

WE SHAPE MOTION.



高精度减速机

Gearbox brochure

E

经济型同轴减速机

Economy Line coaxial gearboxes



PLE



PLQE



PLPE



PLHE



PLFE



PFHE

E

经济型直角减速机

Economy Line right angle gearboxes



WPLE



WPLQE



WPLPE



WPLHE



WPLFE

P

精密型同轴减速机

Precision Line coaxial gearboxes



PSNpro



PSFNpro



PSBNpro

P

精密型直角减速机

Precision Line right angle gearboxes



WPLN



WPSFN



WGN

A

针对特定应用的减速机
Application-specific gearboxes

客户定制减速机
Custom made gearboxes



HLAE



NGV



NDF



NDFC



齿轮-齿条

Rack and pinion



NRS

PK1



PM1



PM2

经济型同轴减速机

Economy Line coaxial gearbox

PLE



PLE是我们的性价比奇迹。它的重量很轻，性能强大，轴承设计降低了振动，并且润滑效果得到了优化，因此适合高强度的生产周期。它是真正的动力单元，价格公道且富有吸引力。

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 powerhouse at an attractive and fair price.



经济型
Economy Line



直齿
Spur gear



圆形输出法兰
Round type output flange



低摩擦深沟球轴承
Low-friction deep groove ball bearings



多样的传动比 (i=3 至 i=512)
High ratio variety i=3 up to i=512



行星齿轮架
Planet carrier in disc design



可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

5 - 800 Nm

径向力

Radial force

200 - 5000 N

轴向力

Axial force

240 - 11000 N

回程间隙

Torsional backlash

6 - 22 arcmin

防护等级

Protection class

IP54

结构尺寸

Frame sizes

40

60

80

120

160

经济型同轴减速机

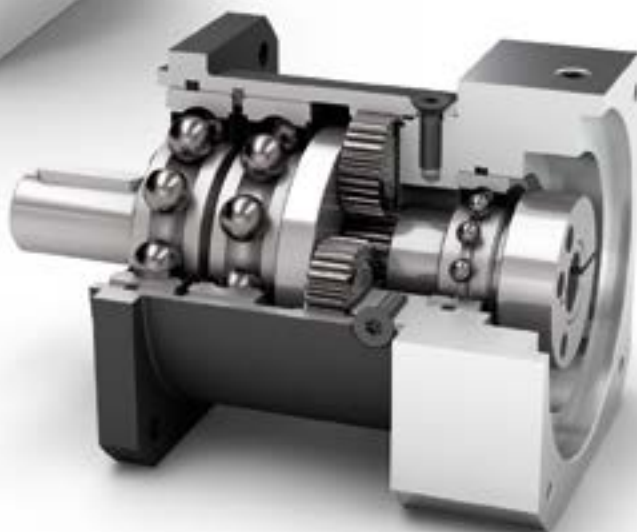
Economy Line coaxial gearbox

PLQE



我们的 **PLQE** 结构简单且性能强大。它可以直接和您的系统连接，不需要中间法兰。输出装置上的大型深沟球轴承可以承受较高的轴向力和径向力。它凭借着良好的传动效率，即使在严的生产周期内也能始终可靠地运行。

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.



经济型
Economy Line



直齿
Spur gear



正方形输出法兰
Square type output flange



增强深沟球轴承
Reinforced deep groove ball bearings



多样的传动比 (i=3 至 i=512)
High ratio variety i=3 up to i=512



行星齿轮架
Planet carrier in disc design



可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

5 - 260 Nm

径向力

Radial force

520 - 4000 N

轴向力

Axial force

620 - 3800 N

回程间隙

Torsional backlash

7 - 22 arcmin

防护等级

Protection class

IP54

结构尺寸

Frame sizes

40

60

80

120

经济型同轴减速机

Economy Line coaxial gearbox

PLPE



我们的 **PLPE** 集中了经济型产品系列的最佳特性，而且性能更上一层楼。驱动装置的轴承经过优化设计，可以承受较高的径向力与轴向力。**PLPE** 紧凑的外轮廓使其可以在有限的空间条件下使用。

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.



