

HELICAL INLINE GEAR REDUCERS & GEARED MOTORS



RX-SERIES (Single stage)

RX-Series (Single Stage)

For high output speeds, the exclusively single-stage gear units in 6 Sizes from Rx107 offer compact solutions for your system design.

TECHNICAL DATA		
Gear unit reduction ratio(i)	Torgue Refing (Nm)	Motor power range
1.30 - 8.65	up to 830 Nm.	0.12 - 45.0



R-SERIES (2 and 3 stage)

R-Series (2 & 3 Stages)

Our multi-stage gear unit provide something special : Due to their die-cast aluminum design, the R07 , R17 and R27 models are three particularly efficient light-weights-ideal as satellite drives and use in light machine constructions.

Reduced backlash helical gear units are also available for particularly precise requirements.

TECHNICAL DATA			
Gear unit reduction ratio(i)	Multi-stage gear unit ratio (i)	Torgue Refing (Nm)	Motor power range (kW)
3.21 - 289.74	90 - 27001	31 - 20000	0.09 - 160



RM-SERIES (AGITATOR TYPE)

RM-Series **(2 & 3 Stages:Agitator Type)**

RM gear motors with extended output bearings hub area special type of helical gear unit. They were designed especially for agitating application and allow for high overhung and axial loads and bending moments.

TECHNICAL DATA			
Gear unit reduction ratio(i)	Multi-stage gear unit ratio (i)	Torgue Refing (Nm)	Motor power range (kW)
4.29 - 289.74	134 - 27001	270 - 20,000	0.12 - 160

PARALLEL & RIGHT-ANGLE GEAR REDUCER & GEARED MOTORS

F-Series (2 & 3 Stages: Helical Parallel Shaft)

- Slim design for limited installation space
- Also available with reduced backlash

Available variants:

- Foot- or flange-mounted
- B5 or B14 flange-mounted
- Solid shaft or hollow shaft
- Hollow shaft with keyed connection, shrink disk, splined hollow shaft, or TorqLOC®



F-SERIES

TECHNICAL DATA			
Sizes 27 / 37 / 47 / 57 / 67 / 77 / 87 / 97 / 107 / 127 / 157			
Gear unit reduction ratio (i)	Multi-stage gear unit ratio (i)	Torque Rating (Nm)	Motor power range (kW)
3.7 - 281.71	87 - 31434	87 - 20000	0.12 - 200

K-Series (2 Stages Helical-Bevel gear)

Sizes K..19, K..29 and K..39, K..49 (two stages)

- Low-loss, two-stage design with a high gearing efficiency of over 90%
- The aluminum housing of sizes K..19 and K..29 makes them particularly lightweight
- The sizes K..39 and K..49 are particularly sturdy and torsionally stiff due to the gray-cast iron housing
- Three base strips ensure an optimum connection to the customer machine even in critical mounting situations

Available variants:

- Foot- or B5 flange-mounted
- Solid shaft or hollow shaft
- Hollow shaft with keyed connection or shrink disk or TorqLOC® hollow shaft mounting system



K-SERIES

TECHNICAL DATA		
Gear unit reduction ratio (i)	Torque Rating (Nm)	Motor power range
4.50 - 58.68	80	0.12 - 1.1

PARALLEL & RIGHT-ANGLE GEAR REDUCER & GEARED MOTORS**FM../FAM..Series (2 & 3 Stages:Agitator Type)**

Parallel-shaft helical gear unit with extended output bearing hub, available as

- FAM.. with hollow shaft
- FM.. with solid shaft

Possible options

- Double sealing
- Dry well design
- Relubrication device for the output bearings
- Permissible overhung loads
from 25 000 N up to 176 500 N
- Maximum permissible output torque
from 820 Nm to 20 000 Nm



FM../FAM..Series

TECHNICAL DATA		
7 sizes from 820 – 20 000 Nm , Sizes 67 / 77 / 87 / 97 / 107 / 127 / 157		
Gear unit reduction ratio(i)	Torgue Rating (Nm)	Motor power range
3.97 - 281.71	820 - 20000	012 - 90

