>
<td></td>
<td>48-pin socket connector, form F, DIN 41612</td>
</tr>
<tr>
<td>Pin allocation:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- VT 3002-1-2X/32D</td>
<td></td>
<td></td>
<td>Even numbered, rows a/c</td>
</tr>
<tr>
<td>- VT 3002-1-2X/32F</td>
<td></td>
<td></td>
<td>Even numbered, rows b/z</td>
</tr>
<tr>
<td>- VT 3002-1-2X/48F</td>
<td></td>
<td></td>
<td>Even numbered, rows d/b/z</td>
</tr>
<tr>
<td>Permissible ambient temperature range</td>
<td>Ⓔ</td>
<td>°C (°F)</td>
<td>-20 to +70 (-4 to +158)</td>
</tr>
<tr>
<td>Weight</td>
<td>m</td>
<td></td>
<td>0.5/0.8 (1.1/1.8)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R900020154</td>
<td>VT 3002-1-2X/48F (card holder)</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
VT-DFP - Pilot Control Valves

The VT-DFP-A-2X/G24K0/0/V is the pilot control valve for the SYDFE1 system. In conjunction with amplifier VT5041, it controls the swashplate angle of the pump in either closed loop pressure or flow control. This valve is to be considered a part and not a complete control.

Features

- Pilot valve for the pressure and flow control system SY(H)DFE
- Actuation by means of a proportional solenoid with electrical feedback
- Control electronics: VT-DFP (for SY(H)DFE1) >> external analog amplifier VT 5041-2X

Technical Data

<table>
<thead>
<tr>
<th>Type</th>
<th>VT-DFP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating pressure</td>
<td></td>
</tr>
<tr>
<td>Port A, P</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td></td>
<td>350 (5100)</td>
</tr>
<tr>
<td>Port T</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td></td>
<td>100 (1450)</td>
</tr>
<tr>
<td>Control</td>
<td>External amplifier VT-5041-3X</td>
</tr>
</tbody>
</table>

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R900703811</td>
<td>VT-DFP-A-2X/G24K0/0/V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R900712200</td>
<td>VT-DFPE-A-2X/G24K0/0A1V/V</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
VT-VRRA - Analog Amplifier

The amplifier VT-VRRA1 controls standard servo solenoid valves with DC-LVDT feedback for direct operated 4WRPH..L-2X and 2-stage 4WRL..-3X. These are basic amplifiers. Since these components are normally used in closed loop applications, other features like ramp, time, and spool compensation (jump) are not needed.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

Features

- Analog amplifiers in Eurocard format
- Controlled output stage
- Enable input
- Short-circuit-proof outputs
- Adjustment options: Valve zero point
- Cable break detection for actual value cable
- Closed-loop position control with PID characteristics

Technical Data

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>U</th>
<th>VDC</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command value, depending on type</td>
<td>U</td>
<td>V</td>
<td>0 to 10, ±10</td>
</tr>
<tr>
<td>Type of connection</td>
<td></td>
<td></td>
<td>32-pin male connector, Form F</td>
</tr>
<tr>
<td>Card dimensions</td>
<td>mm (in.)</td>
<td>Eurocard 100 x 160 (3.4 x 6.3), DIN 41494</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>°C (°F)</td>
<td>0 to +70 (0 to +158)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type</th>
<th>Suitable for valve type</th>
<th>Detailed information</th>
</tr>
</thead>
<tbody>
<tr>
<td>VT-VRRA1-527-2X/V0</td>
<td>4WRPH 6 ... L-2X</td>
<td>RE30041</td>
</tr>
<tr>
<td>VT-VRRA1-527-2X/V0/2STV</td>
<td>4WRL ... M-3X; 3WRCL, NG25 to 50</td>
<td>RE30045</td>
</tr>
<tr>
<td>VT-VRRA1-537-2X/V0</td>
<td>5WRPH10...L-2X</td>
<td>RE30041</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0811405060</td>
<td>VT-VRRA 1-527-20/V0</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>0811405063</td>
<td>VT-VRRA 1-527-20/V0/2STV</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
VT-VARAP1 - p/Q Amplifier

The p/Q amplifier is comprised of a base card with front panel containing the valve amplifier for 4WRPH6 with closed loop pressure controller. When used with the appropriate servo solenoid valves and pressure sensors, this unit can be employed for controlling flow and pressure in a closed-loop control circuit. The input parameters are the setpoints for pressure p and flow Q. Pressure and valve spool position are transmitted as feedback values.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

Features

• Suitable for actuating directly operated and pilot operated servo solenoid valves
• Analog amplifiers in Eurocard format for installation in 19” rack
• Output stage with closed-loop control
• Rapid energizing and de-energizing for fast response times
• Enabling input
• Short-circuit-proof outputs
• External control shutoff
• Open-circuit detection for feedback signal cable and pressure sensor
• Suitable for pressure sensors (1...6 V, 0...10 V, 4...20 mA)
• Closed-loop position control with PID action

Technical Data

<table>
<thead>
<tr>
<th>P.C.B. format (W x L x H) mm (in.)</th>
<th>100 x 160 x ~35 (3.93 x 6.29 x ~1.38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>European format with front panel (7 modular spacings)</td>
<td></td>
</tr>
<tr>
<td>Plug connector</td>
<td>Connector DIN 41612 – F 32</td>
</tr>
<tr>
<td>Power supply – $U_{b2}$ to $Z_2$ – b2</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Power consumption (typical)</td>
<td>37 W</td>
</tr>
<tr>
<td>Input signal (setpoint Q)</td>
<td>b 20: 0...+10 V; z 20: 0...+10 V – Difference amplifier ($R_i = 100 , \text{k}\Omega$)</td>
</tr>
<tr>
<td>Input signal (setpoint p)</td>
<td>z 12: 0...10 V; z 10: 0 V – Difference amplifier</td>
</tr>
<tr>
<td>Feedback signal from pressure sensor</td>
<td>z 14: 4...20 mA current input; b 16: 0...+10 V / 1...+6 V voltage input; b 18: 0 V reference</td>
</tr>
</tbody>
</table>

Type

VT-VARAP1-527

4WRPH6

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0811405152</td>
<td>VT-VARAP1-527-20/V0</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
VT-HACD-3 - Control Electronics

The VT-HACD-3-2X closed-loop control electronics is a module that is installed on a top hat rail. A microcontroller controls the entire process, makes adjustments, establishes links and realizes the closed control loops. Data for configuration, command values and parameters are stored in a FLASH in a non-volatile form.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

Features

• Use as command value card for generating, linking and normalizing signals
• Use as controller card for closed loop control with PIDT1 controller and optional state feedback
• Alternating control possible (e.g. position control with superimposed pressure control)
• Configurable analog and discrete I/O
• Digital SSI or incremental position measuring system
• Possibility of sequence control through block call-ups with command values, ramp times and controller parameters
• PC software BODAC for configuration, parameterization and diagnostics
• Field bus systems: PROFIBUS DP or EtherNet IP

Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating voltage VDC</td>
<td>24</td>
</tr>
<tr>
<td>Command value signal</td>
<td>V 0 to 10; +/-10</td>
</tr>
<tr>
<td></td>
<td>mA 0 to 20; 4 to 20</td>
</tr>
<tr>
<td>Output signal</td>
<td>V 0 to 10; +/-10</td>
</tr>
<tr>
<td></td>
<td>mA 0 to 20; 4 to 20</td>
</tr>
<tr>
<td>Scanning time m/sec</td>
<td>2</td>
</tr>
<tr>
<td>Serial interface</td>
<td>RS 232</td>
</tr>
<tr>
<td>Installation</td>
<td>DIN Rail mount</td>
</tr>
<tr>
<td>Dimensions mm (in.)</td>
<td>120 x 55 x 118 (4.72 x 2.17 x 4.65) compact module</td>
</tr>
<tr>
<td>Ambient temperature range °C (°F)</td>
<td>0 to +50 (0 to +122)</td>
</tr>
</tbody>
</table>

Part Number | Description            | Max. Quantity | Shipment (Business Days) |
-------------|------------------------|---------------|--------------------------|
R901239535   | VT-HACD-3-2X/E-I-00/000 | 5             | 10 day(s)                |
VT5041-3X analog amplifiers are designed as plug-in cards in Euroformat. They are external control electronics for the SYDFE1 control of A10VSO axial piston pumps analog amplifier.

Features

- Differential amplifier input
- Controller for valve spool position
- Minimum generator for pressure and swivel angle controller
- Self-clocking output stage
- Pressure-related leakage compensation (can be switched off)
- Polarity reversal protection for power supply
- Switchable actual pressure value input (current, voltage, range)

Technical Data

<table>
<thead>
<tr>
<th>Operating voltage $U_0$ VDC</th>
<th>24 + 40% – 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power consumption $P_S$ VA</td>
<td>35</td>
</tr>
<tr>
<td>Current consumption $I$ A</td>
<td>0.6 ($I_{\text{max}} = 1.25$ A)</td>
</tr>
<tr>
<td>Type of connection</td>
<td>32-pin male connector, DIN 41612, form D</td>
</tr>
<tr>
<td>Card dimensions</td>
<td>Euro-card 100 x 160 mm, DIN 41494</td>
</tr>
<tr>
<td>Permissible operating temperature range °C (°F)</td>
<td>0 to +50 (0 to +122)</td>
</tr>
<tr>
<td>Storage temperature range °C (°F)</td>
<td>-20 to +70 (-4 to +158)</td>
</tr>
</tbody>
</table>

Type

- VT-5041-3X/1-0: SYDFE1 control of A10VSO
- VT-5041-3X/3-0: SYDFE1 control of A10VSO with power limitation

Part Number Description Max. Quantity Shipment (Business Days)

| R901236404 | VT 5041-3X/1-0 | 5 | 10 day(s) |
| R901196678 | VT 5041-3X/3-0 | 5 | 10 day(s) |
VT-VRPA1-100 - Analog Amplifier

This analog amplifier is suitable for controlling direct operated proportional pressure control valves with electrical position feedback.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

Features

- Component series 1X
- Suitable for controlling direct operated proportional pressure control valves with electrical position feedback, type DBETR, and proportional flow control valves with electrical position feedback, type 2FRE.
- Plug-in connections compatible with those of amplifier types VT 5003, VT 5004 and VT 5010
- Power supply with raised zero point
- Detailed information: RA30118

Technical Data

<table>
<thead>
<tr>
<th>Operating voltage</th>
<th>$U_B$</th>
<th>24 VDC + 40% - 20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating range:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Upper limit value $u_B(t)_{\text{max}}$</td>
<td>V</td>
<td>35</td>
</tr>
<tr>
<td>- Lower limit value $u_B(t)_{\text{min}}$</td>
<td>V</td>
<td>22</td>
</tr>
<tr>
<td>Power consumption</td>
<td>$P_S$</td>
<td>W</td>
</tr>
<tr>
<td>Current consumption</td>
<td>$I$</td>
<td>A</td>
</tr>
<tr>
<td>Type of connection</td>
<td>32-pin blade connection, DIN EN 60603-2, Form D</td>
<td></td>
</tr>
<tr>
<td>Card dimensions</td>
<td>mm</td>
<td>100 x 160</td>
</tr>
<tr>
<td>Front plate dimensions</td>
<td>Height</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>Width solder side</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>Width component side</td>
<td>mm</td>
</tr>
<tr>
<td>Admissible operating temperature range</td>
<td>°C</td>
<td>0 to +50</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>°C</td>
<td>-25 to +70</td>
</tr>
<tr>
<td>Weight</td>
<td>m</td>
<td>0.15 kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R901009038</td>
<td>VT-VRPA1-100-1X/V0/0</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
VT-SSPA1-508 - Plug-in Amplifier

This plug-in amplifier is used for controlling proportional valves without position control.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

Features

- Component series 2X
- Analog amplifier for controlling proportional valves (pressure and directional valves) without position control
- Differential input
- Ramp time adjustable (60 ms...5 s)
- Sensitivity, valve zero point, dither frequency adjustable
- Operating voltage 24 V
- Detailed information: RE30264

Technical Data

<table>
<thead>
<tr>
<th>Supply voltage nom. 24 V =</th>
<th>Solenoid 2.5 A</th>
<th>Battery voltage 10.2...31 V</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Solenoid 0.8 A</td>
<td>Rectified voltage 10.2...27 V</td>
</tr>
<tr>
<td></td>
<td>Residual ripple</td>
<td>&lt; 2 VSS</td>
</tr>
<tr>
<td>Power consumption max. VA</td>
<td>55 (see valve data)</td>
<td></td>
</tr>
<tr>
<td>Ramp time</td>
<td>60 ms...5 s</td>
<td></td>
</tr>
<tr>
<td>Dither frequency range Hz</td>
<td>95...340</td>
<td></td>
</tr>
<tr>
<td>Special features</td>
<td>LED (green): Supply voltage is available, Clocked output stage, Fast energization for short actuating times, Adjustments via trimming potentiometer</td>
<td></td>
</tr>
<tr>
<td>Protection class</td>
<td>IP 65, in plugged condition</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td>Connector housing</td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td>- Solenoid</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- UB, command value</td>
<td></td>
</tr>
<tr>
<td>Connections</td>
<td>DIN 43660</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cable 5x0.75 mm2, shielded (incl. PE)</td>
<td></td>
</tr>
<tr>
<td>Ambient temperature °C</td>
<td>-20...+70</td>
<td></td>
</tr>
<tr>
<td>Storage temperature range °C</td>
<td>-20...+85</td>
<td></td>
</tr>
<tr>
<td>Weight m</td>
<td>0.23 kg</td>
<td></td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days)
-------------|-------------|---------------|---------------------
0811405144   | VT-SSPA1-508-2X/V0/0 | 3 | 10 day(s)
VT-VACAP-500-20/V0 - p/Q Controller

The input parameters for the card comprise the setpoint value for valve position, the setpoint value for pressure, the actual (feedback) pressure and any control mode signals. The pressure sensors with voltage interface receive their voltage supply from the card (z6/z8). Cards are for the connection of pressure sensors with both voltage and current signals. The setpoint value for pressure is selected via potentiometer. The potentiometers can be supplied from the card (z32/b12). Test connections in the front plate and on the card are available for monitoring and compensation tuning of the most important parameters.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

Features

- Analog amplifiers in Europe card format for installation in 19 rack
- Suitable for servo solenoid valves with on-board electronics
- Closed-loop position control with PID action
- Short-circuit-proof outputs
- External deactivation for pressure controller
- Suitable for pressure sensors (1...6 V, 0...10 V, 4...20 mA)
- Supply for pressure sensors
- Detection of open circuit to pressure sensors
- For valves with on board electronics (OBE)

Technical Data

<table>
<thead>
<tr>
<th>P.C.B. format (W x L x H) mm (in.)</th>
<th>100 x 160 x ~35 (3.93 x 6.29 x ~1.38)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plug connector</td>
<td>Connector DIN 41612 – F 32</td>
</tr>
<tr>
<td>Ambient temperature °C (°F)</td>
<td>operating temperature: 0 to +70 (32 to +158), storage temperature: ~20 to +70° (~4 to +158)</td>
</tr>
<tr>
<td>Current rating</td>
<td>0811405157 max. 160 mA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0811405157</td>
<td>VT-VACAP-500-20/V0</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
HM20 - Pressure Transducer for Hydraulic Applications

The HM20 measures pressure and output voltage or current. It is suitable for closed loop (feedback) and most industrial applications.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoelectronics

Features

- Measuring pressures in hydraulic systems
- Conversion of the measured pressure into a standardized electric analog signal
- Sensor with thick-film measuring cell
- Components that are in contact with the media are of stainless steel
- Operational reliability due to high bursting pressure, reverse polarity, overvoltage and short-circuit protection
- Compact design
- Very good temperature behavior
- Accuracy class 0.5
- 4-pin M12 connector at the housing
- Hydraulic port G1/4A
- Protection class IP65/IP67
- UL approval; CE approval
- Detailed information: RE30270, RE30272

Technical Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating voltage</td>
<td>$U_S$ 16 to 36 VDC</td>
</tr>
<tr>
<td>Residual ripple</td>
<td>$U_{pp}$ 2.5 V (40 to 400 Hz)</td>
</tr>
<tr>
<td>Current consumption</td>
<td>$I_{max}$ 6 mA (with voltage output)</td>
</tr>
<tr>
<td>Measurement range</td>
<td>$\rho_N$ bar (PSI)</td>
</tr>
<tr>
<td>Output signal and admissible load $R_A$</td>
<td>$I_{Sq}$ 4 to 20 mA, two-wire, $R_A = (U_S - 8.5 V) / 0.02 A$ with $R_A$ in $\Omega$ and $U_S$ in V $0.1$ to $10$ V, three-wire, $R_A &gt; 20 \text{ k}\Omega$</td>
</tr>
<tr>
<td>Accuracy</td>
<td>$&lt;0.5%$ Related to the complete measurement range, including non-linearity, hysteresis, zero point and end value deviation (corresponds to the measuring deviation according to IEC 61298-2)</td>
</tr>
<tr>
<td>Temperature coefficient (TK) in the nominal temperature range for zero point and range</td>
<td>$&lt;0.1% / 10$ K</td>
</tr>
<tr>
<td>Hysteresis</td>
<td>$&lt;0.15%$</td>
</tr>
<tr>
<td>Non-repeatability</td>
<td>$&lt;0.10%$</td>
</tr>
<tr>
<td>Setting time (10 to 90%)</td>
<td>$t &lt; 1$ ms</td>
</tr>
<tr>
<td>Service life</td>
<td>$40$ million load cycles or $40000$ h</td>
</tr>
<tr>
<td>Shock resistance, mechanical</td>
<td>$15$ g according to IEC 60068-2-27</td>
</tr>
<tr>
<td>Vibration resistance in case of resonance</td>
<td>$10$ g according to IEC 60068-2-6</td>
</tr>
<tr>
<td>Electromagnetic compatibility (EMC)</td>
<td>DIN EN 61326-2-3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R901342026</td>
<td>HM 20-2X/250-C-K35</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901342027</td>
<td>HM 20-2X/250-H-K35</td>
<td>5</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
BODAS RC Controller

The BODAS controllers RC are used for the programmable control of proportional solenoids and additional switching functions. They can therefore be used for both simple and complex open- or closed-loop controls, e.g. for hydrostatic travel drives, working hydraulics or transmission control in mobile working machines. BODAS controllers RC were specially developed for use in mobile working machines, and satisfy the relevant safety requirements with regard to ambient temperature, moisture, resistance to shock and vibration, as well as electromagnetic compatibility (EMC).