经济型
Economy Line



直齿
Spur gear



圆形输出法兰
Round type output flange



增强深沟球轴承
Reinforced deep groove ball bearings



行星齿轮架
Planet carrier in disc design



可选: 齿轮-齿条
Option: Rack and pinion



可选: 喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

5- 460 Nm

径向力

Radial force

1300 - 8400 N

轴向力

Axial force

1000 - 11000 N

回程间隙

Torsional backlash

6 - 19 arcmin

防护等级

Protection class

IP54

结构尺寸

Frame sizes

50

70

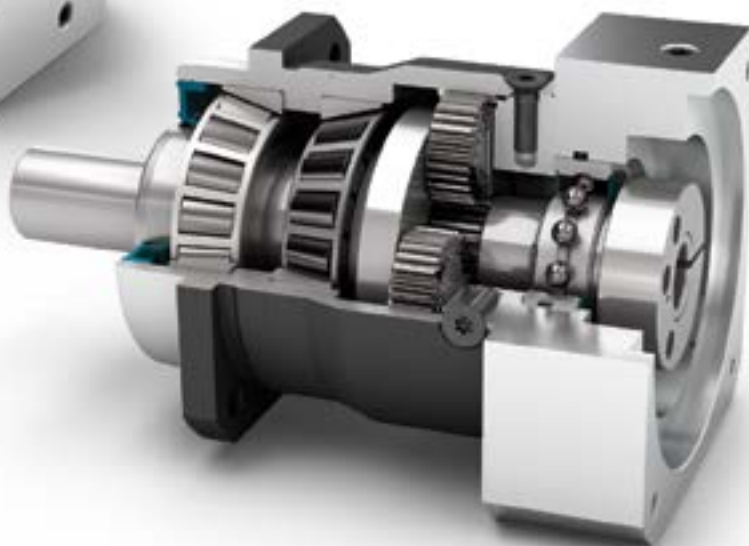
90

120

155

经济型同轴减速机

PLHE



Economy Line coaxial gearbox

PLHE 是经济型减速机与高精度减速机的理想组合。这种行星减速机装有预胀紧的圆锥滚子轴承，确保在承受极大的负荷时仍然具有较高的刚性。高性能的密封提高了防尘和防喷淋水性能。

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.



经济型
Economy Line



直齿
Spur gear



正方形输出法兰
Square type output flange



配有预紧的圆锥滚子轴承
Preloaded tapered roller bearings



径向轴密封
Rotary shaft seal



输出端带有超长定心环
Extra long centering collar



行星齿轮架
Planet carrier in disc design



可选: 齿轮-齿条
Option: Rack and pinion



可选: 喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

15 - 260 Nm

径向力

Radial force

3200 - 6000 N

轴向力

Axial force

4400 - 8000 N

回程间隙

Torsional backlash

7 - 12 arcmin

防护等级

Protection class

IP65

结构尺寸

Frame sizes

60

80

120

经济型同轴减速机

PLFE



前所未有的紧凑结构：**PLFE** 是我们带有紧凑型法兰输出轴的行星减速机。您可以节省三分之一以上的空间。它带有标准法兰接口，因此特别容易安装。它还集成了定位销孔，在安装时增加了牢固度。

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.



经济型
Economy Line



直齿
Spur gear



圆形特大号输出法兰
Extra large round type output flange



低摩擦深沟球轴承
Low-friction deep groove ball bearings



法兰输出轴 (按 ISO 9409-1 标准)
Flange output shaft (ISO 9409-1)



行星齿轮架
Planet carrier in disc design



可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

5 - 260 Nm

径向力

Radial force

900 - 3800 N

轴向力

Axial force

1000 - 5200 N

回程间隙

Torsional backlash

7 - 19 arcmin

防护等级

Protection class

IP54

结构尺寸

Frame sizes

55

64

90

110

经济型同轴减速机

Economy Line coaxial gearbox

PFHE



PFHE是一种极具吸引力的产品，适用于高径向负载应用。这种特殊的、预胀紧的角接触滚子轴承，搭配符合 ISO 9409-1 标准的法兰输出轴，使得 **PFHE** 的承载能力极高。借助径向轴密封，这种减速机的输出端的防护等级达到 IP65，因此能够胜任严苛的使用环境。

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.



经济型
Economy Line



直齿
Spur gear



正方形输出法兰
Square type output flange



配有预紧的圆锥滚子轴承
Preloaded tapered roller bearings



径向轴密封
Rotary shaft seal



法兰输出轴 (按 ISO 9409-1 标准)
Flange output shaft (ISO 9409-1)



行星齿轮架
Planet carrier in disc design



可选: 齿轮-齿条
Option: Rack and pinion



可选: 喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

15- 260 Nm

径向力

Radial force

2300 - 5150 N

轴向力

Axial force

2850 - 6450 N

回程间隙

Torsional backlash

7 - 12 arcmin

防护等级

Protection class

IP65

结构尺寸

Frame sizes

64

90

110

经济型同轴减速机

WPLE



Economy Line right angle gearbox

WPLE 一如既往地延续了经济型产品系列的优势。它的结构紧凑且牢固，因此非常适合动态的多轴系统。我们的直角行星减速机终身润滑，容易安装，因此其性价比是无可匹敌的。

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.



