High speeds and high torque ratings combines precision with high economic efficiency

Low backlash PSF and PSC planetary servo gear units
Low backlash BSF helical-bevel servo gear units
Three series that make for thousands of options

Machine performance requirements today demand higher processing speeds, increased precision and greater acceleration. In addition, safety standards for electromechanical drives are becoming more and more stringent.

SEW-EURODRIVE meets these new and diverse requirements with a new line of precise and extremely powerful servo gear units that transfer larger torque ratings at high speeds and absorb greater overhung loads. These high performance SEW servo solutions deliver consistently low circumferential backlash, optimum torsional rigidity and a high level of efficiency:

- Extremely economical **PSC** planetary servo gear units
- Improved, low backlash **PSF** planetary servo gear units
- Versatile, low backlash **BSF** helical-bevel gear units

The properties of the servo gear unit series at a glance

- Highest permitted torques
- High operating speeds
- High efficiency levels
- High torsional rigidity
- Finely stepped, integer gear ratios
- Wear-free operating performance of running gears
- Constantly low circumferential backlash
- Low noise generation
- Synthetic lubricants
- Compact, lightweight design
- Extremely high level of reliability, availability and a long service life
- Comprehensive and proven service based on manufacturer’s expertise

Driving the world – with innovative drive solutions that deliver superior performance for a vast range of applications in every industry – from automotive production to building materials manufacturing, from food & beverage handling to metals processing. When you choose drive technology "made by SEW-EURODRIVE" you are getting a return on your power transmission investment that is second to none.
SEW’s modular design system allows you to directly connect these low backlash servo gear units with our dynamic DS, CM and CMP servomotors. Since a conventional adapter with clamp coupling is no longer required, the entire drive forms a positive connection – from the motor shaft through to the output shaft of the gear unit.

This innovation allows SEW-EURODRIVE to set new standards in safety for electromechanical drivelines. By eliminating the risk of loose non-positive connections, this trend-setting direct motor mounting results in major advantages for the entire drive:

- Higher torsional rigidity
- More dynamics
- Less mass moment of inertia
- More compact footprint
- Lighter weight
- Shorter
- Completely positive
- More cost-effective

The project planning data have been verified at SEW-EURODRIVE through rigorous measurements and calculations. This means you can count on SEW servo solutions to deliver enduring and fault-free operation with low follow-up costs.
Low backlash PSC planetary servo gear units:
Economy and flexibility

Low backlash PSC planetary servo gear units are designed for torque classes from 30 to 305 Nm and combine the greatest possible flexibility with cost-efficiency. Ideal for applications that do not require maximum performance, these planetary servo gear units form the basis for versatile, dynamic and above all cost optimized drive solutions. Performance properties include:

- Compact, lightweight design
- Highest degree of reliability, availability and long service life
- Any mounting position is possible
- Synthetic lubricants
- Either oil or grease lubrication
- Lifetime lubrication
- Surface protection OS1 to OS4

Flexibility in motor mounting:

In an option available only from SEW-EURODRIVE, servo gear units can be installed either with a standard input adaptor for use with almost any servo motor or directly mounted without an adaptor on an SEW CM or CMP servo motor.

### Technical data

<table>
<thead>
<tr>
<th>Size</th>
<th>Torque class [Nm]</th>
<th>Gear ratios 1-stage [i]</th>
<th>Gear ratios 2-stage [i]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSC 220</td>
<td>30</td>
<td>3, 5, 7, 10</td>
<td>15, 21, 25, 30, 35, 49, 50, 70, 100</td>
</tr>
<tr>
<td>PSC 320</td>
<td>65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSC 520</td>
<td>160</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSC 620</td>
<td>320</td>
<td>5, 7, 10</td>
<td>25, 35, 49, 50, 70, 100</td>
</tr>
</tbody>
</table>

Circumferential backlash for all designs: Max. 10° single-stage, or max. 15° two-stage
Low backlash PSF planetary servo gear units: Performance and reliability

Low backlash **PSF planetary servo gear units** are designed for torque classes from 25 to 3000 Nm. The permitted acceleration torque ratings are significantly higher than these values.