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToMobileElectronics

Features

- Component of BODAS system for mobile applications
- Robust design meeting specifications for mobile applications
- High electromagnetic compatibility (EMC)
- Inputs and outputs with fault detection
- Safety features such as redundant inputs and
- Central safety cut-off for all outputs
- Pulse-width-modulated (PWM) solenoid currents for minimum hysteresis
- Closed-loop control of solenoid currents, i.e. not dependent on voltage and temperature
- Sturdy, sealed aluminum housing
- Detailed information: RE95201 (RC2-2), RE95205 (RC4-5), RE95204 (RC12-10)

Technical Data

<table>
<thead>
<tr>
<th>Type/Series</th>
<th>RC4-5/30</th>
<th>RC12-10/30</th>
<th>RC28-14/30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply voltage</td>
<td></td>
<td>12 and 24 V</td>
<td></td>
</tr>
<tr>
<td>Total inputs</td>
<td>30</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Max. input functions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analog</td>
<td>8</td>
<td>55</td>
<td>55</td>
</tr>
<tr>
<td>Digital</td>
<td>16</td>
<td>74</td>
<td>74</td>
</tr>
<tr>
<td>Frequency</td>
<td>8</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>DSM</td>
<td>2</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Temperature</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Outputs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportional solenoid (PWM)</td>
<td>4</td>
<td>12</td>
<td>28</td>
</tr>
<tr>
<td>Digital</td>
<td>5</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Analog</td>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Interfaces</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS232</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CAN 2.0 B</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40 to +85 °C (-40 to +221 °F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part Number</td>
<td>Description</td>
<td>Max. Quantity</td>
<td>Shipment (Business Days)</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------</td>
<td>---------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>R917008181</td>
<td>RC12-10/30 (un-programmed)</td>
<td>5</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R917007683</td>
<td>RC28-14/30 (un-programmed)</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R917008015</td>
<td>RC4-5/30 (un-programmed)</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
</tbody>
</table>
BODAS Tools

The BODAS-service PC software tool provides a convenient and user friendly method of executing service functions for BODAS controllers from Rexroth. Parameters can be displayed and edited, process variables displayed, and their values graphically plotted and recorded. In addition, error messages and configurable diagnostics are provided.

Features

- User-friendly Windows user interface, freely configurable work flow and online help
- Simultaneous display of multiple parameters for modification settings
- Simultaneous display of multiple process variables in graphical or numeric form
- Printout of all settings and process variables for documentation purposes
- Clear and easy-to-understand display of error messages
- Easy-to-use data logger: Save measured values (process variables and parameters) to the hard disk
- Selectable and expandable program language
- Adjustable device language (relevant to controller data, up to 4 languages available)
- Diagnosis configurations for simplified troubleshooting
- Detailed information: RE95086

Technical Data

- Operating System:
  - Windows Vista
  - Windows 7 (only for BODAS-service. Not available for FT2 and BO-DEM)
- One free serial or CAN interface (depending on selected communications interface)
- One free USB interface (for license key - USB dongle)
- Available hard disk capacity > 200 MB
- Java runtime environment (installation occurs automatically)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R902109422</td>
<td>BODAS Cable</td>
<td>1</td>
<td>5 days</td>
</tr>
<tr>
<td>R909831291</td>
<td>BODAS Service Diagnostic Connector</td>
<td>1</td>
<td>5 days</td>
</tr>
<tr>
<td>R902109416</td>
<td>BODAS Service Tool Full</td>
<td>1</td>
<td>5 days</td>
</tr>
<tr>
<td>R902602780</td>
<td>CAN-USB interface</td>
<td>1</td>
<td>5 days</td>
</tr>
</tbody>
</table>
BODAS Sensors & Connectors

Rexroth BODAS sensors measure different variables such as temperature of fluids, circuit pressure, angle of rotation, and position which provide vital information to mobile hydraulic systems. As a component of the BODAS system, these elements are designed to withstand high ambient loads, external vibrations and impact, and harmful fluids that are encountered in mobile applications.

Features

• Harmonized to BODAS controllers and hydraulic components
• High temperature range
• Resistant to shock and vibration
• High electromagnetic compatibility
• Robust casing with high IP degree of protection
• Detailed information: RE95160 (PO1), RE95155 (PR3), RE95140 (WS1), RE95180 (TSF)

Technical Data

<table>
<thead>
<tr>
<th>Type</th>
<th>Measures</th>
<th>Measurement range</th>
<th>Input current (max.)</th>
<th>Protection class with mating plug</th>
<th>Plug connection</th>
<th>Application (typical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSF</td>
<td>Temperature</td>
<td>−40 °C to 150 °C</td>
<td>5 mA</td>
<td>IP64A</td>
<td>Jet connector, 2-pin</td>
<td>Enables the measurement of pressurized fluid temperatures of coolants, hydraulic oil or motor oil in vehicles.</td>
</tr>
<tr>
<td>TSA</td>
<td>Temperature</td>
<td>−40 °C to 150 °C</td>
<td>5 mA</td>
<td>IP64</td>
<td>Jet connector, 2-pin</td>
<td>Temperature measurement of the ambient air and charge air in vehicles</td>
</tr>
<tr>
<td>PR4</td>
<td>Pressure</td>
<td>0 to 420 bar</td>
<td>12 mA</td>
<td>IP67 and IP69K</td>
<td>Compact 1.1a connector, 3-pin</td>
<td>For the measurement of pressure within hydraulic circuits, ideally suited for mobile applications.</td>
</tr>
<tr>
<td>WS1</td>
<td>Angle</td>
<td>−45°...+45°</td>
<td>11 mA</td>
<td>IP69K</td>
<td>AMP MQS, 6-pin</td>
<td>For the measurement of rotary movements of an adjusting shaft or angle of levers to determine the setting of diesel injection pump levers.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R917009890</td>
<td>PLUG SET BOSCH KOMPAKT-STECKE</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R902602132</td>
<td>PR3 Mating Connector</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R917008824</td>
<td>PR3-400GS05/10</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R917008825</td>
<td>PR3-600GS05/10</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>1834484094</td>
<td>TS Mating Connector</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>0538009203</td>
<td>TSA Air Temperature Sensor</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>0538009252</td>
<td>TSF Temperature Sensor</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
</tbody>
</table>
BODAS Display - Display DI4

The BODAS DI4 display series is a robust and high-resolution color display for use in mobile working machines. The display has a 7-inch screen (800 x 480 pixels) and enables direct connection to two video cameras, e.g. working space and rear view cameras. In addition to two CAN bus interfaces, the DI4 has various analog inputs and outputs, as well as an USB interface for fast data exchange. In conjunction with the integrated BODAS-service communication interface, the DI4 serves as a central access point to the CAN bus network of the machine and allows full diagnostic and flash updates for connected BODAS RC controllers.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToMobileElectronics

Features

- iMX6 Solo processor, 800 MHz
- 2 GB flash memory and 256 MB RAM
- Large number of integrated interfaces as well as inputs and outputs: 2× CAN 2.0B, 1× USB 2.0, 3× digital/ analog inputs, 2× digital outputs, 2× analog video inputs (PAL, NTSC)
- Integrated ambient light sensor
- Free programming as well as individual visualization and allocation of functions through CODESYS development environment
- Improved ease of use by ergonomic design
- Flexible application and integration options
- Diagnosis, parameterization and flashing of BODAS controllers without additional service tools
- Detailed information: RE95272

Technical Data

<table>
<thead>
<tr>
<th>BODAS DI4 Display</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage</td>
<td>12 V and 24 V</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>9..32 V</td>
</tr>
<tr>
<td>Power consumption</td>
<td>16 W</td>
</tr>
<tr>
<td>Interfaces</td>
<td></td>
</tr>
<tr>
<td>CAN 2.0 B</td>
<td>2</td>
</tr>
<tr>
<td>USB 2.0</td>
<td>via wiring harness</td>
</tr>
<tr>
<td>Ethernet 10/100 Mbit/s</td>
<td>Fitted (DI4-M-PRO model only)</td>
</tr>
<tr>
<td>Display</td>
<td>800 x 480 pixel, 256k resolution</td>
</tr>
<tr>
<td>Camera voltage supply</td>
<td>12 V max. 500 mA</td>
</tr>
<tr>
<td>Operating system</td>
<td>Linus + CodeSys RTS</td>
</tr>
<tr>
<td>Programming platform</td>
<td>CodeSys V3.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R917010017</td>
<td>CONNECTION PLUG  DI4-Main-CONNECTOR-S</td>
<td>1</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R917010009</td>
<td>DISPLAY DI4-M-PRO/10</td>
<td>1</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R917010008</td>
<td>DISPLAY DI4-M-STD/10</td>
<td>1</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
BODAS Display - Color Video Camera

The BODAS color video camera, in combination with the BODAS DI4 display, facilitates the display of images from the work area or rearward area of a machine. Thanks to the high-quality optics and the CMOS image sensors, the BODAS cameras supply a high-quality and distortion-free image, even in the event of direct sunlight, and can be rendered reflected if necessary.

Features

- Robust design for use in mobile equipment (IP69k)
- Flexible clamp for universal mounting
- Opening angle of 100° or 120°, horizontal
- High light sensitivity for use even at twilight
- Distortion-free picture display
- Integrated, self-activating heater
- Detailed information: RE95280

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToMobileElectronics

Technical Data

<table>
<thead>
<tr>
<th>CAM-PRO/10</th>
<th>1/4&quot; CMOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal format</td>
<td>NTSC</td>
</tr>
<tr>
<td>Image reproduction</td>
<td>525 lines, 60 images/sec</td>
</tr>
<tr>
<td>Illumination (min.)</td>
<td>0.5 Lux</td>
</tr>
<tr>
<td>Resolution</td>
<td>&gt; 300 lines</td>
</tr>
<tr>
<td>Lens</td>
<td>Standard optics w/ image correction</td>
</tr>
<tr>
<td>Horizontal opening angle</td>
<td>100°</td>
</tr>
<tr>
<td>Vertical opening angle</td>
<td>85°</td>
</tr>
<tr>
<td>Nominal voltage</td>
<td>12 V and 24 V</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>9...36 V</td>
</tr>
<tr>
<td>Power input</td>
<td></td>
</tr>
<tr>
<td>Heating off</td>
<td>Approx. 1 W</td>
</tr>
<tr>
<td>Heating on</td>
<td>Approx. 4 W</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>−40 °C...+85 °C</td>
</tr>
</tbody>
</table>

Part Number | Description           | Max. Quantity | Shipment (Business Days) |
-------------|-----------------------|---------------|--------------------------|
R902603837   | CAM-PRO/10 Camera     | 2             | 10 day(s)                |
R902603838   | CAM-XXX/10 Mating Cable | 2             | 10 day(s)                |
RA - Analog Amplifier

The analog amplifier activates up to two proportional solenoids. The specified control voltage is processed in the amplifier as an input command signal. The analog amplifier provides a regulated electric current as an output signal for actuation of proportional solenoids.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToMobileElectronics

Features

- The electronic analog amplifier operates up to two proportional solenoids and a switching function
- Optional interlock of actuation for proportional solenoids
- Supply voltage for external set point potentiometer
- Monitoring of set point potentiometer for cable breakage and short circuit
- Externally actuated switching output
- Error output
- Separately adjustable ramp times
- Overload protection, over-voltage protection, conditional short-circuit protection
- Separately adjustable Imin and Imax for every solenoid
- Externally adjustable PWM frequency
- Detailed information: RE95230

Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>RA2-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Voltage</td>
<td>12 and 24 V</td>
</tr>
<tr>
<td>Residual ripple (DIN 40839, Section 1)</td>
<td>max. ± 2 V X</td>
</tr>
<tr>
<td>Supply voltage, perm. range</td>
<td>10 ... 32 V</td>
</tr>
<tr>
<td>Current Consumption</td>
<td>mA</td>
</tr>
<tr>
<td>without load</td>
<td>150</td>
</tr>
<tr>
<td>with load, max.</td>
<td>A 6</td>
</tr>
<tr>
<td>Fuse</td>
<td>AT 7.5</td>
</tr>
<tr>
<td>external: for switching and proportional solenoid outputs and for electronics</td>
<td>X</td>
</tr>
<tr>
<td>Potentiometer Supply Voltage</td>
<td>0 V, 4.0 V</td>
</tr>
<tr>
<td>(for setpoint potentiometer 2 ... 5 kΩ)</td>
<td>7.2 V ... 8.4 V (depending on load)</td>
</tr>
<tr>
<td>Voltage Input (differential amplifier)</td>
<td>4.0 V 2</td>
</tr>
<tr>
<td>(Setpoint voltage)</td>
<td></td>
</tr>
<tr>
<td>Switch Input</td>
<td>&gt; 5.0 V</td>
</tr>
<tr>
<td>Proportional Solenoid Outputs (PWM)</td>
<td></td>
</tr>
<tr>
<td>Current range</td>
<td>0 ... 2.3 A 2</td>
</tr>
<tr>
<td>Pulse frequency</td>
<td>100, 200 or 350 Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R902603063</td>
<td>RA Amplifier 25 Pin Mating Connector</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R902091800</td>
<td>RA2-1/10 Dual Solenoid Amplifier</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
</tbody>
</table>
BODAS Connectors & Wire Kits

BODAS connector and wire kits are designed to help you quickly and easily realize prototypes with RC controllers. There are three types of kits available in the GoTo program - Connector, Wire, Contacts. The assembly tools needed for these kits are also available through the GoTo program.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToMobileElectronics

Features

- Connector kits, preassembled wire kits, and contact kits for RC (Series-30)
- Connector kits, preassembled wire kits, and contact kits for RC4-5
- Bosch assembly tools
- Detailed information: RA95475

BODAS Wire Kits

Series 30 controllers, except RC4-5

<table>
<thead>
<tr>
<th>Material No.</th>
<th>Designation</th>
<th>Description</th>
<th>Wire Gauge</th>
<th>Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R978730358</td>
<td>BWK1-18-2-10BK</td>
<td>Signal wire - use on PINS 101-196, 207-258</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>R978730359</td>
<td>BWK1-16-10-2BK</td>
<td>Ground wire - use on PIN 202</td>
<td>16</td>
<td>10</td>
</tr>
<tr>
<td>R978730360</td>
<td>BWK2-16-2-3RD</td>
<td>Power wire - use on PINS 201, 203-206</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>R978730656</td>
<td>BWK2-16-2-1BK</td>
<td>Ground wire - use on PIN 202</td>
<td>16</td>
<td>2</td>
</tr>
</tbody>
</table>

Series 30 controllers, RC4-5

<table>
<thead>
<tr>
<th>Material No.</th>
<th>Designation</th>
<th>Description</th>
<th>Wire Gauge</th>
<th>Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R978730362</td>
<td>BWK3-18-2-10BK</td>
<td>Signal wire - use on PINS 1-48</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>R978730363</td>
<td>BWK3-18-5-4BK</td>
<td>Signal wire - use on PINS 53-56</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>R978730364</td>
<td>BWK4-18-5-4BK2RD</td>
<td>Ground wire - use on PINS 51-52 Power wire - use on PINS 49-50</td>
<td>18</td>
<td>5</td>
</tr>
</tbody>
</table>

See RA 95475 for more details.
### BODAS Connectors

<table>
<thead>
<tr>
<th>Material No.</th>
<th>Designation</th>
<th>Description</th>
<th>Options</th>
<th>Controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>R978730365</td>
<td>BCK1-96-L</td>
<td>96 pin carrier, pin lock, pin cover</td>
<td>BCK1-96-CONTACTS</td>
<td>Series 30 (not 4-5)</td>
</tr>
<tr>
<td>R978730366</td>
<td>BCK1-58-R</td>
<td>58 pin carrier, pin locks, pin cover</td>
<td>BCK1-58-CONTACTS</td>
<td>Series 30 (not 4-5)</td>
</tr>
<tr>
<td>R978730367</td>
<td>BCK2-56-R</td>
<td>56 pin carrier, pin locks, pin cover, holding plate</td>
<td>BCK2-56-CONTACTS</td>
<td>Series 30 (4-5)</td>
</tr>
</tbody>
</table>

See RA 95475 for more details.

### BODAS Contact Kits

<table>
<thead>
<tr>
<th>Material No.</th>
<th>Description</th>
<th>Connector</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>R978057364</td>
<td>BCK1-58-CONTACTS</td>
<td>BCK1-58-R</td>
<td>58 un-crimped pins for Series 30 controller connector (except RC4-5)</td>
</tr>
<tr>
<td>R978057363</td>
<td>BCK1-96-CONTACTS</td>
<td>BCK1-96-L</td>
<td>96 un-crimped pins for Series 30 controller connector (except RC4-5)</td>
</tr>
<tr>
<td>R978057365</td>
<td>BCK2-56-CONTACTS</td>
<td>BCK2-56-R</td>
<td>56 un-crimped pins for RC4-5 Series 30 controller connector</td>
</tr>
</tbody>
</table>

See RA 95475 for more details.

### BODAS Connection Kit Tools

<table>
<thead>
<tr>
<th>Material No.</th>
<th>Designation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R913045756</td>
<td>Extract Tool, BCB 0.6</td>
<td>Extraction Tool (BCB 0.6 contact)</td>
</tr>
<tr>
<td>1928498218</td>
<td>Extract Tool, BDK 2.8</td>
<td>Bosch Extraction Tool (BDK 2.8 contacts)</td>
</tr>
<tr>
<td>1928498167</td>
<td>Extract Tool, Matrix 1.2</td>
<td>Bosch Extraction Tool (Matrix 1.2 contacts)</td>
</tr>
<tr>
<td>R913045760</td>
<td>Extract Tool, MQS</td>
<td>Extraction Tool (AMP MQS)</td>
</tr>
</tbody>
</table>

See RA 95475 for more details.

### Part Numbers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R978057364</td>
<td>BCK1-58-CONTACTS</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730366</td>
<td>BCK1-58-R</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978057363</td>
<td>BCK1-96-CONTACTS</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730365</td>
<td>BCK1-96-L</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978057365</td>
<td>BCK2-56-CONTACTS</td>
<td>4</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730367</td>
<td>BCK2-56-R</td>
<td>4</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730359</td>
<td>BWK1-16-10-2BK</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730358</td>
<td>BWK1-18-2-10BK</td>
<td>4</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730364</td>
<td>BWK1-18-2-10BK</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730656</td>
<td>BWK2-16-2-1BK</td>
<td>5</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730360</td>
<td>BWK2-16-2-3RD</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730362</td>
<td>BWK3-18-2-10BK</td>
<td>4</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978730363</td>
<td>BWK3-18-5-4BK</td>
<td>2</td>
<td>5 day(s)</td>
</tr>
<tr>
<td>R978060039</td>
<td>CONNECTING KIT</td>
<td>BCK3-94-R</td>
<td>2</td>
</tr>
</tbody>
</table>
Discontinued - BODAS Node Kits

BODAS Node Kits are designed to help you quickly and easily realize prototypes with Rexroth Controllers (Series-30). There are five types of node kits provided (CAN, Extension, Termination, Service), and also a DI3 (PWG/GND) node kit.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTomobileelectronics

Features

• CAN Node cable (un-terminated)
• CAN Node cable (S30, not RC4-5)
• CAN Node cable (S30, RC4-5)
• CAN Node cable (DI-3 display)
• CAN Extension cable (2, 5, 10ft.)
• CAN Termination Kit
• CAN to Bodas-service Cable
• DI3 Display power/ground Cables

### CAN-NODE Kit

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Length</th>
<th>Series</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodas Node CAN-0</td>
<td>Un-terminated</td>
<td>2 ft.</td>
<td></td>
<td>R978058208</td>
</tr>
<tr>
<td>Bodas Node CAN-1</td>
<td>Matrix 1.2</td>
<td>2 ft.</td>
<td>30 (not RC4-5)</td>
<td>R978058209</td>
</tr>
<tr>
<td>Bodas Node CAN-3</td>
<td>BCB 0.6</td>
<td>2 ft.</td>
<td>30 (RC4-5 only)</td>
<td>R978058210</td>
</tr>
<tr>
<td>Bodas Node CAN-5</td>
<td>DT04-3S</td>
<td>2 ft.</td>
<td>10, 11 (DI-3)</td>
<td>R978058211</td>
</tr>
</tbody>
</table>

### CAN-NODE Extension Kit

CAN-NODE Extension Kits come in four different lengths and can be used in conjunction with the CAN-NODE Kits to extend the length of the CAN cable.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Length</th>
<th>Series</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodas Node EXT2</td>
<td>3 Pin Deutsch</td>
<td>2 ft.</td>
<td>SAE J1939/11</td>
<td>R978058213</td>
</tr>
<tr>
<td>Bodas Node EXT5</td>
<td>3 Pin Deutsch</td>
<td>5 ft.</td>
<td>SAE J1939/11</td>
<td>R978058214</td>
</tr>
<tr>
<td>Bodas Node EXT10</td>
<td>3 Pin Deutsch</td>
<td>10 ft.</td>
<td>SAE J1939/11</td>
<td>R978058215</td>
</tr>
</tbody>
</table>

### CAN-NODE Termination Kit

CAN-NODE Termination Kits include several standard items used in terminating the CAN-bus, both male and female, as well as a splitter in order to accommodate the above Nodes.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Connector</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodas Node KIT</td>
<td>SAE J1939/11</td>
<td>Deutsch</td>
<td>R978058299</td>
</tr>
</tbody>
</table>
### CAN-Node Service Kit

The CAN-Node Service Kit includes the connector and wires needed to connect the CAN-bus with a CAN-USB adapter for use with the Bodos-service tool.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Connector</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodas Node SERVICE</td>
<td>SAE J1939/11</td>
<td>9 Pin-D to 3 Pin Deutsch</td>
<td>R978058300</td>
</tr>
</tbody>
</table>

### DI3 (PWR/GND) Node Kit

The DI3 (PWR/GND) Node Kit includes two additional wires needed to supply power and ground to the NODE_CAN-5 cable for the Rexroth DI-3 display.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Description</th>
<th>Connector</th>
<th>Material No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodas Node DI3-PWR-GND</td>
<td>Crimped Red/Blk Wires</td>
<td>Deutsch</td>
<td>R978058212</td>
</tr>
</tbody>
</table>
2TH6 - Single-axis hydraulic pilot controllers

Hydraulic pilot control units of the type 2TH6 operate on the basis of direct operated pressure reducing valves. Pressure in the relevant control port is proportional to the stroke of the control lever. This pressure control as a function of the control lever position and the characteristics of the control spring enables the proportional hydraulic control of directional valves and high response control valves for hydraulic pumps and motors.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotomacontrols

Features

• Precise and play-free control characteristics
• Low actuation force at the lever
• Rust-free plunger
• Stackable single axis controllers, up to 6 controllers in one assembly
• Lever operator available “L” spring center, “P” friction detent, or “M” 3-position detent available
• Standard die-cast aluminum base or cast iron base for marine or underground applications
• Detailed information: RE64552

Technical Data

<table>
<thead>
<tr>
<th>2TH6</th>
<th>Inlet pressure (max.)</th>
<th>bar (PSI)</th>
<th>50 (725)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control flow (max.)</td>
<td>l/min (GPM)</td>
<td>16 (4.2)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R907225176</td>
<td>1-2 TH6 L 06-10/M 05</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R908352025</td>
<td>1-2 TH6 L 97-10/M 05</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R907225383</td>
<td>1-2 TH6 M 06-10/M 05</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R907223668</td>
<td>1-2 TH6 P 06-10/M 05</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R908352027</td>
<td>1-2 TH6 P 97-10/M 05</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R908353005</td>
<td>1-2 TH6 T 97-10/M 05</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978728584</td>
<td>1-2TH6L06-1X/M05 SO418</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R907223719</td>
<td>2 TH6 L 06-10/M 05</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R907223721</td>
<td>2 TH6 M 06-10/M 05</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R907223723</td>
<td>2 TH6 P 06-10/M 05</td>
<td>3</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
2TH7 - Hydraulic pilot controller

Hydraulic pilot controller, 2 ported with foot pedal actuation. Accurate and smooth actuator control provides linear output for optimum machine control.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotomacontrols

Features

- Precise and play-free control characteristics
- Progressive, sensitive operation
- Detailed information: RE64558

Technical Data

<table>
<thead>
<tr>
<th>2TH7Q</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inlet pressure (max.)</td>
<td>bar (PSI)</td>
<td>50 (725)</td>
<td></td>
</tr>
<tr>
<td>Output signal pressure range</td>
<td>bar (PSI)</td>
<td>5.8 – 19 (84 – 276)</td>
<td></td>
</tr>
<tr>
<td>Control flow (max.)</td>
<td>l/min (GPM)</td>
<td>up to 20 (5.3)</td>
<td></td>
</tr>
<tr>
<td>Torque (max. permissible) at pedals</td>
<td>Nm (lb-ft)</td>
<td>20 (14.75)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>kg (lbs.)</td>
<td>6.2 (13.66)</td>
<td></td>
</tr>
</tbody>
</table>

Part Number | Description   | Max. Quantity | Shipment (Business Days) |
------------|---------------|---------------|--------------------------|
R907142321  | 2TH7Q06-1X/M05| 3             | 10 day(s)                |
Hydraulic 4 ported pilot controller with joystick actuation. Accurate and smooth actuator control provides linear output for optimum machine control. Robust ergonomic joystick handle featuring double and single contact thumb rocker switch and one single contact trigger rocker switch for control of electrical on/off auxiliary control devices.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotomacontrols

### Features
- Progressive, sensitive operation
- Low actuation forces
- Several ergonomic grips with various E contacts
- All connections point downwards
- Detailed information: RE64555

### Technical Data

<table>
<thead>
<tr>
<th>4TH6</th>
<th>Inlet pressure (max.)</th>
<th>bar (PSI)</th>
<th>up to 50 (725)</th>
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<td></td>
<td>Output signal pressure range</td>
<td>bar (PSI)</td>
<td>5.8 – 19 (84 – 276)</td>
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<td></td>
<td>Control flow (max.)</td>
<td>l/min (GPM)</td>
<td>up to 16 (4.2)</td>
</tr>
<tr>
<td></td>
<td>Torque (max. permissible) at lever</td>
<td>Nm (lb-ft)</td>
<td>10 (7.37) during operation</td>
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<td></td>
<td>Weight</td>
<td>kg (lbs.)</td>
<td>2.6 (5.7)</td>
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<th>Description</th>
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Relief Valves - Relief, direct acting poppet type

Flow is blocked from 1 to 2 until pressure increases to meet the selected valve setting, lifting the poppet from its seat and allowing relief flow through port 2 to tank. Pressure at port 2 is additive to the relief setting of the valve. The unique Bosch Rexroth Oil Control poppet design provides enhanced stability at all flows and pressures.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity:
- CA-08A-2N
- CA-10A-2N
- Detailed information: RE18318-04, RE18318-05

Relief, direct acting guided poppet type

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VSBN-08A</td>
<td>041149X56Z</td>
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<tr>
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<td>VSBN-10A</td>
<td>041155X85Z</td>
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<td>13 (50)</td>
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<td>RE18318-05</td>
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<table>
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<td>R901113610</td>
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<td>R901115702</td>
<td>041155038535000 VSBN-10A, 175-350 bar</td>
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Relief Valves - Relief, direct acting poppet type, differential area

Flow is blocked from 2 to 1 until pressure increases to meet the selected valve setting, lifting the poppet from its seat and allowing relief flow through port 1 to tank. Pressure at port 1 is additive to the relief setting of the valve. The unique Bosch Rexroth Oil Control poppet design provides enhanced stability at all flows and pressures.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity:
  - CA-08A-2N
  - CA-10A-2N
- Detailed information: RE18318-02, RE18318-03

<table>
<thead>
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<th>Relief, direct acting poppet type, differential area</th>
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<tr>
<td>VSDN-10A</td>
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<table>
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<td>041523038535000 VSDN-10A-35</td>
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</table>
Relief Valves - Relief, pilot operated spool type

Flow is blocked from 1 to 2 until pressure increases to meet the selected valve setting, lifting the conical, pilot-stage poppet from its seat. This action exhausts oil above the main-stage piston (spool type), allowing it to shift and provide relief flow through 2 to tank. Pressure at 2 is additive to the relief setting of the valve.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity:
- CA-10A-2N
- CA-16A-2N
- Detailed information: RE18318-08, RE18318-10

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<th>Part Number</th>
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Relief Valves - Relief, pilot operated spool type with external drain

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity:
  - CA-10A-3N
  - CA-12A-3C
- Detailed information: RE18318-12, RE18318-13

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<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure (bar)</th>
<th>Max. Flow (L/min)</th>
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<td>VSPY-10A</td>
<td>041305X85Z</td>
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<td>0.8-32 (3-120)</td>
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<td>RE18318-12</td>
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<tr>
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<td>041307X57Z</td>
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<td>1.3-53 (5-200)</td>
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<table>
<thead>
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Relief Valves - Relief, bi-directional direct acting poppet type, differential area

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Data Sheet: RE 18318-07

Relief, bi-directional direct acting poppet type, differential area

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
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Part Number | Description | Max. Quantity | Shipment (Business Days) |
-------------|-------------|---------------|--------------------------|
R901109726   | 041159038520000 VSNG-10A-20 | 10            | 10 day(s)                |
Relief Valves - Relief, pilot operated poppet type

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Data Sheet: RE 18318-11

Relief, pilot operated poppet type

<table>
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<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
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<tbody>
<tr>
<td>VSPC-10A</td>
<td>0412090385</td>
<td>5000 (350)</td>
<td>1-21 (3-80)</td>
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<td>RE 18318-11</td>
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<table>
<thead>
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<th>Description</th>
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<th>Shipment (Business Days)</th>
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</table>
Pressure Reducing and Relieving Valves - Pressure Reducing, pilot operated spool type

See Technical Data for more information.

Features

- Common cavity
- Size CA-10A-3N
- Size CA-12A-3N
- Detailed information: RE18318-50, RE18318-51

Pressure reducing, pilot operated spool type

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
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<th>Max. Pressure</th>
<th>Max. Flow</th>
<th>Cavity</th>
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<td>26 (100)</td>
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<td>R901109737</td>
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<td>R901109738</td>
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</table>
Pressure Reducing and Relieving Valves - Pressure Reducing and Relieving, direct acting spool type

See Technical Data for more information.

Features

- Common cavity
- Size CA-10A-3N
- Detailed information: RE18318-53

Pressure reducing and relieving, direct acting spool type

<table>
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<th>Symbol</th>
<th>Type</th>
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<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
</tr>
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<tbody>
<tr>
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For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

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Pressure Reducing and Relieving Valves - Pressure Reducing and Relieving, pilot operated spool type

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Common cavity
- Size CA-10A-3N
- Detailed information: RE18318-56

Pressure reducing and relieving, pilot operated spool type

<table>
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<tr>
<th>Symbol</th>
<th>Type</th>
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<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
</tr>
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<th>Shipment (Business Days)</th>
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<td>049307038510000 VRPX-10A-10</td>
<td>10</td>
<td>10 day(s)</td>
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</table>
Check Valves - Common Cavity - Check, poppet type

When pressure at 1 rises above the spring bias pressure, the poppet is lifted and flow allowed from 1 to 2. The valve is closed (checked) from 2 to 1. Precision machining and hardening processes allow virtually leak-free performance in the checked condition.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Common cavity
- Size CA-08A-2N
- Size CA-12A-2N
- Size CA-16A-2N
- Size CA-20A-2N
- Detailed information: RE18318-89, RE18318-90, RE18318-91, RE18318-92, RE18318-93

Check poppet type

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<tr>
<th>Symbol</th>
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<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
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<tr>
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Check poppet type with thermal relief

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<td>R930004414</td>
<td>0431250027A0000 VUCN-16A-A0</td>
<td>10</td>
<td>10 day(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R901106613</td>
<td>043128005700000 VUCN-12A-00</td>
<td>10</td>
<td>10 day(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R901106614</td>
<td>043128005705000 VUCN-12A-05</td>
<td>10</td>
<td>10 day(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R901109780</td>
<td>043132005800000 VUCN-20A-00</td>
<td>10</td>
<td>10 day(s)</td>
<td></td>
<td></td>
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<tr>
<td>R901109781</td>
<td>043132005803000 VUCN-20A-03</td>
<td>10</td>
<td>10 day(s)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Check Valves - Common Cavity - Reverse Check, poppet type

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Common cavity
- Size CA-08A-2N
- Size CA-10A-2N
- Detailed information: RE18318-96, RE18318-97

Check, poppet reverse type

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>VURN-08A</td>
<td>0431210056Z</td>
<td>6000 (420)</td>
<td>7 (25)</td>
<td>CA-08A-2N</td>
<td>RE18318-96</td>
<td></td>
</tr>
<tr>
<td>VURN-10A</td>
<td>0431270085Z</td>
<td>5000 (350)</td>
<td>16 (60)</td>
<td>CA-10A-2N</td>
<td>RE18318-97</td>
<td></td>
</tr>
<tr>
<td>VURN-12A</td>
<td>0431360057</td>
<td>5000 (350)</td>
<td>24 (90)</td>
<td>CA-12A-2N</td>
<td>RE18318-98</td>
<td></td>
</tr>
</tbody>
</table>

Part Number    Description       Max. Quantity | Shipment (Business Days)
R901106619    043121005602000 VURN-08A-02 10      10 day(s)
Check Valves - Common Cavity - Pilot-to-Open Check

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Common cavity
- Size CA-08A-3N
- Size CA-10A-3N
- Detailed information: RE18319-34, RE18319-35

Pilot operated check, pilot to open

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSOA-08A</td>
<td>043310X56Z</td>
<td>5000 (350)</td>
<td>8 (30)</td>
<td>CA-08A-3N</td>
<td>RE18319-34</td>
<td></td>
</tr>
<tr>
<td>VSOA-10A</td>
<td>043310X85Z</td>
<td>5000 (350)</td>
<td>11 (40)</td>
<td>CA-10A-3N</td>
<td>RE18319-35</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R930000836</td>
<td>043310005600000 VSOA-08A-00</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R90117416</td>
<td>043310008500000 VSOA-10A-00</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R90117420</td>
<td>043310008503000 VSOA-10A-03</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930000847</td>
<td>043310105605000 VSOA-08A-05-OR</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R90117418</td>
<td>043310108500000 VSOA-10A-00-OR</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Check Valves - Common Cavity - Dual Pilot-to-Open Check

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Common cavity
- Size CA-10A-4N
- Detailed information: RE18319-38

Dual pilot operated check, pilot to open

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VSOD-10A</td>
<td>043603X85Z</td>
<td>5000 (350)</td>
<td>8 (30)</td>
<td>CA-10A-4N</td>
<td>RE18319-38</td>
</tr>
</tbody>
</table>

continued on next page

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R930000016</td>
<td>043603008503000 VSOD-10A-03</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Check Valves - Common Cavity - Shuttle, direct acting poppet type

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Common cavity
- Size CA-08A-3N
- Detailed information: RE18319-80

Directional poppet type, shuttle

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SELB-08A</td>
<td>494050056000</td>
<td>5000 (350)</td>
<td>up to 3 (10)</td>
<td>CA-08A-3N</td>
<td>RE18319-80</td>
</tr>
<tr>
<td></td>
<td>SELC-04A</td>
<td>0494070054</td>
<td>5000 (350)</td>
<td>1 (4)</td>
<td>Special CA-04A-3Y</td>
<td>RE18319-82</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R901161981</td>
<td>0494050056000000 SELB-08A</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930005663</td>
<td>0494070054000000 SELC-04A</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Check Valves - Sun Cavity - Pilot-to-Open Check

When pressure at 2 rises above the spring bias pressure, the poppet is pushed from its seat and flow is allowed from 2 to 1. The valve is normally closed (checked) from 1 to 2. When sufficient pilot pressure is present at port 3, the pilot piston acts to push the poppet from its seat and flow is allowed from 1 to 2. Precision machining and hardening processes allow virtually leak-free performance in the checked condition. Available with “manual override” option.

Features

- Cavity: T-11A, T-2A, T-17A
- Detailed information: RE18319-39, RE18319-40, RE18319-41

Pilot operated, pilot-to-open check

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSON-08U</td>
<td>043306X20Z</td>
<td>5000 (350)</td>
<td>16 (60)</td>
<td>T-11A</td>
<td>RE 18319-39</td>
<td></td>
</tr>
<tr>
<td>VSON-12U</td>
<td>043307X86Z</td>
<td>5000 (350)</td>
<td>32 (120)</td>
<td>T-2A</td>
<td>RE 18319-40</td>
<td></td>
</tr>
<tr>
<td>VSON-16U</td>
<td>043309X47Z</td>
<td>5000 (350)</td>
<td>63 (240)</td>
<td>T-17A</td>
<td>RE 18319-41</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R901106637</td>
<td>043306002000000A VSON-08U-00-A</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901104068</td>
<td>0433061020000000 VSON-08U-G-00</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901099896</td>
<td>043306105600000A VSON-08A-G-00-A</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901106638</td>
<td>043307008600000A VSON-12U-00-A</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R901106639</td>
<td>043307108600000A VSON-12U-G-00-A</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Logic Element Valves - Pressure compensator with load sense

Type:
VRLA-10A-D
VRLA-10A-S
VRLA-12A-D
VRLA-12A-S
VRLA-16A-D
VRLA-16A-S
VRLA-20A-D
VRLA-20A-S

Features

- Data Sheet:
  - RE 18321-90
  - RE 18321-86
  - RE 18321-83
  - RE 18321-87
  - RE 18321-84
  - RE 18321-88
  - RE 18321-85
  - RE 18321-89

Pressure compensator with load sense

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRLA-...-D</td>
<td>VRLA-10A-D</td>
<td>048410X85Z</td>
<td>5000 (350)</td>
<td>12 (45)</td>
<td>CA-10A-2N</td>
<td>RE 18321-90</td>
</tr>
<tr>
<td>VRLA-...-S</td>
<td>VRLA-10A-S</td>
<td>0484090085Z</td>
<td>5000 (350)</td>
<td>12 (45)</td>
<td>CA-10A-2N</td>
<td>RE 18321-86</td>
</tr>
<tr>
<td>VRLA-...-D</td>
<td>VRLA-12A-D</td>
<td>048410X57Z</td>
<td>5000 (350)</td>
<td>26 (100)</td>
<td>CA-12A-2N</td>
<td>RE 18321-83</td>
</tr>
<tr>
<td>VRLA-...-S</td>
<td>VRLA-12A-S</td>
<td>0484090027Z</td>
<td>5000 (350)</td>
<td>42 (160)</td>
<td>CA-12A-2N</td>
<td>RE 18321-83</td>
</tr>
<tr>
<td>VRLA-...-D</td>
<td>VRLA-16A-D</td>
<td>048410X58Z</td>
<td>5000 (350)</td>
<td>60 (230)</td>
<td>CA-20A-2N</td>
<td>RE 18321-85</td>
</tr>
<tr>
<td>VRLA-...-S</td>
<td>VRLA-20A-D</td>
<td>048410X58Z</td>
<td>5000 (350)</td>
<td>60 (230)</td>
<td>CA-20A-2N</td>
<td>RE 18321-85</td>
</tr>
</tbody>
</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
-------------|-------------|---------------|--------------------------|
R930001079   | 048409002711000 VRLA-16A-11-S | 10            | 10 day(s)                |
R930001082   | 048409005812000 VRLA-20A-12-S | 10            | 10 day(s)                |
R930001191   | 048409008505000 VRLA-10A-05-S | 10            | 10 day(s)                |
R930001089   | 048410075710000 VRLA-12A-10-D-07 | 10            | 10 day(s)                |
R930001093   | 048410085812000 VRLA-20A-12-D-08 | 10            | 10 day(s)                |
R930001196   | 048410088510000 VRLA-10A-10-D-08 | 10            | 10 day(s)                |
Stacking Modules (EDCM/EDCMF-VM) - Anti-Cav Relief Module for EDC, B-side only

These modular secondary elements can be flange mounted on top of the EDC elements machined with the interfacing surface. They let through free flow to the A (or B) port until pressure increases and reaches the selected pressure setting; then they release flow into the tank channels.