经济型
Economy Line



直齿
Spur gear



锥齿轮 直角型
Bevel gear right angle stage



圆形输出法兰
Round type output flange



低摩擦深沟球轴承
Low-friction deep groove ball bearings



多样的传动比 (i=3 至 i=512)
High ratio variety i=3 up to i=512



行星齿轮架
Planet carrier in disc design



可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque **5- 260 Nm**

径向力

Radial force **200 - 2000 N**

轴向力

Axial force **240 - 3800 N**

回程间隙

Torsional backlash **11 - 28 arcmin**

防护等级

Protection class **IP54**

结构尺寸

Frame sizes

40

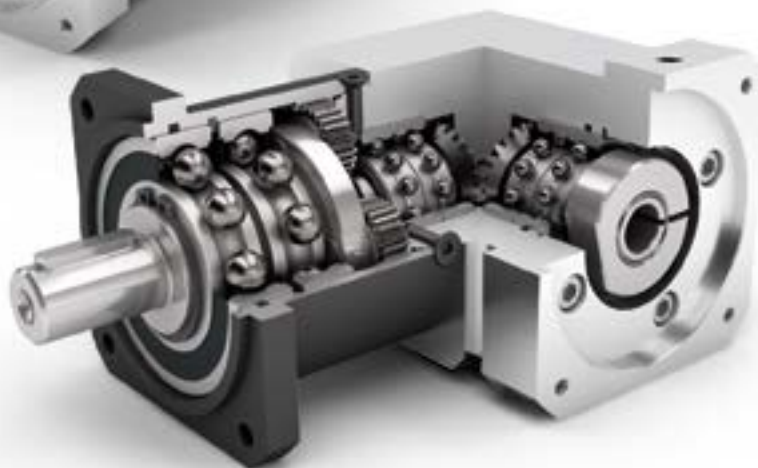
60

80

120

经济型同轴减速机

WPLQE



Economy Line right angle gearbox

我们的 **WPLQE** 是带有正方形输出法兰的直角行星减速机。因此，它特别容易安装，使用方式多样，而且凭借大尺寸的深沟球轴承，可以承受较高的径向力和轴向力。

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.



经济型
Economy Line



直齿
Spur gear



锥齿轮 直角型
Bevel gear right angle stage



正方形输出法兰
Square type output flange



增强深沟球轴承
Reinforced deep groove ball bearings



多样的传动比 (i=3 至 i=512)
High ratio variety i=3 up to i=512



行星齿轮架
Planet carrier in disc design



可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque **14 - 260 Nm**

径向力

Radial force **1500 - 4000 N**

轴向力

Axial force **1950 - 3800 N**

回程间隙

Torsional backlash **11 - 21 arcmin**

防护等级

Protection class **IP54**

结构尺寸

Frame sizes

60

80

120

经济型同轴减速机

WPLPE



Economy Line right angle gearbox

WPLPE是我们的经济型系列中广受欢迎的直角型减速机：它能节约空间，同时性能强大、价格合理。您可以把您的驱动元件直接安装到输出轴上，后者超强的深沟球轴承可以承受较高的径向力和轴向力。

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.



经济型
Economy Line



直齿
Spur gear



锥齿轮 直角型
Bevel gear right angle stage



圆形输出法兰
Round type output flange



增强深沟球轴承
Reinforced deep groove ball bearings



行星齿轮架
Planet carrier in disc design



可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

5 - 195 Nm

径向力

Radial force

1300 - 4000 N

轴向力

Axial force

1000 - 5900 N

回程间隙

Torsional backlash

11 - 25 arcmin

防护等级

Protection class

IP54

结构尺寸

Frame sizes

50

70

90

120

经济型同轴减速机

WPLHE



Economy Line right angle gearbox

节约轴向空间，经济实惠，防护等级IP65，专为承受高径向力和轴向力的输出端而设计：**WPLHE** 集合了已成功PLHE的全部优势。这是世界上首个将经济型减速机与高精度减速机组合的直角行星减速机。

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.



经济型
Economy Line



旋转方向 反方向
Counterdirectional rotation



直齿
Spur gear



锥齿轮 直角型
Bevel gear right angle stage



正方形输出法兰
Square type output flange



配有预紧的圆锥滚子轴承
Preloaded tapered roller bearings



径向轴密封
Rotary shaft seal



输出端带有超长定心环
Extra long centering collar



行星齿轮架
Planet carrier in disc design



可选: 齿轮-齿条
Option: Rack and pinion



可选: 喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

14 - 260 Nm

径向力

Radial force

3200 - 6000 N

轴向力

Axial force

4400 - 8000 N

回程间隙

Torsional backlash

11 - 18 arcmin

防护等级

Protection class

IP65

结构尺寸

Frame sizes

60

80

120

经济型同轴减速机

WPLFE



Economy Line right angle gearbox

WPLFE 是我们带有紧凑型法兰输出轴的直角行星减速机。您可以节省多达三分之一的空间。它带有标准法兰接口，因此特别容易安装。它还集成了定位销孔，在安装时增加了牢固度。

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.

