

## Industrial Gear Units

Technology for cranes



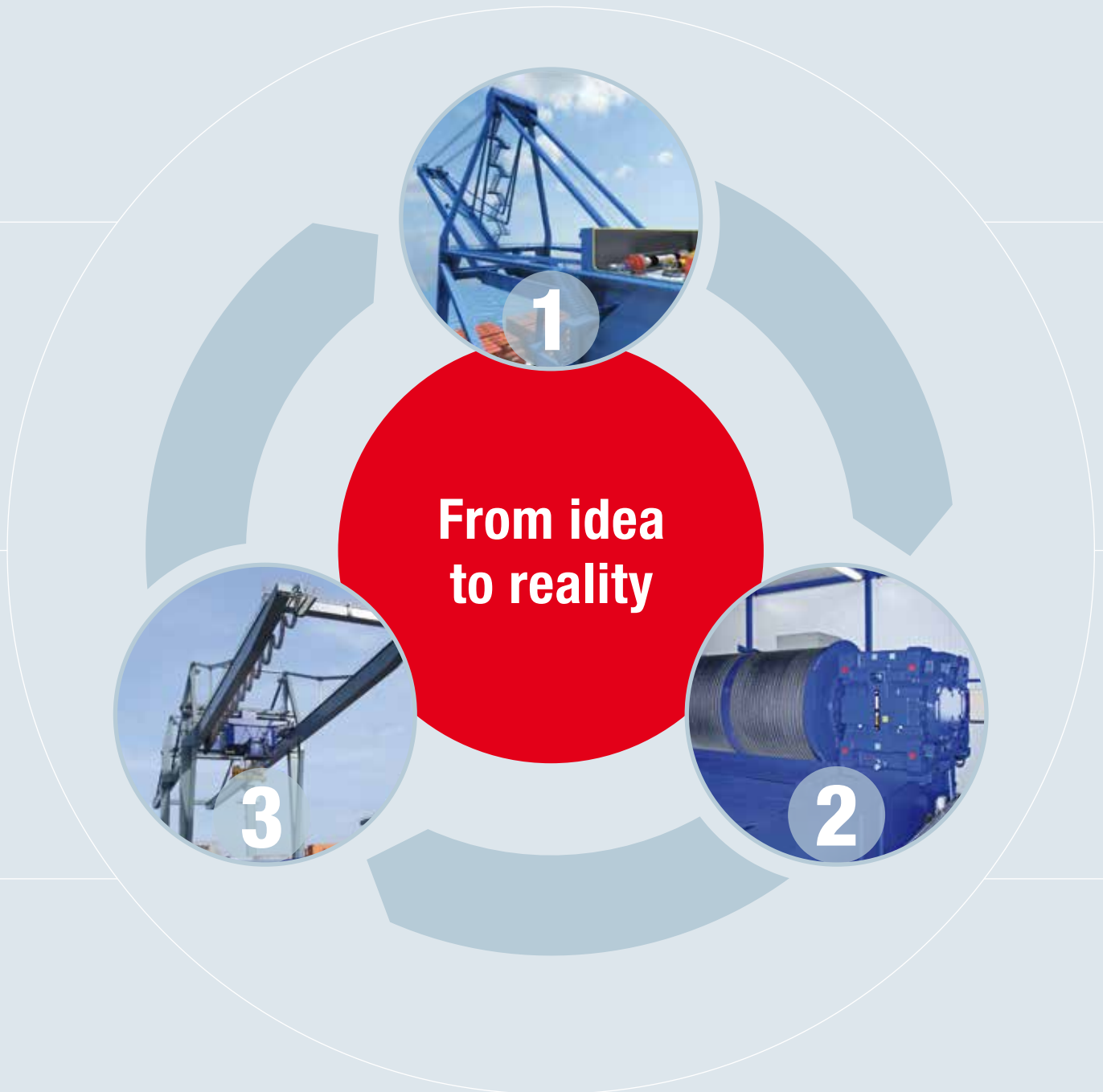
## Complete drive systems for your cranes

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 calcula-

tions, specific documentation such as quality certificates or project-specific operating instructions, condition monitoring or service on site – SEW-EURODRIVE is your long-term partner.



