Hydraulic Starting
Soft Engagement Valve

Soft starting of Engines.

The soft engagement valve prevents hard engaging of the pinion and abrupt break away of engine. Thus all mechanical parts of the engine are treated with care what will increase its lifetime very much.

Features and Benefits

- Setting possible for all starter sizes
- Easy installation
- Low maintenance
- Corrosia resistance

With VD-Ventil

Without VD-Ventil

Hard shock during engaging

2 Steps engaging
Soft Engagement Valve

Technische Spezifikationen

Functional principle
When the starter control valve is opened, oil under high pressure flows from the accumulator to the VD 3-339-C soft engagement valve. Its internal valve (2) remains yet closed. But a small amount of pilot oil flows passed the throttle screw (3) in the starter, which begins to rotate, causing the pinion to smoothly engage into the ring gear. As the increasing oil pressure begins to crank the engine, it will lift the piston (5) and thus open the check valve (2) to allow full flow into the starter, which then turns the engine to firing speed. This entire starting cycle eliminates shockwaves in the hydraulic circuit, reduces mechanical wear to a minimum, but provides high engine starting speed for reliable starting at any temperature.

Adjustment
For optimal starting cycle performance, the different starter sizes require different amounts of initial pilot oil. The correct amount can be adjusted at the throttle screw (3a). Whenever the starter size is not specified in the order, the throttle screw (3a) will be factory set for the CMA starter size, based on hydraulic fluid with a viscosity of 25,3 centistoke at 20°C and 1,8 centistoke at 50°C. Thicker oils may need slightly different settings.

<table>
<thead>
<tr>
<th>Starter Size</th>
<th>Outwards turns (CCW) of adjustment screw 3a</th>
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</thead>
<tbody>
<tr>
<td>CMD</td>
<td>0.5</td>
</tr>
<tr>
<td>CMA</td>
<td>0.75</td>
</tr>
<tr>
<td>CMD-2 / HCD-2</td>
<td>2</td>
</tr>
<tr>
<td>CMD-3 / HCD-3</td>
<td>2</td>
</tr>
<tr>
<td>CME</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Setting Procedure
- Determine which starter size is used
- Engage a 4 mm allen key into the throttle screw (3a) and hold in position.
- Loosen the counter nut (3b) with a 13 mm spanner one full turn CCW, and hold.
- Slowly turn the throttle screw (3a) clockwise, until it is bottoming. Then turn the throttle screw (3a) as many turns CCW as indicated in the table corresponding to the starter size used. Hold it precisely in this position and tighten the counter nut (3b). 14-15Nm
- Some sealer paint may be applied to the counter nut and throttle screw.

VD-3-339C Installation
Lay out of a typical starting system with recharging by hand pump only.
The soft engagement valve is fitted between the control valve and the inlet of the hydraulic starter.

Specifications
Max. operating pressure: 220 bar (3050 PSI)
Max. flowrate: 200 l/min (52 GPM)
Setting: see table page 1
Material: Valve body: Aluminum
Weight: 1.1kg
Soft Engagement Valve

Dimensions (in mm):

Local Distributor / Partner: