WE SHAPE MOTION.

NEUGART

Gearbox brochure

E Economy Line coaxial gearboxes

PLE

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PLPE

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E Economy Line right angle gearboxes

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A Application-specific gearboxes

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Custom made gearboxes

Rack and pinion

NRS

PK1

PM1

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PLE

The **PLE** is our price/performance wonder. It is particularly lightweight, extremely powerful and yet still suitable for demanding production cycles thanks to its low-friction bearing concept and optimized lubrication. A real power-house at an attractive and fair price.

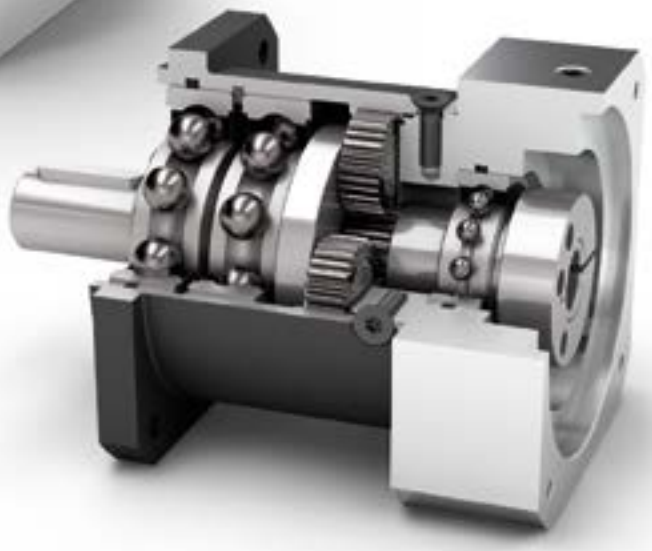
- Economy Line
- Spur gear
- Round type output flange
- Low-friction deep groove ball bearings
- High ratio variety i=3 up to i=512
- Planet carrier in disc design
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**5 - 800 Nm**
Radial force	**200 - 5000 N**
Axial force	**240 - 11000 N**
Torsional backlash	**6 - 22 arcmin**
Protection class	**IP54**

Frame sizes

40 **60** **80** **120** **160**

PLQE



Our **PLQE** is uncomplicated and powerful. It can be connected directly to your installation without the need for an intermediate flange. The larger deep groove ball bearings on the output allow higher axial and radial forces to be absorbed. Thanks to its favorable efficiency, this means that it always operates reliably even when production cycles are demanding.

- Economy Line
- Spur gear
- Square type output flange
- Reinforced deep groove ball bearings
- High ratio variety i=3 up to i=512
- Planet carrier in disc design
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**5 - 260 Nm**
Radial force	**520 - 4000 N**
Axial force	**620 - 3800 N**
Torsional backlash	**7 - 22 arcmin**
Protection class	**IP54**

Frame sizes

40 **60** **80** **120**

PLPE

Our **PLPE** combines the best features of the Economy series with a performance bonus: The optimized output bearing is designed for higher radial and axial forces. The compact outer contour of the **PLPE** also allows it to be used in limited spaces.

- Economy Line
- Spur gear
- Round type output flange
- Reinforced deep groove ball bearings
- Planet carrier in disc design
- Option: Rack and pinion
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**5- 460 Nm**
Radial force	**1300 - 8400 N**
Axial force	**1000 - 11000 N**
Torsional backlash	**6 - 19 arcmin**
Protection class	**IP54**

Frame sizes

50 **70** **90** **120** **155**

PLHE

The **PLHE** is our ideal combination of economy and precision gearboxes. The preloaded tapered roller bearings of this planetary gearbox guarantee high rigidity even under maximum load. The high-performance seal provides increased protection against dust and water spray.

