



前的产品目录中包括许多成熟的，具有创新和技术性的驱动/变速器解决办法。本公司可以向您提供十二种不同的行星齿轮传动减速器系列，分别具备经济、高精度和高效等不同应用特点。作为您卓越的技术合作伙伴我们还将研发并生产高精度齿轮啮合部件以及完全遵照客户需求的特殊变速器。

如果您对2013产品目录或我们的产品和服务有疑问，欢迎随时查询，我们时刻为您服务。

The current product range includes numerous innovative and technologically mature drive and gear solutions. We now offer twelve different planetary gear series for the sectors Economy and Precision.

As a competent technology partner, we develop and manufacture highly precise gear parts as well as specialised gearboxes – adapted precisely to your specific needs.

Please contact us if you have any questions about the 2013 catalogue, our products or services – we're happy to help.

编者说明 editorial



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高强度、高精度。 良好的合作伙伴关系。

尊敬的女士们，先生们：

超强动力，高精度以及良好的合作伙伴关系是本公司80多年来始终贯彻执行的经营理念。

今天呈现在您面前的全新编辑的产品目录，将用100多页的篇幅向您介绍我们多年的宝贵经验和公司技术实力。

Impress with **power**
and **precision**.
Inspire with
partnership.

Dear Sir or Madame,

Power, precision and partnership – these values characterise our business philosophy and our work, for over 80 years.

In our newly designed and newly structured catalogue, introduced to you today, we present our experience and performance.



力量 Power.
精确 Precision.
合作 Partnership.

质量好。 强度高。

顾客满意是本公司的最终目标，产品质量和服务是我们的首要任务。本公司质量-环保理念保证了我们在国际市场上可以不断地取得巨大成功。

概览：

> **目标明确：**
针对领导层、所有工作人员以及工作质量，本公司制定了具体的质量目标。

> **承诺：**

应重点强调的是我们是一支高效、高素质的团队。除了权威的培训与指导之外，我们的员工会相应的对自己的任何行为负责。

> **持续：**

我们坚持完善每个工作流程，从点滴做起构成了我们进行重大革新和完善的基石。

> **可证明的：**

我们设计制定、执行了质量-环保管理系统并对其进行详细记录，该管理系统涵盖了本公司所有产品。在质量-环保管理系统文件中包含了所有一般重要规则。

Power - at a high level. Our quality.

AT A GLANCE:

> **Goal oriented.**

We declare concrete quality goals - under the responsibility of the management and involvement of all employees as well as consideration of the quality of work.

> **Committed.**

We put emphasis on a highly motivated and qualified team. In addition to training and instruction, our employees receive authority as well as responsibility for their activities.

> **Consistent.**

We are in a process of continuous improvement – and we connect the large steps of innovation with the small steps of continual optimisation.

> **Verifiable.**

We maintain and document a comprehensive quality and environment management system that comprises all phases of the rendering goods and services. All regulations relevant to the standards are described in the documentation according ISO 9001: 2008; ISO 14001 of the QM/EM system.

质量 quality



公司网络全球化。 竭诚为您服务。

本公司在产品质量、技术支持和产品服务上的高标准要求得到了国际认可：在全世界所有重要的工业国家中我们拥有超过20家代理和分支机构。

本公司只在德国进行产品制造。在美国和中国的组装厂可以满足不同地区的需求并保证供货时间和货物调度的灵活性。

Globally
active for you.
Our network.

Our high standard in product quality, support and service appreciated internationally: With over 20 representatives and branches, we are represented in all important industrial nations. We manufacture our products exclusively in Germany. In the USA and China, our assembly factories serve regional markets, guaranteeing a high level of flexibility for adaptations as well as the shortest delivery times.

网络
network



尽情享用 我们的服务。

我们不仅创造产品，还根据不同功能，以经济、长远的方式解决各种不同的问题。对此，本公司期待与您的合作以及为您提供更为舒适的服务。

> 直观来讲：

本公司提供从咨询到研发设计的整套服务。
您的问题就是我们的任务：
我们向您提供咨询服务并与您一起讨论研发新的、适当的解决问题的办法。
我们员工中的5%在设计和研发部门工作。

> 处于领先地位：

专业技能和技术。
创新的、先进的生产工艺与高素质的员工队伍值得信赖。
本公司免费提供NCP 传动系设计软件。
在网页下载区域为您提供CAD制图，尺寸图及使用说明。

> 整体概况：

注重效率
生产面积总计扩建11.000m²，这样足以保证我们标准产品的理想供货时间。另外您可从我们高品质的产品中获得公平的市场价格以及长期的成本优势。

Simply greater benefit. Our service.

> From one source:

From consulting to development. Your task, our job: We provide consulting and develop new and customised solutions together with you. Roughly 5% of our employees work in development and design.

> At a new level:

Know-how and technology. Trust in innovative and proven manufacturing methods and in the knowledge of our employees. NCP, the design software for the power train, is available to you at no cost. And our website offers you a comprehensive download area – with CAD drawings, dimension sheets or operating instructions.

> On all accounts:

Focus on efficiency.
With our expanded production area of 11,000 m² we can guarantee optimal delivery times for our standard products.
You also profit from fairly calculated market prices, from permanent cost optimisation – with consistent high quality.

服务 service



NEUGART技术数据搜索器： 最新在线服务，新的选择。

简化流程、提高效率、超过预期：

通过数据搜索，我们在效率和性能方面再次树立新的标准。NEUGART一流的品质始于全面完善的售前服务！

今后您无需再耗时费力地对内容繁多的文档进行人工搜索：在www.neugart.net.cn上的在线技术数据搜索器里只需轻点鼠标即可：我们的系统将根据特定的产品数据，从拥有超过1000个可供选择的产品中自动为您推荐所需产品。

结合已在测试中通过实践验证的产品搜索器，现在我们为您提供改进后的整体解决方案：一个一流的搜索功能，可应用于从性能参数到完善文档。

全新的NEUGART技术数据搜索器从现在起在我们的网站上随时供您免费使用。

The NEUGART-Tec Data finder: New online services, new options.

**Simplify processes, increase efficiency,
exceed expectations:**

With our Tec Data finder we set the standard again for efficiency and performance. At NEUGART first-class quality starts with the right pre-sales service!

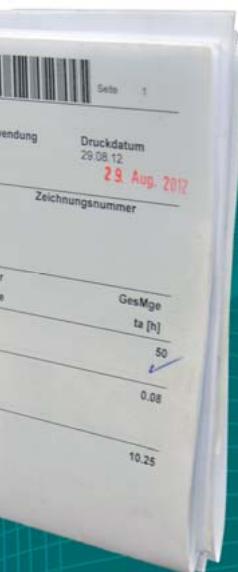
No more need for a time-consuming manual search through documentation: You just need a few clicks in the online Tec Data finder at www.neugart.com:

Based on the specific product data and options, our system will automatically find suitable solutions for your needs from over 1000 alternatives. In combination with our proven product finder, we offer you an ingenious total solution – a first-class search function, from performance data to the final documentation.

The NEUGART-Tec Data finder is available for you on our website, around the clock and free of charge.



服务
Service



注重细节， 打造完美。 公司产品。

高效、功能强劲：

高精度行星齿轮传动变速器。

无论在机床、铸造机中，还是在包装机、印刷机和纺织器械中，或在自动控制技术、喷涂机机械手设备中：我们的高精度行星齿轮传动变速器对于各种不同的应用领域将是最好的选择。此外本公司还提供非标准类的器械。本公司将持续研发高品质的驱动设备。

值得信赖、高精度：

我们的结合点。

本公司提供驱动技术领域里的各种部件。完美满足客户要求。

创新和独特：

特殊变速器。

坚固的结构设计及高性能、特殊的结构需求。食品级的认证和独特的设计：本公司可以满足客户在机械领域中的各种复杂要求。高水平的技术工程师为您设计特殊变速器并可解决各种相关问题。服务、成本和质量均达到您的期望。创新优势：本公司将长期的专业经验以及不断的研发成果运用到客户解决办法中。

Perfection - in every detail. **Our products.**

Powerful and efficient:

Our precision planetary gearboxes.

Whether in machine tools or die-casting machines, in packaging, printing and textile machines, in automation technology or in robotic painting systems: Our precision planetary gearboxes are ideally suited for numerous applications. We offer much more than just standard. The high-quality drive elements are continuously being developed further.

Reliable and highly precise:

Our gear parts.

We offer you numerous additional components relating to drive technology. Perfect for your needs and demands.

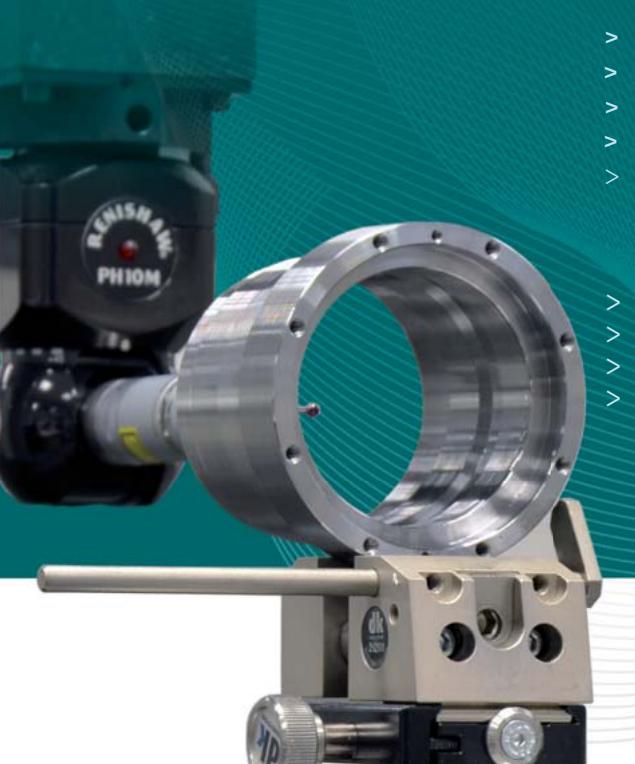
细节 perfection

概览：

- > 产品种类丰富 - 标准变速器，特殊变速器和啮合件。
- > 十二种标准产品系列 - 多种选择。
- > 特殊变速器 - 根据客户要求量身打造。
- > 啮合件 - 提供不同的加工方式。
- > 高质量、灵活性 - 理想供货时间。.

AT A GLANCE

- > A broad product range – standard gearboxes and custom made gearboxes.
- > Twelve strong standard model series – many options.
- > Custom made gearboxes – individually customised to your needs.
- > High quality and flexibility – with optimal delivery times.



快速找到目标 :

程序概览

您今后不再需要花费大量时间通过给出详细数值进行搜索：只需要使用我公司一目了然的搜索程序就能快速选到您所需的产品。在此概览中您可以找到产品的重要规格特性。

Achieve your goal faster:

Our programme at a glance.

You no longer need to perform time-consuming searches of detailed information: Utilise our easy-to-use quick selection to select the products you need. In this overview you will find a direct comparison of the key features of our products.

	PLE 共轴/coaxial
	PLHE 共轴/coaxial
	PLPE 共轴/coaxial
	PLFE 法兰/Flange
	WPLE 角度/Angle
	WPLPE 角度/Angle
	PLN 共轴/coaxial
	WPLN 角度/Angle
	PLFN 法兰/Flange
	PSN 共轴/coaxial
	PSFN 法兰/Flange
	WGN 角度/Angle

位置精确性 Positioning accuracy	径向力 radial forces	扭转刚度 torsional stiffness	运行平稳 quiet operation	功率密度 power density	防护等级 protection rating	传动多样性 wide range of ratios
CC	C	C	CCC	CC	CC	CCC
CC	CCC	CC	CCC	CC	CCC	CC
CC	CC	CC	CCC	CC	CC	CC
CC	CC	CCC	CCC	CC	CC	CC
C	C	C	C	CC	CC	CCC
C	CC	CC	C	CC	CC	CC
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功率等级

Performance classes



标准
STANDARD



强
STRONG



最高
TOP

总有一款独立的解决方案。

根据客户需求的特殊解决方案有：行星变速器、直齿轮变速器以及锥齿轮变速器，也可以根据需要任意组合各种变速器。

在对驱动轴进行量体设计时，我们高素质、经验丰富的工程技术人员一直致力于将最新的研究成果和技术发展运用到设计中去。

借助现代工艺及设计工具可实现设备制造（例如打印机、操作系统、压铸机或涂装机械手设备）、医学技术及模型制造等领域中的各项应用，开创新新的未来。

用户定制减速机方案 案例 custom made gearboxes some examples



寻找最佳点：
用于涂装机械手的行星减速机

Searching for the optimum:
Planetary offset gearbox
for a painting robot

用户定制减速机方案 custom made gearboxes

任务

一种为CNC控制驱动的喷涂机器人旋转和回转轴应该得到优化。尤其是重量的减轻，正如额定输出扭矩的降低一样可以实现。拆装应该变得更便捷。为了能够执行所需的任务，我们将构造一种齿轮和行星轮相结合的减速机。除了诸如寿命和过载保护的标准要求外，客户可以自行限制空间和低回程间隙。

The task

For a redesign of a painting robot, the existing CNC drives for the rotating and swivelling axes of the spray head are to be optimised – with a weight reduction, a shortening of the gearbox and increase in the nominal torque. Simplified assembly and disassembly were also requested.

解决方案

为满足这些需求，我们在齿轮和行星档位的基础上特别研制出组合式变速器。由此，除了可符合一般的使用寿命和荷载安全性能要求外，也可满足客户所给出的安装室尺寸限制并实现极小的转动间隙。

Our solution

In order to fulfill these demands, we developed a combined gearbox out of a spur-gear and planetary stage. In addition to the usual criteria such as service life and over-load safety, we were also able to realise the limited space requirements and the low backlash that the customer had specified.

Always an individual solution.

Customer-specific solutions such as planetary, spur gear and bevel gearboxes as well as any combination of these types of gears.

Our qualified and experienced engineering employees ensure that the latest research and developments are used in the design of customised drive solutions.

Using modern design and development tools, applications from all areas of system design (for instance, printing presses, handling systems, die-cast machines and robot painting systems), medical engineering and model building are realised. For new perspectives.

用户定制减速机方案 案例 custom made gearboxes some examples

非比寻常的挑战：
旋转门专用

转角式减速机

An extraordinary challenge:
Bevel gears for revolving-door drives



任务

对于旋转门系列来说现今已有各种不同的变速器解决方案 - 我们的目标是研发出一种可适用于各种旋转门的万用方案。该锥齿轮变速器的设计应运行平稳、噪音极低。重量也至关重要。

The task

For one revolving door model series there exist numerous gearbox solutions – thus it was our goal to develop a single gearbox solution that can operate the various revolving doors. The bevel gearbox should have a flat, low-noise design. Weight also played an important role.

解决方案

一般的锥齿轮变速器无法满足这些需求。我们为此设计出一种带有锥齿轮的行星变速器。这是一个巨大的挑战：它可最大程度地降低噪音、节省安装空间并提高转矩。输出轴一侧的冠状齿轮串接有双级行星齿轮减速器，它们被内置在铝制箱体。为避免产生噪音，所有齿轮、箱体以及电机安装系统均采用优化噪声的设计。

Our solution

The demands did not allow for use of standardised bevel planetary gearboxes. Instead, we designed a planetary gearbox with a bevel stage. A great challenge: The operating noise should be minimised, the space requirements reduced and the torque increased.

A crown gearing with an upstream 2-stage planetary gearbox was integrated on the output side of an aluminium housing. To reduce the operating noise, all gear teeth, the housing and the motor extension were optimised for reduced noise.

另一项决策： NEUGART – 最佳原因！

欢迎选购使用本公司产品：

> 公司产品：

凭借于高效率-德国制造：您可以在公司系列产品中找到您需要的产品。我们的质量管理体系都已获得认证，并可确保我们的投诉率低于0.3%。

> 产品性价比：

性能强，效率高且技术创新：我公司保证在变速器技术方面为您提供先进的解决方案，以及质量高，经济的产品。

> 供货时间：

公司对各个分公司进行大量投资，并致力于持续改善公司的各个工艺程序，这为几乎百分之百的供货提供了可靠的保障。标准变速器的供货时间通常为两个星期。有时甚至可以在24至48个小时内供货。

> 公司网络：

公司在各个国家都设有分公司。公司的信息网络以及所使用的经营软件不但可以保证各个分公司可以顺利地进行通讯往来，并提供最佳的合作经营流程。

> 售前和售后服务：

公司无偿提供产品服务项目：NEUGART尺寸图搜索和产品搜索器NCP等设计工具，以及集成，且获得认证的投诉管理系统。

对于决策者 for decision-makers

几十年来，NEUGART始终利用高科技和创新技术，持续研发以及高精密的制造技术获得了全世界客户的信赖。

我公司在精密加工变速器，特殊变速器制造以及按照客户要求生产齿轮部件方面积累了的丰富经验和和技术，在国内和国际市场上供不应求。

当然，公司还有更多的优点值得您选择NEUGART产品。



Decidedly different: NEUGART – for good reason!

CONVINCE
YOURSELF:

> Our products

Put your trust in the highest level of performance – Made in Germany: In our well-balanced portfolio you will find the right product for your needs. And our certified quality management system ensures that our complaint costs remain marginal.

> Our value for money:

Powerful, efficient and innovative: We create forward-looking solutions in gearbox technology – high quality at reasonable prices.

> Our delivery times:

With substantial investment in our site and continuous improvement of our processes, we achieve delivery reliability of over 99%. For our standard gearboxes, the delivery time is an average of two weeks. In some situations we can deliver within **24 or 48 hours**.

> Our networks:

We are represented in all important markets with local companies. Our internal information network and the business software we use ensure smooth internal communication and optimally coordinated business processes.

> Our pre-sales and after-sales service:

We accompany you with a wide range of services – from NCP, our free calculation tool, to the NEUGART-TEC DATA FINDER to our integrated, certified claims management.



NEUGART distinguishes itself with advanced, innovative technology, with high-precision production technology and has been doing so for decades. Renowned customers worldwide put their trust in our vast experience.

Our precise planetary gearing and our experience in the construction of specialised gears, our expertise in the production of customer-specific gearing parts are highly sought after on the national and international markets.

We can provide you with good reasons to make a decision for NEUGART now.

经济型减速机

The Economy gearboxes

低回程间隙行星减速机

low backlash economy planetary gearbox

相对PLN系列，合理的经济型产品

the economy alternative to the PLN-line

14-23



低回程间隙行星减速机

low-backlash economy planetary gearing

具有高的径向力和轴向力

Our series is characterised by high radial and axial forces

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低回程间隙行星减速机

low-backlash economy planetary gearing

输出具有更多的灵活性及较高的径向力

More flexibility at the output and higher radial loads

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低回程间隙经济型法兰输出减速机

low-backlash economy flange gearbox

结构紧凑，性能卓越

compact efficiency

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低回程间隙角度输出减速机

low-backlash economy angle gearbox

PLE产品系列的转角式减速机

the angular gearbox of PLE-line

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低回程间隙角度输出减速机

low-backlash economy bevel planetary gearing

PLPE产品系列的转角式减速机

the angular gearbox of PLPE-line

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编者说明

editorial

质量 + 网络

quality + networks

服务 + 技术数据搜索器

service NCP + dimension sheets

细节 + 功率等级

perfection + performance classes

特种减速机

custom made gearboxes

对于决策者

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低回程间隙行星减速机
low backlash planetary gearbox

噪音小
Quiet and powerful

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low backlash flange gearbox

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Dynamic and flexible

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low backlash planetary gearbox

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precision at highest level

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low backlash flange gearbox

高刚度、高性能和结构紧凑短小

high stiffness with high performance data and short construction

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高精度锥齿轮变速器
the precision angular gearbox

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低回程间隙角度输出减速机
low backlash angle gearbox

高精度锥齿轮变速器
the precision angular gearbox

PLE

PLHE

PLPE

PLFE

WPLE

WPLP

PSN

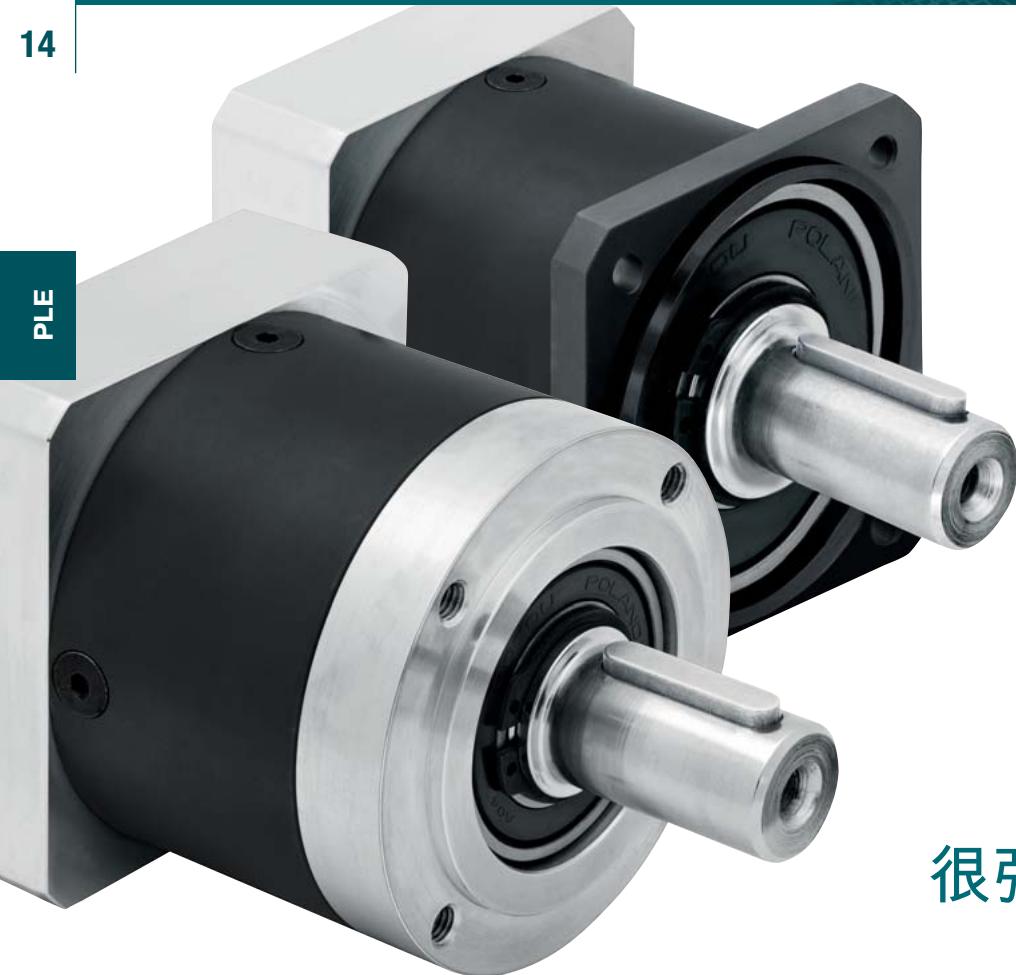
PSFN

PLN

PLFN

WPLN

WGN



很强的可替换性

与 PLN 系列行星减速机相比，PLE 系列行星减速机更加经济实用。此系列产品适合那些无需极低回程间隙的应用场合。

PLE - 系列

PLE - line

The powerful
alternative

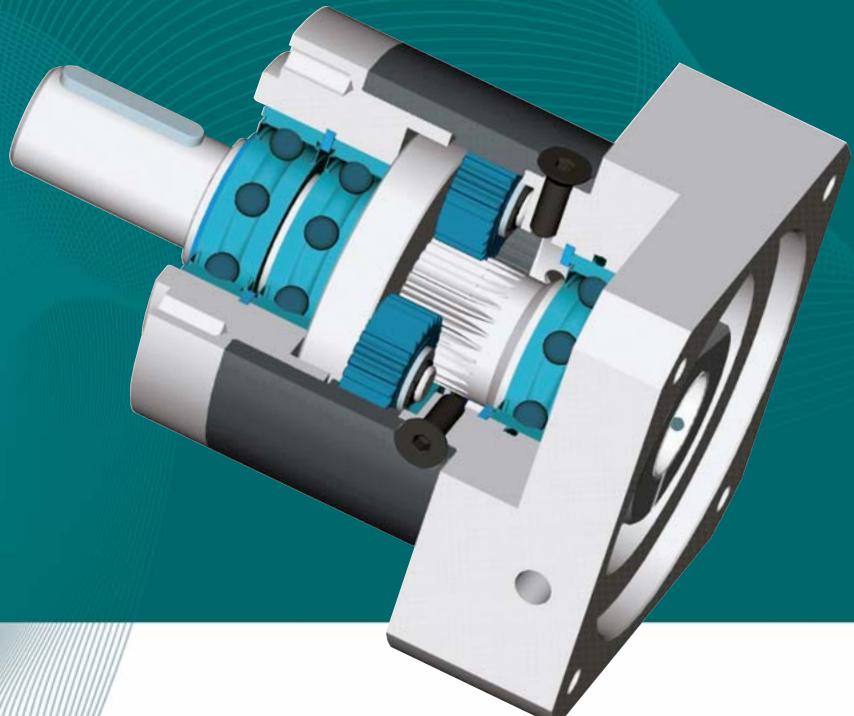
The PLE is the perfect economy alternative to the PLN. We have specifically designed this planetary gear for all applications in which a particularly low backlash is not necessarily the main focus.

