Industrial Gear Units

Technology for cranes
Excellent performance needs a strong partner – SEW-EURODRIVE has been a supplier of drive technology for many decades and is now among the leading companies for drive technology worldwide. Whatever your requirements are, the application experts from SEW-EURODRIVE can provide you with the optimum drive package solution. What we offer is not just the individual components, such as gear units, couplings or efficient cooling systems, but a complete system that fits your needs precisely.

Do you need a customized solution?

You can rely on us all the way from project planning to commissioning and operation. We are dedicated to helping you keep the total cost of ownership of your crane application as low as possible. Whether you need technical calculations, specific documentation such as quality certificates or project-specific operating instructions, condition monitoring or service on site – SEW-EURODRIVE is your long-term partner.
From idea to reality

Our solutions for

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<tr>
<th>Hoisting</th>
<th>X Series 6.8 to 475 kNm</th>
<th>6</th>
</tr>
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<tr>
<td></td>
<td>ML Series 470 to 1480 kNm</td>
<td>10</td>
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<td>Trolley traveling and main traveling</td>
<td>7 Series 0.08 to 50 kNm</td>
<td>14</td>
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<td>X Series 6.8 to 475 kNm</td>
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<tr>
<td>Slewning</td>
<td>P Series 24.0 to 500 kNm</td>
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<td>Services</td>
<td></td>
<td>18</td>
</tr>
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</table>
No matter what conditions your cranes are operating under, our gear units are designed to perfectly match your expectations. Typical areas of application are industrial, process, ship to shore, yard, goliath shipyard and straddle carrier cranes.

**Hoisting**

Automated rail mounted gantry crane (ARMG) with bevel-helical gear units and brakes

Process crane based on a helical gear unit. The shaft center distances perfectly fulfill the geometric requirements

**Trolley traveling**

Process crane with helical gear unit and cardan shafts

Container gantry crane with bevel helical gear unit
Based on the rules from FEM/DIN EN 130001, SEW-EURODRIVE will select and provide you with the drive solution that gives you the best level of safety and service life.
Hoisting

Characteristics of the X series
Torque range: 6.8 – 475 kNm

With finely stepped sizes, the X series from SEW-EURODRIVE covers torques ranging from 6.8 to 475 kNm. The large number of predefined accessories offers a high degree of flexibility for adapting to a broad range of application situations – with a minimum of components at maximum availability.
Features

- Standardized helical and bevel units for all kind of hoisting movements (selection acc. FEM / EN 13001)
- Modular technology
- Great number of variants due to predefined options
- Availability of extended shaft center distances for helical gear units
- Worldwide service

Benefits

- Short delivery time for standard versions and spare parts
- Reduced costs and weight due to high power density
- Geometric issues related to motor diameter and rope drum diameter can be easily solved by using the smallest possible gear unit size
- High gear unit availability
Wide range of available features for the X series
Torque range: 6.8 – 475 kNm

Many features of the modular standard X series products can be combined with this application gear unit.
Many more options are available for the drive package:

- Speed sensors
- Monitoring of oil bath temperature
- Bearing vibration monitoring
- Oil aging monitoring
- Duty cycle calculation
- Selection according FEM class and EN 13001
- Inclined mounting positions
- Design to order features are also available on demand for example drive emergency
Customer-specific applications and tailor-made solutions must also be feasible for large machines and systems. The ML..2 series meets the specific requirements in the upper torque range from 470 to 1480 kNm and ensures the highest level of flexibility and variability.

### Characteristics of the ML..2 series

**Torque range:** 470 – 1480 kNm

### Gear ratio and torques

- **ML.P helical gear units 3, 4 stages, gear ratio \( i = 20 \) to 315**
- **ML.R bevel gear units 3 stages, gear ratio \( i = 14 \) to 63**