KM../KAM..Series (3 Stages:Agitator Type)

Helical-bevel gear unit with extended output bearing hub, available as

- KAM.. with hollow shaft
- KM.. with solid shaft

Possible options

- Double sealing
- Dry well design
- Relubrication via output bearing
- Permissible overhung loads
from 25 000 N up to 176 500 N
- Maximum permissible output torque
from 820 Nm to 20 000 Nm



KM../KAM..Series

TECHNICAL DATA		
7 sizes from 820 – 20 000 Nm , Sizes 67 / 77 / 87 / 97 / 107 / 127 / 157		
Gear unit reduction ratio(i)	Torgue Rating (Nm)	Motor power range
3.97 - 281.71	820 - 20000	012 - 90

S-SERIES / HELICAL-WORM GEAR REDUCE & GEARED MOTOR**S-SERIES****HELICAL-WORM GEAR REDUCE & GEARED MOTOR**

- Much greater efficiency than plain worm gear units thanks to helical-worm combinations
- Very low-noise operation

Available designs:

- Foot-mounted or flange-mounted design
- B5 or B14 flange-mounted design
- Solid or hollow shaft
- Hollow shaft with keyed connection, shrink disk, splining or TorqLOC®



S-SERIES

TECHNICAL DATA

Gear unit reduction ratio (i)	Multi-stage gear unit ratio (i)	Torque Rating (Nm)	Motor power range (kW)
3.97 - 288.00	110 - 33818	92 - 4300	0.12 - 30

VU/VZ-SERIES / VARIBLOC

VARIBLOC wide V-belt variable speed gearmotors are used with power ranges of 0.75kW up to 45kW. Typical speed setting ranges are 1:4, 1:6 and 1:8.

The U or Z shaped power flow and numerous combination possibilities with reduction gear units mean that these speed gear motors can be supplied in a broad range of designs. They can easily be tailored to the most diverse machine structures.



VARIBLOC

D-SERIES / VARIMOT

VARIMOT friction disk variable speed gear motors are intended for power range up to 11kW and speed setting ranges 1:4 or 1:5. The contact pressure between

The driving pulley and the friction ring required for torque transmission is set automatically.

The speed control can be adjusted even when the gearmotor is at a standstill.



VARIMOT

W-Series :Right-angle gear

W-Series :Right-angle gear

Robust right-angle gear units:

- Wear-free SPIROPLAN ® gearing (steel-steel material combination) and a special tooth meshing ratio
- Minimized friction losses, optimized mechanical efficiency, reduced energy consumption
- Vibration-free running/operation
- Small gear ratios enable combinations with high motor power and high speeds
- Lightweight aluminum housing

Mounting:

- Identical hole spacings and shaft heights on the foot and end face support a wide range of mounting options.

Mounting for gear unit sizes W..10, W..20, W..30:

- In these sizes, all mounting positions are possible, without changing the oil quantity, as the oil fill quantity is independent of the mounting position

Available designs:

- Foot-mounted or B5 flange-mounted design
- Solid or hollow shaft with key or shrink disk
- Mounting of motor adapters or free input shaft (W..9)

Asynchronous motor mounting:

- For gear unit sizes W..10, W..20, W..30:
Direct motor mounting
- For gear unit sizes W..9: Motor flange mounting



W-Series

W-Series/Spiroplan :More power in a small space

Overview of increases in torque for W..10		
Gear Ratio (i)	M amax NEW (Nm)	Increase (%)
6.57	19	+58
8.2	23	+92
10.25	28	+115
14.33	24	+9
16.5	27	+35
19.5	30	+20
27.5	27	+13
35.5	28	+12
39	26	+4

Overview of increases in torque for W..20		
Gear Ratio (i)	M amax NEW (Nm)	Increase (%)
6.57	24	+20
8.2	29	+45
10.25	36	+44
14.33	45	+50
16.5	38	+27
19.5	42	+20