- 最低的回程间隙
- 最大的输出扭矩
- 高效率(96%)
- 24 级减速比 i=3 , ... , 512
- 低噪音
- 高质量(ISO 9001)
- 安装位置随意
- 简易电机装配
- 终身润滑
- 更多的选配方式
- 旋转方向 : 同向
- 平衡的电机齿轮

- low backlash
- high output torque
- high efficiency (96%)
- 24 ratios i=3,...,512
- low noise
- high quality (ISO 9001)
- any mounting position
- easy motor mounting
- lifetime lubrication
- more options
- direction of rotation equidirectional
- balanced motor pinion

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CAD drawings, dimension sheets	www.neugart.net.cn
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dimensioning/calculation	NCP Software

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options



系列	line		PLE			Z ⁽²⁾
寿命	lifetime	h	30.000			
满载效率 ⁽³⁾	efficiency with full load ⁽³⁾	% ⁽²⁾	96			1
			94			2
			90			3
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25			
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90			
防护等级	degree of protection		IP 54			
润滑	lubrication		终生润滑 /life lubrication			
装配方式	mounting position		任意 /any			
电机法兰精度	motor flange precision		DIN 42955-N			

单位尺寸	size		PLE 40	PLE 60-60/70	PLE 80-80/90	PLE 120-120/115	PLE 160	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(5)(6)(7)}$	nominal output torque $T_{2N}^{(5)(6)(7)}$	Nm	11	28	85	115	400	3	1
			15	38	115	155	450	4	
			14	40	110	195	450	5	
			8,5	25	65	135	-	7	
			6	18	50	120	450	8	
			5	15	38	95	-	10	
			16,5	44	130	210	-	9	2
			20	44	120	260	800	12	
			18	44	110	230	700	15	
			20	44	120	260	800	16	
			20	44	120	260	800	20	
			18	40	110	230	700	25	3
			20	44	120	260	800	32	
			18	40	110	230	700	40	
			7,5	18	50	120	450	64	
			20	44	110	260	-	60	
			20	44	120	260	-	80	
			20	44	120	260	-	100	
			18	44	110	230	-	120	
			20	44	120	260	-	160	
			18	40	110	230	-	200	
			20	44	120	260	-	256	
			18	40	110	230	-	320	
			7,5	18	50	120	-	512	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$, 电机在占空因数KA=1及S1连续工作制下, 温度T=30°C⁽⁶⁾ 取决于电机轴的直径⁽⁷⁾ 带键: 于峰值负载⁽¹⁾ ratios($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle KA=1 and S1-mode for electrical machines and T=30°C⁽⁶⁾ depends on the motor shaft diameter⁽⁷⁾ with key, at tumscent load

单位尺寸	size		PLE 40	PLE 60-60/70	PLE 80-80/90	PLE 120-120/115	PLE 160	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾	max. output torque ⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾	Nm	17,5	45	136	184	640	3	1
			24	61	184	248	720	4	
			22	64	176	312	720	5	
			13,5	40	104	216	-	7	
			10	29	80	192	720	8	
			8	24	61	152	-	10	
			26	70	208	336	-	9	2
			32	70	192	416	1280	12	
			29	70	176	368	1120	15	
			32	70	192	416	1280	16	
			32	70	192	416	1280	20	
			29	64	176	368	1120	25	3
			32	70	192	416	1280	32	
			29	64	176	368	1120	40	
			12	29	80	192	720	64	
			32	70	176	416	-	60	
			32	70	192	416	-	80	
			32	70	192	416	-	100	
			29	70	176	368	-	120	
			32	70	192	416	-	160	
			29	64	176	368	-	200	
			32	70	192	416	-	256	
			29	64	176	368	-	320	
			12	29	80	192	-	512	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n2=100min⁻¹,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 取决于电机轴的直径⁽⁵⁾ 带键:于峰值负载⁽⁶⁾ 必须保证允许的工作温度;特殊的输入转速请联系确认⁽¹⁾ ratios($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ depends on the motor shaft diameter⁽⁵⁾ with key, at tumscent load⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry

单位尺寸	size		PLE 40	PLE 60	PLE 80	PLE 120	PLE 160	Z ⁽²⁾
回程间隙	backlash	arcmin	< 15	< 10	< 7	< 7	< 6	1
			< 19	< 12	< 9	< 9	< 10	2
			< 22	< 15	< 11	< 11	-	3
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr _{max.} for 20.000 h ⁽³⁾⁽⁴⁾	N	200	400	750	1750	5000	
Fa 于 20.000 h ⁽³⁾⁽⁴⁾	Fa _{max.} for 20.000 h ⁽³⁾⁽⁴⁾		200	500	1000	2500	7000	
Fr 于 30.000 h ⁽³⁾⁽⁴⁾	Fr _{max.} for 30.000 h ⁽³⁾⁽⁴⁾		160	340	650	1500	4200	
Fa 于 30.000 h ⁽³⁾⁽⁴⁾	Fa _{max.} for 30.000 h ⁽³⁾⁽⁴⁾		160	450	900	2100	6000	
Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾		200	700	1250	2000	5000	
Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾		240	800	1600	3800	11000	
抗扭刚性	torsional stiffness	Nm / arcmin	1	2,3	6	12	38	1
			1,1	2,5	6,5	13	41	2
			1	2,5	6,3	12	-	3
重量	weight	kg	0,35	0,9	2,1	6	18	1
			0,45	1,1	2,6	8	22	2
			0,55	1,3	3,1	10	-	3
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	58	58	60	65	70	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	18000	13000	7000	6500	6500	

单位尺寸	size		PLE 40	PLE 60	PLE 80	PLE 120	PLE 160	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	22,5	66	180	390	800	3	1
			30	88	240	520	900	4	
			36	80	220	500	900	5	
			26	80	178	340	-	7	
			27	80	190	380	900	8	
			27	80	200	480	-	10	
			33	88	260	500	-	9	2
			40	88	240	520	1600	12	
			36	88	220	500	1400	15	
			40	88	240	520	1600	16	
			40	88	240	520	1600	20	
			36	80	220	500	1400	25	
			40	88	240	520	1600	32	
			36	80	220	500	1400	40	
			27	80	190	380	900	64	
			40	88	220	520	-	60	3
			40	88	240	520	-	80	
			40	88	240	520	-	100	
			36	88	220	500	-	120	
			40	88	240	520	-	160	
			36	80	220	500	-	200	
			40	88	240	520	-	256	
			36	80	220	500	-	320	
			27	80	190	380	-	512	

⁽¹⁾ 减速比(i=n_{in}/n_{ab})⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n₂=100min⁻¹ 电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 沿着输出轴长度方向上一半处⁽⁵⁾ 噪音检测标准; 距离1m; 在输入转速n₁=3000min⁻¹; i=5⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽⁸⁾ 根据从动扭矩的实际输出情况, 径向/轴向负载和循环周期, 以及轴承使用寿命会有所不同⁽¹⁾ ratios (i=n_{in}/n_{out})⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle K_a=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ half way along the output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times⁽⁸⁾ Depending on the required output torque, radial and axial loads, cycle and required storage life, deviating or partly higher values are possible. We recommend to carry out accurate dimensioning with NCP or to consult Neugart in this respect.

单位尺寸	size		PLE 60/70	PLE 80/90	PLE 120/115	Z ⁽²⁾
回程间隙	backlash	arcmin	< 10	< 7	< 7	1
			< 12	< 9	< 9	2
			< 15	< 11	< 11	3
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr _{max.} for 20.000 h ⁽³⁾⁽⁴⁾	N	900	2050	2950	
Fa 于 20.000 h ⁽³⁾⁽⁴⁾	Fa _{max.} for 20.000 h ⁽³⁾⁽⁴⁾		1000	2500	2500	
Fr 于 30.000 h ⁽³⁾⁽⁴⁾	Fr _{max.} for 30.000 h ⁽³⁾⁽⁴⁾		700	1700	2400	
Fa 于 30.000 h ⁽³⁾⁽⁴⁾	Fa _{max.} for 30.000 h ⁽³⁾⁽⁴⁾		800	2000	2100	
Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾		1500	2500	4000	
Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾		1950	3800	3800	
抗扭刚性	torsional stiffness	Nm / arcmin	2,3	6	12	1
			2,5	6,5	13	2
			2,5	6,3	12	3
重量	weight	kg	1,1	3,2	6,6	1
			1,3	3,7	8,6	2
			1,5	4,2	10,6	3
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	58	60	65	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	13000	7000	6500	

单位尺寸	size		PLE 60/70	PLE 80/90	PLE 120/115	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	66	180	390	3	1
			88	240	520	4	
			80	220	500	5	
			80	178	340	7	
			80	190	380	8	
			80	200	480	10	
			88	260	500	9	2
			88	240	520	12	
			88	220	500	15	
			88	240	520	16	
			88	240	520	20	
			80	220	500	25	
			88	240	520	32	
			80	220	500	40	
			80	190	380	64	
			88	220	520	60	3
			88	240	520	80	
			88	240	520	100	
			88	220	500	120	
			88	240	520	160	
			80	220	500	200	
			88	240	520	256	
			80	220	500	320	
			80	190	380	512	

⁽¹⁾ 减速比(i=n_{in}/n_{ab})⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n₂=100min⁻¹,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 沿着输出轴长度方向上一半处⁽⁵⁾ 噪音检测标准; 距离1m; 在输入转速 n₁=3000min⁻¹; i=5⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽⁸⁾ 根据从动扭矩的实际输出情况,径向/轴向负载和循环周期,以及轴承使用寿命会有所不同⁽¹⁾ ratios (i=n_{in}/n_{out})⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle K_a=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ half way along the output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times⁽⁸⁾ Depending on the required output torque, radial and axial loads, cycle and required storage life, deviating or partly higher values are possible. We recommend to carry out accurate dimensioning with NCP or to consult Neugart in this respect.

单位尺寸	size		PLE 40	PLE 60	PLE 80	PLE 120	PLE 160	i ⁽¹⁾
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,031	0,135	0,770	2,630	12,140	3
			0,022	0,093	0,520	1,790	7,780	4
			0,019	0,078	0,450	1,530	6,070	5
			0,018	0,072	0,420	1,410	-	7
			0,017	0,065	0,390	1,320	4,630	8
			0,030	0,131	0,740	2,620	-	9
			0,016	0,064	0,390	1,300	-	10
			0,029	0,127	0,720	2,560	12,370	12
			0,023	0,077	0,710	2,530	12,350	15
			0,022	0,088	0,500	1,750	7,470	16
			0,019	0,075	0,440	1,500	6,650	20
			0,019	0,075	0,440	1,490	5,810	25
			0,017	0,064	0,390	1,300	6,360	32
			0,016	0,064	0,390	1,300	5,280	40
			0,029	0,076	0,510	2,570	-	60
			0,016	0,064	0,390	1,300	4,500	64
			0,019	0,075	0,500	1,500	-	80
			0,019	0,075	0,440	1,490	-	100
			0,029	0,064	0,700	2,500	-	120
			0,016	0,064	0,390	1,300	-	160
			0,016	0,064	0,390	1,300	-	200
			0,016	0,064	0,390	1,300	-	256
			0,016	0,064	0,390	1,300	-	320
			0,016	0,064	0,390	1,300	-	512

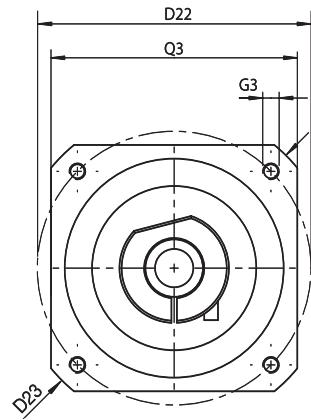
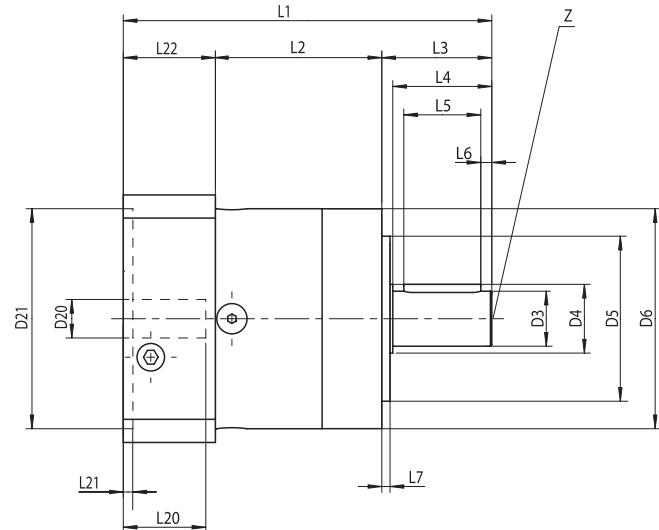
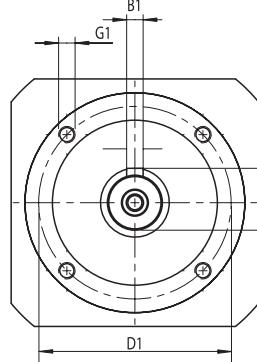
单位尺寸	size		PLE 40	PLE 60	PLE 80	PLE 120	PLE 160	i ⁽¹⁾
最大输入速度在 T _{2N} 和 S1 情况 ⁽³⁾⁽⁴⁾	max. middle input speed at T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	5000	4500	4000 ⁽⁵⁾	3350 ⁽⁵⁾	1350 ⁽⁵⁾	3
			5000	4500	3850 ⁽⁵⁾	3400 ⁽⁵⁾	1450 ⁽⁵⁾	4
			5000	4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	1650 ⁽⁵⁾	5
			5000	4500	4000	3500 ⁽⁵⁾	-	7
			5000	4500	4000	3500	2150 ⁽⁵⁾	8
			5000	4500	4000	3500	-	9
			5000	4500	4000	3500	-	10
			5000	4500	4000	3500	1550 ⁽⁵⁾	12
			5000	4500	4000	3500	1850 ⁽⁵⁾	15
			5000	4500	4000	3500	1750 ⁽⁵⁾	16
			5000	4500	4000	3500	2050 ⁽⁵⁾	20
			5000	4500	4000	3500	2350 ⁽⁵⁾	25
			5000	4500	4000	3500	2650 ⁽⁵⁾	32
			5000	4500	4000	3500	2950 ⁽⁵⁾	40
			5000	4500	4000	3500	-	60
			5000	4500	4000	3500	3000	64
			5000	4500	4000	3500	-	80
			5000	4500	4000	3500	-	100
			5000	4500	4000	3500	-	120
			5000	4500	4000	3500	-	160
			5000	4500	4000	3500	-	200
			5000	4500	4000	3500	-	256
			5000	4500	4000	3500	-	320
			5000	4500	4000	3500	-	512

⁽¹⁾ 减速比(i=n_{in}/n_{ab})⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽⁵⁾ 最大输入速度在50% T_{2N} 和 S1情况⁽¹⁾ ratios (i=n_{in}/n_{out})⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry
⁽⁴⁾ definition see page 111
⁽⁵⁾ max. middle input speed at 50% T_{2N} and S1

单位尺寸	size		PLE 60/70	PLE 80/90	PLE 120/115	i ⁽¹⁾
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,135	0,770	2,630	3
			0,093	0,520	1,790	4
			0,078	0,450	1,530	5
			0,072	0,420	1,410	7
			0,065	0,390	1,320	8
			0,131	0,740	2,620	9
			0,064	0,390	1,300	10
			0,127	0,720	2,560	12
			0,077	0,710	2,530	15
			0,088	0,500	1,750	16
			0,075	0,440	1,500	20
			0,075	0,440	1,490	25
			0,064	0,390	1,300	32
			0,064	0,390	1,300	40
			0,076	0,510	2,570	60
			0,064	0,390	1,300	64
			0,075	0,500	1,500	80
			0,075	0,440	1,490	100
			0,064	0,700	2,500	120
			0,064	0,390	1,300	160
			0,064	0,390	1,300	200
			0,064	0,390	1,300	256
			0,064	0,390	1,300	320
			0,064	0,390	1,300	512

单位尺寸	size		PLE 60/70	PLE 80/90	PLE 120/115	i ⁽¹⁾
最大输入速度在 T _{2N} 和 S1 情况 ⁽³⁾⁽⁴⁾	max. middle input speed at T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	4500 ⁽⁵⁾	3400 ⁽⁵⁾	3350 ⁽⁵⁾	3
			4500 ⁽⁵⁾	3400 ⁽⁵⁾	3400 ⁽⁵⁾	4
			4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	5
			4500	4000	3500	7
			4500	4000	3500	8
			4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	9
			4500	4000	3500	10
			4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	12
			4500	4000	3500	15
			4500	4000	3500 ⁽⁵⁾	16
			4500	4000	3500	20
			4500	4000	3500	25
			4500	4000	3500	32
			4500	4000	3500	40
			4500	4000	3500	60
			4500	4000	3500	64
			4500	4000	3500	80
			4500	4000	3500	100
			4500	4000	3500	120
			4500	4000	3500	160
			4500	4000	3500	200
			4500	4000	3500	256
			4500	4000	3500	320
			4500	4000	3500	512

⁽¹⁾ 减速比(i=n_{in}/n_{ab})⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽⁵⁾ 最大输入速度在50% T_{2N} 和 S1情况⁽¹⁾ ratios (i=n_{in}/n_{out})⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111⁽⁵⁾ max. middle input speed at 50% T_{2N} and S1



单位尺寸	size		PLE 40	PLE 60	PLE 80	PLE 120	PLE 160	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm							
B1 键 DIN 6885 T1	B1 key DIN 6885 T1		3	5	6	8	12	
D1 法兰定位孔圆直径	D1 flange hole circle		34	52	70	100	145	
D3 轴径	D3 shaft diameter	h7	10	14	20	25	40	
D4 轴肩	D4 shaft root		12	17	25	35	55	
D5 定位凸台	D5 centering	h7	26	40	60	80	130	
D6 箱体直径	D6 body diameter		40	60	80	115	160	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		6	9	14	19	24	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		30	40	80	95	130	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		46	63	100	115	165	
D23 对角尺寸	D23 diagonal dimension ⁽¹⁾		54	80	115	145	185	
G1 螺纹安装x螺纹深度 ⁽¹⁾	G1 mounting thread x depth ⁽¹⁾	4x	M4x6	M5x8	M6x10	M10x16	M12x20	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾		M4x10	M5x12	M6x15	M8x20	M10x25	
H1 键 DIN 6885 T1	H1 key DIN 6885 T1		11,2	16	22,5	28	43	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		93,5	106,5	134	176,5	255,5	1
L2 箱体长度	L2 body length		106,5	119	151	204	305	2
L3 输出轴长	L3 shaft length from output		119	131,5	168,5	231,5	-	3
L4 轴自定位凸台起	L4 shaft length from spigot		39	47	60,5	74	104	1
L5 键长	L5 key length		52	59,5	77,5	101,5	153,5	2
L6 至轴末端的距离	L6 distance from shaft end		64,5	72	95	129	-	3
L7 定位凸台厚度	L7 spigot depth		26	35	40	55	87	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		23	30	36	50	80	
L21 电机定位凸台深度	L21 motor location depth		18	25	28	40	65	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		2,5	2,5	4	5	8	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾	□	2	3	3	4	5	
Z 定心孔 DIN 332, DR表格	Z centre bore DIN 332, form DR		25	23	30	40	50	
			3	2,5	3,5	3,5	4	
			28,5	24,5	33,5	47,5	64,5	
			40	60	90	115	140	
			M3x9	M5x12,5	M6x16	M10x22	M16x36	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第98页