Three output options are available:
- PSF: Solid shaft
- PSKF: Solid shaft with key
- PSBF: Flange block shaft according to EN ISO 9409

### Technical data

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>Torque class [Nm]</th>
<th>Gear ratios*</th>
<th>Circumferential backlash [°]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1-stage [i]</td>
<td>2-stage [i]</td>
</tr>
<tr>
<td>PSF</td>
<td>120</td>
<td>25</td>
<td>3°, 4°, 5°, 7°, 10°</td>
<td>8, 4, 2</td>
</tr>
<tr>
<td>PSF / PSBF</td>
<td>220</td>
<td>55</td>
<td>15°, 16°, 20°, 25°, 28°, 35°, 40°, 49°, 70°, 100°</td>
<td>6°, 3°, 1°</td>
</tr>
<tr>
<td>PSF / PSBF</td>
<td>320</td>
<td>110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSF / PSBF</td>
<td>520</td>
<td>300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSF / PSBF</td>
<td>620</td>
<td>600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSF / PSBF</td>
<td>720</td>
<td>1000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSF / PSBF</td>
<td>820</td>
<td>1750</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSF</td>
<td>920</td>
<td>3000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*PSF only, 2) PSBF 322/522 only, 3) standard, 4) reduced, 5) minimized, 6) other gear ratios on request
Low backlash BSF helical-bevel servo gear units: Wide range of combinations and compact design

Low backlash BSF helical-bevel servo gear units are designed for torque classes from 40 to 1500 Nm. The permitted acceleration torque ratings are significantly higher than these values. These right-angle servo gear units are available in five output options as standard:

- BSF: Solid shaft
- BSKF: Solid shaft with key
- BSBF: Flange block shaft (EN ISO 9409)
- BSHF: Hollow shaft with shrink disc
- BSAF: Hollow shaft with key (shaft mounted gear units)

All units come equipped with a BS mounting flange, or with foot mounting and torque arm as options. In this way, the drive units can be optimally integrated into the relevant application.

The input stage with helical gearing and a hypoid bevel gear output stage result in gear ratio ranges that cover those of single-stage helical-bevel and hypoid gear units as well as those of single-stage helical-worm gear units with a high level of transmission quality. The circumferential backlash remains constantly low over the entire gear unit service life.

### Technical data

<table>
<thead>
<tr>
<th>Size</th>
<th>Torque class [Nm]</th>
<th>Gear ratios 2-stage [i]</th>
<th>Circumferential backlash [’]</th>
</tr>
</thead>
<tbody>
<tr>
<td>202</td>
<td>40</td>
<td>3, 4, 6, 8, 10, 15, 20, 25</td>
<td>6°, 3°</td>
</tr>
<tr>
<td>302</td>
<td>80</td>
<td>3, 4, 6, 8, 10, 15, 20, 25, 30</td>
<td></td>
</tr>
<tr>
<td>402</td>
<td>160</td>
<td>3, 4, 6, 8, 10, 12, 15, 20, 25, 30, 35</td>
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</tr>
<tr>
<td>502</td>
<td>320</td>
<td>3, 4, 6, 8, 10, 12, 15, 20, 25, 30, 35</td>
<td></td>
</tr>
<tr>
<td>602</td>
<td>640</td>
<td>3, 4, 6, 8, 10, 12, 15, 20, 25, 30, 35, 40</td>
<td></td>
</tr>
<tr>
<td>802</td>
<td>1500</td>
<td>3, 4, 6, 8, 10, 12, 15, 20, 25, 30, 35, 40</td>
<td></td>
</tr>
</tbody>
</table>

° standard, ° reduced
Applications from the servo field of drive engineering not only place high demands on the speed and precision of the drive technology implemented, but the project planning required these applications is also very time-consuming and labor-intensive. SEW-EURODRIVE servo solutions not only provide dynamic and precise drive technology, but also tailor-made software that guides the user quickly and simply to his or her goal: The servo project planning tool for optimum project planning of servo applications is part of the SEW Workbench.

## Overview of features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comprehensive:</strong></td>
<td>A selection of 90 servo applications and 100 graphics support the project planning process</td>
</tr>
<tr>
<td><strong>Structured:</strong></td>
<td>Structured overview with tab pages</td>
</tr>
<tr>
<td><strong>Easy to use:</strong></td>
<td>Travel profiles can be defined using the drag &amp; drop function</td>
</tr>
<tr>
<td><strong>Automatic:</strong></td>
<td>Optimum gear ratio of the drives can be determined. The drive is checked after each change the user makes</td>
</tr>
<tr>
<td><strong>User-friendly:</strong></td>
<td>A number of product combinations can be compared directly with one another and the project planning examples can be archived and sent to other users</td>
</tr>
</tbody>
</table>
How we’re driving the world

With uncompromising quality that reduces the cost and complexity of daily operations.  
With drives and controls that automatically improve your productivity.  
With comprehensive knowledge in virtually every branch of industry today.  
With industry-leading training and 24-hour technical support, nationwide.

With a global presence that offers responsive and reliable solutions. Anywhere.  
With a worldwide service network that is always close at hand.  
With innovative technology that solves tomorrow’s problems today.  
With online information and software updates, via the Internet, available around the clock.

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