## Our solutions for

<b>Hoisting</b>	X Series 6.8 to 475 kNm	<b>6</b>
	ML Series 470 to 1480 kNm	<b>10</b>
<b>Trolley traveling and main traveling</b>	7 Series 0.08 to 50 kNm	<b>14</b>
	X Series 6.8 to 475 kNm	
<b>Slewing</b>	P Series 24.0 to 500 kNm	<b>16</b>
<b>Services</b>		<b>18</b>

# Complete drive systems for your cranes

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.

## Main traveling



Bevel-helical gear unit for an automated rail mounted gantry crane (ARMG)



Gearmotors for a ship to shore crane

## Slewing



Planetary gear unit with long lantern for a jib crane

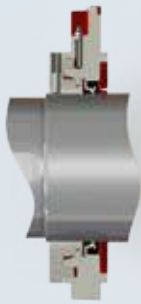




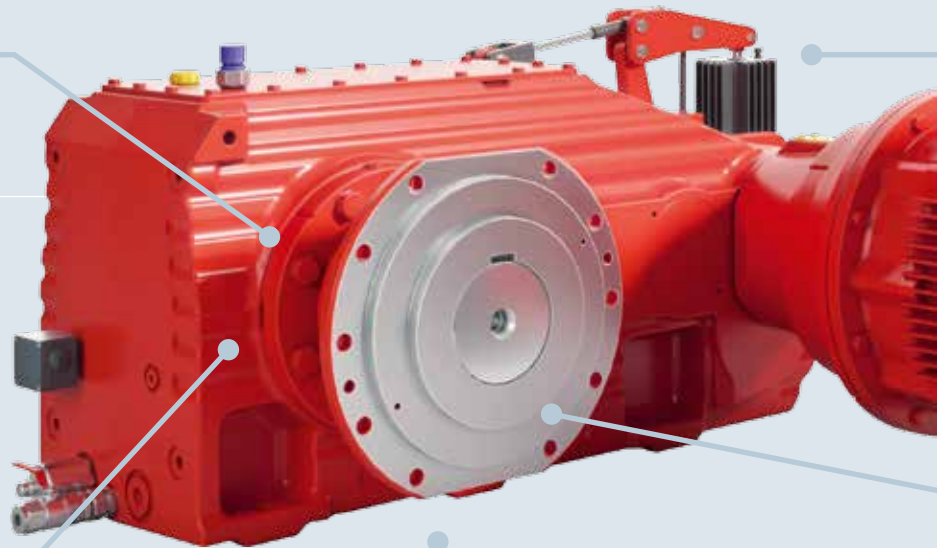
## Wide range of available features for the X series Torque range: 6.8 – 475 kNm

Many features of the modular standard X series products can be combined with this application gear unit.

**Efficient sealing system,  
for example Taconite**



**Housing X/HC with specific extended  
shaft center distances**



**NEMA and IEC motors**



**Versatile shaft concepts**



Solid shaft with keyway  
(for smooth type) rein-  
forced design



Hollow shaft with keyway  
(or splined hollow shaft)



Splined solid shaft



Hollow shaft for shrink  
disk connection





**DIN brake mounted on a robust scoop**



**Couplings**



**Torque arm**

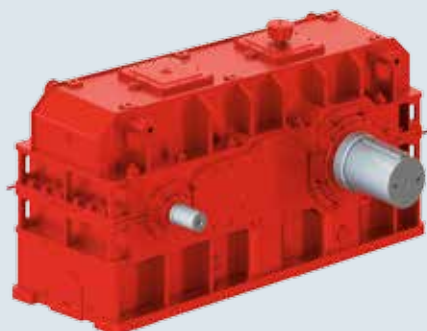


**Foot mounting**



## 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



## Characteristics of the ML..2 series

Torque range: 470 – 1480 kNm

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.