⁽²⁾ 级数

⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

⁽⁴⁾ 轴配合公差 j6; k6

⁽¹⁾ dimensions refer to the mounted motor-type, see page 98

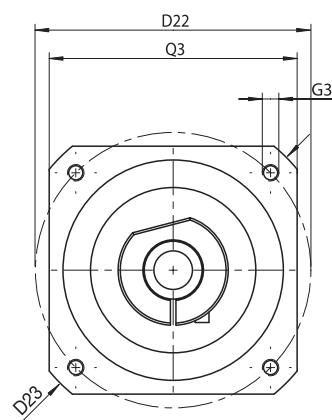
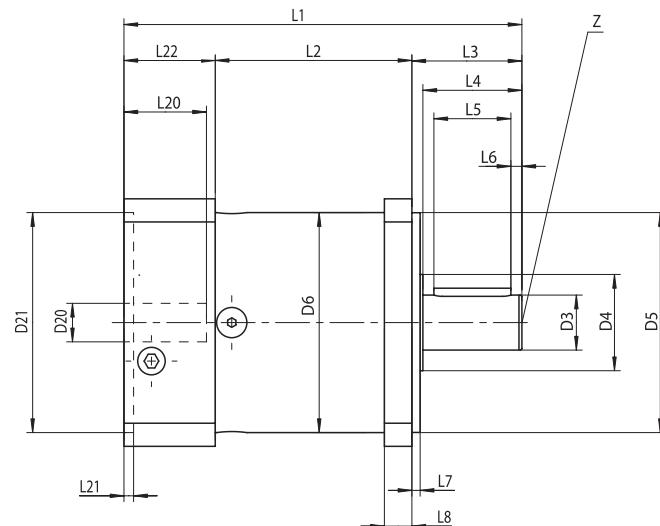
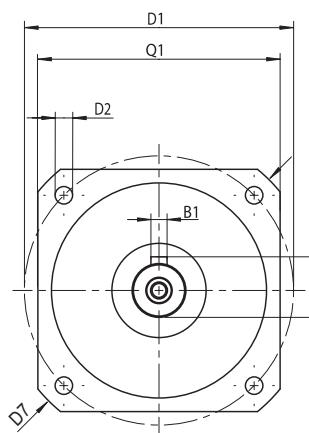
⁽²⁾ number of stages

⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened

⁽⁴⁾ for shaft fit j6; k6

PLE - 系列 机械参数

PLE - line dimensions



PLE

单位尺寸	size		PLE 60/70	PLE 80/90	PLE 120/115	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm					
B1 键 DIN 6885 T1	B1 key DIN 6885 T1		5	6	8	
D1 法兰定位孔圆直径	D1 flange hole circle		75	100	130	
D2 孔安装	D2 mounting bore	4x	5,5	6,5	8,5	
D3 轴径	D3 shaft diameter	h7	16	20	25	
D4 轴肩	D4 shaft root		20	35	35	
D5 定位凸台	D5 centering	h7	60	80	110	
D7 对角尺寸	D7 diagonal dimension		92	116	145	
D6 箱体直径	D6 body diameter		60	80	115	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		9	14	19	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		40	80	95	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		63	100	115	
D23 对角尺寸	D23 diagonal dimension ⁽¹⁾		80	115	145	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x8	M6x15	M8x20	
H1 键 DIN 6885 T1	H1 key DIN 6885 T1		18	22,5	28	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		111,5	145	201,5	1
L2 箱体长度	L2 body length		124	162,5	229,5	2
L3 输出轴长	L3 shaft length from output		136,5	180	257	3
L4 轴长自定位凸台起	L4 shaft length from spigot		55	71,5	99	1
L5 键长	L5 key length		67,5	89	127	2
L6 至轴末端的距离	L6 distance from shaft end		80	106,5	154,5	3
L7 定位凸台厚度	L7 spigot depth		32	40	55	
L8 法兰厚度	L8 flange thickness		28	36	50	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		20	28	40	
L21 电机定位凸台深度	L21 motor location depth		4	4	5	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		3	3	4	
Q1 法兰截面	Q1 flange section	□	10	10	15	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾		23	30	40	
Z 定心孔 DIN 332, DR表格	Z centre bore DIN 332, form DR		2,5	3,5	3,5	
			24,5	33,5	47,5	
			70	90	115	
			60	90	115	
			M5x12,5	M6x16	M10x22	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第98页

⁽²⁾ 级数

⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

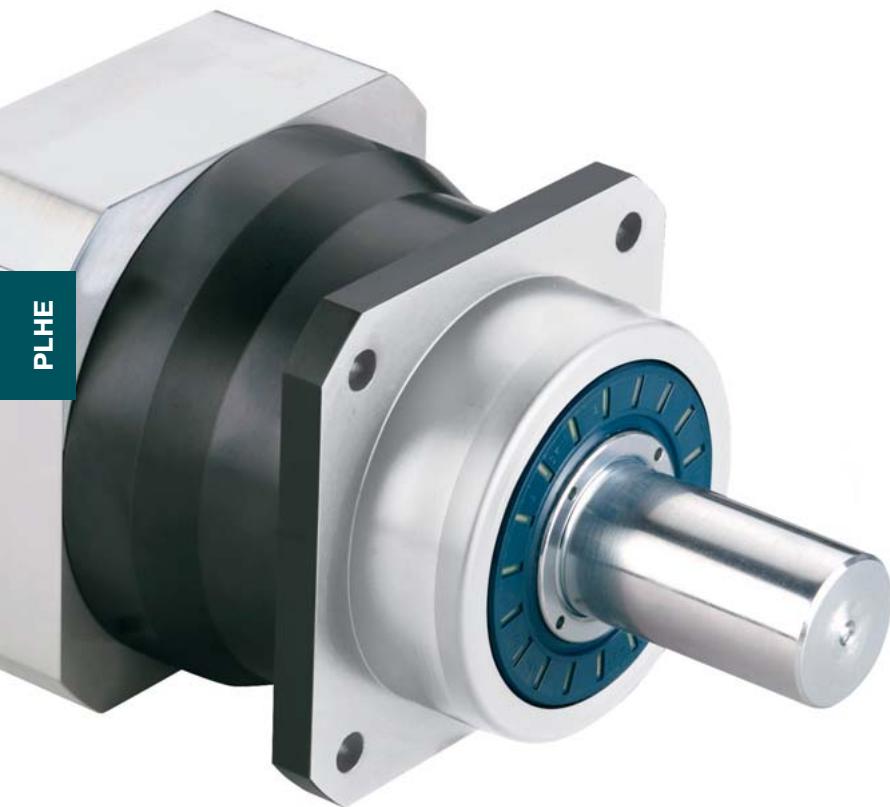
⁽⁴⁾ 轴配合公差 j6; k6

⁽¹⁾ dimensions refer to the mounted motor-type, see page 98

⁽²⁾ number of stages

⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened

⁽⁴⁾ for shaft fit j6; k6



跨入先锋企业。

NEUGART在变速器技术方面为您提供创新和先进的解决方案。

比如：PLHE，此系列达到了客户所要求的功率、功能和质量。

PLHE系列产品具有定位精确，径向心力高，轴向力强等特点。

PLHE - 系列

PLHE - line

On the path
to leadership

NEUGART stands for innovative, forward-looking solutions in gear technology.

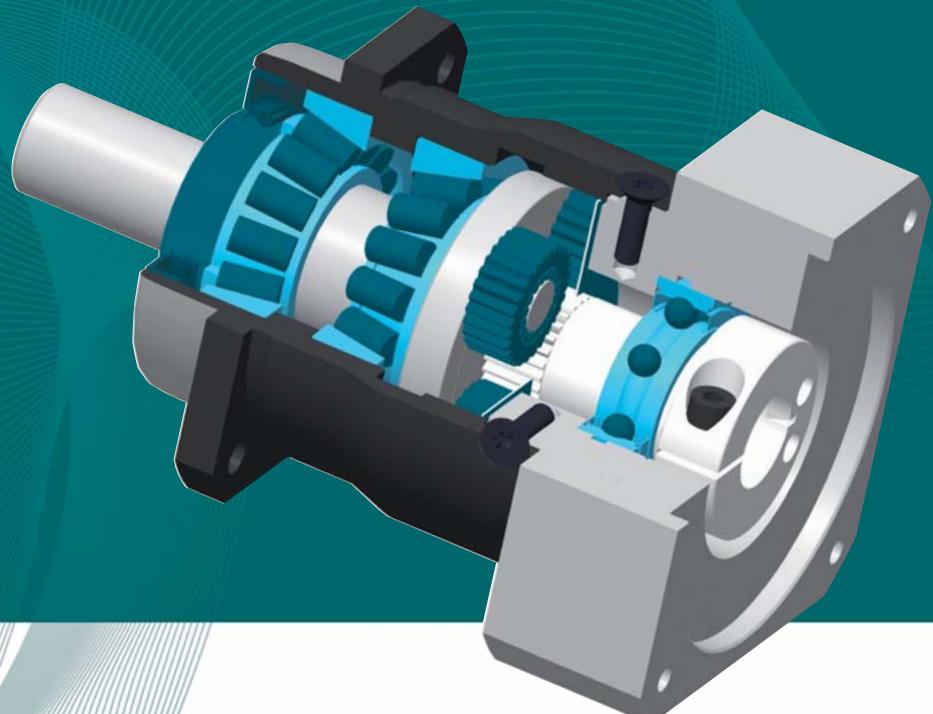
A current example: The PLHE. With this series, we again fulfil expectations on performance, functionality and quality. High precision and highest radial and axial forces characterise the PLHE.

- 最低的回程间隙
- 最大的输出扭矩
- 高效率(96%)
- 16 级减速比 $i=3, \dots, 100$
- 低噪音
- 高质量(ISO 9001)
- 安装位置随意
- 简易电机装配
- 终身润滑
- 更多的选配方式
- 旋转方向：同向
- 平衡的电机齿轮

- low backlash
- high output torque
- high efficiency (96%)
- 16 ratios $i=3,...,100$
- low noise
- high quality (ISO 9001)
- any mounting position
- easy motor mounting
- life time lubrication
- more options
- direction of rotation equidirectional
- balanced motor pinion

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7 CAD 图 , 参数表格 CAD drawings, dimension sheets	www.neugart.net.cn www.neugart.net.cn
8 尺寸/计算 dimensioning/calculation	NCP Software NCP Software

页
page 94 可选项
options



系列	line		PLHE	Z ⁽²⁾
寿命	lifetime	h	30.000	
满载效率 ⁽⁶⁾	efficiency with full load ⁽⁶⁾	%	96	1
			94	2
			-25	
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	90	
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		IP 65	
防护等级	degree of protection		任意 / any	
装配方式	mounting position		DIN 42955-N	
电机法兰精度	motor flange precision			

单位尺寸	size		PLHE 60	PLHE 80	PLHE 120	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)}$	nominal output torque $T_{2N}^{(3)(5)}$	Nm	28	85	115	3	
			38	115	155	4	
			40	110	195	5	
			25	65	135	7	
			18	50	120	8	
			15	38	95	10	
			44	130	210	9	
			44	120	260	12	
			44	110	230	15	
			44	120	260	16	
			44	120	260	20	
			40	110	230	25	
			44	120	260	32	
			40	110	230	40	
			18	50	120	64	
			15	38	95	100	

单位尺寸	size		PLHE 60	PLHE 80	PLHE 120	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁵⁾⁽⁷⁾	max. output torque ⁽³⁾⁽⁵⁾⁽⁷⁾	Nm	45	136	184	3	
			61	184	248	4	
			64	176	312	5	
			40	104	216	7	
			29	80	192	8	
			24	61	152	10	
			70	208	336	9	
			70	192	416	12	
			70	176	368	15	
			70	192	416	16	
			70	192	416	20	
			64	176	368	25	
			70	192	416	32	
			64	176	368	40	
			29	80	192	64	
			24	61	152	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$, 电机在占空因数 $K_A=1$ 及S1连续工作制下, 温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转; 见110页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft; see page 110

PLHE - 系列 技术资料

PLHE - line technical data

单位尺寸	size		PLHE 60	PLHE 80	PLHE 120	Z ⁽²⁾
回程间隙	backlash	arcmin	< 10	< 7	< 7	1
			< 12	< 9	< 9	2
Fr 于 20.000 h ⁽³⁾⁽⁴⁾		N	3200	5500	6000	
Fa 于 20.000 h ⁽³⁾⁽⁴⁾			4400	6400	8000	
Fr 于 30.000 h ⁽³⁾⁽⁴⁾			3200	4800	5400	
Fa 于 30.000 h ⁽³⁾⁽⁴⁾			3900	5700	7000	
抗扭刚性			2,3	6	12	1
			2,5	6,5	13	2
重量	weight	kg	1,4	2,7	6,8	1
			1,6	3,4	8,8	2
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	58	60	65	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	13000	7000	6500	

单位尺寸	size		PLHE 60	PLHE 80	PLHE 120	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	66	180	390	3	1
			88	240	520	4	
			80	220	500	5	
			80	178	340	7	
			80	190	380	8	
			80	200	480	10	
		Nm	88	260	500	9	2
			88	240	520	12	
			88	220	500	15	
			88	240	520	16	
			88	240	520	20	
			80	220	500	25	
			88	240	520	32	
			80	220	500	40	
			80	190	380	64	
			80	200	480	100	

(1) 减速比($i=n_{in}/n_{ab}$)

(2) 级数

(3) 这些数据在下列条件下测得:输出转速n₂=100min⁻¹,电机在占空因数KA=1及S1连续工作制下,温度T=30°C

(4) 沿着输出轴长度方向上一半处

(5) 噪音检测标准: 距离1m; 在输入转速 n₁=3000min⁻¹; i=5

(6) 必须保证允许的工作温度; 特殊的输入转速请联系确认

(7) 1000次以内

(1) ratios ($i=n_{in}/n_{out}$)

(2) number of stages

(3) these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle K_A=1 and S1-mode for electrical machines and T=30°C

(4) half way along the output shaft

(5) sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5

(6) allowed operating temperature must be kept; other input speeds on inquiry

(7) allowed 1000 times

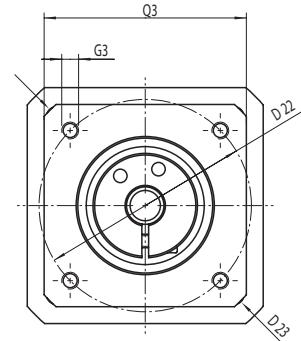
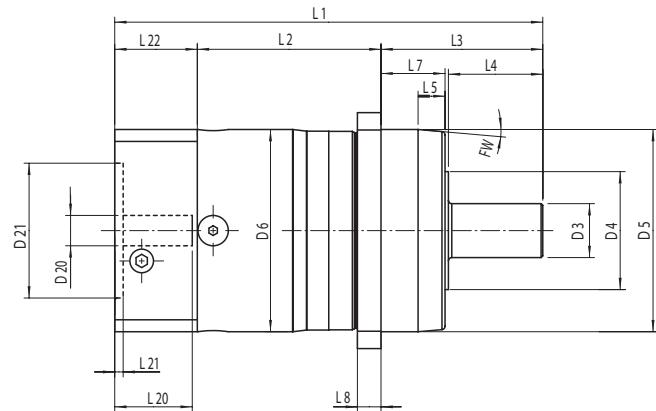
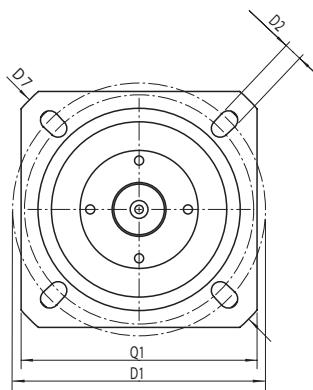
单位尺寸	size		PLHE 60	PLHE 80	PLHE 120	$i^{(1)}$
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,150	0,803	2,690	3
			0,102	0,538	1,824	4
			0,083	0,462	1,550	5
			0,075	0,428	1,440	7
			0,067	0,395	1,328	8
			0,133	0,744	2,627	9
			0,065	0,393	1,305	10
			0,128	0,722	2,564	12
			0,078	0,710	2,532	15
			0,089	0,500	1,752	16
			0,075	0,440	1,500	20
			0,075	0,440	1,490	25
			0,064	0,390	1,300	32
			0,064	0,390	1,300	40
			0,064	0,390	1,300	64
			0,064	0,390	1,300	100

单位尺寸	size		PLHE 60	PLHE 80	PLHE 120	$i^{(1)}$
最大输入速度在 T_{2N} 和 S1 情况 ⁽³⁾⁽⁴⁾	max. middle input speed at T_{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	2800 ⁽⁵⁾	2350 ⁽⁵⁾	2100 ⁽⁵⁾	3
			3400 ⁽⁵⁾	2650 ⁽⁵⁾	2300 ⁽⁵⁾	4
			4000 ⁽⁵⁾	3200 ⁽⁵⁾	2550 ⁽⁵⁾	5
			4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	7
			4500	4000	3500 ⁽⁵⁾	8
			4500 ⁽⁵⁾	3950 ⁽⁵⁾	3000 ⁽⁵⁾	9
			4500	4000	3500	10
			4500	4000	3150 ⁽⁵⁾	12
			4500	4000	3500 ⁽⁵⁾	15
			4500	4000	3500 ⁽⁵⁾	16
			4500	4000	3500 ⁽⁵⁾	20
			4500	4000	3500	25
			4500	4000	3500	32
			4500	4000	3500	40
			4500	4000	3500	64
			4500	4000	3500	100

⁽¹⁾ 减速比($i=n_{an}/n_{ab}$)⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽⁵⁾ 最大输入速度在50% T_{2N} 和 S1情况⁽⁶⁾⁽¹⁾ ratios($i=n_{an}/n_{ab}$)⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111⁽⁵⁾ max. middle input speed at 50% T_{2N} and S1

PLHE - 系列 机械参数

PLHE - line dimensions



PLHE

单位尺寸	size		PLHE 60	PLHE 80	PLHE 120	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm					
D1 法兰定位孔圆直径	D1 flange hole circle		68-75	85	120	
D2 孔安装	D2 mounting bore	4x	5,5	6,5	8,5	
D3 轴径	D3 shaft diameter	k6	16	22	32	
D4 轴肩	D4 shaft root	-3	35	40	45	
D5 定位凸台	D5 centering	g7	60	70	90	
D7 对角尺寸	D7 diagonal dimension		92	100	140	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		9	14	19	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		40	80	95	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		63	100	115	
D23 对角尺寸 ⁽¹⁾	D23 diagonal dimension ⁽¹⁾		80	115	145	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x12	M6x15	M8x20	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		127	159	199	1
L2 箱体长度	L2 body length		140	176,5	226,5	2
L3 输出轴长	L3 shaft length from output		54,5	69,5	64	1
L4 轴长自定位凸台起	L4 shaft length from spigot		67,5	87,5	91,5	2
L7 定位凸台厚度	L7 spigot depth		48	56	88	
L8 法兰厚度	L8 flange thickness		28	36	58	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		19	17,5	28	
L21 电机定位凸台深度	L21 motor location depth		7	8	10	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		23	30	40	
Q1 法兰截面	Q1 flange section	□	2,5	3,5	3,5	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾		24,5	33,5	47,5	
			70	80	110	
			60	90	115	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第98页⁽²⁾ 级数⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长⁽⁴⁾ 轴配合公差 j6; k6⁽¹⁾ dimensions refer to the mounted motor-type⁽²⁾ number of stages⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened⁽⁴⁾ for shaft fit j6; k6



获取更多灵活性。

性能强，可靠且效率高：通过PLPE产品系列，公司对经营方面的理念进行不断地改善。

当然，公司新产品系列保证提供给客户NEUGART的高质量水平。利用其高新技术优势，PLPE系列产品在变速器的灵活性方面明显高于其它公司的产品。

PLPE - 系列

PLPE - line

Achieve greater
flexibility

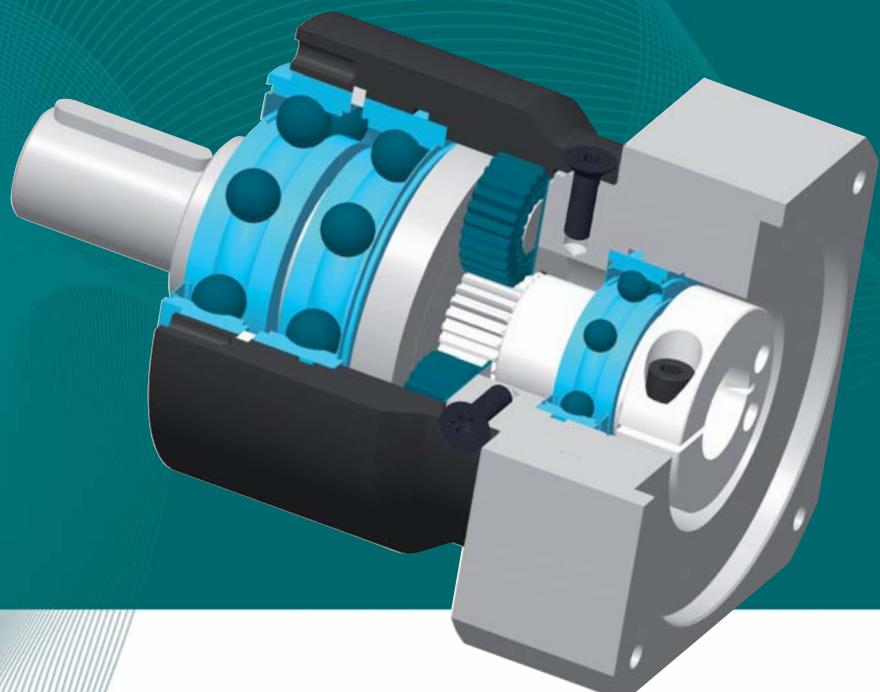
Powerful, absolutely reliable and always highly efficient:
With PLPE we have carefully followed the philosophy of our economy range for you. Of course, our new series maintains the accustomed level of NEUGART quality. The flexibility at the output is a decided advantage of the PLPE series.