- 
经济型
Economy Line
- 
直齿
Spur gear
- 
锥齿轮 直角型
Bevel gear right angle stage
- 
圆形特大号输出法兰
Extra large round type output flange
- 
低摩擦深沟球轴承
Low-friction deep groove ball bearings
- 
法兰输出轴 (按 ISO 9409-1 标准)
Flange output shaft (ISO 9409-1)
- 
行星齿轮架
Planet carrier in disc design
- 
可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩
Cyclic torque **14 - 260 Nm**

径向力
Radial force **900 - 3800 N**

轴向力
Axial force **1200 - 5200 N**

回程间隙
Torsional backlash **11 - 18 arcmin**

防护等级
Protection class **IP54**

结构尺寸
Frame sizes

64

90

110

PSNpro



凭借斜齿传动技术，**PSNpro**成功实现静音运行与极致同步精度的双重突破。它也是高循环扭矩工况的理想选择。其预紧的圆锥滚子轴承与方形输出法兰结构，确保超高负载能力，助力输出轴承受极端工况下的极限载荷。

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.



精密型
Precision Line



斜齿
Helical gear



正方形输出法兰
Square type output flange



配有预紧的圆锥滚子轴承
Preloaded tapered roller bearings



径向轴密封
Rotary shaft seal



输出端带有超长定心环
Extra long centering collar



行星齿轮架(笼状结构)
Planet carrier in cage design



可选: 降低回程间隙
Option: Reduced backlash



可选: 齿轮-齿条
Option: Rack and pinion



可选: 喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

14 - 1800 Nm

径向力

Radial force

950 - 20000 N

轴向力

Axial force

2200 - 17000 N

回程间隙

Torsional backlash

1 - 8 arcmin

防护等级

Protection class

IP65

结构尺寸

Frame sizes

55

70

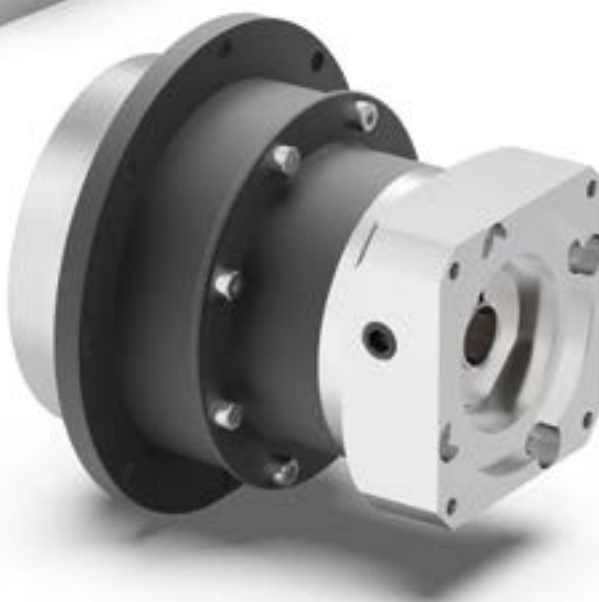
90

115

142

190

PSFNpro



PSFNpro系列——集高扭矩与极限抗扭刚度于一体，在狭小的空间内实现精度与动力的双重保障。其紧凑型结构实现空间集成革命，标准化法兰输出轴更确保跨领域应用的安装可靠性。

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.



精密型
Precision Line



斜齿
Helical gear



圆形特大号输出法兰
Extra large round type output flange



配有预紧的角接触滚子轴承
Preloaded angular contact roller bearings



径向轴密封
Rotary shaft seal



法兰输出轴 (按 ISO 9409-1 标准)
Flange output shaft (ISO 9409-1)



行星齿轮架 (笼状结构)
Planet carrier in cage design



可选: 降低回程间隙
Option: Reduced backlash



可选: 齿轮-齿条
Option: Rack and pinion



可选: 喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

14 - 1800 Nm

径向力

Radial force

1450 - 23000 N

轴向力

Axial force

2350 - 12000 N

回程间隙

Torsional backlash

1 - 8 arcmin

防护等级

Protection class

IP65

结构尺寸

Frame sizes

55

64

90

110

140

200

精密型同轴减速机

PSBNpro



Precision Line coaxial gearbox

我们的 **PSBNpro** 融合了精密型行星减速机和高效轴承技术。专为高速工况研发，通过均质化低噪音斜齿轮，提供极致性能。作为专业级产品，该系列可提供更卓越的扭矩性能——集可靠、紧凑、高效三大特性于一体。

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.



