Overview ............................................................69-72
Technical Data......................................................73-75
Dimensions .............................................................75
ELECTRIC LINEAR DRIVE FOR PRECISE AND HIGH SPEED POSITIONING OF HIGH MASSES

A completely new generation of linear drives which can be integrated into any machine layout neatly and simply.

Linear Drive with Ball Screw Drive, Internal Plain Bearing Guide and Piston Rod

Advantages

• High output force
• Excellent running characteristics
• Accurate path and position control
• High levels of repeatability

Features

• Extending drive rod
• Ball screw spindle
• Non-rotating drive rod
• Continuous duty operation
• Large range of accessories

Slotted profile with dovetail grooves

End cap screws with in-line thread

Double row angular contact ball bearings

Permanent magnet for contactless sensing

Drive shaft
Linear Drive with Ball Screw Drive and Piston Rod
Series OSP-E..SBR

- Corrosion resistant steel sealing band
- Internally protected ball screw nut
- Ball screw spindle
- Stainless steel piston rod
- Piston rod thread according to ISO 15552 (6431)

To simplify design work OSP-E system CAD files are available, which are compatible with most common CAD systems.
SERIES OSP-E, LINEAR DRIVE WITH BALL SCREW DRIVE, INTERNAL PLAIN BEARING GUIDE AND PISTON ROD

STANDARD VERSIONS
OSP-E...SBR
Pages 73-75
Standard carrier with internal guidance and integrated magnet set for contactless position sensing. Dovetail profile for mounting of accessories and the actuator itself.

BALL SCREW PITCH
The ball screws spindles are available in various pitches:
OSP-E25SBR: 5 mm
OSP-E32SBR: 5, 10 mm
OSP-E50SBR: 5, 10, 25 mm

ACCESSORIES
MOTOR MOUNTINGS
Page 119

END CAP MOUNTING
Page 127
For end-mounting the actuator on the extending rod side.

MID SECTION SUPPORT
Page 131
For mounting the actuator on the dovetail grooves and on the motor end.

FLANGE MOUNTING C
Page 128
For end-mounting the actuator on the extending rod side.

TRUNNION MOUNTING EN
Page 135
Trunning mounting EN in combination with pivot mounting EL.
– steplessly adjustable in axial direction.

PISTON ROD EYE
Page 144

PISTON ROD CLEVIS
Page 144

PISTON ROD COMPENSATING COUPLING
Page 145
For compensating of radial and angular misalignments.

MAGNETIC SWITCHES
SERIES RS AND ES
Page 148
For contactless position sensing of end stop and intermediate carrier positions.
Linear Drive with Ball Screw Drive and Piston Rod

Series OSP-E..SBR
Size 25, 32, 50

Features

OSP-E Series Electric Linear Drives and Guides
Ball Screw Drive & Piston Rod

**Characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Symbol</th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Features</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Series</td>
<td></td>
<td>OSP-E..SBR</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td></td>
<td>Linear drive with ball screw drive and piston rod</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td></td>
<td>See drawings</td>
<td></td>
</tr>
<tr>
<td>Temperature range</td>
<td>$\Theta_{\min}$</td>
<td>°C</td>
<td>-20</td>
</tr>
<tr>
<td></td>
<td>$\Theta_{\max}$</td>
<td>°C</td>
<td>+80</td>
</tr>
<tr>
<td>Weight (mass)</td>
<td></td>
<td>kg</td>
<td>See table</td>
</tr>
<tr>
<td>Installation</td>
<td></td>
<td>In any position</td>
<td></td>
</tr>
<tr>
<td>Slotted profile</td>
<td></td>
<td></td>
<td>At anodized</td>
</tr>
<tr>
<td>Ball screw</td>
<td></td>
<td>Steel</td>
<td></td>
</tr>
<tr>
<td>Ball nut</td>
<td></td>
<td>Steel</td>
<td></td>
</tr>
<tr>
<td>Piston rod</td>
<td></td>
<td>Stainless steel</td>
<td></td>
</tr>
<tr>
<td>Guide bearings</td>
<td></td>
<td>Low friction plastic</td>
<td></td>
</tr>
<tr>
<td>Sealing band</td>
<td></td>
<td>Hardened, corrosion resistant steel</td>
<td></td>
</tr>
<tr>
<td>Screws, nuts</td>
<td></td>
<td>Zinc plated steel</td>
<td></td>
</tr>
<tr>
<td>Mountings</td>
<td></td>
<td>Zinc plated steel and aluminum</td>
<td></td>
</tr>
<tr>
<td>Encapsulating class</td>
<td></td>
<td>IP 54</td>
<td></td>
</tr>
</tbody>
</table>