- 最低的回程间隙
- 最大的输出扭矩
- 高效率(96%)
- 17 级减速比 $i=3, \dots, 100$
- 低噪音
- 高质量(ISO 9001)
- 安装位置随意
- 简易电机装配
- 终身润滑
- 更多的选配方式
- 旋转方向：同向
- 平衡的电机齿轮

- low backlash
- high output torque
- high efficiency (96%)
- 17 ratios $i=3,...,100$
- low noise
- high quality (ISO 9001)
- any mounting position
- easy motor mounting
- life time lubrication
- more options
- direction of rotation equidirectional
- balanced motor pinion

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系列	line		PLPE				Z ⁽²⁾
寿命	lifetime	h	30.000				
满载效率 ⁽⁶⁾	efficiency with full load ⁽⁶⁾	%	96				1
			94				2
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25				
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90				
防护等级	degree of protection		IP 54				
润滑	lubrication		终生润滑 / life lubrication				
装配方式	mounting position		任意 / any				
电机法兰精度	motor flange precision		DIN 42955-N				

单位尺寸	size		PLPE 50	PLPE 70	PLPE 90	PLPE 120	PLPE 155	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)(8)}$	nominal output torque $T_{2N}^{(3)(5)(8)}$	Nm	11	28	85	115	-	3	1
			15	33	90	155	460	4	
			13	30	82	172	445	5	
			8,5	25	65	135	-	7	
			6	18	50	120	-	8	
			5	15	38	95	210	10	
			12	33	97	157	-	9	2
			15	33	90	195	-	12	
			13	33	82	172	-	15	
			15	33	90	195	460	16	
			15	33	90	195	460	20	
			13	30	82	172	445	25	
			15	33	90	195	-	32	
			13	30	82	172	460	40	
			-	-	-	-	445	50	
			7,5	18	50	120	-	64	
			5	15	38	95	210	100	

单位尺寸	size		PLPE 50	PLPE 70	PLPE 90	PLPE 120	PLPE 155	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁵⁾⁽⁷⁾⁽⁸⁾	max. output torque ⁽³⁾⁽⁵⁾⁽⁷⁾⁽⁸⁾	Nm	17,5	45	136	184	-	3	1
			24	53	144	248	736	4	
			21	48	131	275	712	5	
			13,5	40	104	216	-	7	
			10	29	80	192	-	8	
			8	24	61	152	336	10	
			19	53	155	251	-	9	2
			24	53	144	312	-	12	
			21	53	131	275	-	15	
			24	53	144	312	736	16	
			24	53	144	312	736	20	
			21	48	131	275	712	25	
			24	53	144	312	-	32	
			21	48	131	275	736	40	
			-	-	-	-	712	50	
			12	29	80	192	-	64	
			8	24	61	152	336	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及S1连续工作制下,温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转; 见110页⁽⁸⁾ 带键: 于峰值负载⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft; see page 110⁽⁸⁾ with key, at tumscent load

单位尺寸	size		PLPE 50	PLPE 70	PLPE 90	PLPE 120	PLPE 155	Z ⁽²⁾
回程间隙 Fr 于 20.000 h ⁽³⁾⁽⁴⁾ Fa 于 20.000 h ⁽³⁾⁽⁴⁾ Fr 于 30.000 h ⁽³⁾⁽⁴⁾ Fa 于 30.000 h ⁽³⁾⁽⁴⁾ Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾ Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	backlash	arcmin	< 15	< 10	< 7	< 7	< 8	1
			< 19	< 12	< 9	< 9	< 10	2
			800	1050	1900	2500	5200	
			1000	1350	2000	4000	7000	
			700	900	1700	2150	4600	
			800	1000	1500	3000	6000	
			1300	1650	3100	4000	8400	
抗扭刚性	torsional stiffness	Nm / arcmin	1	3,5	9,8	24,5	50	1
			1,1	4	10,1	26	52	2
			0,7	1,5	3	7,5	16,5	1
			0,9	1,8	3,7	9,7	20,5	2
重量	weight	kg	running noise ⁽⁵⁾	58	58	60	65	70
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	18000	13000	7000	6500	5500	

单位尺寸	size		PLPE 50	PLPE 70	PLPE 90	PLPE 120	PLPE 155	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	22,5	66	180	390	-	3	
			30	88	240	520	920	4	
			36	80	220	500	890	5	
			26	80	178	336	-	7	
			27	80	190	384	-	8	
			27	80	200	480	420	10	
			33	88	260	500	-	9	
			40	88	240	520	-	12	
			36	88	220	500	-	15	
			40	88	240	520	920	16	
			40	88	240	520	920	20	
			36	80	220	500	890	25	
			40	88	240	520	-	32	
			36	80	220	500	920	40	
			-	-	-	-	890	50	
			27	80	190	384	-	64	
			27	80	200	480	420	100	

⁽¹⁾ 减速比(i=n_{in}/n_{ab})⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n₂=100min⁻¹,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 沿着输出轴长度方向上一半处⁽⁵⁾ 噪音检测标准; 距离1m; 在输入转速 n₁=3000min⁻¹; i=5⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽⁸⁾ 根据从动扭矩的实际输出情况, 径向/轴向负载和循环周期, 以及轴承使用寿命会有所不同⁽¹⁾ ratios (i=n_{in}/n_{out})⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle K_A=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ half way along the output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times⁽⁸⁾ Depending on the required output torque, radial and axial loads, cycle and required storage life, deviating or partly higher values are possible. We recommend to carry out accurate dimensioning with NCP or to consult Neugart in this respect.

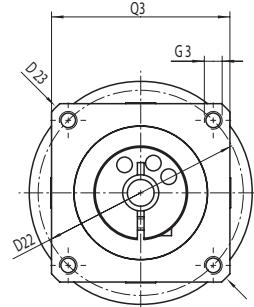
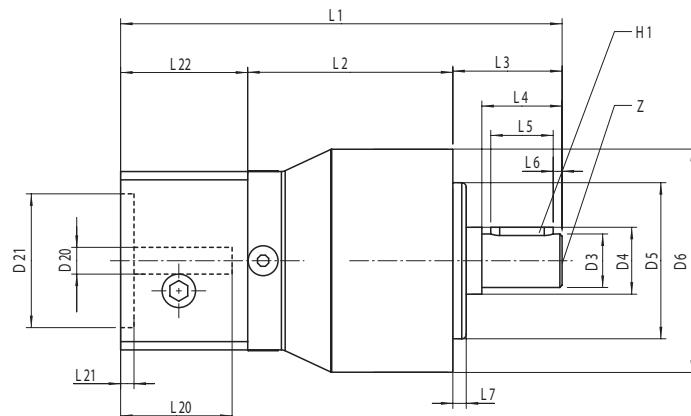
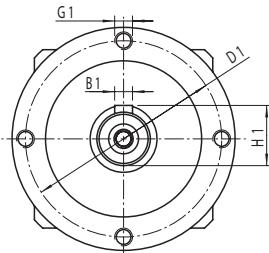
单位尺寸	size		PLPE 50	PLPE 70	PLPE 90	PLPE 120	PLPE 155	i ⁽¹⁾
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,031	0,157	0,820	2,870	-	3
			0,022	0,106	0,570	1,920	7,073	4
			0,019	0,086	0,480	1,600	6,046	5
			0,018	0,078	0,450	1,450	-	7
			0,017	0,068	0,400	1,350	-	8
			0,030	0,133	0,750	2,650	-	9
			0,016	0,066	0,400	1,300	4,663	10
			0,029	0,128	0,730	2,570	-	12
			0,023	0,078	0,710	2,540	-	15
			0,022	0,089	0,500	1,760	6,156	16
			0,019	0,076	0,440	1,500	5,194	20
			0,019	0,075	0,440	1,500	5,147	25
			0,017	0,064	0,390	1,300	-	32
			0,016	0,064	0,390	1,300	4,454	40
			-	-	-	-	4,442	50
			0,016	0,064	0,390	1,300	-	64
			0,016	0,064	0,390	1,300	4,442	100

单位尺寸	size		PLPE 50	PLPE 70	PLPE 90	PLPE 120	PLPE 155	i ⁽¹⁾
最大输入速度在 T _{2N} 和 S1 情况 ⁽³⁾⁽⁴⁾	max. middle input speed at T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	5000	4500 ⁽⁵⁾	3200 ⁽⁵⁾	2600 ⁽⁵⁾	-	3
			5000	4500 ⁽⁵⁾	3700 ⁽⁵⁾	2750 ⁽⁵⁾	1750 ⁽⁵⁾	4
			5000	4500	4000 ⁽⁵⁾	3050 ⁽⁵⁾	2100 ⁽⁵⁾	5
			5000	4500	4000	3500 ⁽⁵⁾	-	7
			5000	4500	4000	3500	-	8
			5000	4500	4000	3500 ⁽⁵⁾	-	9
			5000	4500	4000	3500	3000	10
			5000	4500	4000	3500 ⁽⁵⁾	-	12
			5000	4500	4000	3500 ⁽⁵⁾	-	15
			5000	4500	4000	3500 ⁽⁵⁾	2800 ⁽⁵⁾	16
			5000	4500	4000	3500	3000 ⁽⁵⁾	20
			5000	4500	4000	3500	3000 ⁽⁵⁾	25
			5000	4500	4000	3500	-	32
			5000	4500	4000	3500	3000	40
			-	-	-	-	3000	50
			5000	4500	4000	3500	-	64
			5000	4500	4000	3500	3000	100

⁽¹⁾ 减速比(i=n_{in}/n_{ab})⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽⁵⁾ 最大输入速度在50% T_{2N} 和 S1情况⁽¹⁾ ratios (i=n_{in}/n_{out})⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111⁽⁵⁾ max. middle input speed at 50% T_{2N} and S1

PLPE - 系列 机械参数

PLPE - line dimensions



单位尺寸	size		PLPE 50	PLPE 70	PLPE 90	PLPE 120	PLPE 155	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm							
B1 键 DIN 6885 T1	B1 key DIN 6885 T1		4	5	6	10	12	
D1 法兰定位孔圆直径	D1 flange hole circle		44	62	80	108	140	
D3 轴径	D3 shaft diameter	k7	12	16	22	32	40	
D4 轴肩	D4 shaft root		15	30	35	50	55	
D5 定位凸台	D5 centering	h7	35	52	68	90	120	
D6 箱体直径	D6 body diameter		50	70	90	120	155	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		6	9	14	19	24	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		30	40	80	95	130	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		46	63	100	115	165	
D23 对角尺寸 ⁽¹⁾	D23 diagonal dimension ⁽¹⁾		54	80	115	145	185	
G1 螺纹安装x螺纹深度 ⁽¹⁾	G1 mounting thread x depth ⁽¹⁾	4x	M4x8	M5x8	M6x9	M8x9	M10x20	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾		M4x10	M5x12	M6x15	M8x20	M10x25	
H1 键 DIN 6885 T1	H1 key DIN 6885 T1		13,5	18	24,5	35	43	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		99	111,5	147	192	275,5	1
L2 箱体长度	L2 body length		111,5	124,5	165	219,5	320	2
L3 输出轴长	L3 shaft length from output		46	51	67,5	76,5	100	1
L4 轴长自定位凸台起	L4 shaft length from spigot		58,5	64	85,5	104	144,5	2
L5 键长	L5 key length		24,5	36	46	68	97	
L6 至轴末端的距离	L6 distance from shaft end		18	28	36	58	82	
L7 定位凸台厚度	L7 spigot depth		14	25	32	50	70	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		2	2	2	4	6	
L21 电机定位凸台深度	L21 motor location depth		3	3	4	5	8	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		25	23	30	40	50	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾	□	3	2,5	3,5	3,5	4,5	
Z 定心孔 DIN 332 , DR表格	Z centre bore DIN 332, form DR		28,5	24,5	33,5	47,5	78,5	
			40	60	90	115	142	
			M4x10	M5x12,5	M8x19	M12x28	M16x36	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第98页⁽²⁾ 级数⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长⁽⁴⁾ 轴配合公差 j6; k6⁽¹⁾ dimensions refer to the mounted motor-type⁽²⁾ number of stages⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened⁽⁴⁾ for shaft fit j6; k6



对比其他形
式扭矩更大

PLFE减速机结合PLFN系列法兰减速机的结构紧
凑和PLE系列减速机的高效率于一身。

PLFE - 系列

PLFE - line

When strengths
complement one another

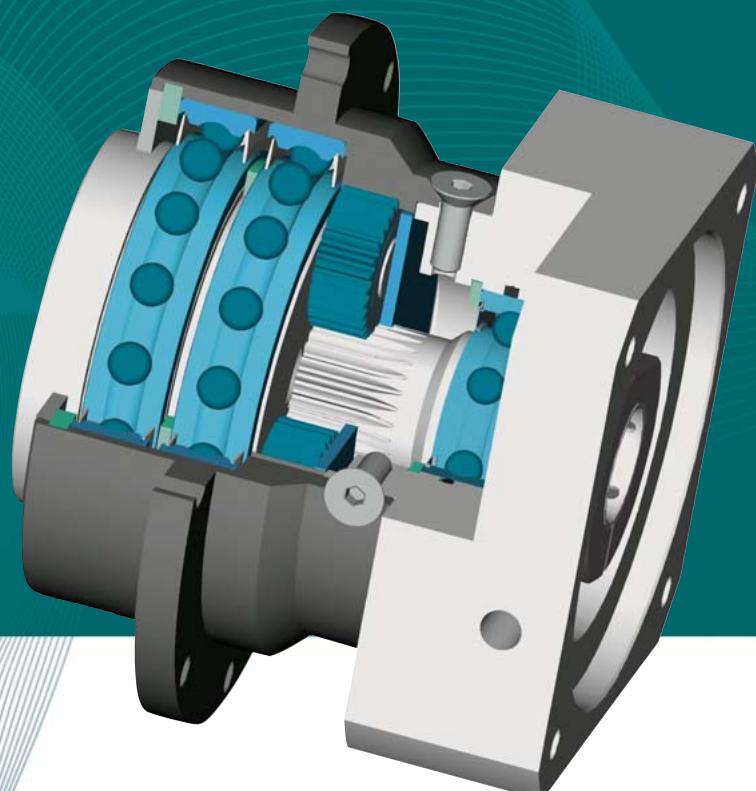
High output torque, high torsional rigidity and moderate backlash:
the PLFE series is impressive in many aspects. The Economy Flange gearboxes
combine the compactness of our PLFN with the economical aspects of the PLE gearboxes.

- 最低的回程间隙
- 最大的输出扭矩
- 最高的抗扭刚性
- 高效率(96%)
- 珩磨齿轮
- 16 级减速比 $i=3, \dots, 64$
- 低噪音(< 65 dB(A))
- 高质量(国际标准组织9001)
- 安装位置随意
- 简易电机装配
- 终身润滑
- 输出法兰符合 EN ISO 9409 要求
- 旋转方向：同向
- 平衡的电机齿轮

- lowest backlash
- highest output torques
- highest tilting stiffness
- high efficiency (96%)
- honed geared parts
- 16 ratios $i=3, \dots, 100$
- low noise (< 65 dB(A))
- high quality (ISO 9001)
- any mounting position
- easy motor mounting
- life time lubrication
- output flange similar to EN ISO 9409
- direction of rotation equidirectional
- balanced motor pinion

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系列	line		PLFE	Z ⁽²⁾
寿命	lifetime	h	30.000	
满载效率 ⁽⁸⁾⁽⁶⁾	efficiency with full load ⁽⁶⁾	%	96	1
			94	2
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25	
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90	
防护等级	degree of protection		IP 54	
润滑	lubrication		终生润滑 /life lubrication	
装配方式	mounting position		任意 /any	
电机法兰精度	motor flange precision		DIN 42955-N	

单位尺寸	size		PLFE 64	PLFE 90	PLFE 110	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)}$	nominal output torque $T_{2N}^{(3)(5)}$	Nm	28	85	115	3	1
			38	115	155	4	
			40	110	195	5	
			25	65	135	7	
			18	50	120	8	
			15	38	95	10	
			44	130	240	9	2
			44	120	260	12	
			44	110	230	15	
			44	120	260	16	
			44	120	260	20	
			40	110	230	25	
			44	120	260	32	
			40	110	230	40	
			18	50	120	64	
			15	38	95	100	

单位尺寸	size		PLFE 64	PLFE 90	PLFE 110	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁵⁾⁽⁷⁾	max. output torque ⁽³⁾⁽⁵⁾⁽⁷⁾	Nm	45	136	184	3	1
			61	184	248	4	
			64	176	312	5	
			40	104	216	7	
			29	80	192	8	
			24	61	152	10	
			70	208	384	9	2
			70	192	416	12	
			70	176	368	15	
			70	192	416	16	
			70	192	416	20	
			64	176	368	25	
			70	192	416	32	
			64	176	368	40	
			29	80	192	64	
			24	61	152	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及S1连续工作制下,温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转; 见110页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft; see page 110

PLFE - 系列 技术资料

PLFE - line technical data

单位尺寸	size		PLFE 64	PLFE 90	PLFE 110	Z ⁽²⁾
回程间隙 Fr 于 20.000 h ⁽³⁾⁽⁴⁾ Fa 于 20.000 h ⁽³⁾⁽⁴⁾ Fr 于 30.000 h ⁽³⁾⁽⁴⁾ Fa 于 30.000 h ⁽³⁾⁽⁴⁾ Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾ Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	backlash	arcmin	< 10	< 7	< 7	1
			< 12	< 9	< 9	2
			550	1400	2400	
			1200	3000	3300	
			500	1200	2100	
			1200	3000	3300	
			900	2200	3800	
抗扭刚性	torsional stiffness	Nm / arcmin	18	34	93	1
			12	25	68	2
		kg	1,1	2,9	7	1
			1,5	3,3	9	2
重量	weight					
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	58	60	65	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	13000	7000	6500	

单位尺寸	size		PLFE 64	PLFE 90	PLFE 110	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	66	180	390	3	
			88	240	520	4	
			80	220	500	5	
			80	178	340	7	
			80	190	380	8	
			80	200	480	10	
			88	260	500	9	
			88	240	520	12	
			88	220	500	15	
			88	240	520	16	
			88	240	520	20	
			80	220	500	25	
			88	240	520	32	
			80	220	500	40	
			80	190	380	64	
			80	200	480	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)

⁽²⁾ 级数

⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及 $S1$ 连续工作制下,温度 $T=30^\circ\text{C}$

⁽⁴⁾ 沿着输出轴长度方向上一半处

⁽⁵⁾ 噪音检测标准; 距离1m; 在输入转速 $n_1=3000\text{min}^{-1}$; $i=5$

⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认

⁽⁷⁾ 1000次以内

⁽⁸⁾ 根据从动扭矩的实际输出情况,径向/轴向负载和循环周期,以及轴承使用寿命会有所不同

⁽¹⁾ ratios ($i=n_{in}/n_{out}$)

⁽²⁾ number of stages

⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and $S1$ -mode for electrical machines and $T=30^\circ\text{C}$

⁽⁴⁾ referring to the face of the flange output shaft

⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of $n_1=3000\text{min}^{-1}$; $i=5$

⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry

⁽⁷⁾ allowed 1000 times

⁽⁸⁾ Depending on the required output torque, radial and axial loads, cycle and required storage life, deviating or partly higher values are possible. We recommend to carry out accurate dimensioning with NCP or to consult Neugart in this respect.

单位尺寸	size		PLFE 64	PLFE 90	PLFE 110	$i^{(1)}$
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,183	1,010	3,430	3
			0,123	0,670	2,280	4
			0,097	0,530	1,840	5
			0,084	0,470	1,640	7
			0,071	0,410	1,450	8
			0,145	0,790	2,870	9
			0,071	0,390	1,420	10
			0,134	0,750	2,750	12
			0,087	0,730	2,680	15
			0,101	0,540	1,960	16
			0,084	0,450	1,840	20
			0,084	0,440	1,640	25
			0,074	0,460	1,420	32
			0,073	0,460	1,400	40
			0,071	0,450	1,380	64
			0,070	0,430	1,350	100

单位尺寸	size		PLFE 64	PLFE 90	PLFE 110	$i^{(1)}$
最大输入速度在 T_{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at T_{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	3900 ⁽⁵⁾	2800 ⁽⁵⁾	2350 ⁽⁵⁾	3
			4500	2950 ⁽⁵⁾	2500 ⁽⁵⁾	4
			4500	3550 ⁽⁵⁾	2700 ⁽⁵⁾	5
			4500	4000	3500 ⁽⁵⁾	7
			4500	4000	3500 ⁽⁵⁾	8
			4500	4000 ⁽⁵⁾	2800 ⁽⁵⁾	9
			4500	4000	3500	10
			4500	4000 ⁽⁵⁾	3050 ⁽⁵⁾	12
			4500	4000	3500 ⁽⁵⁾	15
			4500	4000	3500 ⁽⁵⁾	16
			4500	4000	3500	20
			4500	4000	3500	25
			4500	4000	3500	32
			4500	4000	3500	40
			4500	4000	3500	64
			4500	4000	3500	100

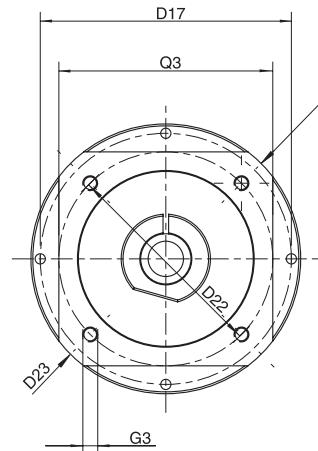
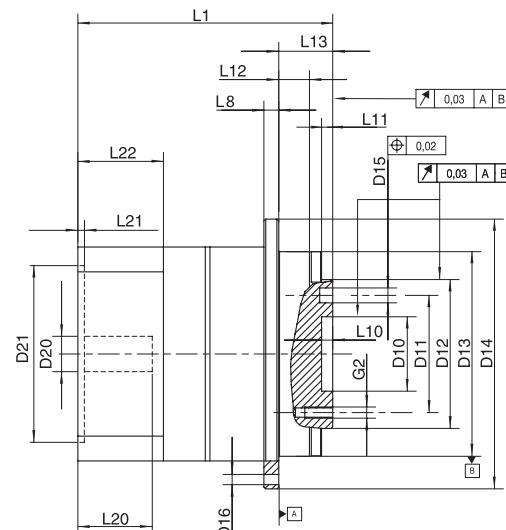
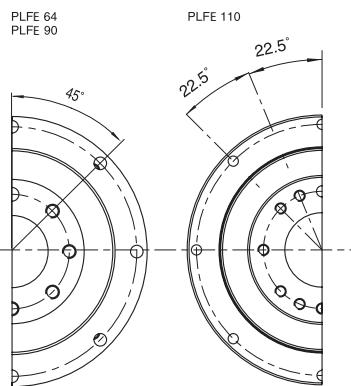
⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽⁵⁾ 最大输入速度在50% T_{2N} 和 S1情况⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111⁽⁵⁾ max. middle input speed at 50% T_{2N} and S1

PLFE - 系列 机械参数

PLFE - line dimensions

法兰螺孔依据EN ISO 9409标准

flange similar to EN ISO 9409
with additional threads



单位尺寸	size		PLFE 64	PLFE 90	PLFE 110	Z (2)
所有尺寸均以毫米为单位	all dimensions in mm					
D10 定位凸台	D10 centering	H7	20	31,5	40	
D11 安装孔分布圆尺寸	D11 hole circle diameter		31,5	50	63	
D12 定位凸台	D12 centering	h7	40	63	80	
D13 定位凸台	D13 centering		64	90	110	
D14 外径	D14 outside diameter		86	118	145	
D15 孔个数x深度	D15 bore x depth	H7	5x6	6x7	6x7	
D16 小齿轮中心孔 (轴中心孔)	D16 bore		Ø 4,5 8x45°	Ø 5,5 8x45°	Ø 5,5 8x45°	
D17 安装孔分布圆尺寸	D17 hole circle diameter		79	109	135	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 bore ⁽¹⁾⁽⁴⁾		9	14	19	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		40	80	95	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		63	100	115	
D23 对角尺寸	D23 diagonal dimension ⁽¹⁾		80	115	145	
G2 孔数x螺纹x深度	G2 number x thread x depth		7xM5x7	7xM6x10	11xM6x12	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x12	M6x15	M8x20	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		69,5	99	125	1
			82	116,5	152	2
L8 法兰厚度	L8 flange thickness		4	7	8	
L10 定位凸台厚度	L10 length of centering		4	6	6	
L11 定位凸台厚度	L11 spigot depth		3	6	6	
L12 定位凸台厚度	L12 spigot depth		7	10	10	
L13 输出法兰长度	L13 length of output flange		19,5	30	29	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		23	30	40	
L21 电机定位凸台深度	L21 motor location depth		2,5	3,5	3,5	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		24,5	33,5	47,5	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾	□	60	90	115	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第98页

⁽²⁾ 级数

⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

⁽⁴⁾ 轴配合公差 j6; k6

⁽¹⁾ dimensions refer to the mounted motor-type

⁽²⁾ number of stages

⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened

⁽⁴⁾ for shaft fit j6; k6



崭新的未来

WPLE- 直角输出减速机系列是对PLE-系列有效的拓展。
这种转角型减速机适用于对减速机/电机安装空间要求非常节省的场合。

WPLE - 系列

WPLE - line

For new
perspectives

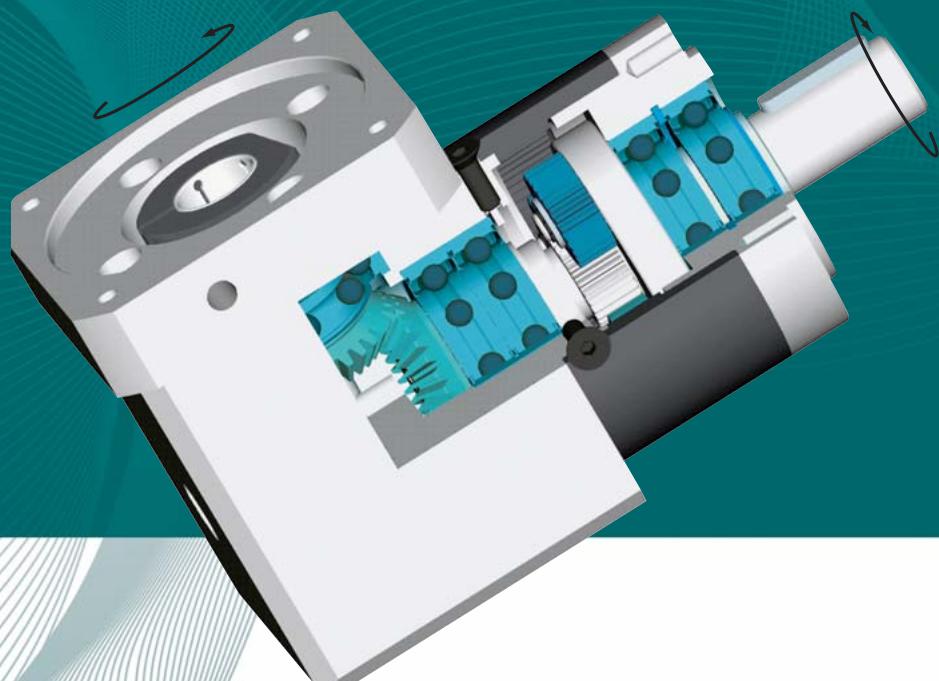
The WPLE is the logical refinement of our PLE series.
This bevel gearbox series was designed especially for space-saving installation
in a right-angle position of the motor/gearbox combination.

- 最低的回程间隙
- 最大的输出扭矩
- 高效率(94%)
- 24 级减速比 $i=3, \dots, 512$
- 低噪音
- 高质量(ISO 9001)
- 安装位置随意
- 简易电机装配
- 终身润滑
- 更多的选配方式
- 平衡的电机齿轮

- low backlash
- high output torque
- high efficiency (94%)
- 24 ratios $i=3,...,512$
- low noise
- high quality (ISO 9001)
- any mounting position
- easy motor mounting
- lifetime lubrication
- more options
- balanced motor pinion

1 技术资料 technical data	页 44 page 44
2 机械参数 dimensions	页 50 page 50
3 可能的电机装配方式 possible motor mounting	页 98 page 98
4 定货代码/可选项 ordering code/options	页 94 page 94
5 转换表格 conversion table	页 106 page 106
6 减速机关键尺寸/选型 gearhead sizing/selection	页 108 page 109
7 CAD 图 , 参数表格 CAD drawings, dimension sheets	www.neugart.net.cn www.neugart.net.cn
8 尺寸/计算 dimensioning/calculation	NCP Software NCP Software

页
page 94 可选项
options



系列	line		WPLE		Z ⁽²⁾	
寿命	lifetime	h	20.000			
寿命 以 $T_{2N} \times 0.88$	lifetime at $T_{2N} \times 0.88$		30.000			
满载效率 ⁽³⁾	efficiency with full load ⁽³⁾	% ⁽²⁾	94		1	
			92		2	
			88		3	
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25			
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90			
防护等级	degree of protection		IP 54			
润滑	lubrication		终生润滑 /life lubrication			
装配方式	mounting position		任意 /any			
电机法兰精度	motor flange precision		DIN 42955-N			

单位尺寸	size		WPLE 40	WPLE 60-60/70	WPLE 80-80/90	WPLE 120-115/120	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(5)(6)(7)}$	nominal output torque $T_{2N}^{(5)(6)(7)}$	Nm	4,5	14	40 ⁽⁸⁾	80	3	1
			6	19	53 ⁽⁸⁾	105 ⁽⁸⁾	4	
			7,5	24	67 ⁽⁸⁾	130 ⁽⁸⁾	5	
			8,5	25	65	135	7	
			6	18	50	120	8	
			5	15	38	95	10	
			16,5 ⁽⁸⁾	44 ⁽⁸⁾	130 ⁽⁸⁾	210 ⁽⁸⁾	9	2
			20 ⁽⁸⁾	44	120 ⁽⁸⁾	260 ⁽⁸⁾	12	
			18 ⁽⁸⁾	44	110	230	15	
			20 ⁽⁸⁾	44	120	260	16	
			20 ⁽⁸⁾	44	120	260	20	
			18	40	110	230	25	3
			20	44	120	260	32	
			18	40	110	230	40	
			7,5	18	50	120	64	
			20	44	110	260	60	
			20	44	120	260	80	
			20	44	120	260	100	
			18	44	110	230	120	
			20	44	120	260	160	
			18	40	110	230	200	
			20	44	120	260	256	
			18	40	110	230	320	
			7,5	18	50	120	512	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$, 电机在占空因数 $K_A=1$ 及S1连续工作制下, 温度 $T=30^\circ\text{C}$ ⁽⁶⁾ 取决于电机轴的直径⁽⁷⁾ 带键: 于峰值负载⁽⁸⁾ T_{2N} 作用时 寿命不是10000 h⁽¹⁾ ratios($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁶⁾ depends on the motor shaft diameter⁽⁷⁾ with key, at tumscent load⁽⁸⁾ different lifetime 10000 h at T_{2N}

单位尺寸	size		WPLE 40	WPLE 60-60/70	WPLE 80-80/90	WPLE 120-115/120	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾	max. output torque ⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾	Nm	7	22	64	128	3	1
			10	30	85	168	4	
			12	38	107	208	5	
			13,5	40	104	216	7	
			10	29	80	192	8	
			8	24	61	152	10	
			26	70	208	336	9	2
			32	70	192	416	12	
			29	70	176	368	15	
			32	70	192	416	16	
			32	70	192	416	20	
			29	64	176	368	25	3
			32	70	192	416	32	
			29	64	176	368	40	
			12	29	80	192	64	
			32	70	176	416	60	
			32	70	192	416	80	
			32	70	192	416	100	
			29	70	176	368	120	
			32	70	192	416	160	
			29	64	176	368	200	
			32	70	192	416	256	
			29	64	176	368	320	
			12	29	80	192	512	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及S1连续工作制下,温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 取决于电机轴的直径⁽⁵⁾ 输出轴最大允许30000转;见110页⁽⁶⁾ 带键: 于峰值负载⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ depends on the motor shaft diameter⁽⁵⁾ allowable for 30.000 revolutions at the output shaft; see page 110⁽⁶⁾ with key, at tumscent load

单位尺寸	size		WPLE 40	WPLE 60	WPLE 80	WPLE 120	Z ⁽¹⁾
回程间隙	backlash	arcmin	< 21	< 16	< 13	< 11	1
			< 25	< 18	< 15	< 13	2
			< 28	< 21	< 17	< 15	3
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr for 20.000 h ⁽³⁾⁽⁴⁾	N	200	400	750	1750	
Fa 于 20.000 h ⁽³⁾⁽⁴⁾	Fa for 20.000 h ⁽³⁾⁽⁴⁾		200	500	1000	2500	
Fr 于 30.000 h ⁽³⁾⁽⁴⁾	Fr for 30.000 h ⁽³⁾⁽⁴⁾		160	340	650	1500	
Fa 于 30.000 h ⁽³⁾⁽⁴⁾	Fa for 30.000 h ⁽³⁾⁽⁴⁾		160	450	900	2100	
Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾		200	700	1250	2000	
Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾		240	800	1600	3800	
抗扭刚性	torsional stiffness	Nm / arcmin	0,7	1,5	4,5	10	1
			1,1	2,5	6,5	13	2
			1	2,5	6,3	12	3
重量	weight	kg	0,51	1,7	4,4	12	1
			0,61	1,9	5	14	2
			0,71	2,1	5,5	16	3
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	68	70	73	75	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	18000	13000	7000	6500	

单位尺寸	size		WPLE 40	WPLE 60	WPLE 80	WPLE 120	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	22,5	66	180	360	3	1
			28	86	240	474	4	
			35	80	220	500	5	
			26	80	178	340	7	
			27	80	190	380	8	
			25	70	170	430	10	
			33	88	260	500	9	2
			40	88	240	520	12	
			36	88	220	500	15	
			40	88	240	520	16	
			40	88	240	520	20	
			36	80	220	500	25	
			40	88	240	520	32	
			36	80	220	500	40	
			27	80	190	380	64	
			40	88	220	520	60	3
			40	88	240	520	80	
			40	88	240	520	100	
			36	88	220	500	120	
			40	88	240	520	160	
			36	80	220	500	200	
			40	88	240	520	256	
			36	80	220	500	320	
			27	80	190	380	512	

(1) 减速比(i=n_{in}/n_{ab})

(2) 级数

(3) 这些数据在下列条件下测得:输出转速n₂=100min⁻¹, 电机在占空因数KA=1及S1连续工作制下,温度T=30°C

(4) 沿着输出轴长度方向上一半处

(5) 噪音检测标准; 距离1m; 在输入转速 n₁=3000min⁻¹; i=5

(6) 必须保证允许的工作温度; 特殊的输入转速请联系确认

(7) 1000次以内

(8) 根据从动扭矩的实际输出情况, 径向/轴向负载和循环周期, 以及轴承使用寿命会有所不同

(1) ratios (i=n_{in}/n_{out})

(2) number of stages

(3) these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle KA=1 and S1-mode for electrical machines and T=30°C

(4) half way along the output shaft

(5) sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5

(6) allowed operating temperature must be kept; other input speeds on inquiry

(7) allowed 1000 times

(8) Depending on the required output torque, radial and axial loads, cycle and required storage life, deviating or partly higher values are possible. We recommend to carry out accurate dimensioning with NCP or to consult Neugart in this respect.

单位尺寸	size		WPLE 60/70	WPLE 80/90	WPLE 120/115	Z ⁽¹⁾
回程间隙	backlash	arcmin	< 16	< 13	< 11	1
			< 18	< 15	< 13	2
			< 21	< 17	< 15	3
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr for 20.000 h ⁽³⁾⁽⁴⁾	N	900	2050	2950	
Fa 于 20.000 h ⁽³⁾⁽⁴⁾	Fa for 20.000 h ⁽³⁾⁽⁴⁾		1000	2500	2500	
Fr 于 30.000 h ⁽³⁾⁽⁴⁾	Fr for 30.000 h ⁽³⁾⁽⁴⁾		700	1700	2400	
Fa 于 30.000 h ⁽³⁾⁽⁴⁾	Fa for 30.000 h ⁽³⁾⁽⁴⁾		800	2000	2100	
Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾		1500	2500	4000	
Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	Fa _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾		1950	3800	3800	
抗扭刚性	torsional stiffness	Nm / arcmin	1,5	4,5	10	1
			2,5	6,5	13	2
			2,5	6,3	12	3
重量	weight	kg	1,9	5,5	12,6	1
			2,1	6,1	14,6	2
			2,3	6,6	16,6	3
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	70	73	75	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	13000	7000	6500	

单位尺寸	size		WPLE 60/70	WPLE 80/90	WPLE 120/115	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	66	180	360	3	
			86	240	474	4	
			80	220	500	5	
			80	178	340	7	
			80	190	380	8	
			70	170	430	10	
			88	260	500	9	
			88	240	520	12	
			88	220	500	15	
			88	240	520	16	
			88	240	520	20	2
			80	220	500	25	
			88	240	520	32	
			80	220	500	40	
			80	190	380	64	
			88	220	520	60	
			88	240	520	80	
			88	240	520	100	
			88	220	500	120	
			88	240	520	160	3
			80	220	500	200	
			88	240	520	256	
			80	220	500	320	
			80	190	380	512	

⁽¹⁾ 减速比(i=n_{in}/n_{ab})⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n₂=100min⁻¹, 电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 沿着输出轴长度方向上一半处⁽⁵⁾ 噪音检测标准; 距离1m; 在输入转速 n₁=3000min⁻¹; i=5⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽⁸⁾ 根据从动扭矩的实际输出情况, 径向/轴向负载和循环周期, 以及轴承使用寿命会有所不同⁽¹⁾ ratios (i=n_{in}/n_{out})⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle KA=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ half way along the output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times⁽⁸⁾ Depending on the required output torque, radial and axial loads, cycle and required storage life, deviating or partly higher values are possible. We recommend to carry out accurate dimensioning with NCP or to consult Neugart in this respect.

单位尺寸	size		WPLE 40	WPLE 60	WPLE 80	WPLE 120	$i^{(1)}$
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,044	0,246	1,189	5,750	3
			0,035	0,204	0,939	3,910	4
			0,032	0,189	0,869	3,350	5
			0,031	0,183	0,839	3,120	7
			0,030	0,176	0,809	2,890	8
			0,043	0,242	1,159	5,730	9
			0,030	0,175	0,809	2,850	10
			0,042	0,238	1,139	5,600	12
			0,036	0,188	1,129	5,530	15
			0,035	0,199	0,919	3,830	16
			0,032	0,186	0,859	3,280	20
			0,032	0,186	0,859	3,260	25
			0,030	0,175	0,809	2,840	32
			0,029	0,175	0,809	2,840	40
			0,042	0,187	0,929	5,620	60
			0,029	0,175	0,809	2,840	64
			0,032	0,186	0,919	3,280	80
			0,032	0,186	0,859	3,260	100
			0,042	0,175	1,119	5,470	120
			0,029	0,175	0,809	2,840	160
			0,029	0,175	0,809	2,840	200
			0,029	0,175	0,809	2,840	256
			0,029	0,175	0,809	2,840	320
			0,029	0,175	0,809	2,840	512

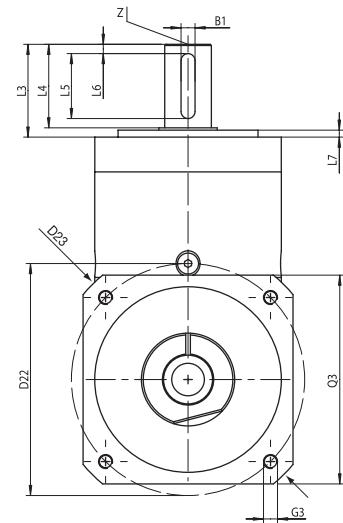
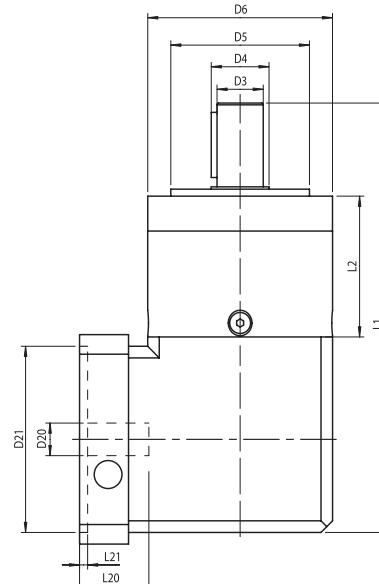
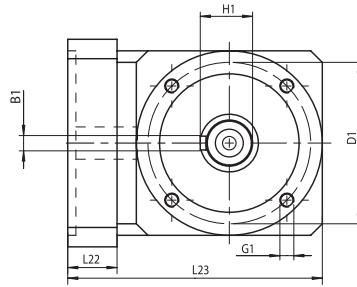
单位尺寸	size		WPLE 40	WPLE 60	WPLE 80	WPLE 120	$i^{(1)}$
最大输入速度在50% T _{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	5000	4500 ⁽⁵⁾	3500 ⁽⁵⁾	2800 ⁽⁵⁾	3
			5000	4500 ⁽⁵⁾	3500 ⁽⁵⁾	2900 ⁽⁵⁾	4
			5000	4500 ⁽⁵⁾	3600 ⁽⁵⁾	3050 ⁽⁵⁾	5
			5000	4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	7
			5000	4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	8
			5000	4500 ⁽⁵⁾	3250 ⁽⁵⁾	2950 ⁽⁵⁾	9
			5000	4500	4000	3500	10
			5000	4500 ⁽⁵⁾	3800 ⁽⁵⁾	3000 ⁽⁵⁾	12
			5000	4500	4000 ⁽⁵⁾	3450 ⁽⁵⁾	15
			5000	4500	4000 ⁽⁵⁾	3400 ⁽⁵⁾	16
			5000	4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	20
			5000	4500	4000	3500 ⁽⁵⁾	25
			5000	4500	4000	3500	32
			5000	4500	4000	3500	40
			5000	4500	4000	3500	60
			5000	4500	4000	3500	64
			5000	4500	4000	3500	80
			5000	4500	4000	3500	100
			5000	4500	4000	3500	120
			5000	4500	4000	3500	160
			5000	4500	4000	3500	200
			5000	4500	4000	3500	256
			5000	4500	4000	3500	320
			5000	4500	4000	3500	512

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽⁵⁾ 最大输入速度在 50% T_{2N} 和 S1情况⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111⁽⁵⁾ max. middle input speed at 50% T_{2N} and S1

单位尺寸	size		WPLE 60/70	WPLE 80/90	WPLE 120/115	$i^{(1)}$
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,246	1,189	5,750	3
			0,204	0,939	3,910	4
			0,189	0,869	3,350	5
			0,183	0,839	3,120	7
			0,176	0,809	2,890	8
			0,242	1,159	5,730	9
			0,175	0,809	2,850	10
			0,238	1,139	5,600	12
			0,188	1,129	5,530	15
			0,199	0,919	3,830	16
			0,186	0,859	3,280	20
			0,186	0,859	3,260	25
			0,175	0,809	2,840	32
			0,175	0,809	2,840	40
			0,187	0,929	5,620	60
			0,175	0,809	2,840	64
			0,186	0,919	3,280	80
			0,186	0,859	3,260	100
			0,175	1,119	5,470	120
			0,175	0,809	2,840	160
			0,175	0,809	2,840	200
			0,175	0,809	2,840	256
			0,175	0,809	2,840	320
			0,175	0,809	2,840	512

单位尺寸	size		WPLE 60/70	WPLE 80/90	WPLE 120/115	$i^{(1)}$
最大输入速度在 T_{2N} 和 S1 情况 ⁽³⁾⁽⁴⁾	max. middle input speed at T_{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	4500 ⁽⁵⁾	3100 ⁽⁵⁾	2800 ⁽⁵⁾	3
			4500 ⁽⁵⁾	3200 ⁽⁵⁾	2900 ⁽⁵⁾	4
			4500 ⁽⁵⁾	3350 ⁽⁵⁾	3050 ⁽⁵⁾	5
			4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	7
			4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	8
			4500 ⁽⁵⁾	3150 ⁽⁵⁾	2950 ⁽⁵⁾	9
			4500	4000	3500	10
			4500 ⁽⁵⁾	3750 ⁽⁵⁾	3000 ⁽⁵⁾	12
			4500	4000 ⁽⁵⁾	3450 ⁽⁵⁾	15
			4500	4000 ⁽⁵⁾	3400 ⁽⁵⁾	16
			4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	20
			4500	4000	3500 ⁽⁵⁾	25
			4500	4000	3500	32
			4500	4000	3500	40
			4500	4000	3500	60
			4500	4000	3500	64
			4500	4000	3500	80
			4500	4000	3500	100
			4500	4000	3500	120
			4500	4000	3500	160
			4500	4000	3500	200
			4500	4000	3500	256
			4500	4000	3500	320
			4500	4000	3500	512