Features

• Body made from yellow zinc-plated cast iron
• Designed for quick response and stable pressure control
• Incorporate a reverse flow check for anti-cavitation
• Detailed Information: RA18301-45

Technical Data

<table>
<thead>
<tr>
<th>General</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
<td>kg (lbs)</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>°C (°F)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum flow</td>
<td>l/min (GPM)</td>
</tr>
<tr>
<td>Hydraulic fluid General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td></td>
</tr>
<tr>
<td>Mining oil based hydraulic fluids HL (DIN 51524 part 1).</td>
<td></td>
</tr>
<tr>
<td>Mining oil based hydraulic fluids HLP (DIN 51524 part 2).</td>
<td></td>
</tr>
<tr>
<td>For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
<td></td>
</tr>
<tr>
<td>Fluid Temperature</td>
<td>°C (°F)</td>
</tr>
<tr>
<td>Permissible degree of fluid contamination</td>
<td></td>
</tr>
<tr>
<td>ISO 4572: β≥75 X=12...15</td>
<td></td>
</tr>
<tr>
<td>ISO 4406: classe 20/18/15</td>
<td></td>
</tr>
<tr>
<td>NAS 1638: classe 9</td>
<td></td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm²/s</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R930055672</td>
<td>L8565010A900030-EV.EDCMF-VAE8-VUM/A-0.5</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R933009078</td>
<td>L856501ABMM0030-EV.EDCMF-VAE8-VMA/AB-14</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930055668</td>
<td>L856501ABMM0000-EV.EDCMF-VAE8-VMA/AB-140B</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R933009079</td>
<td>L856501ABTT0030-EV.EDCMF-VAE8-VMA/AB-21</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930055667</td>
<td>L856501ABTT000M-EV.EDCMF-VAE8-VMA/AB-MOD-210B</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R933009080</td>
<td>L856501ABXX00030-EV.EDCMF-VAE8-VMA/AB-25</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R9330055666</td>
<td>L856501ABXX0000-M-EV.EDCMF-VAE8-VMA/AB-MOD-250B</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Stacking Modules (EDCM/EDCMF-VR) - PO Check Module for EDC, A-side only

These secondary flangeable elements can be interfaced and bolted on top of the A and B ports of the ED elements of the directional valve assembly. They incorporate two cross piloted check valves which allow free flow toward the A and B outlet ports, and lock in a leak-free mode the flow returning from the actuator, until sufficient pilot pressure is built up in the opposite line and the check valve in opened.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Body made from yellow zinc-plated cast iron
- Hydraulic Ports A2 and B2 are size G3/8 or G1/2 or 3/4-16 UNF 2-B (SAE8)
- Detailed Information: RA18301-46

Technical Data

<table>
<thead>
<tr>
<th>General</th>
<th>kg (lbs)</th>
<th>°C (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>2.0 (4.4)</td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-20...+50 (-4...+120) [NBR seals]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic</th>
<th>bar (PSI)</th>
<th>l/min (GPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure</td>
<td>310 (4500)</td>
<td>70 (18.5)</td>
</tr>
<tr>
<td>Hydraulic fluid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
<td></td>
</tr>
<tr>
<td>Fluid Temperature</td>
<td>°C (°F)</td>
<td>-20...+80 (-4...+176) [NBR seals]</td>
</tr>
<tr>
<td>Permissible degree of fluid contamination</td>
<td>ISO 4572: β≥75 X=12...15 ISO 4406: classe 20/18/15 NAS 1638: classe 9</td>
<td></td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm²/s</td>
<td>5...420</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R930055656</td>
<td>L854100AB010030-EV.EDCMF-VR/AB-0.5BAR-S</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Stacking Modules (EDM-PO) - Stacking Modules

The secondary flangeable elements EDM-PO- can be interfaced and bolted on top of the A and B ports of the ED elements of the Directional Valve Assembly. They incorporate two Cross Piloted Check Valves which allow free flow toward the A and B outlet ports, and lock in a leak free mode the flow returning from the actuator, until sufficient pilot pressure is built up in the opposite line and the check valve is opened.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Hydraulic port sizes: A and B - SAE 8.
- Special coating and plating available, C.F.

Technical Data

<table>
<thead>
<tr>
<th>General</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient Temperature °C (°F)</td>
<td>-20...+50 (-4...+120)</td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Aluminum</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure</td>
<td>bar (PSI)</td>
<td>210 (3000)</td>
</tr>
<tr>
<td>Maximum flow</td>
<td>l/min (GPM)</td>
<td>60 (15)</td>
</tr>
<tr>
<td>Hydraulic fluid</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1), Mineral oil based hydraulic fluids HLP (DIN 51524 part 2), For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
<td></td>
</tr>
<tr>
<td>Fluid Temperature °C (°F)</td>
<td>-20...+80 (-4...+176) [NBR]</td>
<td></td>
</tr>
<tr>
<td>Permissible degree of fluid contamination</td>
<td>ISO 4572; b ≥ 75 X=12...15, ISO 4406: classe 20/18/15, NAS 1638: classe 9</td>
<td></td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm²/s</td>
<td>5...420</td>
</tr>
</tbody>
</table>

*310 bar (4500 PSI) available. Consult factory.

<table>
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Stacking Modules (EDM-CR) - Stacking Modules

The secondary flangeable elements EDM-CR can be interfaced and bolted on top of the A and B ports of the ED elements of the Directional Valve Assembly. The body consists of one direct acting pressure relief valve. The relief valve for line A releases the oil into line B and vice versa.

For complete engineering and design information: GoTo GoTo www.boschrexroth-us.com/GoTocompact

Features

- Port sizes: A and B - SAE 8
- Special coating and plating available, C.F.

Technical Data

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<td>Maximum flow l/min (GPM)</td>
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*310 bar (4500 PSI) available. Consult factory.

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Stacking Modules (EDM-FC) - Stacking modules

The secondary flangeable elements EDM-FC- can be interfaced and bolted on top of the A and B ports of the ED elements of the Directional Valve Assembly. They incorporate two unidirectional flow restrictors, and depending on the version selected, allow free flow A1>A2 and B1>B2, with controlled/restricted flow in the reverse directions A2>A1 and B2>B1, or vice-versa.

Features

- Hydraulic port sizes: A and B - SAE B
- Special coating and plating available, C.F.
- Detailed information: RA18301-42

Technical Data

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<td>Maximum</td>
<td>l/min (GPM)</td>
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<td>Flow</td>
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<tr>
<td>Degree of</td>
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<td>Fluid</td>
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<td>Contamination</td>
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<td>Viscosity</td>
<td>mm²/s</td>
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<td>Range</td>
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*310 bar (4500 PSI) available. Consult factory.

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Stacking Modules (EDM-CB) - Stacking modules

The secondary flangeable elements EDM-CB- can be interfaced and bolted on top of the A and B ports of the ED elements of the Directional Valve Assembly. They incorporate one or two cross piloted counterbalance valves which allow free flow toward the A and B outlet ports, and lock in a leak free mode the flow returning from the actuator. Pilot pressure in the opposite line reduces the pressure setting of the counterbalance valve in proportion to the pilot ratio until opening and allowing the flow return from the actuator.

For complete engineering and design information: GoToGoTo www.boschrexroth-us.com/GoTocompact

**Features**

- Hydraulic port sizes: A and B - SAE B
- Special coating and plating available, C.F.
- Detailed information: RA18301-43

**Technical Data**

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<td>bar (PSI)</td>
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<tr>
<td>Maximum flow</td>
<td>l/min (GPM)</td>
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**Hydraulic fluid**

General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:

- Mineral oil based hydraulic fluids HL (DIN 51524 part 1).
- Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).
- For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.

| Fluid Temperature | °C (°F) | -20...+80 (-4...+176) [NBR] |
| Permissible degree of fluid contamination |            |
| ISO 4572: $\beta_2$$\leq75$ X=12...15 |
| ISO 4406: classe 20/18/15 |
| NAS 1638: classe 9 |
| Viscosity range  | mm²/s | 5...420 |

*310 bar (4500 PSI) available. Consult factory.

<table>
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Stacking Modules (EDCM-VM5) - Secondary Pressure Relief for EDC, A & B-sides

These modular secondary elements can be flange mounted on top of the EDC elements machined with the interfacing surface. They let through free flow to the A (or B) port until pressure increases and reaches the pressure setting; then they release flow into the Tank channels (T). The maximum secondary pressure in line A, or B, can be adjusted through the adjuster screw.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Body is made of Yellow Zinc Plated (Cr+3) Cast Iron (CI)
- Hydraulic Ports A2 and B2 are size G3/8 and G1/2
- The modular version (M) enables flanging with other types of EDCM-modular-elements
- Detailed information: RA18301-47

Technical Data

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<tr>
<td>Maximum flow at P1</td>
<td>l/min (GPM)</td>
<td>50 (13.2)</td>
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| Hydraulic fluid General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example: | Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us. |
| Fluid Temperature | °C (°F) | -20...+80 (-4...+176) [NBR seals] |
| Permissible degree of fluid contamination | ISO 4572; β≥75 X=12...15 ISO 4406: classe 20/18/15 NAS 1638: classe 9 |
| Viscosity range   | mm²/s | 5...420 |

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Stacking Modules (EDCMF-...) - Flangeable elements with different ports for EDC

These modular secondary elements EDCMF_... can be flange mounted on top of the EDC elements machined with the interfacing surface.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Body is made of Yellow Zinc Plated (Cr+3) Cast Iron (CI)
- They let through free flow to the A (or B) port
- Detailed information: RA18301-48

Technical Data

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<td>Maximum flow</td>
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<td>Hydraulic fluid</td>
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<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
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Counterbalance Valves - Common Cavity

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: CA-20A-3C
- Detailed information: RE18320-05

Standard poppet type, differential area

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<th>Symbol</th>
<th>Type</th>
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Counterbalance Valves - Sun Cavity - Standard Poppet Type, differential area, counterclockwise adj.

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToCompact

Features

- Cavity: T-11A, T-2A, T-17A, T-19A
- Detailed information: RE18320-17, RE18320-18, RE18320-19, RE18320-29

Standard poppet type, differential area, counterclockwise adjustment

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<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
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Part Number | Description | Max. Quantity | Shipment (Business Days) |
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Counterbalance Valves - Sun Cavity - Standard Guided Poppet Type, differential area, counterclockwise adj.

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: T-11A
- Detailed information: RE18320-16

Standard guided poppet type, differential area, counterclockwise adjustment

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<th>Max. Flow GPM (L/min)</th>
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Counterbalance Valves - Sun Cavity - Relief Compensated Poppet Type, differential area, counterclockwise adj.

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: T-11A, T-2A, T-17A
- Detailed information: RE18320-20, RE18320-21, RE18320-22

Relief compensated poppet type, differential area, counterclockwise adjustment

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<tr>
<th>Symbol</th>
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<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
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<th>Data Sheet</th>
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<tbody>
<tr>
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<td>VBSP-12U</td>
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<td>32 (120)</td>
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Counterclosebalance Valves - Sun Cavity - Vented Guided Poppet Type, counterclockwise adj.

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: T-11A, T-2A, T-17A
- Detailed information: RE18320-23, RE18320-24, RE18320-25

Vented guided poppet type, counterclockwise adjustment

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<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
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<td>VBST-16U</td>
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Counterbalance Valves - Sun Cavity - 4-Port Vented Poppet Type, external drain, counterclockwise adj.

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: T-21A, T-22A, T-23A
- Detailed information: RE18320-26, RE18320-27, RE18320-28

4-port vented poppet type, with external drain, counterclockwise adjustment

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<th>Symbol</th>
<th>Type</th>
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<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
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<tr>
<td>VBSY-16U</td>
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Part Number | Description | Max. Quantity | Shipment (Business Days) |
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R930006134   | 04593203202000 VBSY-08U-RS:3:1:20 | 10            | 10 day(s)                |
Counterbalance Valves - Integrated Cavity

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: A6610, A12336
- Detailed formation: RE330-34, RE330-35

Vented Guided Poppet Type, counterclockwise adj.

<table>
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<tr>
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<td>RA 00162-03</td>
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Part Number | Description | Max. Quantity | Shipment (Business Days) |
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R901113658   | 045913031540000 VBST-12HH-4:1-40 | 10            | 10 day(s)               |
Flow Control Valves - 3-Way Pressure Compensated, fully adjustable

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: CA-12A-3N
- Detailed information: RE18321-21

3-way pressure compensated, fully adjustable

<table>
<thead>
<tr>
<th>Symbol</th>
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<th>Max. Flow (GPM (L/min))</th>
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<tr>
<td>VRFD-12A</td>
<td>040404X57Z</td>
<td>up to 5000 (350)</td>
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<td>040404045750000 VRFD-12A-V-50</td>
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Flow Control Valves - Cartridge Restrictors

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: CA-08A-2N, CA-10A-2N, CA-12A-2N, CA-16A-2N
- Detailed information: RE18321-26, RE18321-27, RE18321-28, RE18321-29

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<tr>
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<td>ST-C-10</td>
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<td>ST-C-12</td>
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Flow Control Valves - Needle Restrictors, free reverse flow

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: CA-08A-2N, CA-10A-2N
- Detailed information: RE18321-10, RE18321-11

Needle restrictors

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<tr>
<th>Symbol</th>
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</table>
Flow Control Valves - NeedleRestrictors, fine adjustment

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: CA-08A-2N
- Detailed information: RE18321-09

Needle restrictors

<table>
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<tr>
<th>Symbol</th>
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Flow Control Valves - 2-Way Pressure Compensated, fixed setting

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: CA-08A-2N, CA-10A-2N
- Detailed information: RE18321-12, RE18321-13

2-way pressure compensated, fixed setting

<table>
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<tr>
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*continued on next page*
Flow Control Valves - Flow dividers and combiners

Type: DRFN-10A, DRFN-16A

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Data Sheet: RE 18321-24, RE 18321-25

Flow dividers and combiners

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
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</table>
Flow Control Valves - 3-Way Pressure Compensated, fixed setting

Type:
VRFC-10A-TF
VRFC-12A-TF

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Data Sheet: 18321-18, 18321-19

3-way pressure compensated, fixed setting

<table>
<thead>
<tr>
<th>Symbol</th>
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<td>RE 18321-19</td>
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continued on next page

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Solenoid On/Off Cartridges - 2-Way, pilot operated poppet type, normally closed

See Technical Data for more information.

Features

- Cavity: CA-08A-2N, CA-10A-2N, CA-16A-2N
- Detailed information: RE18323-02, RE18323-11, RE18323-17

2-way pilot operated poppet type, normally closed

<table>
<thead>
<tr>
<th>Symbol</th>
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<th>Max. Pressure PSI (bar)</th>
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<td>Version 05</td>
<td>VEI-8A-12-NC</td>
<td>OD15X75YS0</td>
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<td>VEI-7A-16-NC</td>
<td>OD150375Y00</td>
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<td>up to 53 (200)</td>
<td>CA-16A-2N</td>
<td>RA00162-03</td>
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<td>R901094748</td>
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<td>R901109986</td>
<td>OD153175750000 VEI7A2T14.75K31.75NCL630</td>
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Solenoid On/Off Cartridges - 2-Way, pilot operated poppet type, normally open

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Cavity: CA-08A-2N, CA-10A-2N, CA-16A-2N
- Detailed information: RE18323-06, RE18323-12, RE18323-18

2-way pilot operated poppet type, normally open

<table>
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<th>Max. Pressure PSI (bar)</th>
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<td>Version 06</td>
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<td>VEI-8A-16-NA</td>
<td>OD15X75YS0</td>
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<td>up to 40 (150)</td>
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<tr>
<td>Version 32</td>
<td>VEI-7A-16-NA</td>
<td>OD15XY7554</td>
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<td>up to 53 (200)</td>
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<td>R901094731</td>
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<td>R901095955</td>
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</table>
Solenoid Directional Cartridges - 3/2 Solenoid Operated Valves, spool type

See Technical Data for more information.

Features

• Cavity: CA-08A-3N, CA-10A-3N
• Detailed information: RE00162-02

3-way, 2-position spool type, normally closed

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
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<th>Data Sheet</th>
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<tr>
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<td>VED-7I-32-09</td>
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<td>6 (20)</td>
<td>CA-10A-3N</td>
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<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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Solenoid Directional Cartridges - 4/3 Solenoid Operated Valves, spool type

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

**Features**

- Cavity: CA-10A-4N
- Detailed information: RE00162-02

**4-way, 3-position spool type, normally closed**

<table>
<thead>
<tr>
<th>Symbol</th>
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<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
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</thead>
<tbody>
<tr>
<td>VED-7I-43-09</td>
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<td>RE00162-02</td>
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<td>R901113706</td>
<td>OD143278800000 (Alt code OD1420782A0000)</td>
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</table>
Solenoid Directional Cartridges - 4/2 Solenoid Operated Valves, spool type

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Data Sheet: RE 00162-02 (1.31.070.U), RE 00162-02 (1.31.050.U), RE18324-59

4-way, 2-position spool type, normally closed

<table>
<thead>
<tr>
<th>Symbol</th>
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<th>Max. Pressure PSI (bar)</th>
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<td>CA-10A-4N</td>
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<table>
<thead>
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<td>OD144178700000 VED7I4209.78K41.70NCL625</td>
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<td>10 day(s)</td>
</tr>
</tbody>
</table>
Solenoid Directional Cartridges - Proportional pressure relief, pilot operated

Valves of type KBVS are pilot-operated proportional pressure relief valves in spool design and are used to limit the pressure in hydraulic systems. They mainly consist of the screwed in proportional pilot control valve and the main valve. Dependent on the electric command value, these valves can be used to steplessly set the system pressure to be limited. At command value 0 or in the event of a power failure, the maximum pressure is set (fail-safe behavior).