### Size and torque capacity

#### 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

Gear unit size	ML3R ( $i = 14 - 63$ ) Torque class $M_{N2}$ (kNm)	M3P ( $i = 20 - 63$ ) Torque class $M_{N2}$ (kNm)	M4P ( $i = 71 - 315$ ) Torque class $M_{N2}$ (kNm)	Shaft center distance $i = 20 - 315$ (mm)
2135	470	500	540	1465
2140	540	560	620	1505
2145	630	650	700	1557
2150	720	750	800	1631
2155	850	870	970	1737
2160	1030	1040	1140	1846
2165	1200	1260	1320	1976
2170	1390	1460	1480	2066

**Features**

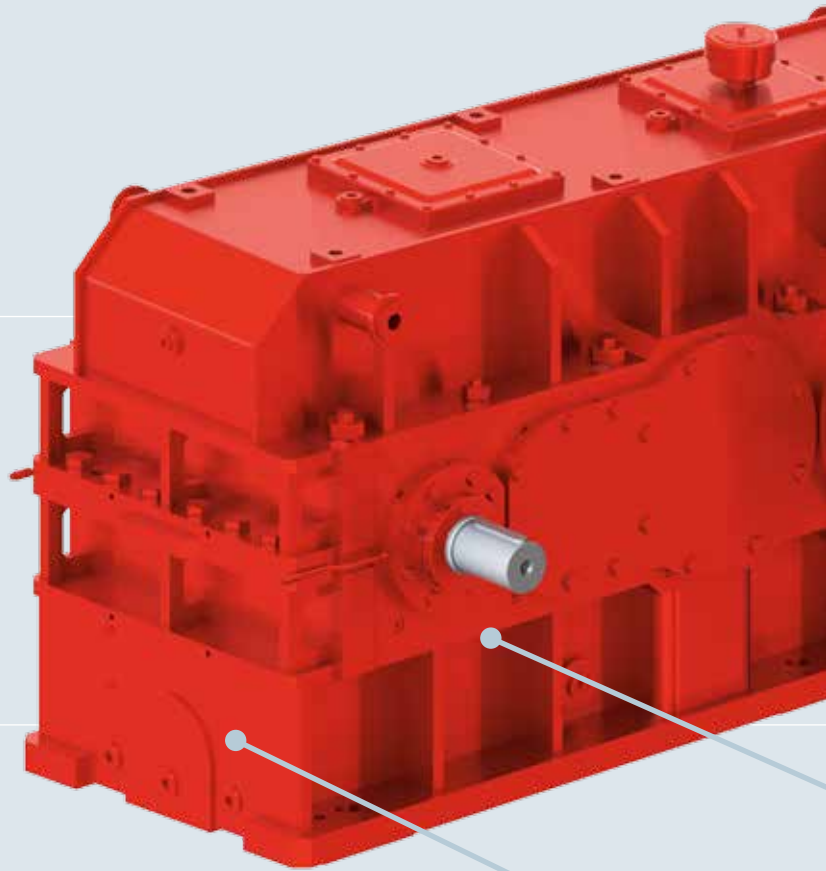
- Helical and bevel gear unit for hoisting applications
- Modular technology
- Split housing in welded design
- Availability of extended shaft center distances for helical gear units
- Worldwide service

**Benefits**

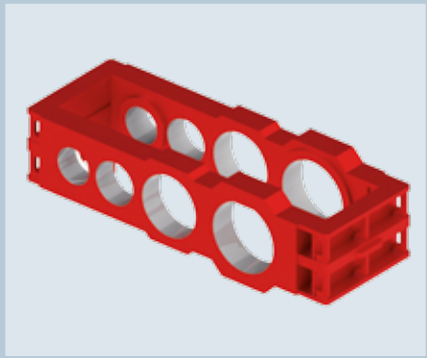
- Short delivery time for standard versions and spare parts
- Easy maintenance thanks to parting line
- Geometric issues related to motor diameter and rope drum diameter can be easily solved by using the lowest possible gear unit size
- High gear unit availability



## Wide range of available features for the ML...2 Series Torque range: 470 – 1480 kNm



**Welded split housing with rigid bearing beam**



**Versatile shaft concepts**



Solid shaft with keyway  
(or smooth type)



Hollow shaft with keyway  
(or splined hollow shaft)



