Transmission technology

Variable-force transmission solenoid

PRODUCT BENEFITS

- Meets the highest requirements for robustness
- High level of flexibility for mechanical and electrical interfaces
- Outstanding quality at high production volume

1. Bleed type of variable-force transmission solenoid
2. Spool type of variable-force transmission solenoid
Transmission technology
Variable-force transmission solenoid

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drive economically
thanks to minimization of leakage in the transmission hydraulics (CE function)

flexible
due to variable mechanical and electrical interfaces

TASK
The variable-force transmission solenoid (VTS) controls the pilot pressure in automatic transmissions.

FUNCTION
The VTS is a pressure regulator in slider (spool VTS) or flat-seat construction (bleed VTS). In automatic step transmissions, the VTS controls the main pressure, modulates the switching pressure, switches the lock-up clutch and assists the safety functions. In continuously variable transmissions, it is used mainly for shifting the transmission ratio, regulating the belt tension and controlling the lock-up clutch.
The VTS has a vent-controlled pilot valve for automatic transmission, as well as a Teflon-coated anchor bearing. The pilot pressure is subsequently amplified in the hydraulic control plate to operate the clutch couplings. The VTS is available in versions with a rising or falling characteristic curve.

TECHNICAL CHARACTERISTICS

<table>
<thead>
<tr>
<th>Areas of use</th>
<th>Bleed VTS</th>
<th>Spool VTS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>automatic step transmission, continuously variable transmission, dual-clutch transmission</td>
<td></td>
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<tr>
<td>Inlet pressure</td>
<td>≤ 900 kPa</td>
<td>≤ 2,500 kPa</td>
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<tr>
<td>Control pressure</td>
<td>0 – 94% Pₚₑₚ</td>
<td>0 – 48% Pₚₑₚ</td>
</tr>
<tr>
<td>Operating current</td>
<td>0 – 1.2 A</td>
<td>0 – 1.2 A</td>
</tr>
<tr>
<td>Leakage</td>
<td>0.1 l/min at CE position</td>
<td>150 ml at 100 °C and 15 bar</td>
</tr>
<tr>
<td>Flow rate</td>
<td>≤ 1.4 l/min</td>
<td>≤ 3.5 l/min</td>
</tr>
<tr>
<td>Max. diameter</td>
<td>23 mm</td>
<td>23 mm</td>
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