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Mounting cavity R/UNF10-01-0-06
- Pilot-operated proportional valve for system pressure limitation
- Suitable for mobile and industrial applications
- Actuation by proportional solenoid with central thread and detachable coil
- Solenoid coil can be rotated via an adjustment screw, the valve is set to maximum pressure
- Data Sheet: RE18160

High-pressure relief, pilot operated

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure (PSI/bar)</th>
<th>Max. Flow (GPM)</th>
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<th>Data Sheet</th>
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<tbody>
<tr>
<td>R901325105</td>
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<tr>
<td>R901325111</td>
<td>KBVSR1BA/FV</td>
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<td>10 day(s)</td>
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</table>
Solenoid Directional Cartridges - Proportional non-compensated flow regulator

Type:
- VEP-5A-2Q-09
- VEP-5A-2Q-09-NA
- VEP-5A-2Q-14

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Data Sheet: RE 18323-63, RE 18323-64, RE 18323-62

Non-compensated flow regulator

<table>
<thead>
<tr>
<th>Symbol</th>
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<th>Max. Pressure (bar)</th>
<th>Max. Flow (L/min)</th>
<th>Cavity</th>
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<td>Version 05</td>
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<td>VEP-5A-2Q-14</td>
<td>OD92X12Y00</td>
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<td>16 (60)</td>
<td>CA-12A-3N RE 18323-62</td>
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</table>
Solenoid Directional Cartridges - Proportional non-compensated flow regulator, poppet type

Type:
VEPN-12A-16

Features

- Data Sheet: RE 18323-69

<table>
<thead>
<tr>
<th>Symbol</th>
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</table>
Solenoid Directional Cartridges - Proportional pressure reducing, pilot operated

Type: VEP-5A-2R-10

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Data Sheet: RE 18323-61

Pressure reducing, pilot operated

<table>
<thead>
<tr>
<th>Symbol</th>
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<th>Max. Flow GPM (L/min)</th>
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<tbody>
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Part Number | Description | Max. Quantity | Shipment (Business Days) |
------------|-------------|---------------|--------------------------|
R901126868  | OD910677040000 VEP5A2R10.77K06.04NAP925 | 10            | 10 day(s)                |
Solenoid Directional Cartridges - Proportional pressure reducing, direct acting

Type: VEP-5A-3R

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Data Sheet: RE 18323-60

Pressure reducing, direct acting

<table>
<thead>
<tr>
<th>Symbol</th>
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<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
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<tbody>
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<td>VEP-5A-3R</td>
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<th>Description</th>
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Solenoid Directional Cartridges - Proportional relief, direct acting

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
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<td>CA-08A-2N</td>
<td>RE 18323-65</td>
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</table>

Part Number | Description | Max. Quantity | Shipment (Business Days) |
-------------|-------------|---------------|--------------------------|
R934001531   | OD940118032000 VEP5B2S20.18K01.03NAP925 | 10           | 10 day(s)                |
R934001532   | OD940118033500 VEP5B1S35.18K01.03NAP925 | 10           | 10 day(s)                |
R934001533   | OD940118041000 VEP5B2S10.18K01.04NAP925 | 10           | 10 day(s)                |
R934001535   | OD940118043500 VEP5B1S35.18K01.04NAP925 | 10           | 10 day(s)                |
**Solenoid Directional Cartridges - Proportional relief, pilot operated**

**Type:**
VEP-5B-2S-P

---

For complete engineering and design information: [GoTo www.boschrexroth-us.com/GoTocompact](http://www.boschrexroth-us.com/GoTocompact)

### Features

- Data Sheet: RE 18323-67

### Relief, pilot operated

<table>
<thead>
<tr>
<th>Symbol</th>
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<th>Max. Pressure (PSI)</th>
<th>Max. Flow (GPM)</th>
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<td>40 (150)</td>
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<table>
<thead>
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<td>R934001537</td>
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Solenoid Directional Cartridges - Proportional flow control, with integrated pressure compensator

Type: KUDSR

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Data Sheet: RE 18702

Flow control with integrated pressure compensator

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
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<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Cavity</th>
<th>Data Sheet</th>
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<tr>
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<td>KUDSR</td>
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Line Bodies - Common Cavity

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Detailed information: RE18325-86

Common Cavity

<table>
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<tr>
<th>Material</th>
<th>Ports (SAE)</th>
<th>Cavity</th>
<th>Max. Pressure PSI (bar)</th>
<th>Part Number</th>
<th>Description</th>
<th>Data Sheet</th>
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<td>10 day(s)</td>
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<td>10 day(s)</td>
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GoTo Focused Delivery Program: Compact Hydraulics

Line Bodies - Sun Cavity

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Detailed information: RE18325-86

Sun Cavity

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<tr>
<th>Material</th>
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<th>Cavity</th>
<th>Max. Pressure PSI (bar)</th>
<th>Part Number</th>
<th>Description</th>
<th>Data Sheet</th>
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</thead>
<tbody>
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<td>CBT-2A-A/S10</td>
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<tr>
<td>Aluminum</td>
<td>8</td>
<td>T-11A</td>
<td>3000 (210)</td>
<td>R978012829</td>
<td>CBT-11A-A/S08</td>
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<td>T-11A</td>
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<td>T-2A</td>
<td>5000 (350)</td>
<td>R978041745</td>
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<td>T-11A</td>
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Note: Ductile iron bodies include RoHS compliant yellow zinc plating.

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<th>Shipment (Business Days)</th>
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<td>10 day(s)</td>
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<td>R978012838</td>
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<td>10</td>
<td>10 day(s)</td>
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Cartridge Accessories

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- See Technical Data for more information.

<table>
<thead>
<tr>
<th>Applicable Valves</th>
<th>Voltage (V)</th>
<th>Connector Type</th>
<th>Material Description</th>
<th>Material No.</th>
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<td>12 VDC</td>
<td>DEUTSCH DT04-2P-V</td>
<td>OD0212103POB00 R7-DTV-12VDC-18W-CL.H</td>
<td>R934003919</td>
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<tr>
<td>S5, On/Off Coil</td>
<td>12 VDC</td>
<td>DIN plug</td>
<td>OD02090130OB01 S5L35HRL-12VDC-23W-CL.H</td>
<td>R901090827</td>
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<tr>
<td>S5, On/Off Coil</td>
<td>24 VDC</td>
<td>DIN plug</td>
<td>OD02090130OC01 S5L45HRL-24VDC-23W-CL.H</td>
<td>R901090828</td>
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<td>S5, On/Off Coil</td>
<td>12 VDC</td>
<td>DEUTSCH DT04-2P-V</td>
<td>OD0209203POB01 S5L45DTV-12VDC-23W-CL.H</td>
<td>R901110011</td>
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<tr>
<td>S5, On/Off Coil</td>
<td>12 VDC</td>
<td>DEUTSCH DT04-2P-V</td>
<td>OD0209233POB01 S5L45DTV-12VDC-23W-DIODE</td>
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<tr>
<td>All sizes of poppet cartridges &amp; S8 spool cartridges</td>
<td>14 VDC</td>
<td>DIN plug</td>
<td>OD02170130OG00 S8.356HRL-14DC-20W-CL.H</td>
<td>R901144215</td>
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<tr>
<td>All sizes of poppet cartridges &amp; S8 spool cartridges</td>
<td>12 VDC</td>
<td>SINGLE LEAD</td>
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Note: Connector for 110VAC coils is available separately, material no. R934004352

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<td>10 day(s)</td>
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<td>R901090828</td>
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<td>10</td>
<td>10 day(s)</td>
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<td>R901110011</td>
<td>OD0209233POB01 S5L45DTV-12VDC-23W-DIODE</td>
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<td>R901090829</td>
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<td>R901144215</td>
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<td>10 day(s)</td>
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<td>R934003919</td>
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<td>10</td>
<td>10 day(s)</td>
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</table>
Flow Diverters - 3-Way, 2-Position, direct acting

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Ports:
  • 1 1/16" - 12 UN-2B (SEA12)
  • Detailed information: RE18302-03

3-way, 2-position directional spool valve, direct acting

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
<th>Ports</th>
<th>Data Sheet</th>
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<tbody>
<tr>
<td>L706...</td>
<td>VS95</td>
<td>3625 (250)</td>
<td>37 (140)</td>
<td>1 1/16&quot;-12 UN-2B (SAE12)</td>
<td>RE18302-03</td>
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Part Number Description Max. Quantity Shipment (Business Days)

| R933001723 L706E143NIOB070-SE.VS95-SAE12-DZ-AN-DI- | 10 | 10 day(s) |
Flow Diverters - 6-Way, 2-Postion, direct acting

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Ports:
  - 3/4" - 16 UNF (SAE8)
  - 7/8" - 14 UNF (SAE10)
- Detailed Information: RE18302-09, RE18302-10

6-way, 2-position directional spool valve, direct acting

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Type</th>
<th>Code</th>
<th>Max. Pressure PSI (bar)</th>
<th>Max. Flow GPM (L/min)</th>
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<tr>
<td></td>
<td>L745</td>
<td>VS285F1</td>
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<td>24 (90)</td>
<td>7/8-14 UNF (SAE10)</td>
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<table>
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Inlet Plates - Inlet Plate, basic (TA-00)

The inlet elements TA-00- are employed to connect the external P, T lines to the P, T channels inside the ED elements of the Directional Valve Assembly and to connect to the LS ports of the elements equipped with LS channels.

Features
• Port sizes: P and T - SAE 8; LS and G - SAE 4.
• Includes a test point port "G" for pressure gauge connection.
• Special plating and coating available, C.F.

Technical Data

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<th></th>
<th>bar (PSI)</th>
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<tr>
<td>Maximum inlet flow</td>
<td>60 (15)</td>
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<tr>
<td>Material</td>
<td>Aluminum</td>
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<tr>
<td>Seals</td>
<td>NBR</td>
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<tr>
<td>Fluid temperature</td>
<td>-20 to +80 (-4 to +176)</td>
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</table>

*For higher pressure, C.F.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact
Inlet Plates - Inlet Plate, relief (TA-04)

The inlet elements TA-04-_ are employed to connect the external P, T lines to the P, T channels inside the ED elements of the Directional Valve Assembly and to connect to the LS ports of the elements equipped with LS channels. They incorporate a pressure relief cartridge which limits the maximum primary pressure in the P line and unloads any excess flow to the Tank.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Port sizes: P and T - SAE 8; LS and G - SAE 4
• Special plating and coating available, C.F.
• Detailed information: RA18300-02

Technical Data

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<td>60 (15)</td>
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<td>Maximum inlet flow</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>Aluminum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seals</td>
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<tr>
<td>Fluid temperature</td>
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*For higher pressure, C.F.
Inlet Plates - Inlet Plate, relief and dump (TA-05)

The inlet elements TA-05 are employed to connect the external P and T lines to the P and T channels inside the ED elements of the Directional Valve Assembly. They incorporate a pressure relief cartridge which limits the primary pressure in the P line. The relief setting can be checked through the Test Point port G. When fitted, the Normally Open Solenoid Unloading VEI Cartridge unloads to Tank all the P line flow; unloading stops when the cartridge coil is energized.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Port sizes: P and T - SAE 8; LS and G - SAE 4.
- Ports LS and G are provided with plugs.
- Special plating and coating available, C.F.
- Detailed Information: RA18300-05

Technical Data

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<tr>
<td>Maximum inlet flow</td>
<td>60 (15)</td>
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<td>Buna N (NBR)</td>
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<td>Fluid temperature</td>
<td>-20 to +80 (−4 to +176)</td>
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*For higher pressure, C.F.

<table>
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<th>Description</th>
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<td>R987271843</td>
<td>TA05562P0000A</td>
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<td>TA05563D0000A</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Inlet Plates - Inlet Plate, compensator (TA-06)

The inlet elements TA-06-__ are employed to connect the external P, T lines to the P, T channels inside the ED elements of the Directional Valve Assembly and to connect to the LS ports of the elements equipped with LS channels. An LS controlled 3-way compensator provides pressure compensated flow to the ED elements of the Directional Valve Assembly. The same 3-way compensator is also controlled by a pilot relief cartridge and unloads to tank any excess flow in order to limit the primary pressure in the system.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Port sizes: P and T - SAE 8; LS and G - SAE 4
- Ports LS and G are provided with plugs
- Special plating and coating available, C.F.
- Detailed Information: RA18300-06

Technical Data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
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<tbody>
<tr>
<td>Maximum pressure</td>
<td>210 (3000)*</td>
</tr>
<tr>
<td>Maximum inlet flow</td>
<td>60 (15)</td>
</tr>
<tr>
<td>Material</td>
<td>Aluminum</td>
</tr>
<tr>
<td>Seals</td>
<td>Buna N (NBR)</td>
</tr>
<tr>
<td>Fluid temperature</td>
<td>-20 to +80 (-4 to +176)</td>
</tr>
</tbody>
</table>

*For higher pressure, C.F.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
<tr>
<td>R987280652</td>
<td>TA06562D140</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R987391834</td>
<td>TA06562D170</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R987280653</td>
<td>TA06563D140</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R978056725</td>
<td>TA06563D170</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Inlet Plates - Inlet Plate, LS proportional flow control with unloading valve (TA-10)

The inlet elements TA-10-__ are employed to connect the external P, T lines to the P, T channels inside the ED elements of the Directional Valve Assembly and to connect to the LS ports of the ED elements equipped with LS channels. The main functions are: to limit the maximum primary pressure in the P line and to supply proportional pressure compensated flow the ED elements of the Directional Valve Assembly.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Port sizes: P and T - SAE 8; LS and G - SAE 4
- Ports LS and G are provided with plugs
- Special plating and coating available, C.F.
- Detailed information: RA18300-09

Technical Data

<table>
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<th>Feature</th>
<th>Specification</th>
<th>Information</th>
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<td>Maximum pressure</td>
<td>bar (PSI)</td>
<td>210 (3000)*</td>
</tr>
<tr>
<td>Maximum inlet flow</td>
<td>l/min (GPM)</td>
<td>40 (11)</td>
</tr>
<tr>
<td>Material</td>
<td></td>
<td>Aluminum</td>
</tr>
<tr>
<td>Seals</td>
<td></td>
<td>Buna N (NBR)</td>
</tr>
<tr>
<td>Fluid temperature</td>
<td>°C (°F)</td>
<td>−20 to +80 (−4 to +176)</td>
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</table>

*For higher pressure, C.F.

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</tr>
<tr>
<td>R987280678</td>
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<td>10 day(s)</td>
</tr>
<tr>
<td>R987280681</td>
<td>TA10562D0000A03L</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Bankable Directional Valves - 4/3 Directional Valve Elements, with PO check valves - B8_45 (EDBY-VR)

Directional valve elements B8_45... are compact direct-operated solenoid valves which control the start, stop and direction of the oil flow. These elements consist of a stackable housing with a control spool, two solenoids, and two return springs. The upper part of the housing is extended in order to provide space for the cavities where two PO check valves are fitted. They consist of two calibrated balls with return springs that allow upstream flow, but lock on the respective seats and prevent the return flow. Return flow is possible when they are opened by the pilot piston if enough pilot pressure is present in the opposite line.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Valve elements with 4 ways and 3 positions
- Control spools directly operated by screwed-in solenoids with extractable coils
- In the de-energized condition, the control spool is held in the central position by return springs
- Wet pin tubes for DC coils, with push rod for mechanical override; burnish surface treatment
- Detailed Information: RA18300-51

Technical Data

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<td>Weight</td>
<td>kg (lbe)</td>
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<tr>
<td></td>
<td>1.6 (3.5)</td>
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<tr>
<td>Ambient Temperature</td>
<td>°C (°F)</td>
</tr>
<tr>
<td></td>
<td>-20...+50 (-4...+120) [NBR seals]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports)</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum dynamic pressure (T)</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td></td>
<td>150 (2176)</td>
</tr>
<tr>
<td>Maximum static pressure (T)</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td></td>
<td>210 (3045)</td>
</tr>
<tr>
<td>Maximum inlet flow</td>
<td>l/min (GPM)</td>
</tr>
<tr>
<td></td>
<td>15 (4)</td>
</tr>
</tbody>
</table>

Hydraulic fluid

General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:

- Mineral oil based hydraulic fluids HL (DIN 51524 part 1).
- Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).
- For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.

Fluid Temperature

°C (°F)

-20...+80 (-4...+176) [NBR seals]

Permissible degree of fluid contamination

ISO 4572: β₁≥75 X=12...15
ISO 4406: classe 20/18/15
NAS 1638: classe 9

Viscosity range

mm²/s

5...420

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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</thead>
<tbody>
<tr>
<td>R933003656</td>
<td>B8045B2010000B330-KE.EDB-Y-VR3/AB-SAE6-</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R933003658</td>
<td>B8045E2010000B330-KE.EDB-Y-VR3/AB-SAE6-</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
Bankable Directional Valves - 4/3 Directional Valve Elements - B8_08 (EDBZ)

Directional valve elements B8_08... are compact direct-operated solenoid valves which control the start, stop and direction of the oil flow. These elements consist of a stackable housing with a control spool, two solenoids, and two return springs. When energized, the force of the solenoid pushes the control spool from its neutral-central position “0” to the required end position “a” or “b”, and the required flow from P to A (with B to T), or P to B (with A to T) is achieved. Once the solenoid is de-energized, the return spring (4) pushes the spool thrust washer (3) back against the housing and the spool returns in its neutral-central position.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Valve elements with 4 ways and 3 positions
• Control spools directly operated by screwed-in solenoids with extractable coils
• In the de-energized condition, the control spool is held in the central position by return springs
• Wet pin tubes for DC coils, with push rod for mechanical override; burnish surface treatment
• Detailed Information: RA18300-52

Technical Data

<table>
<thead>
<tr>
<th>General</th>
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</thead>
<tbody>
<tr>
<td>Weight (valve element with 2 solenoids) kg (lbs)</td>
<td>1.34 (2.95)</td>
<td></td>
</tr>
<tr>
<td>Weight (valve element with 1 solenoid) kg (lbs)</td>
<td>1.06 (2.34)</td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature °C (°F)</td>
<td>~20...+50 (~4...+120) [NBR seals]</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports) bar (PSI)</td>
<td>310 (4500)</td>
<td></td>
</tr>
<tr>
<td>Maximum dynamic pressure (T) bar (PSI)</td>
<td>180 (2610)</td>
<td></td>
</tr>
<tr>
<td>Maximum static pressure (T) bar (PSI)</td>
<td>210 (3045)</td>
<td></td>
</tr>
<tr>
<td>Maximum inlet flow l/min (GPM)</td>
<td>25 (6.6)</td>
<td></td>
</tr>
</tbody>
</table>

Hydraulic fluid

General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:

Mineral oil based hydraulic fluids HL (DIN 51524 part 1).
Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).
For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.

Fluid Temperature °C (°F) | ~20...+80 (~4...+176) [NBR seals]

Permissible degree of fluid contamination

ISO 4572: β ≥ 75 X = 12...15
ISO 4406: classe 20/18/15
NAS 1638: classe 9

Viscosity range mm²/s | 5...420

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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</thead>
<tbody>
<tr>
<td>R930055574</td>
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<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R933006754</td>
<td>B8008B2010000B000-KE.EDB-Z-SAE6-B201-N</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930055576</td>
<td>B8008E2010000B000-KE.EDB-Z-SAE6-E201-N</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930053105</td>
<td>B8008Y3010000B000-KE.EDB-Z-SAE6-Y301-N</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
The sandwich plate design directional valve elements L8_10... and L8_11... are compact direct operated solenoid valves which control the start, stop, and the direction of the oil flow.