Overview of increases in torque for W..30		
Gear Ratio (i)	M amax NEW (Nm)	Increase (%)
6.57	62	+55
8.2	65	+63
10.25	63	+26
14.33	69	+15
16.33	68	+13

W-Series/Spiroplan Right-angle gear

W-Series/Spiroplan :Right-angle gear

Optionally available as:

- MOVIMOT® design In other words, as a right-angle gear unit with integrated frequency inverter
- MOVI-SWITCH® design In other words, as a right-angle gear unit with integrated switching and protection function



W-Series

W-Series / Spiroplan geared reducer & Geared Motors

SPIROPLAN gear motors are robust right-angle gear motors with SPIROPLAN gearing. They have three main differences from the helical-worm gear units :

- 1) The material combination of the steel-on-steel gearing.
- 2) The special tooth meshing relationships.
- 3) The aluminum housing. These features make SPIROPLAN gearmotors very quiet, wear free and light weight.

They are available in foot or flange mounted, B5 or B14 input flange mounted.

TECHNICAL DATA				
	W.10	W.20	W.30	W.19
Gear unit reduction ratio(i)	6.75 - 75.00	6.57 - 75.00	6.57 - 75.00	5.90 - 167.59
Torque Rating (Nm)	30	45	69	80
Motor power range (kW)	0.09 - 0.12	0.12 - 0.37	0.12 - 0.75	0.09 - 0.75
	W.29	W.39	W.49	W.59
Gear unit reduction ratio(i)	4.68 - 188.47	4.72 - 210.49	7.22 - 200.76	6.76 - 213.21
Torque Rating (Nm)	130	200	400	600
Motor power range (kW)	0.12 - 1.1	0.12 - 0.15	0.12 - 3.0	0.12 - 4.0

Industrial gear units : X series

X-SERIES

Industrial gear units : X series

- Properties and features
- Independent industrial gear unit platform with 23 sizes
- Helical gear units and bevel-helical gear units
- Single-piece and split gear unit housing
- Invertible gear unit housing
- Universal mounting positions
- Distinctive modular technology
- Diverse predefined optional equipment and options
- Customer-specific adaptations possible



X-Series

TECHNICAL DATA			
Gear unit type	Stages	Gear ratio	Nominal torque kNm
Helical gear unit X.F.:	2-,3- and 4-stage	6.3 - 450	6.8 - 475
Bevel-helical gear unit X.K.:	2-,3- and 4-stage	6.3 - 450	6.8 - 475
Bevel-helical gear unit X.T.:	3- and 4-stage	12.5 - 450	6.8 - 475



X-Series

Application for Industrial Gear Unit : X series

X-SERIES



X3K..B series application

-specific industrial gear units for bucket elevators



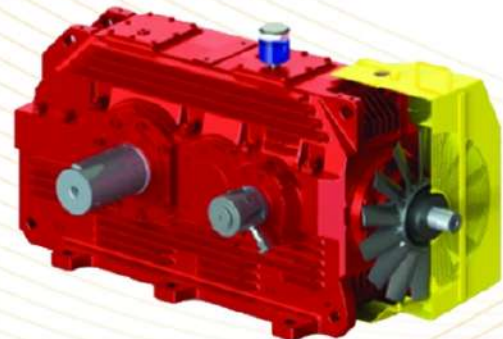
X../HC series application

-specific industrial gear units for crane hoists



X../HA series application

-specific industrial gear units for mixers



X..K../HU series application

-specific industrial gear units for belt conveyors

Industrial gear units : X.e Series

Generation X.e helical gear units / bevel-helical gear units

With 23 finely graduated sizes, the helical and bevel-helical gear units of the X.e series cover the torque range from 7.2 to 500 kNm.

The extensive modular program and the large number of predefined additional equipment and options offer a high degree of flexibility for adaptation to the application situation.

Regardless of whether you are a plant manufacturer or operator - the X.e series offers the right solution for every requirement.