精密型
Precision Line



斜齿
Helical gear



正方形输出法兰
Square type output flange



增强深沟球轴承
Reinforced deep groove ball bearings



径向轴密封
Rotary shaft seal



行星齿轮架（笼状结构）
Planet carrier in cage design



可选：降低回程间隙
Option: Reduced backlash



可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque **14 - 850 Nm**

径向力

Radial force **830 - 9500 N**

轴向力

Axial force **800 - 9600 N**

回程间隙

Torsional backlash **1 - 8 arcmin**

防护等级

Protection class **IP65**

结构尺寸

Frame sizes

55

70

90

115

142

精密型同轴减速机

WPLN



Precision Line right angle gearbox

我们的 **WPLN** 凭借其准双曲面齿轮达到最优同步。由于振动被降至最低程度，它可以均匀、精确且安静地运行。直角高精度减速机经过终身润滑，可以用多种方式安装。

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.



精密型
Precision Line



旋转方向 反方向
Counterdirectional rotation



准双曲面齿轮 直角箱
Hypoid gear right angle stage



正方形输出法兰
Square type output flange



配有预紧的圆锥滚子轴承
Preloaded tapered roller bearings



径向轴密封
Rotary shaft seal



输出端带有超长定心环
Extra long centering collar



可选: 降低回程间隙 (2 级)
Option: Reduced backlash (2-stage)



可选: 齿轮-齿条
Option: Rack and pinion



可选: 喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

22 - 800 Nm

径向力

Radial force

3200 - 12500 N

轴向力

Axial force

4300 - 15000 N

回程间隙

Torsional backlash

3 - 5 arcmin

防护等级

Protection class

IP65

结构尺寸

Frame sizes

70

90

115

142

精密型同轴减速机

WPSFN



-  **精密型**
Precision Line
-  **旋转方向 反方向**
Counterdirectional rotation
-  **准双曲面齿轮 直角箱**
Hypoid gear right angle stage
-  **圆形特大号输出法兰**
Extra large round type output flange
-  **配有预紧的角接触滚子轴承**
Preloaded angular contact roller bearings
-  **径向轴密封**
Rotary shaft seal
-  **法兰输出轴 (按 ISO 9409-1 标准)**
Flange output shaft (ISO 9409-1)
-  **空心轴 (1 级)**
Hollow shaft
-  **可选: 降低回程间隙 (2 级)**
Option: Reduced backlash (2-stage)
-  **可选: 齿轮-齿条**
Option: Rack and pinion
-  **可选: 喷漆表面——RAL 9005 黑色**
Option: Painted surface – RAL 9005 Jet black

Precision Line right angle gearbox

我们的 **WPSFN** 凭借其标准法兰接口，可以特别轻松迅速地集成到系统里，而且具备很高的抗扭刚度。它凭借准双曲面齿轮、斜齿行星级、以及优化的同步，达到最佳的表面质量。最短的直角高精度行星减速机，集成了空心轴的1级设计，为您提供了新的设计解决方案。

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.



周期性扭矩
Cyclic torque **22 - 620 Nm**

径向力
Radial force **2150 - 12000 N**

轴向力
Axial force **4200 - 9500 N**

回程间隙
Torsional backlash **3 - 5 arcmin**

防护等级
Protection class **IP65**

结构尺寸
Frame sizes

64

90

110

140

精密型同轴减速机

WGN



Precision Line right angle gearbox

我们的 **WGN** 是一种运行噪音特别轻的直角式空心轴减速机。与此同时，准双曲面齿轮提高了您的工件表面质量。借助胀紧套可以直接连接应用——这样做简单、安全，而且为您的设计节省了更多空间。

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 work-piece. With a shrink disc, it can be connected directly to the application - this is uncomplicated, safe and opens up new design possibilities.



精密型
Precision Line



旋转方向 反方向
Counterdirectional rotation



准双曲面齿轮 直角箱
Hypoid gear right angle stage



正方形输出法兰
Square type output flange



配有预紧的圆锥滚子轴承
Preloaded tapered roller bearings



径向轴密封
Rotary shaft seal



输出端带有超长定心环
Extra long centering collar



夹紧系统的空心轴，带有胀紧套
Hollow shaft for clamping system with shrink disc



可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩

Cyclic torque

22 - 320 Nm

径向力

Radial force

2700 - 10000 N

轴向力

Axial force

4300 - 14500 N

回程间隙

Torsional backlash

5 arcmin

防护等级

Protection class

IP65

结构尺寸

Frame sizes

70

90

115

142

针对特定应用的减速机

Application-specific gearbox

HLAE

专门为食品与药品行业提供的卫生型设计

Hygienic Design
for the Food and
Pharmaceutical
Industries



我们的 **HLAE** 是独一无二的：它是世界上第一款采用卫生设计的行星齿轮箱——灵活、无需径向螺钉且动力强劲。它是专为敏感应用领域而研发的，例如制药、化妆品与食品

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.