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽⁵⁾ 最大输入速度在 50% T_{2N} 和 S1 情况⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111⁽⁵⁾ max. middle input speed at 50% T_{2N} and S1



单位尺寸	size		WPLE 40	WPLE 60	WPLE 80	WPLE 120	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm						
B1 键 DIN 6885 T1	B1 key DIN 6885 T1		3	5	6	8	
D1 法兰定位孔圆直径	D1 flange hole circle		34	52	70	100	
D3 轴径	D3 shaft diameter	h7	10	14	20	25	
D4 轴肩	D4 shaft root		12	17	25	35	
D5 定位凸台	D5 centering	h7	26	40	60	80	
D6 箱体直径	D6 body diameter		40	60	80	115	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		6	9	14	19	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		30	40	80	95	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		46	63	100	115	
D23 对角尺寸	D23 diagonal dimension		54	80	115	145	
G1 螺纹安装x螺纹深度 ⁽¹⁾	G1 mounting thread x depth ⁽¹⁾	4x	M4x6	M5x8	M6x10	M10x16	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾		M4x7	M5x12	M6x15	M8x20	
H1 键 DIN 6885 T1	H1 key DIN 6885 T1		11,2	16	22,5	28	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		110	147	184	249,5	1
L2 箱体长度	L2 body length		123	159,5	201,5	277	2
L3 输出轴长	L3 shaft length from output		135,5	172	219	304,5	3
L4 轴长自定位凸台起	L4 shaft length from spigot		39	47	60	74	1
L5 键长	L5 key length		52	59,5	77,5	101,5	2
L6 至轴末端的距离	L6 distance from shaft end		64,5	72	95	129	3
L7 定位凸台厚度	L7 spigot depth		26	35	40	55	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		23	30	36	50	
L21 电机定位凸台深度	L21 motor location depth		18	25	28	40	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		2,5	2,5	4	5	
L23 总高度 ⁽³⁾	L23 overall height ⁽³⁾		2	3	3	4	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾	□	25	23	30	40	
Z 定心孔 DIN 332 , DR表格	Z centre bore DIN 332, form DR		3	2,5	3,5	3,5	
			19	16	21	22	
			67	85,5	109,5	145,5	
			40	60	90	115	
			M3x9	M5x12,5	M6x16	M10x22	

(1) 这些参数与所配套的电机型号有关，详见第98页

(2) 级数

(3) 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

(4) 轴配合公差 j6; k6

(1) dimensions refer to the mounted motor-type

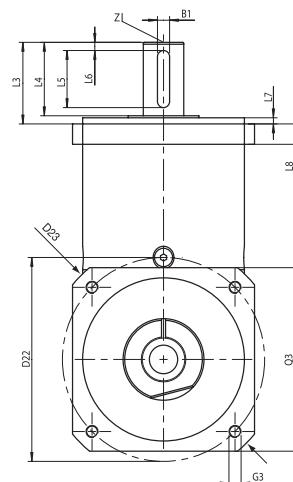
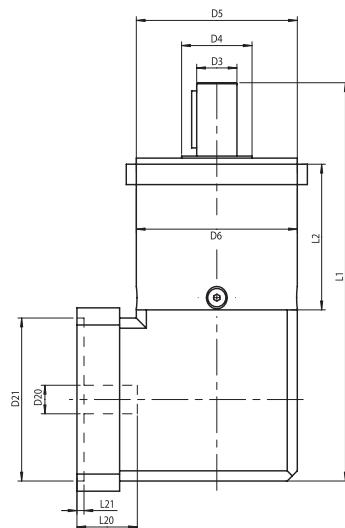
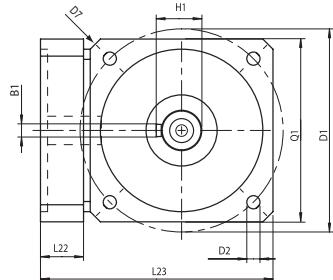
(2) number of stages

(3) for longer motor shafts L20 applies: The measured motor flange length L22 and overall height L23 will be lengthened

(4) for shaft fit j6; k6

WPLE - 系列 机械参数

WPLE - line dimensions



单位尺寸	size		WPLE 60/70	WPLE 80/90	WPLE 120/115	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm					
B1 键 DIN 6885 T1	B1 key DIN 6885 T1		5	6	8	
D1 法兰定位孔圆直径	D1 flange hole circle		75	100	130	
D2 孔安装	D2 mounting bore	4x	5,5	6,5	8,5	
D3 轴径	D3 shaft diameter	h7	16	20	25	
D4 轴肩	D4 shaft root		20	35	35	
D5 定位凸台	D5 centering	h7	60	80	110	
D6 箱体直径	D6 body diameter		60	80	115	
D7 对角尺寸	D7 diagonal dimension		92	116	149	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		9	14	19	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		40	80	95	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		63	100	115	
D23 对角尺寸	D23 diagonal dimension		80	115	145	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x12	M6x15	M8x20	
H1 键 DIN 6885 T1	H1 key DIN 6885 T1		18	22,5	28	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		152	195,5	274,5	1
L2 箱体长度	L2 body length		164,5	213	302,5	2
L3 输出轴长	L3 shaft length from output		177	230,5	330	3
L4 轴长自定位凸台起	L4 shaft length from spigot		55	71,5	99	1
L5 键长	L5 key length		67,5	89	127	2
L6 至轴末端的距离	L6 distance from shaft end		80	106,5	154,5	3
L7 定位凸台厚度	L7 spigot depth		32	40	55	
L8 法兰厚度	L8 flange thickness		28	36	50	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		20	28	40	
L21 电机定位凸台深度	L21 motor location depth		4	4	5	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		3	3	4	
L23 总高度 ⁽³⁾	L23 overall height ⁽³⁾		10	10	15	
Q1 法兰截面	Q1 flange section	□	23	30	40	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾		2,5	3,5	3,5	
Z 定心孔 DIN 332 , DR表格	Z centre bore DIN 332, form DR		16	21	22	
			90,5	114,5	145,5	
			70	90	115	
			60	90	115	
			M5x12,5	M6x16	M10x22	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第98页⁽²⁾ 级数⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长⁽⁴⁾ 轴配合公差 j6; k6⁽¹⁾ dimensions refer to the mounted motor-type⁽²⁾ number of stages⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall height L23 will be lengthened⁽⁴⁾ for shaft fit j6; k6



明确的愿景。

WPLPE

一项简单的成功策略：我们的产品程序具有多变性的特点。
您始终可以找到您所需要的解决方案。WPLPE系列为集成直角输出减速机，
这种直角型减速机适用于对减速机/电机安装空间要求非常节省的场合。

WPLPE - 系列

WPLPE - line

A clear
perspective

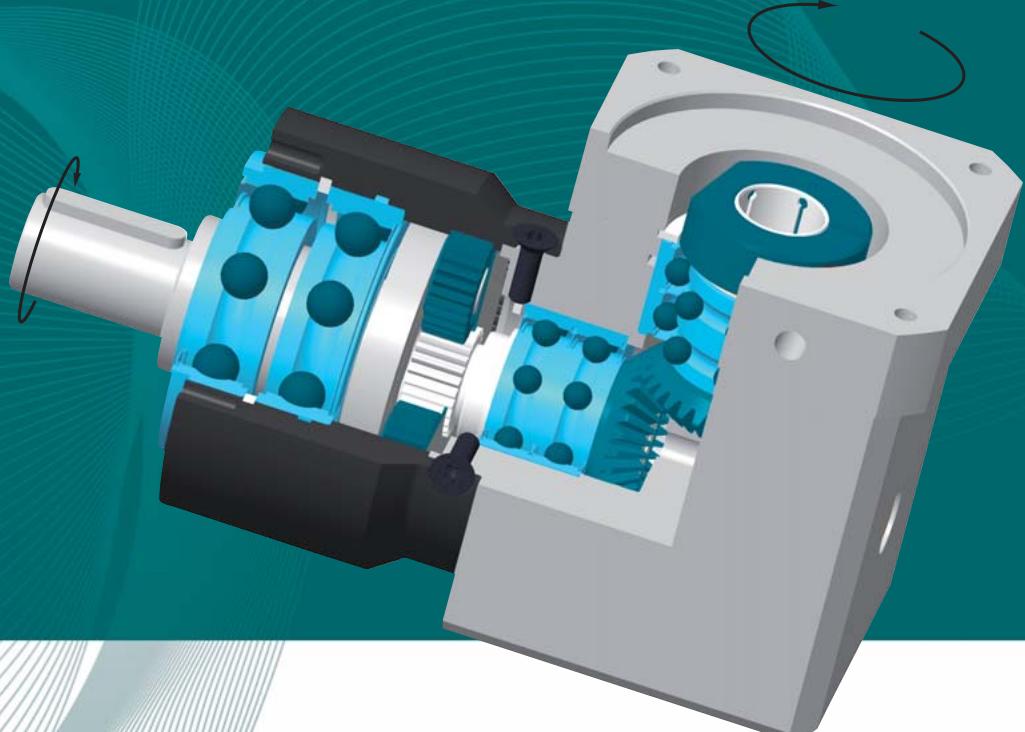
An integrated formula for success: In our balanced, wide-range product programme, you can always find the right solution for your specific needs. WPLPE is the intelligent angle solution in our economy range, specially developed for space-saving installation in right-angle position of motor/gearbox combinations.

- 最低的回程间隙
- 最大的输出扭矩
- 高效率(94%)
- 16 级减速 $i=3, \dots, 100$
- 低噪音
- 高质量(ISO 9001)
- 安装位置随意
- 简易电机装配
- 终身润滑
- 更多的选配方式
- 平衡的电机齿轮

- low backlash
- high output torque
- high efficiency (94%)
- 16 ratios $i=3,...,100$
- low noise
- high quality [ISO 9001]
- any mounting position
- easy motor mounting
- life time lubrication
- more options
- balanced motor pinion

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2 机械参数 dimensions	页 57 page 57
3 可能的电机装配方式 possible motor mounting	页 96 page 96
4 定货代码/可选项 ordering code/options	页 94 page 94
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7 CAD 图 , 参数表格 CAD drawings, dimension sheets	www.neugart.net.cn www.neugart.net.cn
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options



系列	line		WPLPE			Z ⁽²⁾	
寿命	lifetime	h	20.000				
寿命以 $T_{2N} \times 0,88$	lifetime at $T_{2N} \times 0,88$		30.000				
满载效率 ⁽⁸⁾⁽⁶⁾	efficiency with full load ⁽⁶⁾	% ⁽¹⁾	94			1	
			92			2	
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25				
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90				
防护等级	degree of protection		IP 54				
润滑	lubrication		终生润滑 /life lubrication				
装配方式	mounting position		任意 /any				
电机法兰精度	motor flange precision		DIN 42955-N				

单位尺寸	size		WPLPE 50	WPLPE 70	WPLPE 90	WPLPE 120	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)(8)}$	nominal output torque $T_{2N}^{(3)(5)(8)}$	Nm	4,5	14	40 ⁽⁹⁾	80	3	1
			6	19	53 ⁽⁹⁾	105 ⁽⁹⁾	4	
			7,5	24	67 ⁽⁹⁾	130 ⁽⁹⁾	5	
			8,5	25	65	135	7	
			6	18	50	120	8	
			5	15	38	95	10	
			12 ⁽⁹⁾	33 ⁽⁹⁾	97 ⁽⁹⁾	157 ⁽⁹⁾	9	
			15 ⁽⁹⁾	33	90 ⁽⁹⁾	195 ⁽⁹⁾	12	
			13 ⁽⁹⁾	33	82	172	15	
最大输出扭矩 $T_{2N}^{(3)(5)(7)(8)}$	max. output torque $T_{2N}^{(3)(5)(7)(8)}$	Nm	15 ⁽⁹⁾	33	90	195	16	2
			15 ⁽⁹⁾	33	90	195	20	
			13	30	82	172	25	
			15	33	90	195	32	
			13	30	82	172	40	
			7,5	18	50	120	64	
			5	15	38	95	100	
			19	53	155	251	9	1
			24	53	144	312	12	
			21	53	131	275	15	
			24	53	144	312	16	
			24	53	144	312	20	
			21	48	131	275	25	

单位尺寸	size		WPLPE 50	WPLPE 70	WPLPE 90	WPLPE 120	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 $T_{2N}^{(3)(5)(7)(8)}$	max. output torque $T_{2N}^{(3)(5)(7)(8)}$	Nm	7	22	64	128	3	1
			10	30	85	168	4	
			12	38	107	208	5	
			13,5	40	104	216	7	
			10	29	80	192	8	
			8	24	61	152	10	
			19	53	155	251	9	
			24	53	144	312	12	
			21	53	131	275	15	
最大输出扭矩 $T_{2N}^{(3)(5)(7)(8)}$	max. output torque $T_{2N}^{(3)(5)(7)(8)}$	Nm	24	53	144	312	16	2
			24	53	144	312	20	
			21	48	131	275	25	
			24	53	144	312	32	
			21	48	131	275	40	
			12	29	80	192	64	
			8	24	61	152	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$, 电机在占空因数 $K_A=1$ 及 S1 连续工作制下, 温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转; 见110页⁽⁸⁾ 带键: 于峰值负载⁽⁹⁾ T_{2N} 作用时 寿命不是10000 h⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft; see page 110⁽⁸⁾ with key, at tumscent load⁽⁹⁾ different lifetime 10000 h at T_{2N}

WPLPE - 系列 技术资料

WPLPE - line technical data

单位尺寸	size		WPLPE 50	WPLPE 70	WPLPE 90	WPLPE 120	Z ⁽²⁾
回程间隙 Fr 于 20.000 h ⁽³⁾⁽⁴⁾ Fa 于 20.000 h ⁽³⁾⁽⁴⁾ Fr 于 30.000 h ⁽³⁾⁽⁴⁾ Fa 于 30.000 h ⁽³⁾⁽⁴⁾ Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	backlash Fr for 20.000 h ⁽³⁾⁽⁴⁾ Fa for 20.000 h ⁽³⁾⁽⁴⁾ Fr for 30.000 h ⁽³⁾⁽⁴⁾ Fa for 30.000 h ⁽³⁾⁽⁴⁾ Fr _{max.} ⁽³⁾⁽⁴⁾⁽⁸⁾	arcmin N	< 21	< 16	< 13	< 11	1
			< 25	< 18	< 15	< 13	2
			800	1050	1900	2500	
			1000	1350	2000	4000	
			700	900	1700	2150	
			800	1000	1500	3000	
抗扭刚性	torsional stiffness	Nm / arcmin	0,7	2,7	8,3	22,5	1
			1,1	4	10,1	26	2
重量	weight	kg	0,86	2,30	5,30	13,50	1
			1,06	2,60	6,10	15,70	2
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	68	70	73	75	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	18000	13000	7000	6500	

单位尺寸	size		WPLPE 50	WPLPE 70	WPLPE 90	WPLPE 120	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	22,5	66	180	360	3	
			28	86	240	474	4	
			35	80	220	500	5	
			26	80	178	340	7	
			27	80	190	380	8	
			25	70	170	430	10	
			33	88	260	500	9	
			40	88	240	520	12	
			36	88	220	500	15	
			40	88	240	520	16	
			40	88	240	520	20	
			36	80	220	500	25	
			40	88	240	520	32	
			36	80	220	500	40	
			27	80	190	380	64	
			27	80	170	430	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 沿着输出轴长度方向上一半处⁽⁵⁾ 噪音检测标准; 距离1m; 在输入转速 $n_1=3000\text{min}^{-1}$; $i=5$ ⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽⁸⁾ 根据从动扭矩的实际输出情况,径向/轴向负载和循环周期,以及轴承使用寿命会有所不同⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle KA=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ half way along the output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of $n_1=3000\text{min}^{-1}$; $i=5$ ⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times⁽⁸⁾ Depending on the required output torque, radial and axial loads, cycle and required storage life, deviating or partly higher values are possible. We recommend to carry out accurate dimensioning with NCP or to consult Neugart in this respect.

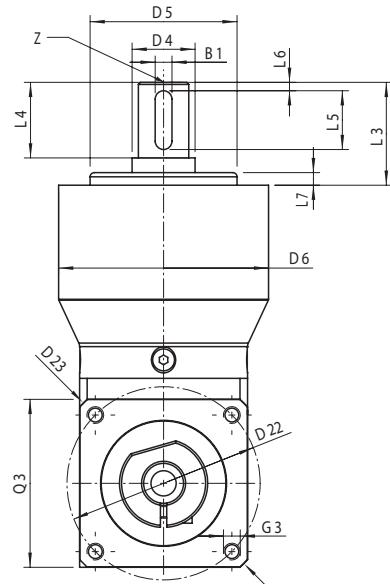
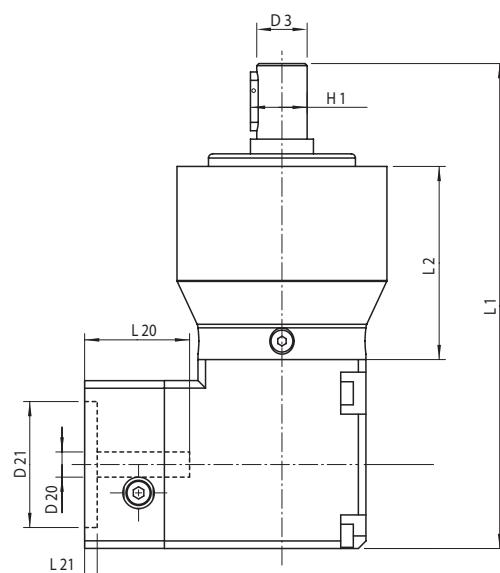
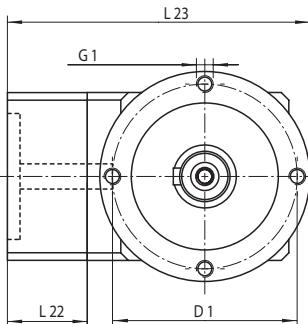
单位尺寸	size		WPLPE 50	WPLPE 70	WPLPE 90	WPLPE 120	i ⁽¹⁾
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,044	0,268	1,239	5,990	3
			0,035	0,217	0,989	4,040	4
			0,032	0,197	0,899	3,420	5
			0,031	0,189	0,869	3,160	7
			0,030	0,179	0,819	2,920	8
			0,043	0,244	1,169	5,760	9
			0,030	0,177	0,819	2,850	10
			0,042	0,239	1,149	5,610	12
			0,036	0,189	1,129	5,540	15
			0,035	0,200	0,919	3,840	16
			0,032	0,187	0,859	3,280	20
			0,032	0,186	0,859	3,270	25
			0,030	0,175	0,809	2,840	32
			0,029	0,175	0,809	2,840	40
			0,029	0,175	0,809	2,840	64
			0,029	0,175	0,809	2,840	100

单位尺寸	size		WPLPE 50	WPLPE 70	WPLPE 90	WPLPE 120	i ⁽¹⁾
最大输入速度在 T _{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	5000	4100 ⁽⁵⁾	3000 ⁽⁵⁾	2300 ⁽⁹⁾	3
			5000	4500 ⁽⁵⁾	3100 ⁽⁵⁾	2400 ⁽⁵⁾	4
			5000	4500 ⁽⁵⁾	3250 ⁽⁵⁾	2550 ⁽⁵⁾	5
			5000	4500 ⁽⁵⁾	3950 ⁽⁵⁾	3050 ⁽⁵⁾	7
			5000	4500	4000 ⁽⁵⁾	3400 ⁽⁵⁾	8
			5000	4500 ⁽⁵⁾	3500 ⁽⁵⁾	2850 ⁽⁵⁾	9
			5000	4500	4000	3500	10
			5000	4500	4000 ⁽⁵⁾	2950 ⁽⁵⁾	12
			5000	4500	4000 ⁽⁵⁾	3350 ⁽⁵⁾	15
			5000	4500	4000 ⁽⁵⁾	3300 ⁽⁵⁾	16
			5000	4500	4000 ⁽⁵⁾	3500 ⁽⁵⁾	20
			5000	4500	4000	3500 ⁽⁵⁾	25
			5000	4500	4000	3500	32
			5000	4500	4000	3500	40
			5000	4500	4000	3500	64
			5000	4500	4000	3500	100

⁽¹⁾ 减速比(i=n_{in}/n_{ab})⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽⁵⁾ 最大输入速度在50% T_{2N} 和 S1情况⁽³⁾⁽⁴⁾⁽¹⁾ ratios (i=n_{in}/n_{ab})⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111⁽⁵⁾ max. middle input speed at 50% T_{2N} and S1

WPLPE - 系列 机械参数

WPLPE - line dimensions



单位尺寸	size		WPLPE 50	WPLPE 70	WPLPE 90	WPLPE 120	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm						
B1 键 DIN 6885 T1	B1 key DIN 6885 T1		4	5	6	10	
D1 法兰定位孔圆直径	D1 flange hole circle		44	62	80	108	
D3 轴径	D3 shaft diameter	k7	12	16	22	32	
D4 轴肩	D4 shaft root		15	30	35	50	
D5 定位凸台	D5 centering	h7	35	52	68	90	
D6 箱体直径	D6 body diameter		50	70	90	120	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		6	9	14	19	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		30	40	80	95	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		46	63	100	115	
D23 对角尺寸	D23 diagonal dimension		54	80	115	145	
G1 螺纹安装x螺纹深度 ⁽¹⁾	G1 mounting thread x depth ⁽¹⁾	4x	M4x8	M5x8	M6x9	M8x16	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾		M4x7	M5x12	M6x15	M8x20	
H1 键 DIN 6885 T1	H1 key DIN 6885 T1		13,5	18	24,5	35	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		115,5	152,5	197,5	265	1
L2 箱体长度	L2 body length		128	165,5	215,5	292,5	2
L3 输出轴长	L3 shaft length from output		46	51	67,5	76,5	1
L4 轴长自定位凸台起	L4 shaft length from spigot		58,5	64	85,5	104	2
L14 键长	L5 key length		24,5	36	46	68	
L6 至轴末端的距离	L6 distance from shaft end		18	28	36	58	
L7 定位凸台厚度	L7 spigot depth		14	25	32	50	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		2	2	2	4	
L21 电机定位凸台深度	L21 motor location depth		3	3	4	5	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		25	23	30	40	
Q3 法兰截面 ⁽¹⁾	L23 overall height ⁽³⁾		3	2,5	3,5	3,5	
Z 定心孔 DIN 332 , DR表格			19	16	21	22	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾	□	72	90,5	114,5	148	1
Z 定心孔 DIN 332, Form DR	Z centre bore DIN 332, form DR		72	90,5	114,5	148	2
			M4x10	M5x12,5	M8x19	M12x28	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第98页⁽²⁾ 级数⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长⁽⁴⁾ 轴配合公差 j6; k6⁽¹⁾ dimensions refer to the mounted motor-type⁽²⁾ number of stages⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall height L23 will be lengthened⁽⁴⁾ for shaft fit j6; k6



新的 new 斜齿
helical geared

功率强劲、性能稳定、噪音低

PSN 产品系列噪音极低且精度高，同步性好

PSN

PSN - 系列

PSN - line

Strong, gentle, quiet

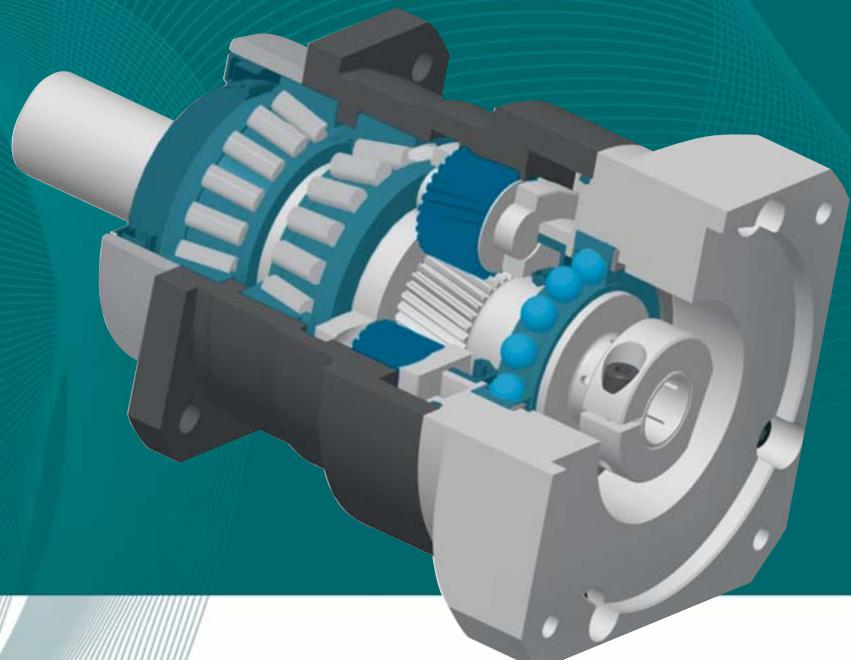
This precision series PSN is extremely quiet, precise
and scores with an optimised synchronisation.