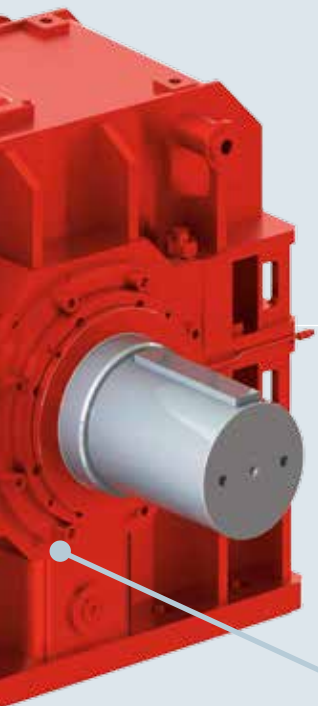
Splined solid shaft



Hollow shaft for shrink  
disk connection

**Oil heater and thermostat**

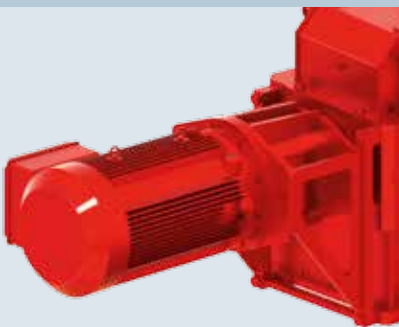




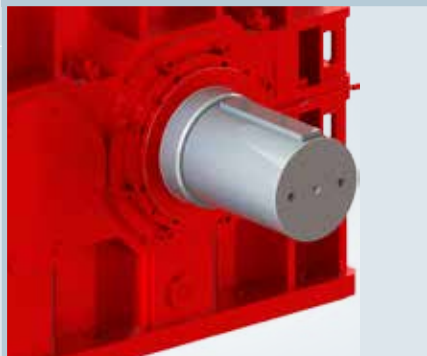
**Split seals for easy maintenance on site**



**Motor adapter also for heavy motor designs**



**Specific shaft center distances on request**



Many more options are available for the drive package

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



## Trolley traveling and main traveling



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.

### 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  $197.37$**

Gear unit size	Torque class $M_{N2}$ (Nm)	Gear unit size	Torque class $M_{N2}$ (Nm)
X100	6 800	19	80
X110	8 500	29	130
X120	12 800	37	200
X130	16 000	47	400
X140	22 000	57	600
X150	27 500	67	820
X160	36 000	77	1 550
X170	45 000	87	2 700
X180	58 000	97	4 300
X190	65 000	107	8 000
X200	79 000	127	13 000
X210	90 000	157	18 000
X220	112 000	167	32 000
X230	131 000	187	50 000
X240	156 000		
X250	175 000		

**Features**

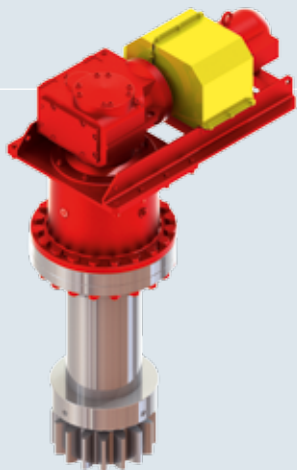
- Bevel-helical gear units in horizontal or upright mounting position
- Efficient lubrication concepts
- Versatile shaft concepts
- Worldwide service

**Benefits**

- Compact solution means less cost for steel structure
- High gear unit reliability
- Support and part availability



## Slewing



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

**P series with  
RF helical gear unit  
KF bevel helical gear unit**

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

\* 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



## Services

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

### Start-up Service

- Start-up support tailored to your needs
- Checking the installation of the drive components
- Test run under test and production conditions
- Monitoring of production, and making any necessary adjustments
- Initial oil fill

### Inspection and Maintenance Service

- Checking of mounted components
- Alignment and recalibration
- Noise check to detect early signs of damage
- Examination with an inspection scope for gear unit diagnostics
- Condition report for each drive
- Oil quality analysis
- If determined necessary by the oil analysis test, oil is changed and waste oil is disposed of in an environmentally responsible manner

### Repair Service

- Replacing defective and affected parts
- Complete overhauls
- Cleaning of all drive components
- Determining, acquiring and producing required parts based on condition
- Professional assembly and implementation of test runs
- Post-processing of drive bearing bores on gear units with bushings
- Recalculation of gearing geometry and adjustment
- Touch up or renewal of paint and adjustment according to customer requirements (outer and inner coating)

### Retrofit Service

- Replacement of your drive components with SEW-EURODRIVE products incl. modified designs and adaptations
- Energy efficiency aspects factored in
- Customization of the components to your requirements (cooling systems, brake/coupling units, etc.)
- 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
- Optimization of units according to latest state-of-the-art technology

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Driving the world

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