A 针对特定应用的减速机
Application-specific gearbox

HD Hygienic Design
Hygienic Design

FDA 材料获得 FDA 认证
FDA certified materials

直齿
Spur gear

圆形输出法兰
Round type output flange

低摩擦深沟球轴承
Low-friction deep groove ball bearings

径向轴密封
Rotary shaft seal

输出端带有超长定心环
Extra long centering collar

行星齿轮架
Planet carrier in disc design

周期性扭矩
Cyclic torque **15 - 171 Nm**

径向力
Radial force **1000 - 5000 N**

轴向力
Axial force **1200 - 3800 N**

回程间隙
Torsional backlash **7 - 12 arcmin**

防护等级
Protection class **IP69K**

结构尺寸
Frame sizes

70 **90** **110**

针对特定应用的减速机

Application-specific gearbox

NGV

用于工业地面运输车的高精度减速机
for AGVs

无人驾驶系统对驱动技术提出了特殊的要求。这些要求主要有：承受较高的径向负荷，节省空间的设计，可以全天不间断运行，且节约能源。我们的 **NGV** 行星减速机采用特殊的输出轴承设计理念，而且可以直接安装在车辆底盘上，因此能够精确地满足这些要求。

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.



-  针对特定应用的减速机
Application-specific gearbox
-  直齿
Spur gear
-  圆形特大号输出法兰
Extra large round type output flange
-  配有预紧的角接触滚子轴承
Preloaded angular contact roller bearings
-  径向轴密封
Rotary shaft seal
-  输出端带有超长定心环
Extra long centering collar
-  法兰输出轴 (按 ISO 9409-1 标准)
Flange output shaft (ISO 9409-1)
-  行星齿轮架
Planet carrier in disc design
-  可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩
Cyclic torque **18 - 260 Nm**

径向力
Radial force **2700 - 7200 N**

轴向力
Axial force **2850 - 6450 N**

回程间隙
Torsional backlash **9 - 12 arcmin**

防护等级
Protection class **IP65**

结构尺寸
Frame sizes

- 64
- 90
- 110

针对特定应用的减速机

Application-specific gearbox

NDF

适用于Delta机器人
for Delta robots

NDF系列产品树立了并联机器人应用的标杆。增强型输出级中的四颗行星齿轮显著提升了扭转刚度与可传递扭矩。法兰输出轴的扭矩接口实现了更高的负载传递能力。特殊旋转轴密封件与动态驱动系统共同确保了性能的最大化。

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.



-  针对特定应用的减速机
Application-specific gearbox
-  斜齿
Helical gear
-  转矩接口
Torque Interface
-  配有预紧的角接触滚子轴承
Preloaded angular contact roller bearings
-  径向轴密封
Rotary shaft seal
-  行星齿轮架（笼状结构）
Planet carrier in cage design
-  输出部分有四种特殊设计的行星减速机
Four planet gears at the output
-  可选：喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩 Cyclic torque	180 - 530 Nm
径向力 Radial force	4000 - 5400 N
轴向力 Axial force	4000 - 5400 N
回程间隙 Torsional backlash	1 arcmin
防护等级 Protection class	IP65

结构尺寸
Frame sizes

90	110
----	-----

针对特定应用的减速机

Application-specific gearbox

NDFC

适用于Delta机器人
for Delta robots

得益于其优化的密封方案、动态驱动系统以及符合ISO 9409-1标准的输出轴几何结构，**NDFC**系列成为并联机器人应用中的经济型选择。该系列产品凭借卓越的抗扭刚度表现令人印象深刻，可实现大扭矩的可靠传递。

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.



-  针对特定应用的减速机
Application-specific gearbox
-  斜齿
Helical gear
-  圆形特大号输出法兰
Extra large round type output flange
-  配有预紧的角接触滚子轴承
Preloaded angular contact roller bearings
-  径向轴密封
Rotary shaft seal
-  法兰输出轴 (按 ISO 9409-1 标准)
Flange output shaft (ISO 9409-1)
-  行星齿轮架 (笼状结构)
Planet carrier in cage design
-  可选: 降低回程间隙
Option: Reduced backlash
-  可选: 喷漆表面——RAL 9005 黑色
Option: Painted surface – RAL 9005 Jet black

周期性扭矩 Cyclic torque	32 - 330 Nm
径向力 Radial force	2150 - 4900 N
轴向力 Axial force	2850 - 6450 N
回程间隙 Torsional backlash	1 - 5 arcmin
防护等级 Protection class	IP65