- Economy Line
- Spur gear
- Square type output flange
- Preloaded tapered roller bearings
- Rotary shaft seal
- Extra long centering collar
- Planet carrier in disc design
- Option: Rack and pinion
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**15 - 260 Nm**
Radial force	**3200 - 6000 N**
Axial force	**4400 - 8000 N**
Torsional backlash	**7 - 12 arcmin**
Protection class	**IP65**

Frame sizes

60 **80** **120**

PLFE

There is no such thing as too short: The **PLFE** is our planetary gearbox with compact flange output shaft. They are more than one-third smaller in size. Its standardized flange interface makes it particularly easy to install. The integrated dowel pin drill hole provides additional stability during installation.

- Economy Line
- Spur gear
- Extra large round type output flange
- Low-friction deep groove ball bearings
- Flange output shaft (ISO 9409-1)
- Planet carrier in disc design
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**5 - 260 Nm**
Radial force	**900 - 3800 N**
Axial force	**1000 - 5200 N**
Torsional backlash	**7 - 19 arcmin**
Protection class	**IP54**

Frame sizes

55 **64** **90** **110**

PFHE

The **PFHE** represents an economically attractive alternative for high-load applications in which high radial loads occur. The combination of special pre-stressed inclined roller bearings and a flanged output shaft in accordance with ISO 9409-1 gives the **PFHE** a very high load capacity. Thanks to the radial shaft seal that is used, this gearbox achieves protection class IP65 at the output side and can therefore also withstand adverse usage conditions.

- Economy Line
- Spur gear
- Extra large round type output flange
- Preloaded angular contact roller bearings
- Rotary shaft seal
- Flange output shaft (ISO 9409-1)
- Planet carrier in disc design
- Option: Rack and pinion
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**15- 260 Nm**
Radial force	**2300 - 5150 N**
Axial force	**2850 - 6450 N**
Torsional backlash	**7 - 12 arcmin**
Protection class	**IP65**

Frame sizes

64 **90** **110**

WPLE

The **WPLE** consistently continues the advantages of the Economy series. With its compact but powerful design, it is perfectly suited for dynamic multi-axis systems. Our right-angle gearbox is lubricated for life, easy to mount and offers an unmatched price/performance ratio.

- Economy Line
- Spur gear
- Bevel gear right angle stage
- Round type output flange
- Low-friction deep groove ball bearings
- High ratio variety i=3 up to i=512
- Planet carrier in disc design
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**5- 260 Nm**
Radial force	**200 - 2000 N**
Axial force	**240 - 3800 N**
Torsional backlash	**11 - 28 arcmin**
Protection class	**IP54**

Frame sizes

40 **60** **80** **120**

WPLQE

Our **WPLQE** is the right-angle gearbox with a square output flange. This makes it particularly easy to mount, versatile and, thanks to its larger deep groove ball bearings, also suitable for higher radial and axial forces.

- Economy Line
- Spur gear
- Bevel gear right angle stage
- Square type output flange
- Reinforced deep groove ball bearings
- High ratio variety i=3 up to i=512
- Planet carrier in disc design
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**14 - 260 Nm**
Radial force	**1500 - 4000 N**
Axial force	**1950 - 3800 N**
Torsional backlash	**11 - 21 arcmin**
Protection class	**IP54**

Frame sizes

60 **80** **120**

WPLPE

The **WPLPE** is the sought-after angle solution from our Economy range: space-saving yet powerful at an attractive price. You attach your drive elements directly to the output shaft, which can also withstand high radial forces thanks to extra-strong deep groove ball bearings.