- 最低的回程间隙 ($<1'$)
- 输出转矩高
- 效率高 (98%)
- 精确珩磨齿轮
- 15种减速比 $i=3,\dots,100$
- 噪音低 ($< 60 \text{ dB(A)}$)
- 质量高 (ISO 9001)
- 安装位置随意
- 电机安装简便
- 终身润滑
- 更多的选配方式
- 同向运转
- 平衡的电机齿轮

- minimal backlash ($<1'$)
- high output torque
- high degree of efficiency (98%)
- ground and honed gearing
- 15 ratios $i=3,\dots,100$
- low noise ($< 60 \text{ dB(A)}$)
- high quality (ISO 9001)
- universal mounting positions
- simple motor mounting
- lifetime lubrication
- further options
- equidirectional rotation
- balanced motor pinion

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dimensioning/calculation	NCP Software

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options



系列	line		PSN	Z ⁽²⁾
寿命	lifetime	h	20.000	
寿命以 $T_{2N} \times 0,88$	lifetime at $T_{2N} \times 0,88$		30.000	
满载效率 ⁽⁶⁾	efficiency with full load ⁽⁶⁾	% ⁽¹⁾	98	1
			95	2
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25	
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90	
防护等级	degree of protection		IP 65	
润滑	lubrication		终生润滑 /life lubrication	
装配方式	mounting position		任意 /any	
电机法兰精度	motor flange precision		DIN 42955-R	

单位尺寸	size		PSN 70	PSN 90	PSN 115	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)}$	nominal output torque $T_{2N}^{(3)(5)}$	Nm	29	54	135	3	1
			39	80	180	4	
			40	80	175	5	
			37	78	175	7	
			28	59	140	10	
			29	54	135	12	2
			29	54	135	15	
			39	80	180	16	
			39	80	180	20	
			40	80	175	25	
			40	80	175	35	
			39	80	180	40	
			40	80	175	50	
			37	78	175	70	
			28	59	140	100	

单位尺寸	size		PSN 70	PSN 90	PSN 115	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁵⁾⁽⁷⁾	max. output torque ⁽³⁾⁽⁵⁾⁽⁷⁾	Nm	46	86	216	3	1
			62	128	288	4	
			64	128	280	5	
			59	125	280	7	
			45	94	224	10	
			46	86	216	12	2
			46	86	216	15	
			62	128	288	16	
			62	128	288	20	
			64	128	280	25	
			64	128	280	35	
			62	128	288	40	
			64	128	280	50	
			59	125	280	70	
			45	94	224	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转, 见110页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle KA=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft; see page 110

单位尺寸	size		PSN 70	PSN 90	PSN 115	Z ⁽²⁾
回程间隙	backlash	arcmin	< 3	< 3	< 3	1
			< 5	< 5	< 5	2
			< 2	< 1	< 1	
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr for 20.000 h ⁽³⁾⁽⁴⁾	N	3200	5500	6000	
			4400	6400	8000	
			3200	4800	5400	
			3900	5700	7000	
抗扭刚性	torsional stiffness	Nm / arcmin	6	9	20	1
			5	11	28	2
重量	weight	kg	1,9	3,3	6,9	1
			2,7	4,3	8,4	2
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	57	58	63	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	14000	10000	8500	

单位尺寸	size		PSN 70	PSN 90	PSN 115	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop ⁽⁷⁾	Nm (lbin)	90	210	490	3	
			120	280	650	4	1
			130	280	650	5	
			80	175	340	7	
			90	200	480	10	
			135	220	500	12	
			135	220	500	15	
			150	300	650	16	
			150	300	650	20	
			150	300	650	25	
			150	300	650	35	2
			150	300	650	40	
			150	300	650	50	
			80	175	340	70	
			80	200	480	100	

⁽¹⁾ 减速比(i=n_{an}/n_{ab})⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n₂=100min⁻¹,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 沿着输出轴长度方向上一半处⁽⁵⁾ 噪音检测标准: 距离1m; 在输入转速 n₁=3000min⁻¹; i=5⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽¹⁾ ratios(i=n_{an}/n_{ab})⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle K_A=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ half way along the output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times

单位尺寸	size		PSN 70	PSN 90	PSN 115	i ⁽¹⁾
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,273	0,805	2,479	3
			0,191	0,556	1,547	4
			0,163	0,436	1,175	5
			0,137	0,351	0,956	7
			0,125	0,307	0,820	10
			0,180	0,206	0,622	12
			0,156	0,172	0,479	15
			0,175	0,190	0,564	16
			0,152	0,162	0,442	20
			0,151	0,157	0,427	25
			0,131	0,135	0,347	35
			0,123	0,125	0,309	40
			0,122	0,124	0,305	50
			0,122	0,123	0,303	70
			0,122	0,123	0,302	100

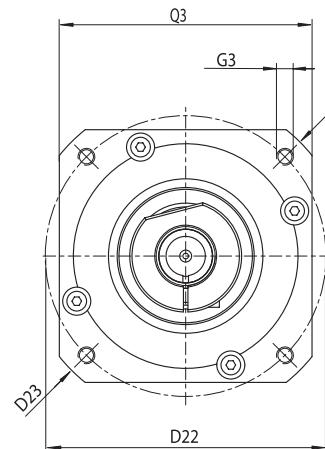
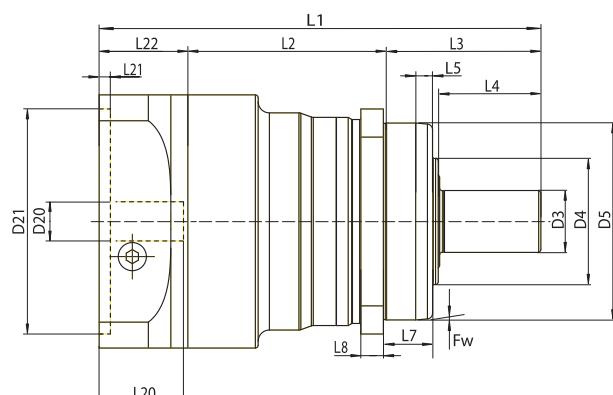
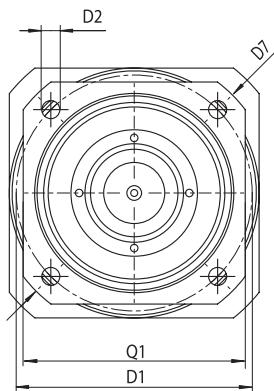
单位尺寸	size		PSN 70	PSN 90	PSN 115	i ⁽¹⁾
最大输入速度在50% T _{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 50% T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	3050	2750	2100	3
			3700	3200	2400	4
			4400	3800	2900	5
			4500	4000	3500	7
			4500	4000	3500	10
			4500	4500	4000	12
			4500	4500	4000	15
			4500	4500	4000	16
			4500	4500	4000	20
			4500	4500	4000	25
			4500	4500	4000	35
			4500	4500	4000	40
			4500	4500	4000	50
			4500	4500	4000	70
			4500	4500	4000	100

单位尺寸	size		PSN 70	PSN 90	PSN 115	i ⁽¹⁾
最大输入速度在100% T _{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 100% T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	2850	2550	1900	3
			3400	2900	2100	4
			4000	3400	2550	5
			4500	4000	3250	7
			4500	4000	3500	10
			4500	4500	3800	12
			4500	4500	4000	15
			4500	4500	4000	16
			4500	4500	4000	20
			4500	4500	4000	25
			4500	4500	4000	35
			4500	4500	4000	40
			4500	4500	4000	50
			4500	4500	4000	70
			4500	4500	4000	100

⁽¹⁾ 减速比($i=n_{an}/n_{ab}$)⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽¹⁾ ratios($i=n_{an}/n_{ab}$)⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111

PSN - 系列 机械参数

PSN - line dimensions



单位尺寸	size		70	90	115	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm					
D1 法兰定位孔圆直径	D1 flange hole circle		68-75	85	120	
D2 孔安装	D2 mounting bore	4x	5,5	6,5	8,5	
D3 轴径	D3 shaft diameter	k6	16	22	32	
D4 轴肩	D4 shaft root		21,5	31,5	41,5	
D5 定位凸台	D5 centering	g7	60	70	90	
D7 对角尺寸	D7 diagonal dimension		92	100	140	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		11	14	19	1
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		11	11	14	2
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		60	80	95	1
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		60	60	80	2
D23 对角尺寸	D23 diagonal dimension		75	100	115	1
D23 对角尺寸	D23 diagonal dimension		75	75	100	2
Fw 倒角	Fw bevel angle	°	90	115	145	1
Fw 倒角	Fw bevel angle	°	90	90	115	2
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x10	M6x12	M8x16	1
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x10	M5x10	M6x12	2
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		134	157	202,5	1
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		162,5	179	224,5	2
L2 箱体长度	L2 body length		60,5	69,5	71	1
L2 箱体长度	L2 body length		89	97,5	105	2
L3 输出轴长	L3 shaft length from output		48	56	88	
L4 轴长自定位凸台起	L4 shaft length from spigot		28	36	58	
L5 倒角长度	L5 bevel length		8	6	8	
L7 定位凸台厚度	L7 spigot depth		19	17,5	28	
L8 法兰厚度	L8 flange thickness		7	8	10	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		23	30	40	1
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		23	23	30	2
L21 电机定位凸台深度	L21 motor location depth		3	3,5	3,5	1
L21 电机定位凸台深度	L21 motor location depth		3	3	3,5	2
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		25,5	31,5	43,5	1
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		25,5	25,5	31,5	2
Q1 法兰截面	Q1 flange section	□	70	80	110	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾	□	70	90	115	1
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾	□	70	70	90	2

(1) 这些参数与所配套的电机型号有关，详见第99页

(2) 级数

(3) 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

(4) 轴配合公差 j6; k6

(1) dimensions refer to the mounted motor-type

(2) number of stages

(3) for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened

(4) for shaft fit j6; k6



新的 斜齿
new helical geared

高效能系列

新一代法兰减速机。

抗扭刚性更好、动态性能更佳、同步和降噪性能更优越。

PSFN

PSFN - 系列

PSFN - line

The power pack

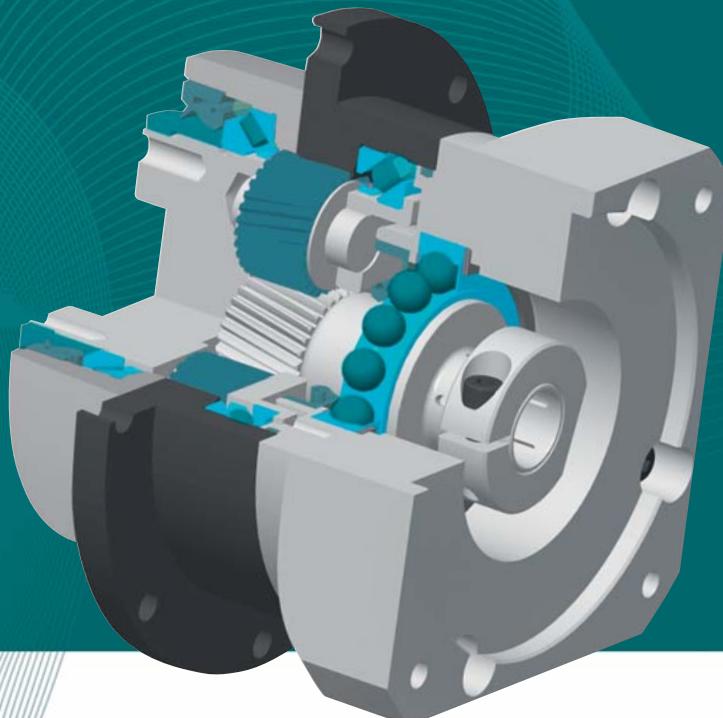
The flange mounted gearbox of the next generation.
Excellent tilt resistance, dynamic, synchronisation- and noise-optimised.

- 最低的回程间隙($<1'$)
- 最大的输出扭矩
- 最高的抗扭刚性
- 高效率 (98%)
- 精确珩磨齿轮
- 12 级减速比 $i=4, \dots, 100$
- 低噪音 ($< 60 \text{ dB(A)}$)
- 高质量(ISO 9001)
- 安装位置随意
- 简易电机装配
- 终身润滑
- 更多的选配方式
- 输出法兰符合 EN ISO 9409 标准
- 旋转方向 : 同向

- minimal backlash ($<1'$)
- highest output torques
- highest tilting stiffness
- high efficiency (98%)
- ground and honed gearing
- 12 ratios $i=4, \dots, 100$
- low noise ($< 60 \text{ dB(A)}$)
- high quality (ISO 9001)
- any mounting position
- easy motor mounting
- life time lubrication
- further options
- output flange similar to EN ISO 9409
- equidirectional rotation

1 技术资料 technical data	页 66 page 66
2 机械参数 dimensions	页 69 page 69
3 可能的电机装配方式 possible motor mounting	页 99 page 99
4 定货代码/可选项 ordering code/options	页 95 page 95
5 转换表格 conversion table	页 106 page 106
6 减速机关键尺寸/选型 gearhead sizing/selection	页 108 page 109
7 CAD 图 , 参数表格 CAD drawings, dimension sheets	www.neugart.net.cn www.neugart.net.cn
8 尺寸/计算 dimensioning/calculation	NCP Software NCP Software

页
page 95 可选项
options



系列	line		PSFN	Z ⁽²⁾
寿命	lifetime	h	20.000	
寿命以 $T_{2N} \times 0,88$	lifetime at $T_{2N} \times 0,88$		30.000	
满载效率 ⁽⁸⁾⁽⁶⁾	efficiency with full load ⁽⁶⁾	% ⁽¹⁾	98	1
			95	2
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25	
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90	
防护等级	degree of protection		IP 65	
润滑	lubrication		终生润滑 /life lubrication	
装配方式	mounting position		任意 /any	
电机法兰精度	motor flange precision		DIN 42955-R	

单位尺寸	size		PSFN 64	PSFN 90	PSFN 110	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)}$	nominal output torque $T_{2N}^{(3)(5)}$	Nm	39	80	180	4	1
			40	80	175	5	
			37	78	175	7	
			28	59	140	10	
			39	80	180	16	2
			39	80	180	20	
			40	80	175	25	
			40	80	175	35	
			39	80	180	40	
			40	80	175	50	
			37	78	175	70	
			28	59	140	100	

单位尺寸	size		PSFN 64	PSFN 90	PSFN 110	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁵⁾⁽⁷⁾	max. output torque ⁽³⁾⁽⁵⁾⁽⁷⁾	Nm	62	128	288	4	1
			64	128	280	5	
			59	125	280	7	
			45	94	224	10	
			62	128	288	16	2
			62	128	288	20	
			64	128	280	25	
			64	128	280	35	
			62	128	288	40	
			64	128	280	50	
			59	125	280	70	
			45	94	224	100	

⁽¹⁾ 减速比($i=n_{an}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及S1连续工作制下,温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转; 见110页⁽¹⁾ ratios($i=n_{an}/n_{ab}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft ; see page 110

单位尺寸	size		PSFN 64	PSFN 90	PSFN 110	Z ⁽²⁾
回程间隙	backlash	arcmin	< 3	< 3	< 3	1
			< 5	< 5	< 5	2
			< 2	< 1	< 1	
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr for 20.000 h ⁽³⁾⁽⁴⁾	N	2400	4400	5500	
			4300	8200	9500	
			2100	3900	4800	
			3800	7200	8400	
抗扭刚性	torsional stiffness	Nm / arcmin	16	35	90	1
			14	30	80	2
重量	weight	kg	1,5	3	6,5	1
			2,2	4	8	2
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	57	58	63	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	14000	10000	8500	

单位尺寸	size		PSFN 64	PSFN 90	PSFN 110	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop ⁽⁷⁾	Nm (lbin)	120	280	650	4	1
			130	280	650	5	
			80	175	340	7	
			90	200	480	10	
			150	300	650	16	2
			150	300	650	20	
			150	300	650	25	
			150	300	650	35	
			150	300	650	40	
			80	175	340	70	
			90	200	480	100	

⁽¹⁾ 减速比(i=n_{an}/n_{ab})⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n₂=100min⁻¹,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 沿着输出轴长度方向上一半处⁽⁵⁾ 噪音检测标准; 距离1m; 在输入转速 n₁=3000min⁻¹; i=5⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽⁸⁾ 订购代码和OP选项请见95页⁽¹⁾ ratios(i=n_{an}/n_{ab})⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle K_A=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ half way along the output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times⁽⁸⁾ ordering code and options see page 95

单位尺寸	size		PSFN 64	PSFN 90	PSFN 110	$i^{(1)}$
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,192	0,630	1,811	4
			0,163	0,484	1,347	5
			0,138	0,376	1,044	7
			0,125	0,319	0,862	10
			0,175	0,195	0,581	16
			0,152	0,165	0,453	20
			0,151	0,159	0,434	25
			0,131	0,136	0,350	35
			0,123	0,126	0,311	40
			0,122	0,124	0,307	50
			0,122	0,123	0,304	70
			0,122	0,123	0,302	100

单位尺寸	size		PSFN 64	PSFN 90	PSFN 110	$i^{(1)}$
最大输入速度在 50% T _{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 50% T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	3200	2500	1900	4
			3800	3000	2300	5
			4500	3850	3000	7
			4500	4000	3500	10
			4500	4500	4000	16
			4500	4500	4000	20
			4500	4500	4000	25
			4500	4500	4000	35
			4500	4500	4000	40
			4500	4500	4000	50
			4500	4500	4000	70
			4500	4500	4000	100

单位尺寸	size		PSFN 64	PSFN 90	PSFN 110	$i^{(1)}$
最大输入速度在 100% T _{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 100% T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	3000	2300	1700	4
			3500	2750	2100	5
			4500	3550	2700	7
			4500	4000	3500	10
			4500	4500	3600	16
			4500	4500	4000	20
			4500	4500	4000	25
			4500	4500	4000	35
			4500	4500	4000	40
			4500	4500	4000	50
			4500	4500	4000	70
			4500	4500	4000	100

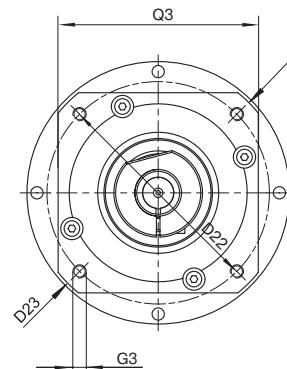
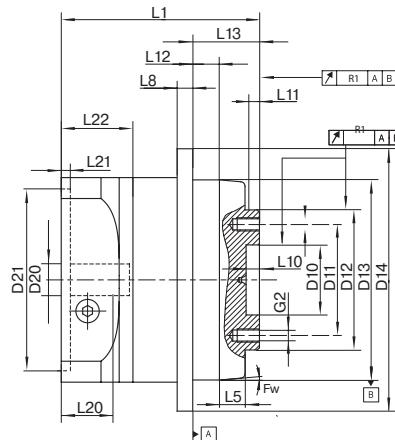
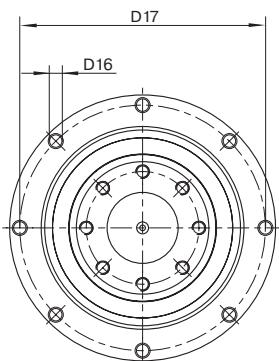
⁽¹⁾ 减速比($i=n_{an}/n_{ab}$)⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽¹⁾ ratios($i=n_{an}/n_{ab}$)⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ Definition siehe Seite 111