X.e-Series



X.e-Series

TECHNICAL DATA

Gear unit design	Stages	Gear ratio (i)	Nominal torque kNm
Helical gear unit X.F.: X.F.100e - X.F.320e	2-,3- and 4-stage	6.3 - 450	6.8 - 475
Bevel-helical gear unit X.K.: X.K.100e - X.K.320e	2-,3- and 4-stage	6.3 - 450	6.8 - 475
Bevel-helical gear unit X.T.: X.T.100e - X.T.250e	3- and 4-stage	12.5 - 450	6.8 - 475

Industrial gear units : X.e Series

Your advantages

Power

- Increase in nominal torques even with additional external loads for a reduction in size.
Result: lower investment costs and smaller installation space in the plant.

Safety

- Installation individual rolling bearings with short delivery times such as thermal design according to simulated ambient conditions. Result: less maintenance intervals and higher plant availability.

Efficiency

- A sustainable drive solution thanks to extensive adaptation and optimization options.
Result: reduced power loss, lower oil demand, and lower total cost of ownership.

X.e Power Range

X...e : Overview of Product Range				
Sizes	Nominal torque classes kNm	Nominal gear ratio ranges		
		X.F..	X.K..	X.T.
X100e	6.8	7.1-100	7.1-80	14-80
X110e	8.5	8-112	8-90	16-90
X120e	12.8	6.3-355		12.5-355
X130e	16	8-450		16-450
X140e	22	6.9-355		12.5-355
X150e	27.5	8-450		16-450
X160e	36	6.3-355		12.5-355
X170e	45	8-450		16-450
X180e	58	6.3-355		12.5-355
X190e	65	7.1-400		14-400
X200e	79	6.3-355		12.5-355
X210e	90	7.1-400		14-400
X220e	112	6.3-355		12.5-355
X230e	131	7.1-400		14-400
X240e	156	6.3-355		12.5-355
X250e	175	7.1-400		14-400
X260e	205	6.3-355	12.5-355	-
X270e	240	7.1-400	14.0-400	-
X280e	270	8.0-450	16.0-450	-
X290e	308	6.3-355	12.5-355	-
X300e	350	7.1-400	14.0-400	-
X310e	425	6.3-355	12.5-355	-
X320e	475	7.1-400	14.0-400	-

Industrial gear units : MC-Series

MC Series

Features

- Independent industrial gear unit series
- Helical gear units and bevel-helical gear units
- Modular concept
- Special designs are available
- Block housing without parting line
- Universal mounting position
- All commercially available connection elements are possible at the input and output sides
- EBD concept with predefined output bearing types depending on the requirement profile and application
- Optional variable flange geometries and "Drywell" design
- Optional in ATEX design (Group II, categories 2/3G and 2/3D, zones 1, 21, 2 and 22)



TECHNICAL DATA			
Gear unit type	Stages	Gear ratio (i)	Nominal torque MN2 kNm
MC.P.. Helical gear units	2 and 3 stages	7.1 - 112	6 - 65
MC.R.. Bevel-helical gear units	2 and 3 stages	7.1 - 112	6 - 65

M1..N series helical gear units

M1..N Series

The single-stage helical gear unit for drive solutions with small gear ratios range from 1 to 7.1.

12 sizes

- Foot-mounted helical gear units
- Oil heater available
- Sealing system for harsh conditions
- Cooling with fan or cooling coil optional
- Rigid housing design for thermal efficiency and stability
- Optional accessories available



TECHNICAL DATA			
Gear unit type	Stages	Gear ratio (i)	Nominal torque MN2 kNm
Helical gear units : M1..N	1-stages	1 - 7.1	0.5 -248

Industrial gear units : ML-Series

ML Series

8 sizes

- Independent industrial gear unit series
- Helical gear units and bevel-helical gear units
- Flexible thanks to the welded housing construction
- Service-friendly due to the parting line on all gear units
- Suitable for horizontal and vertical mounting positions
- All commercially available connection elements are possible at the input and output sides
- Optional with increased center distance for hoist applications



TECHNICAL DATA			
Gear unit type	Stages	Gear ratio (i)	Nominal torque MN2 kNm
ML.P.. Helical gear units	2, 3 and 4 stages	5.6 - 315	470 - 1480
ML.R.. Bevel-helical gear units	3 and 4 stages	14 - 280	470 - 1480