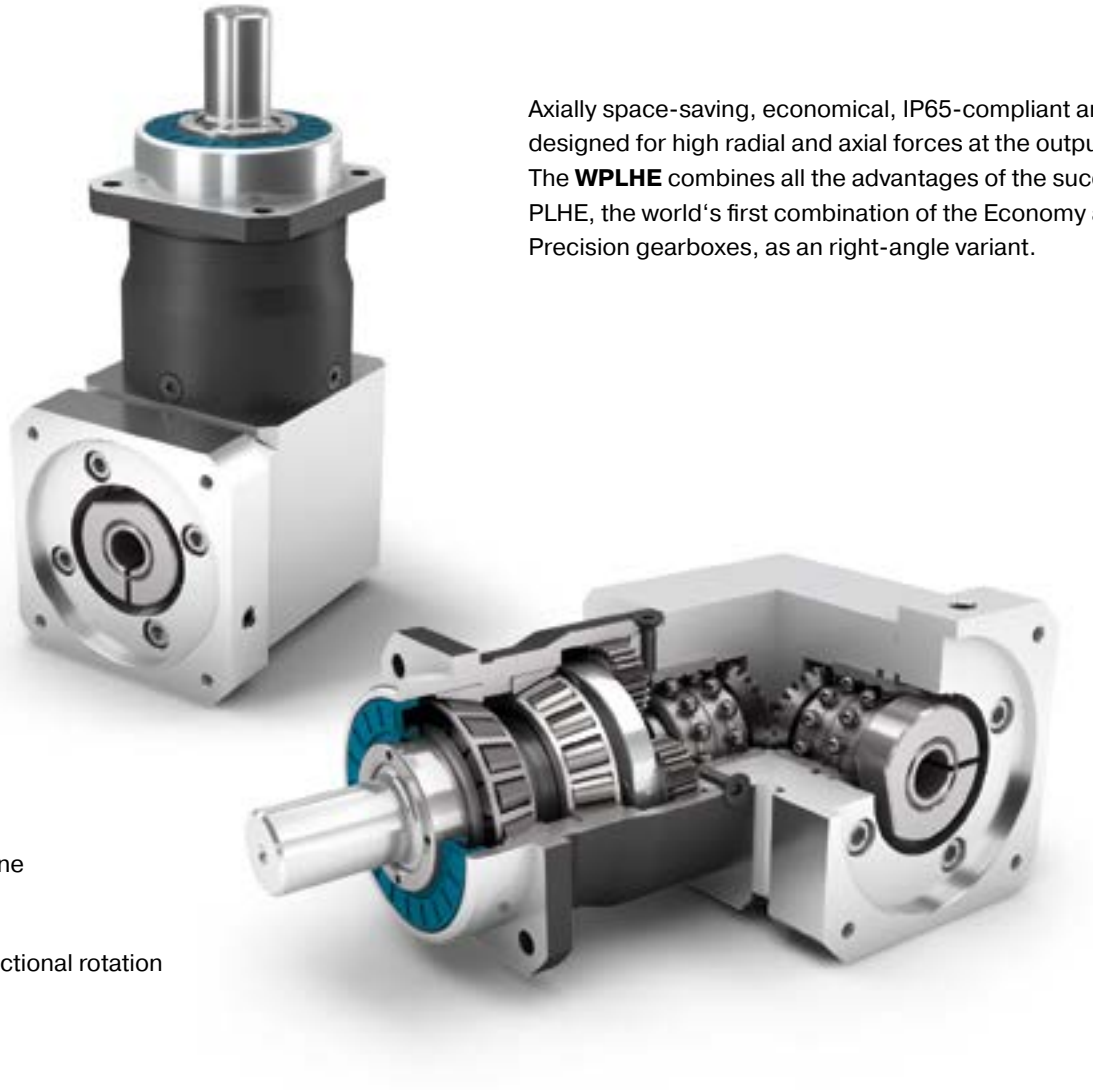
- Economy Line
- Spur gear
- Bevel gear right angle stage
- Round type output flange
- Reinforced deep groove ball bearings
- Planet carrier in disc design
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**5 - 195 Nm**
Radial force	**1300 - 4000 N**
Axial force	**1000 - 5900 N**
Torsional backlash	**11 - 25 arcmin**
Protection class	**IP54**

Frame sizes

50 **70** **90** **120**

WPLHE



Axially space-saving, economical, IP65-compliant and designed for high radial and axial forces at the output: The **WPLHE** combines all the advantages of the successful PLHE, the world's first combination of the Economy and Precision gearboxes, as an right-angle variant.