### Features

- Valve elements with solenoid operated directional spool
- Control spools operated by screwed-in solenoids with extractable coils
- In the de-energized condition, the control spool is held in the central position by return springs
- Wet pin tubes for DC coils, with push rod for mechanical override; nickel plated surface
- Coils can be rotated 360° around the tube; they can be energized by AC current through special connectors with rectifier (RAC)
- Manual override (push-button or screw type) available upon request
- Plug-in connectors available; EN 175301-803 (was DIN 43650); AMP Junior;
- DT04-2P (Deutsch), free leads
- Detailed Information: RA18301-01(L8_10), RA18301-02 (L8_11)

### Technical Data

<table>
<thead>
<tr>
<th>Model</th>
<th>L8_10...</th>
<th>L8_11...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve element with 2 solenoids (kg / lba)</td>
<td>1.55 (3.42)</td>
<td>1.95 (4.3)</td>
</tr>
<tr>
<td>Valve element with 1 solenoid (kg / lba)</td>
<td>1.25 (2.76)</td>
<td>1.45 (3.2)</td>
</tr>
<tr>
<td>Valve element with 2 solenoid with lever override (kg / lba)</td>
<td>1.9 (4.2)</td>
<td>2.2 (4.85)</td>
</tr>
<tr>
<td>Valve element with 1 solenoid with lever override (kg / lba)</td>
<td>1.6 (3.5)</td>
<td>1.7 (3.75)</td>
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</tbody>
</table>

**Hydraulic**

<table>
<thead>
<tr>
<th></th>
<th>bar (PSI)</th>
<th>310 (4500)</th>
<th>250 (3625)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports)</td>
<td>180 (2610)</td>
<td>100 (1450)</td>
<td></td>
</tr>
<tr>
<td>Maximum dynamic pressure (T) (bar / PSI)</td>
<td>210 (3045)</td>
<td>310 (4500)</td>
<td></td>
</tr>
<tr>
<td>Maximum static pressure (T) (bar / PSI)</td>
<td>30 (7.9)</td>
<td>50 (13.2)</td>
<td></td>
</tr>
</tbody>
</table>

**Hydraulic fluid**

General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:

- Fluid Temperature: -20...+80 (-4...+176) [NBR seals]
- Permissible degree of fluid contamination: ISO 4572: Ρ, ≥75 X=12...15
- Viscosity range: mm²/s 5...420
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
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<tr>
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<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R933002825</td>
<td>L8010B2010000030</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930055600</td>
<td>L8010B2010000030HA-KE,ED1-Z-3S8B-B201-EL</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R933003504</td>
<td>L8010E2010000030</td>
<td>10</td>
<td>10 day(s)</td>
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<tr>
<td>R930055617</td>
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<tr>
<td>R930055619</td>
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<tr>
<td>R930055621</td>
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<td>10 day(s)</td>
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<tr>
<td>R930055623</td>
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<td>10 day(s)</td>
</tr>
<tr>
<td>R930055625</td>
<td>L8011B2010000030HA-KE,ED2-3S8B-B201-ELHA</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930055628</td>
<td>L8011E2010000030HA-KE,ED2-3S8B-E201-ELHA</td>
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<td>10 day(s)</td>
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<tr>
<td>R930055630</td>
<td>L8011Y3010000030HA-KE,ED2-3S8B-Y301-N</td>
<td>10</td>
<td>10 day(s)</td>
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<tr>
<td>R930055632</td>
<td>L8011Y3010000030HA-KE,ED2-3S8B-Y301-ELHA</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
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</table>
Bankable Directional Valves - 4/3 Proportional Valve Elements - L8_80 (ED4-P)

The sandwich plate design directional valve elements L8080... are compact direct operated proportional solenoid valves which control the start, the stop, the direction and the quantity of the oil flow.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Valve element with direct proportional control of spool
- Control spool operated by screwed-in solenoid with extractable coil
- In the de-energized condition, the control spool is held in the central position by return springs
- Wet pin proportional tubes for DC coils, with push rod for mechanical override; nickel plated surface
- Manual override (push-button or screw type) available upon request
- Plug-in connectors available: EN 175301-803 (Was DIN 43650) and DT04-2P (Deutsch)
- Detailed Information: RA18301-06

Technical Data

<table>
<thead>
<tr>
<th>General</th>
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</thead>
<tbody>
<tr>
<td>Weight (valve element with 2 solenoids) kg (lbs)</td>
<td>2.20 (4.85)</td>
</tr>
<tr>
<td>Weight (valve element with 1 solenoid) kg (lbs)</td>
<td>1.70 (3.75)</td>
</tr>
<tr>
<td>Ambient Temperature °C (°F)</td>
<td>-20...+50 (-4...+122) [NBR seals]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure (P) bar (PSI)</td>
</tr>
<tr>
<td>Maximum dynamic pressure (T) bar (PSI)</td>
</tr>
<tr>
<td>Maximum static pressure (T) bar (PSI)</td>
</tr>
<tr>
<td>Maximum inlet flow l/min (GPM)</td>
</tr>
<tr>
<td>Nominal flow with ΔP = 10 bar l/min (GPM)</td>
</tr>
</tbody>
</table>

Hydraulic fluid

General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:

Mineral oil based hydraulic fluids HL (DIN 51524 part 1).
Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).
For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.

Fluid Temperature °C (°F) -20...+80 (-4...+176) [NBR seals]

Permissible degree of fluid contamination

ISO 4572: β≥75 X=12...15
ISO 4406: class 20/18/15
NAS 1638: class 9

Viscosity range mm²/s 20...380 (optimal 30...46)
<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
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<tbody>
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<td>R930061802</td>
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<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930061807</td>
<td>L8081E2S4000030-KE.ED4-P1-SAE8-PT9-E2S4</td>
<td>10</td>
<td>10 day(s)</td>
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<tr>
<td>R930061806</td>
<td>L8081E2S4000030HA-KE.ED4-P-SAE8-E2S4-EL</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930061809</td>
<td>L8081E2S6000030-KE.ED4-P1-SAE8-PT9-E2S6</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R930061808</td>
<td>L8081E2S6000030HA-KE.ED4-P1-SAE8-E2S6-E</td>
<td>10</td>
<td>10 day(s)</td>
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</tbody>
</table>
Bankable Directional Valves - 4/3 Lever Operated Directional Valve Elements - L8_L1 (ED-LV)

Directional valve elements L8_L1... are compact manual operated valves which control the start, the stop and the direction of the oil flow. The hand operated lever moves the control spool from its neutral-central position “0” to the required position “a” or “b”, and the required flow from P to A (with B to T), or P to B (with A to T) is achieved.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Valve elements with 4 ways and 3 positions
- Control spools manual operated by hand lever
- Control spool with return spring or mechanical detent for all three positions.
- Detailed information: RA18301-10

Technical Data

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</thead>
<tbody>
<tr>
<td>Weight</td>
<td>kg (lbs)</td>
<td>1.55 (3.42)</td>
</tr>
<tr>
<td>Mounting position</td>
<td>kg (lbs)</td>
<td>Unrestricted</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>°C (°F)</td>
<td>-20...+50 (-4...+122) NBR seals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure (P)</td>
<td>bar (PSI)</td>
<td>310 (4500)</td>
</tr>
<tr>
<td>Maximum static pressure (T)</td>
<td>bar (PSI)</td>
<td>180 (2610)</td>
</tr>
<tr>
<td>Maximum inlet flow</td>
<td>l/min (GPM)</td>
<td>60 (15.9)</td>
</tr>
<tr>
<td>Nominal flow with ΔP = 10 bar</td>
<td>l/min (GPM)</td>
<td>10, 20, 30 (2.64, 5.28, 7.9)</td>
</tr>
</tbody>
</table>

Hydraulic fluid

General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:

- Mineral oil based hydraulic fluids HL (DIN 51524 part 1).
- Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).
- For use of environmentally acceptable fluids (vegetable or poly glycol base) please consult us.

Permissible Temperature | °C (°F) | -20...+80 (-4...+176) NBR seals |

Viscosity range | mm²/s | 20...380 (optimal 30...46) |

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
</tr>
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<tbody>
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<td>R933007171</td>
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<td>10 day(s)</td>
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<tr>
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Bankable Directional Valves - 4/2, 4/3 LUDV Flow Sharing Directional Valve Elements - L8511 (EDC-DZ)

Directional valve elements L8511... are compact direct operated pressure compensated solenoid valves which operate with a flow sharing principle. They consist of a stackable housing with control spool, two solenoids, and two return springs. When energized, each solenoid displaces the control spool from its neutral-central position “0” and the metering notches are open; flow is delivered to the 3-way pressure compensator followed by a check valve for each port A and B. The compensator, balanced by the LS pressure at the opposite end, lifts up and unloads a pressure compensated flow which is sent to the A (or B) port through the relevant check valve; at the same time the opposite port allows oil return to tank.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToCompact

Features

• Valve element with direct on-off flow sharing control
• It can achieve multiple simultaneous maneuvers by distributing the available flow to each actuator selected by the operator, independently from the working pressure required
• All simultaneous movements go on at the same reduced speed in case of flow shortage
• Each energized actuator receives a pressure compensated flow
• Detailed Information: RA 18301-11

Technical Data

<table>
<thead>
<tr>
<th>General</th>
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<tbody>
<tr>
<td>Weight (valve element with 2 solenoids) kg (lbs)</td>
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<td>Weight (valve element with 1 solenoid)</td>
<td>1.06 (2.34)</td>
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<tr>
<td>Ambient Temperature °C (°F)</td>
<td>-20...+50 (~4...+120) [NBR seals]</td>
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<table>
<thead>
<tr>
<th>Hydraulic</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports) bar (PSI)</td>
<td>310 (4500)</td>
<td></td>
</tr>
<tr>
<td>Maximum pressure (T)</td>
<td>bar (PSI)</td>
<td>210 (3045)</td>
</tr>
<tr>
<td>Maximum flow</td>
<td>l/min (GPM)</td>
<td>48 (12.7)</td>
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<tr>
<td>Hydraulic fluid</td>
<td></td>
<td></td>
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<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1), Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
<td></td>
</tr>
<tr>
<td>Fluid Temperature °C (°F)</td>
<td>-20...+80 (~4...+176) [NBR seals]</td>
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<tr>
<td>Permissible degree of fluid contamination</td>
<td>ISO 4572: β≥75 X=12...15 ISO 4406: classe 20/18/15 NAS 1638: classe 9</td>
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</tr>
<tr>
<td>Viscosity range mm²/s</td>
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<td>L8511E2S80000000-KE.EDC-DZ-SC8-E2S8-N</td>
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</table>
Bankable Directional Valves - 4/3, 4/2 LUDV Proportional Flow Sharing Valve Elements - L8580 (EDC-P)

The sandwich plate design directional valve elements L8580... are compact direct operated pressure compensated proportional solenoid valves which control the start, the stop, the direction and the quantity of the oil flow, with a Flow Sharing principle.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Valve element with direct proportional flow sharing control
• It can achieve simultaneous activation of different actuators by distributing the available flow proportionally to the speeds selected by the operator
• Optional hand lever for dual electric and manual operation
• Manual override (push-button, screw type or lever) available upon request
• Detailed Information: RA 18301-09

Technical Data

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<tr>
<td>Weight (valve element with 2 solenoids) kg (lbs)</td>
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<td>Weight valve element with 1 solenoid kg (lbs)</td>
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<td>Ambient temperature °C (°F)</td>
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<table>
<thead>
<tr>
<th>Hydraulic</th>
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</thead>
<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports) bar (PSI)</td>
<td>310 (4500)</td>
</tr>
<tr>
<td>Maximum pressure T bar (PSI)</td>
<td>210 (3045)</td>
</tr>
<tr>
<td>Maximum pressure with lever emergency T bar (PSI)</td>
<td>140 (2030)</td>
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<td>Max regulated flow at 14 bar (203 PSI) °C (°F)</td>
<td>40, 50 (10.5, 13.2)</td>
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<tr>
<td>Max regulated flow at 18 bar (261 PSI) °C (°F)</td>
<td>46, 58 (12.1, 15.3)</td>
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Hydraulic fluid
General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:
Mineral oil based hydraulic fluids HL (DIN 51524 part 1).
Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).
For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.
Fluid Temperature °C (°F) = -20...+80 (-4...+176) [NBR seals]
Permissible degree of fluid contamination
ISO 4572: β ≥ 75 X = 12...15
ISO 4406: class 20/18/15
NAS 1638: class 9
Viscosity range mm²/s = 20...380 (optimal 30...46)
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<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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Bankable Directional Valves - 4/3 Directional Valve Elements - D8_5 (EDD-XZ)

The sandwich plate design directional valve elements D8_5 are compact direct operated solenoid valves which control the start, the stop and the direction of the oil flow.

Features

- Valve elements with solenoid operated directional spool
- Control spools directly operated by solenoids with removable coils
- In the de-energized condition, the control spool is held in the central position by return springs
- Manual override (push-button, screw type) available as option
- Optional anti-cavitation/relief function available
- Detailed information: RA 18301-12

Technical Data

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<td>Weight with two solenoids</td>
<td>kg (lbs)</td>
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<tr>
<td>Weight with one solenoid</td>
<td>kg (lbs)</td>
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<tr>
<td>Ambient temperature</td>
<td>°C (°F)</td>
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<table>
<thead>
<tr>
<th>Hydraulic</th>
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</thead>
<tbody>
<tr>
<td>Max pressure (P)</td>
<td>bar (psi)</td>
</tr>
<tr>
<td>Max pressure (A and B ports)</td>
<td>bar (psi)</td>
</tr>
<tr>
<td>Max pressure (T)</td>
<td>bar (psi)</td>
</tr>
<tr>
<td>Max inlet flow</td>
<td>l/min (GPM)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic fluid</th>
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<tbody>
<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
</tr>
<tr>
<td>Fluid Temperature</td>
<td>°C (°F)</td>
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</tbody>
</table>
| Permissible degree of fluid contamination | ISO 4572: $p_0 \geq 75 \times 12...15$  
ISO 4406: class 20/18/15  
NAS 1638: class 9 |
| Viscosity range                  | mm²/s    | 5...420 |

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<th>Shipment (Business Days)</th>
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<td>10 day(s)</td>
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Bankable Directional Valves - 4/3 Directional Valve Elements, with PO Check Valves- B8_48 (EDBZ-VR)

Directional valve elements B8_08... are compact direct-operated solenoid valves which control the start, stop and direction of the oil flow. These elements consist of a stackable housing with a control spool, two solenoids, and two return springs. When energized, the force of the solenoid pushes the control spool from its neutral-central position “0” to the required end position “a” or “b”, and the required flow from P to A (with B to T), or P to B (with A to T) is achieved. Once the solenoid is de-energized, the return spring (4) pushes the spool thrust washer (3) back against the housing and the spool returns in its neutral-central position.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Control spools directly operated by screwed-in solenoids with extractable coils
• In the de-energized condition, the control spool is held in the central position by return springs
• Wet pin tubes for DC coils, with push rod for mechanical override; burnish surface treatment
• Single or Dual cross piloted check valves on A and B ports
• Detailed information: RA18300-53

Technical Data

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<tbody>
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<tr>
<td>Ambient Temperature °C (°F)</td>
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<td>NBR seals</td>
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<thead>
<tr>
<th>Hydraulic</th>
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<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports) bar (PSI)</td>
<td>250 (3625)</td>
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<tr>
<td>Maximum dynamic pressure (T) bar (PSI)</td>
<td>180 (2610)</td>
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</tr>
<tr>
<td>Maximum static pressure (T) bar (PSI)</td>
<td>210 (3045)</td>
<td></td>
</tr>
<tr>
<td>Maximum inlet flow l/min (GPM)</td>
<td>20 (5.3)</td>
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<tr>
<td>Hydraulic fluid</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1).</td>
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<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td>Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).</td>
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<tr>
<td>Fluid Temperature °C (°F)</td>
<td>-20...+80 (-4...+176)</td>
<td>NBR seals</td>
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<td>Permissible degree of fluid contamination</td>
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<td>ISO 4406: classe 20/18/15</td>
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<td>NAS 1638: classe 9</td>
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<tr>
<td>Viscosity range mm²/s</td>
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<td>10 day(s)</td>
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Bankable Directional Valves - 4/3 Proportional Valve Elements - B8_80 (EDB-P)

Valve elements B8080... are compact direct operated proportional solenoid valves which control the start, stop, direction and the quantity of the oil flow. They consist of a stackable housing with a control spool, one or two solenoids, and one or two return springs. Energized by an electronic feed regulator, each solenoid displaces the control spool from its neutral-central position “0” proportionally to the current received. In open loop mode, a regulated oil flow P to A , or P to B, is achieved.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTo compact

Features

- Control spools directly operated by screwed-in solenoids with extractable coils
- In the de-energized condition, the control spool is held in the central position by return springs
- Spool variants:
  - B2: 4/3 operated both sides a and b; P -- T closed in neutral
  - E2: 4/3 operated both sides a and b; A and B to T in neutral
- Detailed information: RA18300-55

Technical Data

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<tbody>
<tr>
<td>Weight (valve element with 2 solenoids) kg (lbs)</td>
<td>1.5 (3.3)</td>
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<tr>
<td>Weight (valve element with 1 solenoid) kg (lbs)</td>
<td>1.1 (2.5)</td>
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</tr>
<tr>
<td>Ambient Temperature °C (°F)</td>
<td>-20...+50 (-4,...+120) [NBR seals]</td>
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</table>

<table>
<thead>
<tr>
<th>Hydraulic</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports) bar (PSI)</td>
<td>310 (4500)</td>
<td></td>
</tr>
<tr>
<td>Maximum dynamic pressure (T) bar (PSI)</td>
<td>180 (2610)</td>
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</tr>
<tr>
<td>Maximum static pressure (T) bar (PSI)</td>
<td>210 (3045)</td>
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</tr>
<tr>
<td>Maximum inlet flow l/min (GPM)</td>
<td>24 (6.3)</td>
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<td>Hydraulic fluid</td>
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<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
<td></td>
</tr>
<tr>
<td>Fluid Temperature °C (°F)</td>
<td>-20,...+80 (-4,...+176) [NBR seals]</td>
<td></td>
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<tr>
<td>Permissible degree of fluid contamination</td>
<td>ISO 4572: β ≥75 X=12...15 ISO 4406: classe 20/18/15 NAS 1638: classe 9</td>
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</tr>
<tr>
<td>Viscosity range mm²/s</td>
<td>20,...380 (best 30,...46)</td>
<td></td>
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<th>Shipment (Business Days)</th>
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<td>R930055584</td>
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<td>10</td>
<td>10 day(s)</td>
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</tbody>
</table>
Bankable Directional Valves - Load Sensing - 4/3 LS Directional Valve Elements, with PO check valves - B8_45 (EDBY-VR)

Directional valve elements B8_45... with LS connection are compact direct-operated solenoid valves which control the start, stop and direction of the oil flow. With the LS connection, pressure difference at the main spool, as well as the flow to the actuator, is maintained constant via the pressure compensator.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

• Valve elements with 4 ways and 3 positions
• Control spools directly operated by screwed-in solenoids with extractable coils
• In the de-energized condition, the control spool is held in the central position by return springs
• Wet pin tubes for DC coils, with push rod for mechanical override; burnish surface treatment
• Single or Dual cross piloted checks on A and B ports
• Detailed information: RA 18300-51

Technical Data

<table>
<thead>
<tr>
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<th></th>
<th></th>
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<td>kg (lbs)</td>
<td>1.6 (3.5)</td>
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<tr>
<td>Ambient Temperature</td>
<td>°C (°F)</td>
<td>-20...+50 (-4...+120) [NBR seals]</td>
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<table>
<thead>
<tr>
<th>Hydraulic</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports)</td>
<td>bar (PSI)</td>
<td>250 (3600)</td>
</tr>
<tr>
<td>Maximum dynamic pressure (T)</td>
<td>bar (PSI)</td>
<td>150 (2176)</td>
</tr>
<tr>
<td>Maximum static pressure (T)</td>
<td>bar (PSI)</td>
<td>210 (3045)</td>
</tr>
<tr>
<td>Maximum inlet flow</td>
<td>l/min (GPM)</td>
<td>15 (4)</td>
</tr>
</tbody>
</table>

| Hydraulic fluid |          |          |
| General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example: | | Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us. |
| Fluid Temperature | °C (°F) | -20...+80 (-4...+176) [NBR seals] |
| Permissible degree of fluid contamination | ISO 4572: β≥75 X=12...15 ISO 4406: classe 20/18/15 NAS 1638: classe 9 |
| Viscosity range | mm²/s | 5...420 |