Industrial gear units : MD Series

MD Series

TECHNICAL DATA			
Gear unit type	Stages	Gear ratio (i)	Nominal torque MN2 kNm
MD.F.. Helical gear units	2, 3 and 4 stages	5.6 - 315	528 - 2584
MD.K.. Bevel-helical gear units	3, 4 and 5 stages	14 - 1600	561 - 2584

- Using the industrial gear units in the MD series, you can reliably drive large machines in the upper torque range of up to 2,584 kNm. We are happy to implement customized solutions for your specific applications at any time.

Properties:

- Independent industrial gear unit platform with 17 sizes
- Helical and bevel-helical gear units
- Split housing in welded steel
- Diverse predefined options and additional features
- Available as a complete drive package
- Customer-specific adaptations possible

Planetary Gear :P-Series

P Series

- Transmission of high torque ratings for powerful movement of large quantities
- Especially compact design for limited installation space
- High permitted radial loads
- Upstream gearmotors in helical version and bevel-helical version which can be combined with the planetary gear unit



TECHNICAL DATA			
Gear unit type	Stages	Gear ratio (i)	Nominal torque MN2 kNm
P.RF.. Helical gear units	4 and 5 stages	100 - 4000	25 - 631
P.KF.. Bevel-helical gear units	5 stages	140 - 4000	25 - 631

Planetary Gear : XP-Series

XP Series

- Stand-alone industrial gear unit platform with 13 sizes
- Suitable for highest torques
- Very compact design
- High torsional stiffness
- Free input shaft or direct mounting of motors and primary gear units
- Various output shaft variants
- Various predefined options and additional designs
- Customer-specific adaptations possible



TECHNICAL DATA			
Gear unit type	Stages	Gear ratio (i)	Nominal torque MN2 kNm
Planetary gear units : XP..	2, 3- and 4- stages	22 - 3600	600 - 5200

Planetary Gear : P-X.e Series

P-X.e Series

Features and properties:

- High thermal rating
- Universally applicable due to distinctive modular technology
- Various, predefined additional equipment and options
- Can be used in low temperature ranges < -25 °C
- Customer specific adaptations are possible

TECHNICAL DATA		
Gear unit type	Gear ratio (i)	Nominal torque MN2 kNm
P.X.e Bevel-helical planetary gear units...	160 - 560	100 - 500



Planetary Gear : PPK-Series

PPK Series



Compact – reliable – flexible: The PPK planetary gear units complement our industrial gear units product line in the torque load range under the proven P series. In the sizes 010 and 017 the gear unit is available for the torque range 10 700 Nm to 17 650 Nm.

As a three-stage design or with primary gear motor, it covers a gear ratio range from 65 to 10 650.

The following table lists the nominal torque rated for endurance strength and the nominal torques taking into account the service life factor for the individual gear ratios.

$$fLC = (Lh \times n2) / 1000$$

fLC = Service life factor

Lh = Required service life (h)

n2 = Speed at output shaft (min-1)



Planetary Gear : PPK-Series

PPK.01 Series



PPK.010 selection table

The extended gear ratio range with primary gear unit (motor) is shown below:

- Bevel-helical gear unit-planetary gear unit (motor) PPK..KAF i = 685 – 10 700
- Helical gear unit-planetary gear unit (motor) PPK..RF i = 625 – 10 700

1) Gearing with infinite fatigue strength (based on DIN 3990

[illegible]

Planetary Gear : PPK-Series

PPK.017 Series



PPK.017 selection table

The extended gear ratio range with primary gear unit (motor) is shown below:

Bevel-helical gear unit-planetary gear unit (motor) PPK..KAF: $i = 675 - 10\,700$