- Economy Line
- Counterdirectional rotation
- Spur gear
- Bevel gear right angle stage
- Square type output flange
- Preloaded tapered roller bearings
- Rotary shaft seal
- Extra long centering collar
- Planet carrier in disc design
- Option: Rack and pinion
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**14 - 260 Nm**
Radial force	**3200 - 6000 N**
Axial force	**4400 - 8000 N**
Torsional backlash	**11 - 18 arcmin**
Protection class	**IP65**

Frame sizes

60 **80** **120**

WPLFE

The **WPLFE** is our right-angle planetary gearbox with a compact flange output shaft. You save up to a third of the space. Its standardized flange interface makes it particularly easy to install. The integrated dowel pin drill hole provides additional stability during installation.

- Economy Line
- Spur gear
- Bevel gear right angle stage
- Extra large round type output flange
- Low-friction deep groove ball bearings
- Flange output shaft (ISO 9409-1)
- Planet carrier in disc design
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**14 - 260 Nm**
Radial force	**900 - 3800 N**
Axial force	**1200 - 5200 N**
Torsional backlash	**11 - 18 arcmin**
Protection class	**IP54**

Frame sizes

64 **90** **110**

PSNpro

Thanks to its helical gearing, the **PSNpro** enables low-noise operation and maximum synchronisation quality. It is also ideal for high cycle torques. Its preloaded tapered roller bearings and square output flange ensure a high load capacity and allow high output shaft loads, even under extreme conditions.

- Precision Line
- Helical gear
- Square type output flange
- Preloaded tapered roller bearings
- Rotary shaft seal
- Extra long centering collar
- Planet carrier in cage design
- Option: Reduced backlash
- Option: Rack and pinion
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**14 - 1800 Nm**
Radial force	**950 - 20000 N**
Axial force	**2200 - 17000 N**
Torsional backlash	**1 - 8 arcmin**
Protection class	**IP65**

Frame sizes

55	70	90	115	142	190

PSFNpro

The high-torque and extremely torsion-resistant **PSFNpro** combines maximum precision and power in the smallest of spaces. Its short overall length allows for space-saving integration, and the standardized flange output shaft guarantees secure installation in a wide variety of applications.

- Precision Line
- Helical gear
- Extra large round type output flange
- Preloaded angular contact roller bearings
- Rotary shaft seal
- Flange output shaft (ISO 9409-1)
- Planet carrier in cage design
- Option: Reduced backlash
- Option: Rack and pinion
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**14 - 1800 Nm**
Radial force	**1450 - 23000 N**
Axial force	**2350 - 12000 N**
Torsional backlash	**1 - 8 arcmin**
Protection class	**IP65**

Frame sizes

55	64	90	110	140	200

PSBNpro

Our **PSBNpro** combines precision planetary gearboxes and efficient bearing technology. Designed for high speeds, it delivers maximum performance thanks to its homogeneous, particularly quiet helical gearing. As a pro variant, it also offers higher torques – reliable, compact, and efficient.

- Precision Line
- Helical gear
- Square type output flange
- Reinforced deep groove ball bearings
- Rotary shaft seal
- Planet carrier in cage design
- Option: Reduced backlash
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**14 - 850 Nm**
Radial force	**830 - 9500 N**
Axial force	**800 - 9600 N**
Torsional backlash	**1 - 8 arcmin**
Protection class	**IP65**

Frame sizes

55	**70**	**90**	**115**	**142**

WPLN

Due to its hypoid gearing, our **WPLN** achieves optimal synchronization. Because vibrations are reduced to a minimum, it operates smoothly, precisely and quietly. The right-angle precision gearbox is lubricated for life and can be mounted in a variety of ways.

- Precision Line
- Counterdirectional rotation
- Hypoid gear right angle stage
- Square type output flange
- Preloaded tapered roller bearings
- Rotary shaft seal
- Extra long centering collar
- Option: Reduced backlash (2-stage)
- Option: Rack and pinion
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**22 - 800 Nm**
Radial force	**3200 - 12500 N**
Axial force	**4300 - 15000 N**
Torsional backlash	**3 - 5 arcmin**
Protection class	**IP65**

Frame sizes

70 **90** **115** **142**

WPSFN

Our **WPSFN** is particularly easy and quick to integrate thanks to its standardized flange interface and offers high torsional rigidity. With its hypoid gearing, as well as the helical-toothed planetary stage, it achieves optimal synchronization for best surface qualities. The shortest right-angle precision gearbox, in a single-stage design with integrated hollow shaft, offers you new design solutions.