**Weight (mass) and Inertia**

<table>
<thead>
<tr>
<th>Series</th>
<th>Weight (Mass) (kg)</th>
<th>Moving Mass (kg)</th>
<th>Inertia ($10^6\ kgm^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At stroke 0 m</td>
<td>Add per meter stroke</td>
<td>At stroke 0 m</td>
</tr>
<tr>
<td>OSP-E25SBR</td>
<td>0.7</td>
<td>3.0</td>
<td>0.2</td>
</tr>
<tr>
<td>OSP-E32SBR</td>
<td>1.7</td>
<td>5.6</td>
<td>0.6</td>
</tr>
<tr>
<td>OSP-E50SBR</td>
<td>4.5</td>
<td>10.8</td>
<td>1.1</td>
</tr>
</tbody>
</table>

**Installation Instructions**

Use the threaded holes in the free end cap and a mid-section support close to the motor end for mounting the linear actuator.

**Maintenance**

All moving parts are long-term lubricated for a normal operational environment. PARKER-ORIGA recommends a check and lubrication of the linear drive, and if necessary a change of wear parts, after an operation time of 12 months or 3000 km travel of distance. Please refer to the operating instructions supplied with the drive.

**First service start-up**

The maximum values specified in the technical data sheet for the different products must not be exceeded. Before taking the linear drive machine into service, the user must ensure the adherence to the EC Machine Directive 91/368/EEC.
Sizing
Performance Overview
Maximum Loadings

Sizing of Linear Drive
The following steps are recommended for selection:
1. Check that the maximum values in the adjacent chart and transverse force/stroke graph below are not exceeded.
2. Check the lifetime/travel distance in graph below.
3. When sizing and specifying the motor, the RMS-average torque must be calculated using the cycle time in application.

Transverse Force / Stroke
The permissible transverse force is reduced with increasing stroke length according to the adjacent graphs.

Maximum rpm / Stroke
At longer strokes the speed has to be reduced according to the adjacent graphs.
Performance as a function of the action force

The performance to be expected depends on the maximum required actions force of the application. An increase of the action force will lead to a reduced performance.

**Performance / Action force**

**Linear Drive with Ball Screw Drive and Piston Rod – Basic Unit**

**Series OSP-E..SBR**

**End Cap Size OSP-E50SBR**

**Plain shaft with keyway (Option)**

**Dimension Table [mm]**

<table>
<thead>
<tr>
<th>Series</th>
<th>B</th>
<th>C</th>
<th>E</th>
<th>G x H</th>
<th>K</th>
<th>I₀</th>
<th>AM</th>
<th>CF</th>
<th>CG</th>
<th>FB</th>
<th>FH</th>
<th>KB</th>
<th>KD</th>
<th>KK</th>
<th>KL</th>
<th>KN</th>
<th>KS</th>
<th>KT</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSP-E25SBR</td>
<td>22</td>
<td>41</td>
<td>27</td>
<td>M5 x 10</td>
<td>21.5</td>
<td>110</td>
<td>20</td>
<td>22</td>
<td>26</td>
<td>40</td>
<td>39.5</td>
<td>6h7</td>
<td>2</td>
<td>M10x1.25</td>
<td>17</td>
<td>13</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>OSP-E32SBR</td>
<td>26.5</td>
<td>52</td>
<td>36</td>
<td>M6 x 12</td>
<td>28.5</td>
<td>175.5</td>
<td>20</td>
<td>28</td>
<td>26</td>
<td>52</td>
<td>51.7</td>
<td>10h7</td>
<td>2</td>
<td>M10x1.25</td>
<td>31</td>
<td>20</td>
<td>33</td>
<td>2</td>
</tr>
<tr>
<td>OSP-E50SBR</td>
<td>33</td>
<td>87</td>
<td>70</td>
<td>M6 x 12</td>
<td>43</td>
<td>206</td>
<td>32</td>
<td>38</td>
<td>37</td>
<td>76</td>
<td>77</td>
<td>15h7</td>
<td>3</td>
<td>M16x1.5</td>
<td>43</td>
<td>28</td>
<td>44</td>
<td>3</td>
</tr>
</tbody>
</table>

*Note:
The mechanical end position must not be used as a mechancial end stop. Allow an additional safety clearance at both ends equivalent to the linear movement of one revolution of the drive shaft, but at least 25 mm.

Order stroke = required travel + 2 x safety distance.

The use of an AC motor with frequency converter normally requires a larger safety clearance than that required for servo systems. For further information, please contact your local PARKER-ORIGA representative.