<table>
<thead>
<tr>
<th>Gear unit size</th>
<th>ML3R (( i = 14 – 63 )) Torque class ( M_{az} ) (kNm)</th>
<th>M3P (( i = 20 – 63 )) Torque class ( M_{az} ) (kNm)</th>
<th>M4P (( i = 71 – 315 )) Torque class ( M_{az} ) (kNm)</th>
<th>Shaft center distance ( i = 20 – 315 ) (mm)</th>
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</thead>
<tbody>
<tr>
<td>2135</td>
<td>470</td>
<td>500</td>
<td>540</td>
<td>1465</td>
</tr>
<tr>
<td>2140</td>
<td>540</td>
<td>560</td>
<td>620</td>
<td>1505</td>
</tr>
<tr>
<td>2145</td>
<td>630</td>
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<td>1557</td>
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<td>2150</td>
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<td>750</td>
<td>800</td>
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<td>2155</td>
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<td>870</td>
<td>970</td>
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<td>2160</td>
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<td>1040</td>
<td>1140</td>
<td>1846</td>
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<tr>
<td>2165</td>
<td>1200</td>
<td>1260</td>
<td>1320</td>
<td>1976</td>
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<tr>
<td>2170</td>
<td>1390</td>
<td>1460</td>
<td>1480</td>
<td>2066</td>
</tr>
</tbody>
</table>
**Features**
- Helical and bevel gear unit for hoisting applications
- Modular technology
- Split housing in welded design
- Availability of extended shaft center distances for helical gear units
- Worldwide service

**Benefits**
- Short delivery time for standard versions and spare parts
- Easy maintenance thanks to parting line
- Geometric issues related to motor diameter and rope drum diameter can be easily solved by using the lowest possible gear unit size
- High gear unit availability
Wide range of available features for the ML...2 Series
Torque range: 470 – 1480 kNm
Many more options are available for the drive package

- Brakes
- Condition monitoring
- Duo motor drive
- Des-Case breather

Split seals for easy maintenance on site

Motor adapter also for heavy motor designs

Specific shaft center distances on request
SEW-EURODRIVE offers the perfect range of drive solutions for rope-towed trolleys, machinery on trolleys and main traveling. It goes without saying that as a system supplier we can provide you with both the gear units and all the necessary drive components such as brakes, couplings and steel frames.

Trolley traveling and main traveling

### Size and torque capacity

#### Gear ratio and torques

**X Series: bevel gear units X.K and X.T from gear ratio i = 6.3 to 450**

**7 Series: bevel gear units K execution from gear ratio i = 3.19 to 197.37**

<table>
<thead>
<tr>
<th>Gear unit size</th>
<th>Torque class $M_{ns}$ (Nm)</th>
<th>Gear unit size</th>
<th>Torque class $M_{ns}$ (Nm)</th>
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</thead>
<tbody>
<tr>
<td>X100</td>
<td>6 800</td>
<td>19</td>
<td>80</td>
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<tr>
<td>X110</td>
<td>8 500</td>
<td>29</td>
<td>130</td>
</tr>
<tr>
<td>X120</td>
<td>12 800</td>
<td>37</td>
<td>200</td>
</tr>
<tr>
<td>X130</td>
<td>16 000</td>
<td>47</td>
<td>400</td>
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<tr>
<td>X140</td>
<td>22 000</td>
<td>57</td>
<td>600</td>
</tr>
<tr>
<td>X150</td>
<td>27 500</td>
<td>67</td>
<td>820</td>
</tr>
<tr>
<td>X160</td>
<td>36 000</td>
<td>77</td>
<td>1 550</td>
</tr>
<tr>
<td>X170</td>
<td>45 000</td>
<td>87</td>
<td>2 700</td>
</tr>
<tr>
<td>X180</td>
<td>58 000</td>
<td>97</td>
<td>4 300</td>
</tr>
<tr>
<td>X190</td>
<td>65 000</td>
<td>107</td>
<td>8 000</td>
</tr>
<tr>
<td>X200</td>
<td>79 000</td>
<td>127</td>
<td>13 000</td>
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<tr>
<td>X210</td>
<td>90 000</td>
<td>157</td>
<td>18 000</td>
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<tr>
<td>X220</td>
<td>112 000</td>
<td>167</td>
<td>32 000</td>
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<tr>
<td>X230</td>
<td>131 000</td>
<td>187</td>
<td>50 000</td>
</tr>
<tr>
<td>X240</td>
<td>156 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X250</td>
<td>175 000</td>
<td></td>
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</tr>
</tbody>
</table>
Features
- Bevel-helical gear units in horizontal or upright mounting position
- Efficient lubrication concepts
- Versatile shaft concepts
- Worldwide service

Benefits
- Compact solution means less cost for steel structure
- High gear unit reliability
- Support and part availability
SEW-EURODRIVE offers the perfect range of solutions for slewing movements in crane applications. Our customized planetary gear units with lantern and pinion in the low speed range are designed for all kinds of operating conditions.