- Precision Line
- Counterdirectional rotation
- Hypoid gear right angle stage
- Extra large round type output flange
- Preloaded angular contact roller bearings
- Rotary shaft seal
- Flange output shaft (ISO 9409-1)
- Hollow shaft (1-stage)
- Option: Reduced backlash (2-stage)
- Option: Rack and pinion
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**22 - 620 Nm**
Radial force	**2150 - 12000 N**
Axial force	**4200 - 9500 N**
Torsional backlash	**3 - 5 arcmin**
Protection class	**IP65**

Frame sizes

64 **90** **110** **140**

WGN

Our **WGN** is the right-angle hollow shaft gearbox that operates particularly quietly. At the same time, the hypoid gearing increases the quality of the surface of your workpiece. With a shrink disc, it can be connected directly to the application - this is uncomplicated, safe and opens up new design possibilities.

- Precision Line
- Counterdirectional rotation
- Hypoid gear right angle stage
- Square type output flange
- Preloaded tapered roller bearings
- Rotary shaft seal
- Extra long centering collar
- Hollow shaft for clamping system with shrink disc
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**22 - 320 Nm**
Radial force	**2700 - 10000 N**
Axial force	**4300 - 14500 N**
Torsional backlash	**5 arcmin**
Protection class	**IP65**

Frame sizes

70 **90** **115** **142**

HLAE

Hygienic Design for the Food and Pharmaceutical Industries

Our **HLAE** is unique: It is the world's first planetary gearbox in a hygienic design - flexible without a radial bolt, powerful and yet easy and quick to clean. It was developed specifically for applications in sensitive areas such as pharmaceuticals, cosmetics and food.

- Application-specific gearbox
- Hygienic Design
- FDA certified materials
- Spur gear
- Round type output flange
- Low-friction deep groove ball bearings
- Rotary shaft seal
- Extra long centering collar
- Planet carrier in disc design

Cyclic torque	**15 - 171 Nm**
Radial force	**1000 - 5000 N**
Axial force	**1200 - 3800 N**
Torsional backlash	**7 - 12 arcmin**
Protection class	**IP69K**

Frame sizes

70 **90** **110**

NGV

For AGVs

Automated guided vehicles have special requirements when it comes to drive technology. These include high radial loads, space-saving design, 24/7 use and energy efficiency. With its special output bearing concept and the option of direct mounting to the vehicle chassis, our **NGV** planetary gearbox precisely meets these requirements.

- Application-specific gearbox
- Spur gear
- Extra large round type output flange
- Preloaded angular contact roller bearings
- Rotary shaft seal
- Extra long centering collar
- Flange output shaft (ISO 9409-1)
- Planet carrier in disc design
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**18 - 260 Nm**
Radial force	**2700 - 7200 N**
Axial force	**2850 - 6450 N**
Torsional backlash	**9 - 12 arcmin**
Protection class	**IP65**

Frame sizes

64 **90** **110**

NDF

For Delta robots

The **NDF** sets the benchmark for delta robot applications. Thanks to the four planetary gears in the reinforced output stage, torsional stiffness and transmissible torque are increased. The Torque Interface of the flange output shaft enables higher load transmission. The special rotary shaft seal and the dynamic drive system ensure maximum performance.

- Application-specific gearbox
- Helical gear
- Torque Interface
- Preloaded angular contact roller bearings
- Rotary shaft seal
- Planet carrier in cage design
- Four planet gears at the output
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**180 - 530 Nm**
Radial force	**4000 - 5400 N**
Axial force	**4000 - 5400 N**
Torsional backlash	**1 arcmin**
Protection class	**IP65**

Frame sizes

90 **110**

NDFC

For Delta robots

Thanks to its optimized sealing concept, dynamic drive system, and output shaft geometry in accordance with ISO 9409-1, the **NDFC** is the economical choice for delta robot applications. The **NDFC** impresses with its high torsional rigidity and enables the reliable transmission of large forces.