Helical gear-planetary gear unit (motor) PPK..RF: $i = 560 - 10\,700$

1) Gearing with infinite fatigue strength (based on DIN 3990

Size	iEX	Service life factor fLc											M ^{N2} Lim Nm
		≤ 7.5	≤ 15	≤ 25	≤ 30	≤ 35	≤ 45	≤ 52.5	≤ 70	≤ 95	≤ 107.5	≥ 107.5 ¹⁾	
		M ^{N2} Nm											
PPK.017	65.67	22 107	20 520	20 242								18 500	37 000
	71.37	22 107	20 520	20 242								18 500	37 000
	77.56	22 107	20 520	20 242								18 500	37 000
	78.55	22 107	20 520	20 242								18 500	37 000
	84.29	21 495	19 875	19 515								18 000	36 000
	85.37	22 107	20 520	20 242								18 500	37 000
	92.78	21 495	19 875	19 515								18 000	36 000
	93.97	22 107	20 520	20 242								18 500	37 000
	100.5	22 107	20 520	20 242								18 500	37 000
	102.1	21 495	19 875	19 515								18 000	36 000
	109.3	22 107	20 520	20 242								18 500	37 000
	112.4	20 793	19 314	18 850								17 400	34 800
	118.7	21 495	19 875	19 515								18 000	36 000
	120.3	22 107	20 520	20 242								18 500	37 000
	130.7	21 495	19 875	19 515								18 000	36 000
	146.5	22 107	20 520	20 242								18 500	37 000
	153.9	22 107	20 520	20 242								18 500	37 000
	159.2	22 107	20 520	20 242								18 500	37 000
	167.3	21 495	19 875	19 515								18 000	36 000
	173.0	21 495	19 875	19 515								18 000	36 000
	175.2	22 107	20 520	20 242								18 500	37 000
	184.1	20 793	19 314	18 850								17 400	34 800
	190.4	21 495	19 875	19 515								18 000	36 000
	209.6	20 793	19 314	18 850								17 400	34 800
	224.3	22 107	20 520	20 242								18 500	37 000
	243.7	21 495	19 875	19 515								18 000	36 000
	268.3	20 793	19 314	18 850								17 400	34 800

AC motors Combine the helical gear unit with our AC motors:DR.. series

DR.. series (1 speed)

We offer you the ideal asynchronous motor for every requirement:
2-, 4-, 6- and 8-pole motors, with power ratings from 0.09 kW to 375 kW
and in efficiency classes IE1 to IE4.

New in the portfolio:

The 4-pole motors of the DRU.. series in IE4.

Test us and the DR.. Motors in line or inverter operation!

Design	Efficiency class	Number of poles	Power kW
DRS..	IE1 Standard Efficiency	2-,4- or 6-pole	0.18 – 225
DRE..	IE2 High Efficiency	2-,4- or 6-pole	0.25 – 225
DRN..	IE3 Premium Efficiency	4-pole	0.75 – 200
DRP..	IE3 Premium Efficiency	2-,4- or 6-pole	0.37 – 160
DRU..	IE4 Super Premium Efficiency	4-pole	0.18 – 3



DR...J series (Line Start Permanent Magnet Motor)

Efficiency classes IE2 to IE4

- DR...J motors meet the requirements for efficiency classes IE2 to IE4
- Line start permanent magnet motor
 - Our LSPM technology is based on the addition of permanent magnets in the short-circuit cage of the AC asynchronous motors
 - In comparison to a DR.. series standard motor of the same power rating, you can select smaller sizes of the DR...J motors and achieve the same efficiency class
- Designed for operation on simple inverters with V/f control
- No rotor losses occur in operation
- Nine sizes in total (71S to 100L)
- Compact and robust design, low-maintenance
- Synchronous running of the motors with operating frequency
- Slip-free speed control without encoder feedback
- Group drive of several motors with synchronous speed on a frequency inverter
- Proven combination with MOVIMOT®, the gearmotor with integrated frequency inverter
- High speed setting range with constant torque without forced cooling fan
- Many additional features of the modular motor system are available
- Can be combined with our gearmotors



Design	Efficiency class	Power kW
DRE...J	IE2 High Efficiency	0.37 – 4.0
DRP...J	IE3 Premium Efficiency	0.37 – 4.0
DRU...J	IE4 Super Premium Efficiency	0.18 – 3.0