### Size and torque capacity

<table>
<thead>
<tr>
<th>Gear unit size</th>
<th>Nom. torque [kNm]</th>
<th>Ratio range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVF002 KF77</td>
<td>24</td>
<td>150 – 1 500 *</td>
</tr>
<tr>
<td>PVF012 KF87</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>PVF022 KF97</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>PVF032 KF97</td>
<td>69</td>
<td></td>
</tr>
<tr>
<td>PVF042 KF107</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>PVF052 KF127</td>
<td>124</td>
<td></td>
</tr>
<tr>
<td>PVF062 KF127</td>
<td>185</td>
<td></td>
</tr>
<tr>
<td>PVF072 KF127</td>
<td>245</td>
<td></td>
</tr>
<tr>
<td>PVF082 KF157</td>
<td>359</td>
<td></td>
</tr>
<tr>
<td>PVF092 KF167</td>
<td>423</td>
<td></td>
</tr>
<tr>
<td>PVF102 KF187</td>
<td>500</td>
<td></td>
</tr>
</tbody>
</table>

* additional ratio available
Features
- Highly customizable slewing drives
- Flexible selection of pinion in module and eccentricity
- Great variety of extended output shaft lengths
- Motor brake or separate break possible
- Safety coupling on high speed shaft available

Benefits
- Best fit guarantee in slewing applications
- Dedicated solution for long service life
- Cost reduction in engineering and buying process using SEW-EURODRIVE complete drive systems
SEW-EURODRIVE’s service for industrial gear units offers individual solutions ranging from startup, inspection and maintenance, repairs to retrofitting. We regard service as an integral system that covers all requirements during the product’s life cycle. You have the choice between services on-site or at the local SEW-EURODRIVE, the Drive Technology Center.
### What we offer you

<table>
<thead>
<tr>
<th><strong>Start-up Service</strong></th>
<th><strong>Repair Service</strong></th>
<th><strong>Retrofit Service</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>– Start-up support tailored to your needs</td>
<td>– Replacing defective and affected parts</td>
<td>– Replacement of your drive components with SEW-EURODRIVE products incl. modified designs and adaptations</td>
</tr>
<tr>
<td>– Checking the installation of the drive components</td>
<td>– Complete overhauls</td>
<td>– Energy efficiency aspects factored in</td>
</tr>
<tr>
<td>– Test run under test and production conditions</td>
<td>– Cleaning of all drive components</td>
<td>– Customization of the components to your requirements (cooling systems, brake/coupling units, etc.)</td>
</tr>
<tr>
<td>– Monitoring of production, and making any necessary adjustments</td>
<td>– Determining, acquiring and producing required parts based on condition</td>
<td>– Exact reproduction of your components (e.g. welded steel construction) from dimensioning to design and production through to assembly for 100% compatibility in your systems. There is no need for special adjustment measures</td>
</tr>
<tr>
<td>– Initial oil fill</td>
<td>– Professional assembly and implementation of test runs</td>
<td>– Optimization of units according to latest state-of-the-art technology</td>
</tr>
</tbody>
</table>

### Inspection and Maintenance Service

<table>
<thead>
<tr>
<th><strong>Start-up Service</strong></th>
<th><strong>Repair Service</strong></th>
<th><strong>Retrofit Service</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>– Checking of mounted components</td>
<td>– Touch up or renewal of paint and adjustment according to customer requirements (outer and inner coating)</td>
<td></td>
</tr>
<tr>
<td>– Alignment and recalibration</td>
<td>– Calculation of gearing geometry and adjustment</td>
<td></td>
</tr>
<tr>
<td>– Noise check to detect early signs of damage</td>
<td>– Post-processing of drive bearing bores on gear units with bushings</td>
<td></td>
</tr>
<tr>
<td>– Examination with an inspection scope for gear unit diagnostics</td>
<td>– Recalculation of gearing geometry and adjustment</td>
<td></td>
</tr>
<tr>
<td>– Condition report for each drive</td>
<td>– Post-processing of drive bearing bores on gear units with bushings</td>
<td></td>
</tr>
<tr>
<td>– Oil quality analysis</td>
<td>– Professional assembly and implementation of test runs</td>
<td></td>
</tr>
<tr>
<td>– If determined necessary by the oil analysis test, oil is changed and waste oil is disposed of in an environmentally responsible manner</td>
<td>– Replacing defective and affected parts</td>
<td></td>
</tr>
</tbody>
</table>
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How we’re driving the world