- Application-specific gearbox
- Helical gear
- Extra large round type output flange
- Preloaded angular contact roller bearings
- Rotary shaft seal
- Flange output shaft (ISO 9409-1)
- Planet carrier in cage design
- Option: Reduced backlash
- Option: Painted surface – RAL 9005 Jet black

Cyclic torque	**32 - 330 Nm**
Radial force	**2150 - 4900 N**
Axial force	**2850 - 6450 N**
Torsional backlash	**1 - 5 arcmin**
Protection class	**IP65**

Frame sizes

64 **90** **110**

Innovative and individual: Our custom made gearboxes.

A custom design, specialized performance data, a modified output shaft, safe for use in the food industry: Do you need an individually adapted gearbox? We can meet your requirements. Quickly and easily by modifying one of our standard planetary gearboxes or with a custom gearbox developed specifically for you. The qualified specialists in our Engineering department design gearbox solutions and systems to meet your requirements:
in terms of performance, cost and quality.

With the help of the most modern development and design tools, we design gearboxes suitable for the most diverse applications, from all areas of mechanical and plant engineering, robotics, medical, pharmaceutical and food technology or model making.
Your innovation advantage: We rely on our many years of experience, while at the same time keeping updated on new developments and integrating them into our customer solutions.

Option: Painted surface

Individual appearance and additional protection for your gearbox

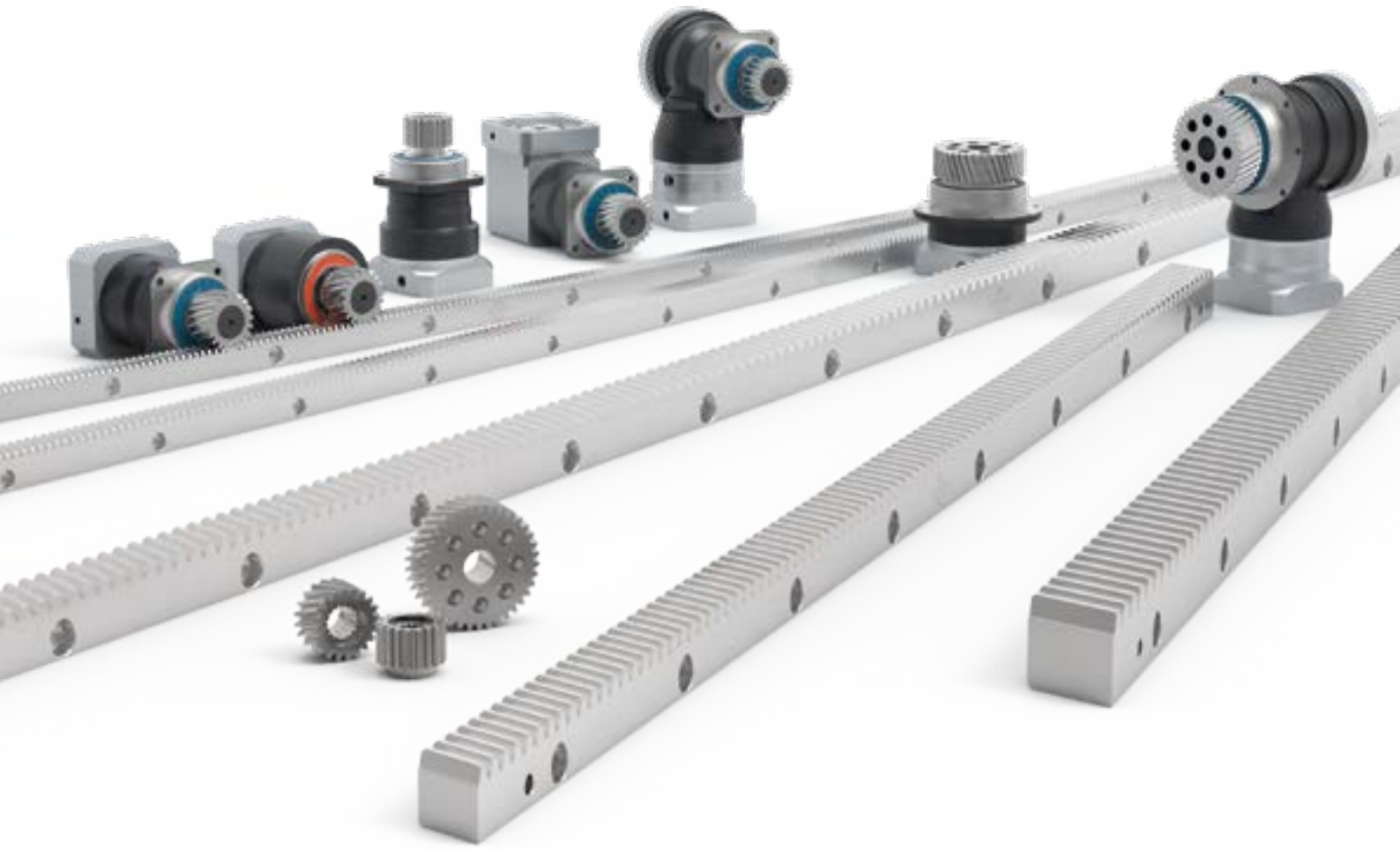
With the Option: Painted surface, Neugart offers a high-quality surface finish for all gearboxes and sizes. The standard color RAL 9005 jet black ensures a modern, elegant appearance and allows harmonious integration into a wide variety of applications. The paint structure is based on a robust two-component system and guarantees reliable adhesion and an even, high-quality surface.