结构尺寸

Frame sizes

64

90

110

客户定制减速机

Custom made gearboxes



创新并且独特： 定制减速机

独特的构造，特有的性能数据，改动过的输出轴，或者食品级质量：您需要的是一台根据特定需求专门设计过的减速机。我们完全满足您的要求。我们将快速而简单地从我们的标准行星减速机中选一种进行改造，或者为您专门研发定制减速机。我们产品设计部的专业人员有能力设计出符合您需要的减速机解决方案与系统：在性能、成本与质量三方面都做到最优。

我们借助最先进的研发与设计工具，为机械与设备制造、机器人，医疗、药物与食品技术，或者模具制造等所有应用领域开发出适合各种用途的减速机。
创新优势：我们凭借多年的经验，不断开展新的研发，并把这些整合到我们的客户解决方案里。

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.

选项：喷漆表面 Option: Painted surface

**新
NEW**



为您的减速机提供个性化外观与额外保护

选项：喷漆表面，Neugart 为所有型号和尺寸的减速机提供高品质的表面镀层。标准色 RAL 9005（墨黑）不仅体现了现代优雅的外观，还能实现与各种应用场景的完美融合。该涂层结构基于坚固耐用的双组分系统，能确保可靠的附着力和均匀的高品质表面效果。

RAL 9005 黑色喷漆表面的优势：

- 外观精美
- 坚固耐用的涂层系统
- 高耐化学性（建议进行单独测试）
- 耐久性增强
- 供应灵活—即使单个订购，也覆盖所有减速机型号和尺寸

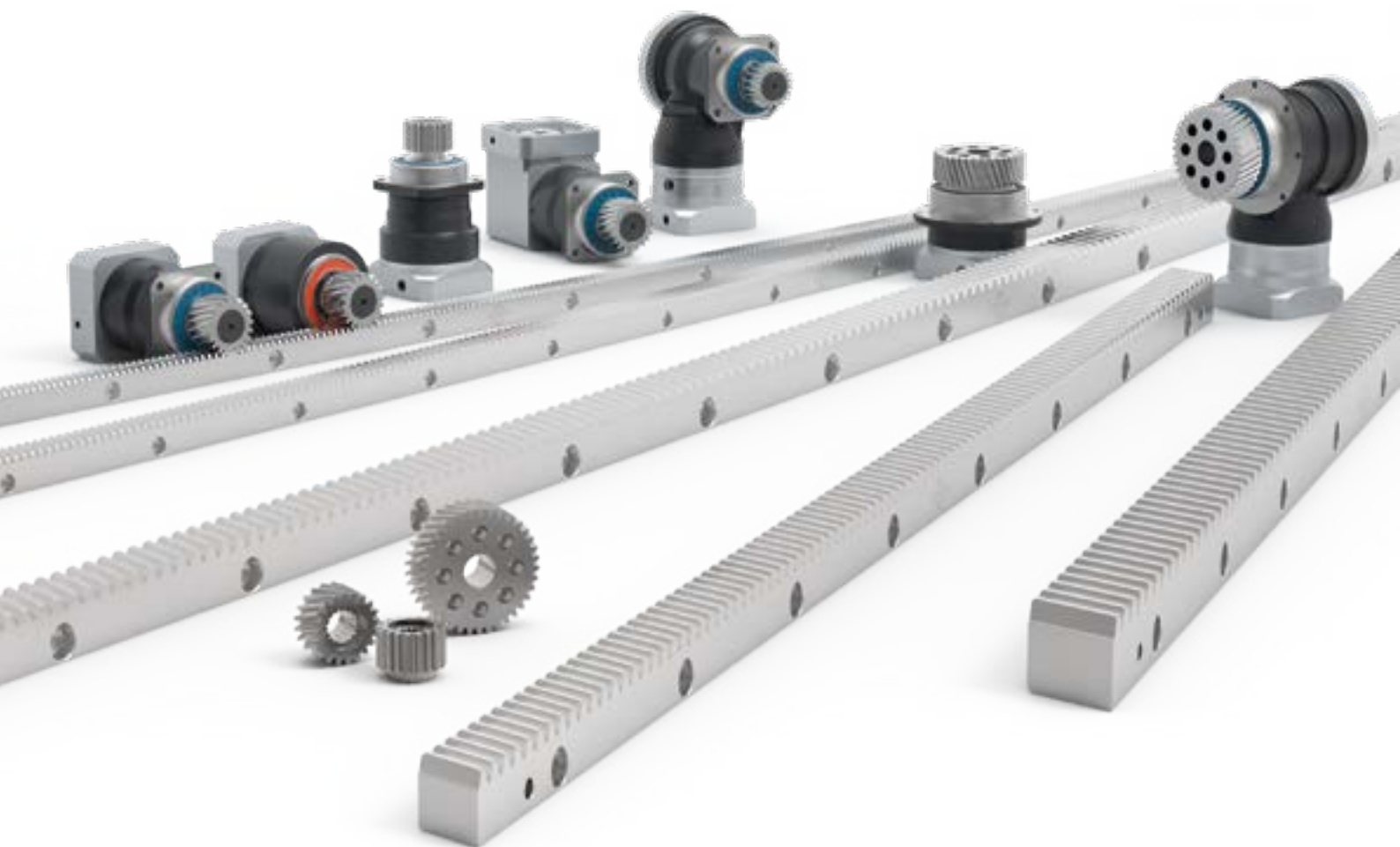
Individual appearance and additional protection for your gearbox