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<td>10 day(s)</td>
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<td>R933003662</td>
<td>B8445E2010000B330-KE.EDB-Y-LS-VR3/AB-SA</td>
<td>10</td>
<td>10 day(s)</td>
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</table>
Bankable Directional Valves - Load Sensing - 4/3 Load Sensing Directional Valve Elements - B8_08 (EDBZ)

Directional valve elements B8_08... are compact direct-operated solenoid valves which control the start, stop and direction of the oil flow. These elements consist of a stackable housing with a control spool, two solenoids, and two return springs. With the LS connection, pressure difference at the main spool, as well as the flow to the actuator, is maintained constant via the pressure compensator.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Valve elements with 4 ways and 3 positions
- Control spools directly operated by screwed-in solenoids with extractable coils
- In the de-energized condition, the control spool is held in the central position by return springs
- Wet pin tubes for DC coils, with push rod for mechanical override; burnish surface treatment
- Detailed Information: RA18300-52

Technical Data

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<tr>
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<tbody>
<tr>
<td>Weight (valve element with 2 solenoids) kg (lbs)</td>
<td>1.34 (2.95)</td>
</tr>
<tr>
<td>Weight (valve element with 1 solenoid) kg (lbs)</td>
<td>1.06 (2.34)</td>
</tr>
<tr>
<td>Ambient Temperature °C (°F)</td>
<td>~20...+50 (~4...+120) [NBR seals]</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports) bar (PSI)</td>
<td>310 (4500)</td>
</tr>
<tr>
<td>Maximum dynamic pressure (T) bar (PSI)</td>
<td>180 (2610)</td>
</tr>
<tr>
<td>Maximum static pressure (T) bar (PSI)</td>
<td>210 (3045)</td>
</tr>
<tr>
<td>Maximum inlet flow l/min (GPM)</td>
<td>25 (6.6)</td>
</tr>
<tr>
<td>Hydraulic fluid</td>
<td></td>
</tr>
<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
</tr>
<tr>
<td>Fluid Temperature °C (°F)</td>
<td>~20...+80 (~4...+176) [NBR seals]</td>
</tr>
</tbody>
</table>
| Permissible degree of fluid contamination  | ISO 4572: \( \beta_{75} X=12...15 \)
ISO 4406: classe 20/18/15
NAS 1638: classe 9 |
| Viscosity range mm²/s | 5...420 |

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<th>Shipment (Business Days)</th>
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<td>R93006938</td>
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<td>10 day(s)</td>
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<tr>
<td>R93005588</td>
<td>B8408E2010000B000-KE.EDB-Z-LS-SAE6-E201</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R93005590</td>
<td>B8408Y3010000B000-KE.EDB-Z-LS-SAE6-Y301</td>
<td>10</td>
<td>10 day(s)</td>
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</table>
Bankable Directional Valves - Load Sensing - 4/3 LS
Directional Valve Elements, with PO check valves - B8_48 (EDBZ-VR)

Directional valve elements B8_48... are compact direct-operated solenoid valves which control the start, stop and direction of the oil flow. These elements consist of a stackable housing with a control spool, two solenoids, and two return springs. With the LS connection, pressure difference at the main spool, as well as the flow to the actuator, is maintained constant via the pressure compensator.

Features

- Valve elements with 4 ways and 3 positions
- Control spools directly operated by screwed-in solenoids with extractable coils
- In the de-energized condition, the control spool is held in the central position by return springs
- Wet pin tubes for DC coils, with push rod for mechanical override; burnish surface treatment
- Detailed information: RA 18300-53

Technical Data

<table>
<thead>
<tr>
<th>General</th>
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<tbody>
<tr>
<td>Weight (valve element with 2 solenoids)</td>
<td>kg (lbs)</td>
</tr>
<tr>
<td>Ambient Temperature °C (°F)</td>
<td>-20...+50 (-4...+120) [NBR seals]</td>
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<table>
<thead>
<tr>
<th>Hydraulic</th>
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</thead>
<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports)</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum dynamic pressure (T)</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum static pressure (T)</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum inlet flow l/min (GPM)</td>
<td>20 (5.3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hydraulic fluid</th>
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</thead>
<tbody>
<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
</tr>
<tr>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1),</td>
</tr>
<tr>
<td>Mineral oil based hydraulic fluids HLP (DIN 51524 part 2),</td>
</tr>
<tr>
<td>For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
</tr>
</tbody>
</table>

| Fluid Temperature °C (°F) | -20...+80 (-4...+176) [NBR seals] |
| Permissible degree of fluid contamination |
| ISO 4572: β ≥ 75 X = 12...15 |
| ISO 4406: classe 20/18/15 |
| NAS 1638: classe 9 |

| Viscosity range mm²/s | 5...420 |

<table>
<thead>
<tr>
<th>Part Number</th>
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<th>Shipment (Business Days)</th>
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<td>R930055592</td>
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</tr>
<tr>
<td>R933006937</td>
<td>B8448E2010000B330-KE.EDB-Z-LS-VR3/AB-SA</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
</tbody>
</table>
The sandwich plate design directional valve elements B8080... with LS connection are compact direct operated proportional solenoid valves which control the start, the stop, the direction and the quantity of the oil flow. With the LS connection, pressure difference at the main spool, as well as the flow to the actuator, is maintained constant via the pressure compensator.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToCompact

### Features

- Valve element with direct proportional control of spool
- Control spool operated by screwed-in solenoid with extractable coil
- In the de-energized condition, the control spool is held in the central position by return springs
- Detailed information: RA 18300-55

### Technical Data

#### General

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<th>Value</th>
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</tr>
<tr>
<td>Weight (valve element with 1 solenoid)</td>
<td>1.1 (2.5) kg (lbs)</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-20...+50 (-4...+120) °C (°F)</td>
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#### Hydraulic

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<thead>
<tr>
<th>Feature</th>
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<tbody>
<tr>
<td>Maximum pressure (P, A, and B ports)</td>
<td>310 (4500) bar (PSI)</td>
</tr>
<tr>
<td>Maximum dynamic pressure (T)</td>
<td>180 (2610) bar (PSI)</td>
</tr>
<tr>
<td>Maximum static pressure (T)</td>
<td>210 (3045) bar (PSI)</td>
</tr>
<tr>
<td>Maximum inlet flow</td>
<td>24 (6.3) l/min (GPM)</td>
</tr>
<tr>
<td>Hydraulic fluid</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
</tr>
<tr>
<td>Fluid Temperature</td>
<td>-20...+80 (-4...+176) °C (°F)</td>
</tr>
<tr>
<td>Permissible degree of fluid contamination</td>
<td>ISO 4572: βp≥75 X=12...15</td>
</tr>
<tr>
<td></td>
<td>ISO 4406: classe 20/18/15</td>
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<td>NAS 1638: classe 9</td>
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<tr>
<td>Viscosity range</td>
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#### Part Number & Description

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<td>10 day(s)</td>
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</table>
Bankable Directional Valves - Load Sensing - 4/3 - 4/2 Load Sensing Directional Valve Elements - L8_10 (ED1) and L8_11 (ED2-DZ)

L8_10 and L8_11 directional valve elements with load sensing connections provide load pressure-compensated flow control for the start, stop and direction of oil flow.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToCompact

Features

- Valve elements with solenoid operated directional spool
- Control spools operated by screwed-in solenoids with extractable coils
- In the de-energized condition, the control spool is held in the central position by return springs
- Wet pin tubes for DC coils, with push rod for mechanical override; nickel plated surface
- Coils can be rotated 360° around the tube; they can be energized by AC current through special connectors with rectifier (RAC)
- Manual override (push-button or screw type) available upon request
- Plug-in connectors available; EN 175301-803 (was DIN 43650); AMP Junior; DT04-2P (Deutsch), free leads
- Detailed Information: RA18301-01 (L8_10), RA18301-02 (L8_11)

Technical Data

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<th>L8_11...</th>
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<tr>
<td>Valve element with 2 solenoids kg (lba)</td>
<td>1.55 (3.42)</td>
<td>1.95 (4.3)</td>
</tr>
<tr>
<td>Valve element with 1 solenoid kg (lba)</td>
<td>1.25 (2.76)</td>
<td>1.45 (3.2)</td>
</tr>
<tr>
<td>Valve element with 2 solenoid with lever override kg (lba)</td>
<td>1.9 (4.2)</td>
<td>2.2 (4.85)</td>
</tr>
<tr>
<td>Valve element with 1 solenoid with lever override kg (lba)</td>
<td>1.8 (3.5)</td>
<td>1.7 (3.75)</td>
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<tr>
<td>Hydraulic</td>
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</tr>
<tr>
<td>Maximum pressure (P, A, and B ports) bar (PSI)</td>
<td>310 (4500)</td>
<td></td>
</tr>
<tr>
<td>Maximum dynamic pressure (T) bar (PSI)</td>
<td>180 (2610)</td>
<td>250 (3625)</td>
</tr>
<tr>
<td>Maximum dynamic pressure, with lever override (T) bar (PSI)</td>
<td>100 (1450)</td>
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<tr>
<td>Maximum static pressure (T) bar (PSI)</td>
<td>210 (3045)</td>
<td>310 (4500)</td>
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<tr>
<td>Maximum inlet flow l/min (GPM)</td>
<td>30 (7.0)</td>
<td>50 (13.2)</td>
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<tr>
<td>Hydraulic fluid</td>
<td></td>
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<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
<td></td>
</tr>
<tr>
<td>Fluid Temperature °C (°F)</td>
<td>-20...+80 (-4...+176) [NBR seals]</td>
<td></td>
</tr>
<tr>
<td>Permissible degree of fluid contamination</td>
<td>ISO 4572: β₂≥75 X=12...15</td>
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<tr>
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<td>ISO 4406: class 20/18/15</td>
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<tr>
<td></td>
<td>NAS 1638: class 9</td>
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<tr>
<td>Viscosity range mm²/s</td>
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<td>R930055705</td>
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<td>R930055707</td>
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<td>R930055687</td>
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<td>R930055689</td>
<td>L8411Y3010000030HA-KE.ED2-LS-DZ-9AE8-Y30</td>
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Bankable Directional Valves - Load Sensing - 4/3 Load Sensing Proportional Valve Elements - L8_80 (ED4-P)

Proportional directional valve elements L8_80 with load sensing connections provide load pressure-compensated flow control for the start, stop, direction, and volume of oil flow.

**For complete engineering and design information:** GoTo www.boschrexroth-us.com/GoToCompact

**Features**

- Valve element with direct proportional control of spool
- Control spool operated by screwed-in solenoid with extractable coil
- In the de-energized condition, the control spool is held in the central position by return springs
- Wet pin proportional tubes for DC coils, with push rod for mechanical override; nickel plated surface
- Manual override (push-button or screw type) available upon request
- Plug-in connectors available: EN 175301-803 (Was DIN 43650) and DT04-2P (Deutsch)
- Detailed Information: RA 18301-06

**Technical Data**

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<th>General</th>
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<td>Weight (valve element with 2 solenoids) kg (lbs)</td>
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<tr>
<td>Weight (valve element with 1 solenoid) kg (lbs)</td>
<td>1.70 (3.75)</td>
</tr>
<tr>
<td>Ambient Temperature °C (°F)</td>
<td>-20...+50 (-4...+122) [NBR seals]</td>
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</table>

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<thead>
<tr>
<th>Hydraulic</th>
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</thead>
<tbody>
<tr>
<td>Maximum pressure (P) bar (PSI)</td>
<td>310 (4500)</td>
</tr>
<tr>
<td>Maximum dynamic pressure (T) bar (PSI)</td>
<td>210 (3050)</td>
</tr>
<tr>
<td>Maximum static pressure (T) bar (PSI)</td>
<td>250 (3625)</td>
</tr>
<tr>
<td>Maximum inlet flow l/min (GPM)</td>
<td>45 (11.9)</td>
</tr>
<tr>
<td>Nominal flow with ΔP = 10 bar l/min (GPM)</td>
<td>10, 20, 30 (2.64, 5.28, 7.9)</td>
</tr>
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**Hydraulic fluid**

General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:

- Mineral oil based hydraulic fluids HL (DIN 51524 part 1).
- Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).
- For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.

<table>
<thead>
<tr>
<th>Fluid Temperature °C (°F)</th>
<th>-20...+80 (-4...+176) [NBR seals]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissible degree of fluid contamination</td>
<td>ISO 4572: β₃≥75 X=12...15</td>
</tr>
<tr>
<td></td>
<td>ISO 4406: class 20/18/15</td>
</tr>
<tr>
<td></td>
<td>NAS 1638: class 9</td>
</tr>
<tr>
<td>Viscosity range mm²/s</td>
<td>20...380 (optimal 30...46)</td>
</tr>
<tr>
<td>Part Number</td>
<td>Description</td>
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<tr>
<td>R930061810</td>
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<td>R930061813</td>
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<td>R930061818</td>
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<td>R930061817</td>
<td>L8481E2S6000030HA-KE.ED4-P1-LS-SAE8-E2S6</td>
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</tbody>
</table>
Bankable Directional Valves - Load Sensing - 4/3 LS Lever Operated Directional Valve Elements - L8_L1 (ED-LV)

Directional valve elements L8_1... are compact manual operated valves which control the start, the stop and the direction of the oil flow. The hand operated lever moves the control spool from its neutral-central position “0” to the required position “a” or “b”, and the required flow from P to A (with B to T), or P to B (with A to T) is achieved.

Features

• Valve elements with 4 ways and 3 positions
• Control spools manual operated by hand lever Control spool with return spring or mechanical detent for all three positions
• Detailed Information: RA 18301-10

Technical Data

<table>
<thead>
<tr>
<th>General</th>
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<tbody>
<tr>
<td>Weight</td>
<td>kg (lbs)</td>
</tr>
<tr>
<td>Mounting position</td>
<td>kg (lbs)</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>°C (°F)</td>
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<table>
<thead>
<tr>
<th>Hydraulic</th>
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</thead>
<tbody>
<tr>
<td>Maximum pressure (P)</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum static pressure (T)</td>
<td>bar (PSI)</td>
</tr>
<tr>
<td>Maximum inlet flow</td>
<td>l/min (GPM)</td>
</tr>
<tr>
<td>Nominal flow with ΔP = 10 bar</td>
<td>l/min (GPM)</td>
</tr>
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</table>

Hydraulic fluid

General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:

• Mineral oil based hydraulic fluids HL (DIN 51524 part 1).
• Mineral oil based hydraulic fluids HLP (DIN 51524 part 2).
• For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.

Fluid Temperature

°C (°F)| −20...+80 (−4...+176) [NBR seals]

Permissible degree of fluid contamination

ISO 4572: β₀ ≥ 75 X = 12...15
ISO 4406: class 20/18/15
NAS 1638: class 9

Viscosity range

mm²/s| 20...380 (optimal 30...46)

Part Number | Description | Max. Quantity | Shipment (Business Days) |
-------------|-------------|---------------|--------------------------|
R930055716   | L84L1A2S8A0M130-EV.ED-LV-LS-SAE8-A2S8-L | 10            | 10 day(s)                |
R930055717   | L84L1B2S4A0M130-EV.ED-LV-LS-SAE8-B2S4-L | 10            | 10 day(s)                |
R933007585   | L84L1B2S8A0M130-EV.ED-LV-LS-SAE8-PT9-B2 | 10            | 10 day(s)                |
R930055718   | L84L1E2S4A0M130-EV.ED-LV-LS-SAE8-E2S4-L | 10            | 10 day(s)                |
R933007882   | L84L1E2S8A0M130-EV.ED-LV-LS-SAE8-PT9-E2 | 10            | 10 day(s)                |

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact
Exit Plates

The exit plate TC... is employed as end plates to plug the P and T channels of the ED element of the Directional Valve Assembly, or to provide an extra port for P, T, or P and T.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- Port sizes are available in SAE 6 and SAE 8
- Detailed Information: RA 18301-60

Technical Data

<table>
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<tr>
<td>Weight (SAE 8)</td>
<td>kg (lbs)</td>
<td>0.5 (1.10)</td>
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<tr>
<td>Ambient Temperature</td>
<td>°C (°F)</td>
<td>-20...+50 (-4...+120) [NBR seals]</td>
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<table>
<thead>
<tr>
<th>Hydraulics</th>
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<tbody>
<tr>
<td>Maximum pressure (TC0000)</td>
<td>bar (PSI)</td>
<td>250 (3600)*</td>
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</tr>
<tr>
<td>Maximum pressure</td>
<td>bar (PSI)</td>
<td>210 (3000)*</td>
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</tr>
<tr>
<td>Maximum flow</td>
<td>l/min (GPM)</td>
<td>60 (15)</td>
<td></td>
</tr>
<tr>
<td>Hydraulic fluid</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid Temperature</td>
<td>°C (°F)</td>
<td>-20...+80 (-4...+176) [NBR seals]</td>
<td></td>
</tr>
<tr>
<td>Permissible degree of fluid contamination</td>
<td></td>
<td>ISO 4572: β≥75 X=12...15</td>
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<tr>
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<td>ISO 4406: classe 20/18/15</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>NAS 1638: classe 9</td>
<td></td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm²/s</td>
<td>5...420</td>
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</table>

*310 bar (4500 PSI) available. Consult factory.

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<th>Shipment (Business Days)</th>
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<td>R987271833</td>
<td>TC0155</td>
<td>10</td>
<td>10 day(s)</td>
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<td>R978046786</td>
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</tr>
<tr>
<td>R987271814</td>
<td>TC0255</td>
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<td>R978046787</td>
<td>TC0277</td>
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<tr>
<td>R987271815</td>
<td>TC0355</td>
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<td>10 day(s)</td>
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</table>
Intermediate Plates

The intermediate plate with an auxiliary hand pump is inserted between the inlet plate and ED modular directional valves. It can be used to regulate the direction of the flow, and to generate pressure without other energy sources.