Advantages of the painted surface – RAL 9005 jet black:

- High-quality appearance
- Robust paint system
- High chemical resistance (individual testing recommended)
- Improved durability
- Flexibly available – even for quantities of 1 for all gearboxes and sizes

Note:
The screw-on surfaces on the drive flange to the motor and on the output side to the application are not painted for functional reasons.

The paint finish is primarily for visual enhancement and does not provide corrosion protection for long-term use in salt-laden environments, for example. If you have special requirements for a corrosion-protected paint finish, please contact us.



Neugart Rack System

Precision racks for the highest performance requirements

Neugart offers racks of the highest quality with straight or helical gearing. Our standard racks are made of induction-hardened, quenched and tempered steel, cover a module range from 1.5 to 5 mm, and comply with quality level 6.

The racks are heat-treated and ground to optimize their mechanical properties. The standard versions are available in lengths of 1000 mm and 2000 mm. Custom lengths are available upon request.

Module	**1,5-5**
Maximum feed force	**2-31 kN**

Planetary gearboxes with mounted pinion

Numerous combination options from three different pinion types with helical and straight teeth ensure that the ideal solution is available for every application.

The pinions can be paired with different gearbox types, including precision gearboxes for maximum accuracy, Economy gearboxes for maximum durability and efficiency, and right-angle planetary gearbox for special installation situations.

This allows you to benefit from maximum flexibility and technical coordination for a wide range of requirements.

PK1

- The PK1 pinion is mounted directly on the gear-box's toothed output shaft.
- The precise design of the internal spline in ac-cor-dance with DIN 5480 enables optimum power transmission and ensures a permanently high level of connection reliability, even in demanding applications.

PM1

- The PM1 pinion is specially designed for gear-bo-xes with flange output shafts.
- Thanks to its large circumference, the PM1 pinion enables particularly high feed rates.

PM2

- The PM2 pinion is specially designed for gear-bo-xes with flange output shafts.
- Thanks to its low number of teeth, the PM2 pinion enables particularly high feed forces.

Performance classes

Our program at a glance.

In this overview you will find a direct comparison of the key features of our products.