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



Neugart Rack System

满足最高要求的精密齿条

Neugart 提供高品质的直齿或斜齿齿条。我们的标准齿条由感应淬火调质钢制成，模数范围1.5 至 5 mm，符合 6 级质量标准。

这些齿条经过热处理和磨削加工，以优化其机械性能。标准型号有 1000 mm和 2000 mm两种长度。也可根据要求，提供定制长度。

模数
Module

1,5-5

Precision racks for the highest demands

Neugart offers racks of the highest quality with straight or helical gearing. Our standard racks are made of induction-hardened 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. Customized lengths can also be produced on request.

最大进给力
Maximum feed force

2-31 kN

装有小齿轮的高精度减速机

Planetary gearbox with mounted pinion



装有小齿轮的高精度减速机

三种不同类型的小齿轮（斜齿轮和直齿）可提供多种组合选项，确保为每种应用场景提供理想的解决方案。

该小齿轮可与多种减速机型号组合使用，包括：追求极高精度的精密减速机、注重耐用性与效率的经济型减速机，以及适用于特殊安装条件的直角行星减速机。

这将给您带来更大的灵活性和技术协同性，从而满足各种不同的要求。

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 pinion can be combined with different gearbox types, including precision gearboxes for maximum accuracy, economy gears for maximum durability and efficiency, and angular planetary gears for special installation situations.

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

PK1

- PK1 小齿轮直接安装在减速机的花键输出轴上
- 根据 DIN 5480 标准精密设计的内花键，可实现最佳的动力传输，即使在要求苛刻的应用中也能确保持久的高连接可靠性。



PK1

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

PM1

- PM1 小齿轮是专门为带法兰输出轴的减速机设计的。
- PM1 小齿轮的周长较大，因此能够实现特别高的进给速度。



PM1

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

PM2

- PM2 小齿轮是专门针对带法兰输出轴的减速机设计的。
- 由于齿数较少，PM2 小齿轮可实现特别高的进给力。



PM2

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

功率等级

Performance classes

产品概览

Our program at a glance.

在此概览中您可以找到产品的重要特性。

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

经济型		周期性扭矩	回程间隙	轴承最大承载能力	防护等级	运行噪音	输入转速	抗扭刚性	传动比多样性
Economy Line		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		— — — — —	— — — — —	— — — — —	— — — — —	— — — — —	— — — — —	— — — — —	— — — — —

— 标准 — — — — — 优秀 — — — — — Standard — — — — — Excellent

功率等级

Performance classes

精密型		周期性扭矩	回程间隙	轴承最大承载能力	防护等级	运行噪音	输入转速	抗扭刚性	传动比多样性
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		■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■

针对特定应用的减速机		周期性扭矩	回程间隙	轴承最大承载能力	防护等级	运行噪音	输入转速	抗扭刚性	传动比多样性
Application specific gearboxes		Cyclic torque	Backlash	Bearing load	Protection class	Running noise	Input speeds	Torsional stiffness	Wide range of ratios
HLAE		■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■
NGV		■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■
NDF		■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■
NDFC		■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■	■■■■■

■■■■■ 标准
 ■■■■■ 优秀
 ■■■■■ Standard
 ■■■■■ Excellent



您还有其它问题，或者需要更多信息吗？

我们乐意为您提供任何关于驱动技术方面的咨询。

您可以通过我们的网站找到您的专属联系方式: www.neugart.com

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

Neugart GmbH

Keltenstraße 16
77971 Kippenheim
Deutschland
Phone: +49 7825 847-0
Email: sales@neugart.com
Web: www.neugart.com

Neugart USA Corp.

14325 South Lakes Drive
Charlotte, NC 28273
USA
Phone: +1 980 299-9800
Email: sales@neugartusa.com
Web: www.neugart.com/en-us

Neugart Planetary Gearboxes (Shenyang) Co., Ltd.

纽卡特行星减速机（沈阳）有限公司
电话: +86 24 2537-4959
网址: www.neugart.net.cn
邮箱: sales@neugart.net.cn