Features

- See below for EPM-DE-18:
- Flow is transferred in both push and pull movements
- Detailed Information: RA 18301-30
- See below for TI-M412:
- These elements consist of body made of Yellow Zinc plated (Cr+3) steel which incorporates the following items:
  - check valve on the P -- P1 line
  - shuttle valve on the LS lines
  - relief valve on the LS line which control max pressure output
  - pressure compensated orifice which drains the LS pressure by unloading a small regulated flow to tank
- Detailed information: RA18301-29

Technical Data

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<tr>
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</thead>
<tbody>
<tr>
<td>Weight (EPM)</td>
<td>kg (lbs)</td>
<td>3.8 (8.4)</td>
</tr>
<tr>
<td>Weight (extension lever)</td>
<td>kg (lbs)</td>
<td>0.7 (1.5)</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>°C (°F)</td>
<td>-20...+50 (-4...+120) [NBR seals]</td>
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<table>
<thead>
<tr>
<th>Hydraulic</th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Maximum pressure (resistance)</td>
<td>bar (PSI)</td>
<td>310 (4500)</td>
</tr>
<tr>
<td>Maximum pressure (generated)</td>
<td>bar (PSI)</td>
<td>250 (3625)</td>
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<tr>
<td>Opening displacement</td>
<td>cc (in³)</td>
<td>8.5 (0.51)</td>
</tr>
<tr>
<td>Closing displacement</td>
<td>cc (in³)</td>
<td>9.5 (0.57)</td>
</tr>
<tr>
<td>Hydraulic fluid</td>
<td></td>
<td></td>
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<tr>
<td>General properties: it must have physical lubricating and chemical properties suitable for use in hydraulic systems such as, for example:</td>
<td>Mineral oil based hydraulic fluids HL (DIN 51524 part 1). Mineral oil based hydraulic fluids HLP (DIN 51524 part 2). For use of environmentally acceptable fluids (vegetable or polyglycol base) please consult us.</td>
<td></td>
</tr>
<tr>
<td>Fluid Temperature</td>
<td>°C (°F)</td>
<td>-20...+80 (-4...+176) [NBR]</td>
</tr>
<tr>
<td>Permissible degree of fluid contamination</td>
<td>ISO 4572: β₂≥75 X=12...15</td>
<td>ISO 4406: classe 20/18/15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NAS 1638: classe 9</td>
</tr>
<tr>
<td>Viscosity range</td>
<td>mm²/s</td>
<td>5...420</td>
</tr>
<tr>
<td>Maximum internal leakage</td>
<td>cc/min (in³/min)</td>
<td>0.2 (0.012)</td>
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<tr>
<td>Part Number</td>
<td>Description</td>
<td>Max. Quantity</td>
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<tr>
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<tr>
<td>R933003086</td>
<td>TI-M412-00-02-ST</td>
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GoTo Focused Delivery Program: Compact Hydraulics

Bankable Accessories

See Technical Data for more information.

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoTocompact

Features

- See Technical Data for more information.

**Coil Seal Kit**

<table>
<thead>
<tr>
<th>Material Description</th>
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<tbody>
<tr>
<td>SEAL KIT K-1000A (Universal)</td>
<td>R987367243</td>
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**Bankable Flow Restrictors**

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<th>Type</th>
<th>Material Description</th>
<th>Material No.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankable flow restrictor, closed orifice</td>
<td>RESTRICCTOR D9.0XD0.0XL4.0</td>
<td>R933002936</td>
<td>Use with ED1, ED2, ED-LV, EDC, and EDD valves with A201 spool (series circuit)</td>
</tr>
<tr>
<td>Bankable flow restrictor, 0.8mm orifice</td>
<td>RESTRICCTOR D9.0XD0.8XL4.0</td>
<td>R933002937</td>
<td>Use with ED1, ED2, ED-LV, EDC, and EDD valves</td>
</tr>
<tr>
<td>Bankable flow restrictor, 1.0mm orifice</td>
<td>RESTRICCTOR D9.0XD1.0XL4.0</td>
<td>R933007090</td>
<td>Use with ED1, ED2, ED-LV, EDC, and EDD valves</td>
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</tbody>
</table>

**Override Kit**

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<th>Type</th>
<th>Material Description</th>
<th>Material No.</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Push-button override kit; EP-type, for spool opening</td>
<td>PS.OVR. EP-GM3059/60---------271-05098 OVERRIDE KIT, PUSH</td>
<td>R933000042</td>
<td>Use with EDBY bankable directional valves</td>
</tr>
<tr>
<td>Push-button override kit; EP-type, for spool opening</td>
<td>PS.OVR. EP-GM5042/43---------271-05099 OVERRIDE KIT, PUSH</td>
<td>R933000043</td>
<td>Use with ED2-DZ bankable directional valves</td>
</tr>
<tr>
<td>Screw-type manual override kit, OF-type, for spool opening</td>
<td>TW.OVR. EF-360-LC04/1-Z---------LC04ZEF OVERRIDE KIT, SCREW</td>
<td>R933000021</td>
<td>Use with EDC-Z bankable directional valves</td>
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### Mounting Brackets

<table>
<thead>
<tr>
<th>Type</th>
<th>Material Description</th>
<th>Material No.</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1 section screw kit, M8</td>
<td>K-2201-KR-SC-M8X80-ED-01E</td>
<td>R933003721</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 2</td>
</tr>
<tr>
<td>2 section tie rod kit, M8</td>
<td>K-2202-KR-SC-M8-ED-06-02E</td>
<td>R933003722</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 2</td>
</tr>
<tr>
<td>3 section tie rod kit, M8</td>
<td>K-2203-KR-SC-M8-ED-06-03E</td>
<td>R933003723</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 2</td>
</tr>
<tr>
<td>4 section tie rod kit, M8</td>
<td>K-2204-KR-SC-M8-ED-06-04E</td>
<td>R933003724</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 2</td>
</tr>
<tr>
<td>5 section tie rod kit, M8</td>
<td>K-2205-KR-SC-M8-ED-06-05E</td>
<td>R933003725</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 2</td>
</tr>
<tr>
<td>6 section tie rod kit, M8</td>
<td>K-2206-KR-TR-M8X320-ED-06E</td>
<td>R933003726</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 2</td>
</tr>
<tr>
<td>7 section tie rod kit, M8</td>
<td>K-2207-KR-TR-M8X365-ED-07E</td>
<td>R933003727</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 2</td>
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<tr>
<td>8 section tie rod kit, M8</td>
<td>K-2208-KR-TR-M8X410-ED-08E</td>
<td>R933003728</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 2</td>
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<tr>
<td>10 section tie rod kit, M8</td>
<td>K-2210-KR-TR-M8X510-ED-10E</td>
<td>R933000000</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 2</td>
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<tr>
<td>Mounting bracket kit, M6</td>
<td>K-2215-KR-FF-M6-ED-06</td>
<td>R933003730</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 3</td>
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<tr>
<td>Mounting bracket kit, PE2-K</td>
<td>K-2216-KR-PIEDE-PE2-K</td>
<td>R9330007089</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 3</td>
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<tr>
<td>Mounting bracket kit, Ti-M412</td>
<td>K-2217-KR-PIEDE-TI-M412</td>
<td>R933007514</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 3</td>
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<tr>
<td>Single flange bolt kit (60mm), M6</td>
<td>BOLT KIT K-2221A MODULE</td>
<td>R987281101</td>
<td>see RA00159/10.11 – RA18301-90/03.11, pg. 3</td>
</tr>
<tr>
<td>Double flange bolt kit (120mm), M6</td>
<td>BOLT KIT K-2222A MODULE</td>
<td>R987281102</td>
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### Part Numbers

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<th>Shipment (Business Days)</th>
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<td>R933002937</td>
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<td>10 day(s)</td>
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<td>10 day(s)</td>
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<td>R987281101</td>
<td>BOLT KIT K-2221A MODULE</td>
<td>10</td>
<td>10 day(s)</td>
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<tr>
<td>R987281102</td>
<td>BOLT KIT K-2222A MODULE</td>
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<td>10 day(s)</td>
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<tr>
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<td>K-2204-KR-SC-M8-ED-06-04E</td>
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<td>10 day(s)</td>
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<td>K-2205-KR-SC-M8-ED-06-05E</td>
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<td>10 day(s)</td>
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<td>K-2206-KR-TR-M8X320-ED-06E</td>
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<td>10 day(s)</td>
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<td>R933003727</td>
<td>K-2207-KR-TR-M8X365-ED-07E</td>
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<td>10 day(s)</td>
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<tr>
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<td>K-2208-KR-TR-M8X410-ED-08E</td>
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<td>10 day(s)</td>
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<td>K-2210-KR-TR-M8X510-ED-10E</td>
<td>10</td>
<td>10 day(s)</td>
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<tr>
<td>R933003730</td>
<td>K-2215-KR-FF-M6-ED-06</td>
<td>10</td>
<td>10 day(s)</td>
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<tr>
<td>R933007089</td>
<td>K-2216-KR-PIEDE-PE2-K</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R933007514</td>
<td>K-2217-KR-PIEDE-TI-M412</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
<tr>
<td>R933000042</td>
<td>PS.OVR. EP-GM3059/60-----------271-05098 OVERRIDE KIT, PUSH</td>
<td>10</td>
<td>10 day(s)</td>
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<td>R933000043</td>
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<td>10 day(s)</td>
</tr>
<tr>
<td>R933000021</td>
<td>TW.OVR.-EF-360-TC04/1-1-Z------------LC04ZEF OVERRIDE KIT, SCREW</td>
<td>10</td>
<td>10 day(s)</td>
</tr>
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</table>
Bankable and Diverter Coils

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoToCompact

Features

• See Technical Data for more information.

<table>
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Power Packs, fixed displacement - PP

PP Standard Power Packs utilize external gear pumps with standard industrial keyed shaft. Motors can be run at 60Hz/1750RPM/208-230/460V or 50Hz/1425RPM/190-20/380-416V. Motors are NEMA with female shaft.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotopowerpacks

Features

• Powder coated steel reservoir
• System relief valve & gauge
• One station D03 aluminum bar manifold
• PP5 - 10μ absolute, PP10, 20 - 16μ absolute - in-tank return filter/filler/breather
• Check valve in pressure line
• Spare in-tank return down-line
• Detailed information: RA09788

Technical Data

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* Based on 1750 RPM, and 100% volumetric efficiency; actual flow will be lower.
** All max pressures reflect an 85% overall efficiency (1.15 SF not included in calculation).
† Limited by maximum continuous pressure of pump.
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Close-coupled motor pump groups - MPGB-AZP

MPGB-AZP close-coupled motor pump groups are fixed displacement and come fully assembled from our factory. Pumps are external gear type, standard industrial keyed shaft. Motors are NEMA frame, femal shaft, and can be run at 60 Hz/1750 RPM/208-230/460 V or 50 Hz/1425 RPM/190-208/380-416 V.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotopowerpacks

Features

• Eliminate the need for multiple vendors by giving you one source of supply
• Closed-coupled feature dramatically reduces the overall length of the motor pump group
• Motor pump groups can be mounted horizontally or vertically
• Detailed information: RA12750

Technical Data

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* Based on 1750 RPM, and 100% volumetric efficiency; actual flow will be lower.
** All max pressures reflect an 85% overall efficiency (1.15 SF not included in calculation).
† Limited by maximum continuous pressure of pump.
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Preassembled filter/cooler module - MFC3

The MFC3 is a compact off-line filtration/cooling package, which provides numerous mounting and configuration options. The design allows for multiple selections of AC motors, pumps, filter elements, and auxiliary components. The modular design concept permits field upgrades concerning oil flow, filtration, or configuration with minimal labor and cost.

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotopowerpacks

Features

• Off line does not interrupt production
• Versatile / Simple Modular design concept
• Space saving vertical designs
• Durable common base construction
• Multiple mounting and configurations
• Multiple pump, and filter element selections
• Dual frequency motor windings standard
• Stainless Steel, plate style heat exchangers
• Single supply source
• Extensive international distribution and service
• Detailed information: RA50127

Technical Data

See data sheet RA50127 for detailed Technical Data. All part numbers listed in RA50127 are included in GoTo.
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GoPak™ Hydraulic Power Units

Bosch Rexroth GoPak™ hydraulic power units (HPU) bridge the gap between standard market products and engineered-to-order power units for machine tool, plastics, automotive, material handling, presses, marine, and other hydraulic applications. Rexroth’s GoDesigner™ smart configurator software tool expedites the selection of pumps, motors, valves and other peripherals so customers can get quotes in a day, with lead times as short as four to six weeks (three weeks when configured with designated Rexroth “GoTo” sub-component products).

For complete engineering and design information: GoTo www.boschrexroth-us.com/GoPak

**Features**

- Millions of variants possible (expansive feature options)
- High quality tank-top pump-motor group design
- Reservoir sizes from 5 US gallons to 200 US gallons (mineral oil fluid)
- Horsepower range from 1 to 75
- Pressure range from 200 to 4000 psi
- Pump displacement range from 4 to 140 cm³ per revolution (variable and fixed models)
- Durable and attractive powder coated finish
- Extensive and immediate document package on request - conditions apply (price and delivery, selection summary, terms and conditions, warranty, commissioning, bill of material, schematic, 2D dimensioned and ballooned drawing, interactive 3D model, highlighted sub-component data sheets)
- GoTo variants ship in 3 weeks
- Quotes provided via GoDesigner™ (advanced design configurator) in 1 business day or less
- GoDesigner™ tool provides know-as-you-go pricing, detailed engineering tools for sizing optimization, and on-the-fly detailed sub-component information
- Regional support across North America from our knowledgeable GoPak™ Champions (product, application, and design configurator expertise)

**Technical Data**

- Please navigate to www.boschrexroth-us.com/GoPak (USA & Mexico) or www.boschrexroth.ca/GoPak (Canada) for a complete listing of options, noting that exceptions apply; see below...

  For GoTo GoPak™ variants (3 week shipping lead-time, max quantity of 1 unit), the following features of the standard GoPak™ have been limited as noted:
  2. No aluminum barstock manifolds. ALTERNATIVE – ductile iron barstock manifolds (Electroless Nickel surface treatment).
  3. No indirect immersion heater. ALTERNATIVE – direct immersion heaters.
  4. No custom coatings/colours. ALTERNATIVE – powder coated black.
  5. No forklift bracket. ALTERNATIVE – Use lifting strap or lugs.
  6. No drip tray.

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<thead>
<tr>
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<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<td>GOPAK-XXXXX</td>
<td>1</td>
<td>15 day(s)</td>
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Accumulator safety blocks - ABZSS

Rexroth ABZSS safety blocks can be used in any system that incorporates a hydraulic accumulator. Safety blocks not only perform safety functions such as pressure relief, unloading and isolation, but also provide a mounting base for accumulator installation and a quick means to access system pressure readings.

Features

- Sizes 08 to 30
- Safety block design per DIN 24552
- Pressure relief valves can be PED type approved (CE)
- NBR (buna) and FKM (viton) seal options
- Discharge valve can be either manually or electronically actuated
- Pressure relief valve for safety purposes
- Discharge valve can drain accumulator pressure for system shut down
- Ball valve can isolate accumulator pressure from circuit
- Optional lock-out version possible
- Detailed information: RE50131

Technical Data

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<tr>
<th>Nominal size</th>
<th>08</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>30 SO30</th>
<th>P30</th>
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<tr>
<td>Special option</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Larger relief valve</td>
<td>Subplate design</td>
</tr>
<tr>
<td>Max. Operating Pressure bar (psi)</td>
<td>350 (5075)</td>
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<td></td>
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<tr>
<td>Hydraulic Fluid Temperature Range</td>
<td>−15°C to 80°C (5°F to 176°F)</td>
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<tr>
<td>Hydraulic Fluid</td>
<td>Mineral oil to DIN 51524, HETG, HEES, HEPG to VDMA 24568</td>
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<tr>
<td>Weight Kg (lb)</td>
<td>4 (8.8)</td>
<td>5.5 (12.1)</td>
<td>8.8 (19.4)</td>
<td>20.8 (45.8)</td>
<td>26.8 (59.1)</td>
<td>33.4 (73.5)</td>
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<tr>
<td>Protection Class</td>
<td>IP65 with mating connector mounted and locked</td>
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<td></td>
</tr>
<tr>
<td>Pressure Relief Valve Size</td>
<td>DBD6</td>
<td>DBD6</td>
<td>DBD10</td>
<td>DBD20</td>
<td>DBD30</td>
<td>DBD20</td>
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Part Number Description | Max. | Quantity | Shipment (Business Days)
R900707946 ABZSS 10 E-3X/210E/G24K4V12 | 3 | 10 day(s)
R901367389 ABZSS 10 M-3X/210E/V12 | 3 | 10 day(s)
R900707949 ABZSS 20 E-3X/210E/G24K4V12 | 3 | 10 day(s)
R901409869 ABZSS 20 E-3X/210E/S63G24K4V12 | 3 | 10 day(s)
R901409863 ABZSS 20 M-3X/210E/S63V12 | 3 | 10 day(s)
R901367388 ABZSS 20 M-3X/210E/V12 | 3 | 10 day(s)
R900707947 ABZSS 30 E-3X/210E/G24K4V12 | 3 | 10 day(s)
R901332088 ABZSS 30 M-3X/210E/V12 | 3 | 10 day(s)
Electrical Connectors and Cable Sets

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoaccess

Features

- See Technical Data for more information.

Electrical connectors

R978713598 MS CONNECTOR FOR OBE VALVES
* See RE08006

Cable sets

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<td>6 + PE</td>
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<tr>
<td>Standard interface</td>
<td>MIL-C 5015, VG 95 342</td>
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<tr>
<td>Protection class</td>
<td>IP65 / IP67</td>
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<tr>
<td>Cable type</td>
<td>Li9Y11CVY</td>
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<tr>
<td>Wire cross-section</td>
<td>7 x 0.75 (17)</td>
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<tr>
<td>Shielding braid overlap</td>
<td>85 ± 5</td>
</tr>
<tr>
<td>Outside Diameter</td>
<td>9 ± 0.2</td>
</tr>
<tr>
<td>Color code</td>
<td>green-yellow</td>
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</table>

Other conductors:
A: brown, B: yellow, C: green, D: blue, E: gray, F: white

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Max. Quantity</th>
<th>Shipment (Business Days)</th>
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<tbody>
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<td>CABLE SET 7P Z31 BF6 +5M</td>
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GoTo Focused Delivery Program: Accessories

Coils & Handnuts - Directional Valves

Coils & handnuts - applicable to GoTo directional valves

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoaccess

Features

• See Technical Data for more information.

Coils & handnuts

<table>
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<th>Material No.</th>
<th>SAP/Portal Description</th>
<th>Notes</th>
<th>Explanation</th>
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<td>NUT GZ45C-01 SPEZ</td>
<td>all DC</td>
<td>Handnut for use with standard “N9” option DC valves</td>
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<tr>
<td>R901002932</td>
<td>Solenoid Coil 37-K4 - R2,3 00</td>
<td>12 V</td>
<td>For high-pressure valves with DIN connection and K4 plug</td>
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<tr>
<td>R901002319</td>
<td>Solenoid Coil 37-K4 - R4,8 00</td>
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<td>12 V</td>
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<tr>
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<td>R901003055</td>
<td>Solenoid Coil 37-K40 - R2,3 00</td>
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GoTo Focused Delivery Program: Aftermarket Parts

Seal Kits

Seal kits for AZPF, AZPN, AZMF, A2F, A4VG, A4VS, & A6V pumps and motors

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoaftermarket

Features

• See Technical Data for more information.

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<td>1517010152</td>
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<td>1510283008</td>
<td>SHAFT SEAL (BUNA)</td>
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<td>SEAL KT A/AA2FM/O/E100-180/61-V</td>
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<td>R987053779</td>
<td>SEAL KT A/AA2FM/O/E23-32/61-V</td>
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<td>R987053787</td>
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## A4VG Seals

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<td>SEAL KT AA4VG125/32-N</td>
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<td>SEAL KT AA4VG180/32-N</td>
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<td>SEAL KT AA4VG28/32-N</td>
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<td>SEAL KT AA4VG40/32-N</td>
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## A4VS Seals

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<td>R902416662</td>
<td>SEAL KIT .A4VS125/30-P pump only</td>
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<tr>
<td>R902416680</td>
<td>SEAL KIT .A4VS125/30-V pump only</td>
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<td>R902416679</td>
<td>SEAL KIT .A4VS180/30-P pump only</td>
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<td>R902416677</td>
<td>SEAL KIT .A4VS250/30-V pump only</td>
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<td>R902416676</td>
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A10 Service Parts Kits

For complete engineering and design information: GoTo www.boschrexroth-us.com/gotoaftermarket

Features

• See Technical Data for more information.
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Rineer Service Kits

See part description for more information.

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Features

- See part description for more information.

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