Economy		Cyclic torque	Backlash	Bearing load	Protection class	Running noise	Input speeds	Torsional stiffness	Wide range of ratios
PLE		▬▬	▬▬	▬	▬▬	▬▬	▬▬▬▬	▬▬	▬▬▬▬
PLQE		▬▬	▬▬	▬▬	▬▬	▬▬	▬▬▬▬	▬▬	▬▬▬▬
PLPE		▬▬	▬▬	▬▬	▬▬	▬▬	▬▬▬▬	▬▬	▬▬▬
PLHE		▬▬	▬▬	▬▬▬	▬▬▬	▬▬	▬▬▬	▬▬	▬▬▬
PLFE		▬▬	▬▬	▬▬	▬▬	▬▬	▬▬▬▬	▬▬▬	▬▬▬
PFHE		▬▬	▬▬	▬▬▬▬	▬▬▬	▬▬	▬▬▬	▬▬▬▬	▬▬▬
WPLE		▬	▬	▬	▬▬	▬	▬▬▬	▬	▬▬▬▬
WPLQE		▬	▬	▬▬	▬▬	▬	▬▬▬	▬	▬▬▬▬
WPLPE		▬	▬	▬▬	▬▬	▬	▬▬▬	▬	▬▬▬
WPLHE		▬	▬	▬▬▬	▬▬▬	▬	▬▬	▬	▬▬▬
WPLFE		▬	▬	▬▬	▬▬	▬	▬▬▬	▬▬▬	▬▬▬

▬ **Standard** ▬▬▬▬ **Excellent**

Performance classes

Precision Line		Cyclic torque	Backlash	Bearing load	Protection class	Running noise	Input speeds	Torsional stiffness	Wide range of ratios
PSNpro		▬▬▬▬	▬▬▬▬	▬▬▬▭	▬▬▬▭	▬▬▬▬	▬▬▬▭	▬▬▬▭	▬▬▬▭
PSFNpro		▬▬▬▬	▬▬▬▬	▬▬▬▬	▬▬▬▭	▬▬▬▬	▬▬▬▭	▬▬▬▬	▬▬▭▭
PSBNpro		▬▬▬▬	▬▬▬▬	▬▬▭▭	▬▬▬▭	▬▬▬▬	▬▬▬▬	▬▬▬▭	▬▬▬▭
WPLN		▬▬▬▭	▬▬▬▬	▬▬▬▭	▬▬▬▭	▬▬▬▭	▬▭▭▭	▬▬▭▭	▬▬▭▭
WPSFN		▬▬▬▭	▬▬▬▬	▬▬▬▭	▬▬▬▭	▬▬▬▭	▬▭▭▭	▬▬▭▭	▬▬▭▭
WGN		▬▬▭▭	▬▬▬▭	▬▬▬▭	▬▬▬▭	▬▬▬▭	▬▭▭▭	▬▬▭▭	▬▭▭▭

Application specific gearboxes		Cyclic torque	Backlash	Bearing load	Protection class	Running noise	Input speeds	Torsional stiffness	Wide range of ratios
HLAE		▬▬▭▭	▬▬▭▭	▬▭▭▭	▬▬▬▬	▬▬▭▭	▬▬▬▭	▬▬▭▭	▬▬▬▭
NGV		▬▬▭▭	▬▬▭▭	▬▬▬▬	▬▬▬▭	▬▬▭▭	▬▬▬▭	▬▬▬▬	▬▬▭▭
NDF		▬▬▬▬	▬▬▬▬	▬▬▬▬	▬▬▬▭	▬▬▬▬	▬▬▬▭	▬▬▬▬	▬▭▭▭
NDFC		▬▬▬▬	▬▬▬▬	▬▬▬▬	▬▬▬▭	▬▬▬▬	▬▬▬▭	▬▬▬▬	▬▬▭▭

▬ **Standard** ▬▬▬▬ **Excellent**

Do you have any questions or need further information?
We are happy to advise you on all topics relating to drive technology.
You can find your personal contact at: **www.neugart.com**

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