PSFN - 系列 机械参数

PSFN - line dimensions

法兰螺孔依据EN ISO 9409标准

flange per EN ISO 9409 with additional threads



单位尺寸	size		64	90	110	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm					
D10 定位凸台	D10 centering	H7	20	31,5	40	
D11 安装孔分布圆尺寸	D11 hole circle diameter		31,5	50	63	
D12 定位凸台	D12 centering	h7	40	63	80	
D13 定位凸台	D13 centering		64	90	110	
D14 外径	D14 outside diameter		86	118	145	
D16 小齿轮中心孔 (轴中心孔)	D16 pinion bore		4,5 8x45°	5,5 8x45°	5,5 8x22,5°	
D17 安装孔分布圆尺寸	D17 hole circle diameter		79	109	135	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		11	14	19	1
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		11	11	14	2
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		60	80	95	1
D23 对角尺寸	D23 diagonal dimension		60	60	80	2
Fw 倒角	Fw bevel angle	°	75	100	115	1
G2 螺纹x深度	G2 thread x depth		75	75	100	2
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	90	115	145	1
			90	90	115	2
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		3	5	5	
L5 倒角长度	L5 bevel length		M5x7 8x45°	M6x10 8x45°	M6x12 12x30°	
L8 法兰厚度	L8 flange thickness		M5x10	M6x12	M8x16	1
L10 定位凸台厚度	L10 length of centering		M5x10	M5x10	M6x12	2
L11 定位凸台厚度	L11 spigot depth		71	89,5	108	1
L12 定位凸台厚度	L12 spigot depth		99,5	111,5	130	2
L13 输出法兰长度	L13 length of output flange		6	11,5	10,5	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		4	7	8	
L21 电机定位凸台深度	L21 motor location depth		4	6	6	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		3	6	6	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾	□	19,5	30	29	
			23	30	40	1
			23	23	30	2
			3	3,5	3,5	1
			3	3	3,5	2
			25,5	31,5	43,5	1
			25,5	25,5	31,5	2
			70	90	115	1
			70	70	90	2

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第99页

⁽²⁾ 级数

⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

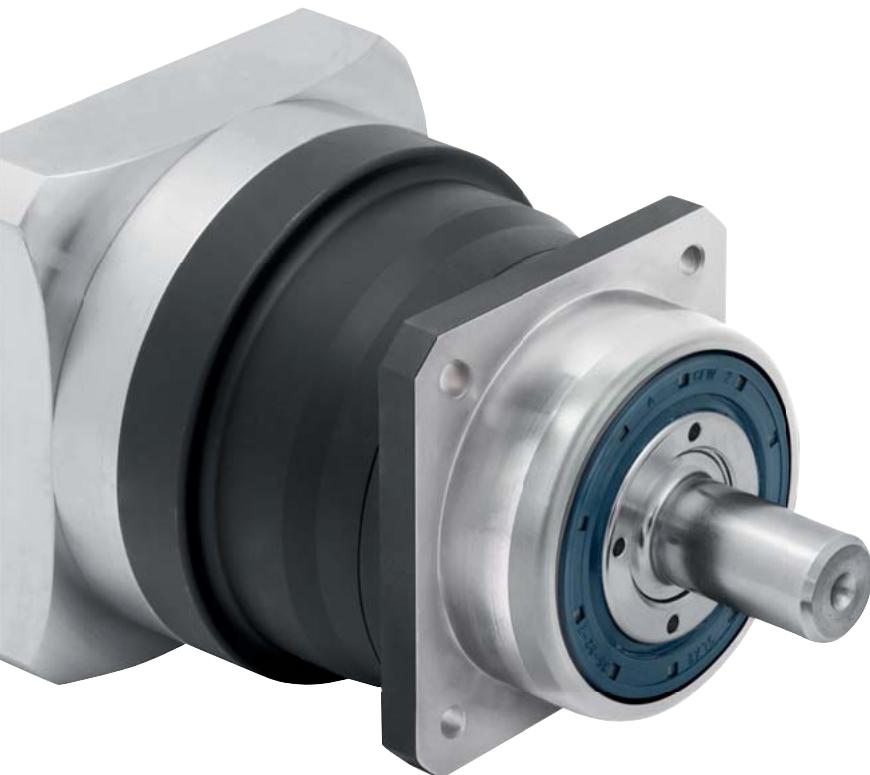
⁽⁴⁾ 轴配合公差 j6; k6

⁽¹⁾ dimensions refer to the mounted motor-type

⁽²⁾ number of stages

⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened

⁽⁴⁾ for shaft fit j6; k6



全能系列

PLN系列产品集创新、高效和经济于一身。
无论是功率、性能还是精度该产品系列能够满足以上所有要求。

PLN - 系列

PLN - line

The all-rounder

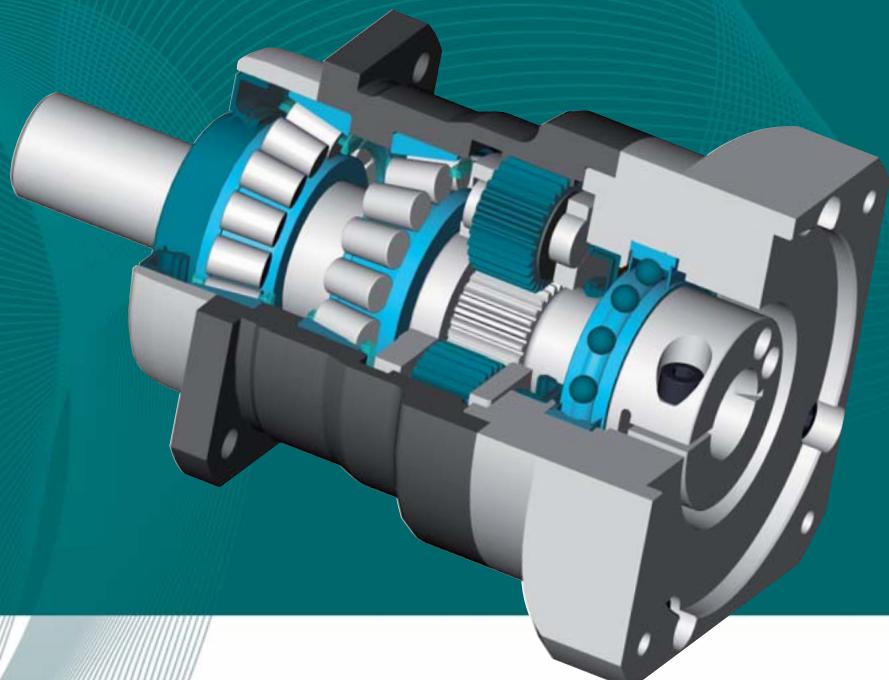
With our PLN model series we present a perfect combination of innovation, efficiency and economy. Whether torque, sturdiness or precision - the attractive series success- fully scores no matter what the requirement

- 最低的回程间隙 ($<1'$)
- 输出转矩高
- 效率高 (98%)
- 精确珩磨齿轮
- 15种减速比 $i=3,\dots,100$
- 噪音低 ($< 58 \text{ dB(A)}$)
- 质量高 (ISO 9001)
- 安装位置随意
- 电机安装简便
- 终身润滑
- 更多的选配方式
- 同向运转
- 平衡的电机齿轮

- minimal backlash ($<1'$)
- high output torque
- high degree of efficiency (98%)
- ground and honed gearing
- 15 ratios $i=3,\dots,100$
- low noise ($< 58 \text{ dB(A)}$)
- high quality (ISO 9001)
- universal mounting positions
- simple motor mounting
- lifetime lubrication
- further options
- equidirectional rotation
- balanced motor pinion

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系列	line		PLN					Z ⁽²⁾			
寿命	lifetime	h	20.000								
寿命以 $T_{2N} \times 0,88$	lifetime at $T_{2N} \times 0,88$		30.000								
满载效率 ⁽⁶⁾	efficiency with full load ⁽⁶⁾	% ⁽²⁾	98		1						
			95		2						
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25								
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90								
防护等级	degree of protection		IP 65								
润滑	lubrication		终生润滑 / lifetime lubrication								
装配方式	mounting position		任意 / any								
电机法兰精度	motor flange precision		DIN 42955-R								

单位尺寸	size		PLN 70	PLN 90	PLN 115	PLN 142	PLN 190	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)}$	nominal output torque $T_{2N}^{(3)(5)}$	Nm	45	100	230	450	1000	3	1
			60	140	300	600	1300	4	
			65	140	260	750	1600	5	
			45	90	180	530	1300	7	
			40	80	150	450	1000	8	
			27	60	125	305	630	10	
			68	110	250	780	1500	12	2
			68	110	250	780	1500	15	
			77	150	300	1000	1800	16	
			77	150	300	1000	1800	20	
			65	140	260	900	1800	25	
			77	150	300	1000	1800	32	
			65	140	260	900	1800	40	
			40	80	150	450	1000	64	
			27	60	125	305	630	100	

单位尺寸	size		PLN 70	PLN 90	PLN 115	PLN 142	PLN 190	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁵⁾⁽⁷⁾	max. output torque ⁽³⁾⁽⁵⁾⁽⁷⁾	Nm	72	160	368	720	1600	3	1
			96	224	480	960	2080	4	
			104	224	416	1200	2560	5	
			72	144	288	848	2080	7	
			64	128	240	720	1600	8	
			43	96	200	488	1008	10	
			109	176	400	1248	2400	12	2
			109	176	400	1248	2400	15	
			123	240	480	1600	2880	16	
			123	240	480	1600	2880	20	
			104	224	416	1440	2880	25	
			123	240	480	1600	2880	32	
			104	224	416	1440	2880	40	
			64	128	240	720	1600	64	
			43	96	200	488	1008	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及S1连续工作制下,温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转; 见110页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft; see page 110

单位尺寸	size		PLN 70	PLN 90	PLN 115	PLN 142	PLN 190	Z ⁽²⁾
回程间隙	backlash	arcmin	< 3	< 3	< 3	< 3	< 3	1
			< 5	< 5	< 5	< 5	< 5	2
			<2	<1	<1	<1	<1	
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr _{max.} for 20.000 h ⁽³⁾⁽⁴⁾	N	3200	5500	6000	12500	21000	
			4400	6400	8000	15000	21000	
			3200	4800	5400	11400	18000	
			3900	5700	7000	13200	18500	
抗扭刚性	torsional stiffness	Nm / arcmin	6	9	20	44	130	1
			7	10	22	46	140	2
重量	weight	kg	1,9	3,3	6,9	16	30,5	1
			2,4	4,2	9,5	20,5	45	2
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	60	62	65	70	74	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	14000	10000	8500	6500	6000	

单位尺寸	size		PLN 70	PLN 90	PLN 115	PLN 142	PLN 190	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁸⁾	emergency stop torque ⁽⁷⁾	Nm	90	210	490	975	2000	3	1
			120	280	650	1300	2700	4	
			130	280	650	1500	3200	5	
			80	175	340	1300	2600	7	
			90	200	380	1000	2600	8	
			90	200	480	750	1350	10	
			135	220	500	1500	3000	12	2
			135	220	500	1500	3000	15	
			150	300	650	2000	3600	16	
			150	300	650	2000	3600	20	
			150	300	650	1800	3600	25	
			150	300	650	2000	3600	32	
			150	300	650	1800	3600	40	
			80	200	380	1000	2600	64	
			80	200	480	750	1350	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n₂=100min⁻¹,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 沿着输出轴长度方向上一半处⁽⁵⁾ 噪音检测标准: 距离1m; 在输入转速 n₁=3000min⁻¹; i=5⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽⁸⁾ 订购代码和OP选项请见95页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle K_A=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ half way along the output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times⁽⁸⁾ ordering code and options see page 95

单位尺寸	size		PLN 70	PLN 90	PLN 115	PLN 142	PLN 190	i ⁽¹⁾
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,400	1,010	3,140	16,770	54,200	3
			0,320	0,780	2,400	12,160	39,440	4
			0,280	0,680	2,160	10,310	33,380	5
			0,260	0,630	2,030	9,440	30,110	7
			0,250	0,590	1,930	8,730	27,490	8
			0,250	0,570	1,900	8,350	25,970	10
			0,400	1,020	3,120	16,720	54,300	12
			0,380	0,950	2,950	15,190	52,500	15
			0,350	0,890	2,740	14,520	49,900	16
			0,330	0,820	2,570	13,050	45,030	20
			0,300	0,760	2,380	11,890	40,320	25
			0,320	0,770	2,410	11,940	40,360	32
			0,290	0,700	2,230	10,790	35,680	40
			0,260	0,630	2,030	9,390	30,360	64
			0,250	0,590	1,970	8,760	27,740	100

单位尺寸	size		PLN 70	PLN 90	PLN 115	PLN 142	PLN 190	i ⁽¹⁾
最大输入速度在50% T _{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 50% T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	1900	1900	1450	850	650	3
			2200	2000	1550	900	700	4
			2500	2400	1900	1000	800	5
			3200	3400	2700	1500	1150	7
			3500	3750	3050	1700	1400	8
			4000	4000	3500	2100	1800	10
			3350	3300	2400	1250	1000	12
			3800	3900	2850	1550	1200	15
			3600	3400	2500	1300	1050	16
			4000	4000	2950	1550	1250	20
			4400	4000	3250	1750	1350	25
			4500	4000	3500	2150	1850	32
			4500	4000	3500	2400	2000	40
			4500	4000	3500	2950	2450	64
			4500	4000	3500	3000	2500	100

单位尺寸	size		PLN 70	PLN 90	PLN 115	PLN 142	PLN 190	i ⁽¹⁾
最大输入速度在100% T _{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 100% T _{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	1650	1500	1100	650	500	3
			1800	1550	1100	700	500	4
			2000	1850	1450	700	550	5
			2800	2800	2150	1150	800	7
			3100	3200	2550	1350	1050	8
			3700	3950	3050	1800	1500	10
			2750	2700	1900	950	750	12
			3150	3150	2300	1150	900	15
			3000	2750	2000	950	800	16
			3350	3250	2350	1150	950	20
			3800	3650	2750	1350	1050	25
			4200	4000	3250	1650	1400	32
			4500	4000	3500	1900	1550	40
			4500	4000	3500	2700	2200	64
			4500	4000	3500	3000	2500	100

(1) 减速比(i=n_{in}/n_{ab})

(2) 转动惯量与传动轴和标准发动机轴直径D20有关。

(3) 必须保证允许的工作温度; 特殊的输入转速请联系确认

(4) 定义见111页

(1) ratios (i=n_{in}/n_{out})

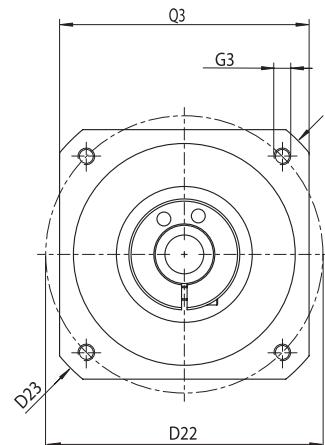
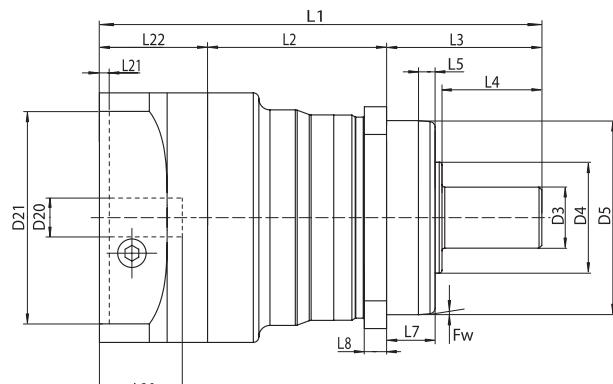
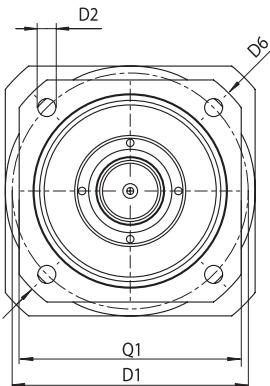
(2) the moment of inertia relates to the input shaft and to standard motor shaft diameter D20

(3) allowed operating temperature must be kept; other input speeds on inquiry

(4) definition see page 111

PLN - 系列 机械参数

PLN - line dimensions



单位尺寸	size		PLN 70	PLN 90	PLN 115	PLN 142	PLN 190	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm							
D1 法兰定位孔圆直径	D1 flange hole circle		68-75	85	120	165	215	
D2 孔安装	D2 mounting bore	4x	5,5	6,5	8,5	11	13,5	
D3 轴径	D3 shaft diameter	k6	16	22	32	40	55	
D4 轴肩	D4 shaft root	-3	35	40	45	70	80	
D5 定位凸台	D5 centering	g7	60	70	90	130	160	
D7 对角尺寸	D7 diagonal dimension		92	100	140	185	240	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		11	14	19	24	32	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		60	80	95	130	180	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		75	100	115	165	215	
D23 对角尺寸 ⁽¹⁾	D23 diagonal dimension ⁽¹⁾		90	115	145	185	240	
Fw 倒角	Fw bevel angle	°	5	5	5	5	5	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x10	M6x12	M8x16	M10x20	M12x24	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		137,5	159,5	201	276	310,5	1
			166,5	191,5	241	335	382,5	2
L2 箱体长度	L2 body length		59	64,5	61,5	91,5	116	1
			88	96,5	101,5	150,5	188	2
L3 输出轴长	L3 shaft length from output		48	56	88	110	112	
L4 轴长自定位凸台起	L4 shaft length from spigot		28	36	58	80	82	
L5 倒角长度	L5 bevel length		8	6	8	8	10	
L7 定位凸台厚度	L7 spigot depth		19	17,5	28	28	28	
L8 法兰厚度	L8 flange thickness		7	8	10	12	15	
L20 电机轴长 ⁽³⁾	L20 motor shaft length ⁽³⁾		23	30	40	50	60	
L21 电机定位凸台深度	L21 motor location depth		3	3,5	3,5	4	5	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		30,5	39	51,5	74,5	82,5	
Q1 法兰截面	Q1 flange section	□	70	80	110	142	190	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾		70	90	115	142	190	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第99页⁽²⁾ 级数⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长⁽⁴⁾ 轴配合公差 j6; k6⁽¹⁾ dimensions refer to the mounted motor-type⁽²⁾ number of stages⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened⁽⁴⁾ for shaft fit j6; k6



很强的可替换性

PLFN减速机能满足一些非常特殊的情况。
高刚度、高性能和结构紧凑是该系列产品的主要特点。

PLFN - 系列

PLFN - line

PLFN

For tough
situations

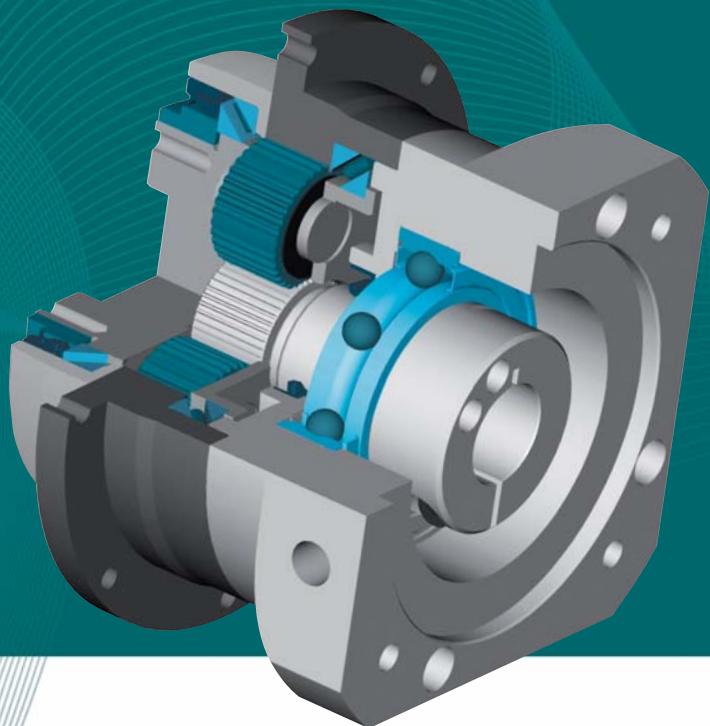
Strong and compact: The PLFN gearboxes fulfill special demands. This gearbox model series is characterised by a highest level of stiffness paired with high performance, low backlash and compactness.

- 最低的回程间隙(<1')
- 最大的输出扭矩
- 最高的抗扭刚性
- 高效率 (98%)
- 精确珩磨齿轮
- 13 级减速 $i=4, \dots, 100$
- 低噪音 (< 65 dB(A))
- 高质量(ISO 9001)
- 安装位置随意
- 简易电机装配
- 终身润滑
- 更多的选配方式
- 输出法兰符合 EN ISO 9409 标准
- 旋转方向：同向
- 平衡的电机齿轮

- minimal backlash (<1')
- highest output torques
- highest tilting stiffness
- high degree of efficiency (98%)
- grinded and honed gearing
- 13 ratios $i=4, \dots, 100$
- low noise (< 65 dB(A))
- high quality (ISO 9001)
- universal mounting positions
- simple motor mounting
- lifetime lubrication
- further options
- output flange similar to EN ISO 9409
- equidirectional rotation
- balanced motor pinion

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系列	line		PLFN					Z ⁽²⁾			
寿命	lifetime	h	20.000								
寿命以 $T_{2N} \times 0,88$	lifetime at $T_{2N} \times 0,88$		30.000								
满载效率 ⁽⁶⁾	efficiency with full load ⁽⁶⁾	% ⁽²⁾	98		1						
			95		2						
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25								
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90								
防护等级	degree of protection		IP 65								
润滑	lubrication		终生润滑 /life lubrication								
装配方式	mounting position		任意 /any								
电机法兰精度	motor flange precision		DIN 42955-R								

单位尺寸	size		PLFN 64	PLFN 90	PLFN 110	PLFN 140	PLFN 200	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)}$	nominal output torque $T_{2N}^{(3)(5)}$	Nm	60	140	300	600	1300	4	1
			65	140	260	750	1600	5	
			45	90	180	530	1300	7	
			40	80	150	450	1000	8	
			27	60	125	305	630	10	
			77	150	300	1000	1800	16	2
			77	150	300	1000	1800	20	
			65	140	260	900	1800	25	
			77	150	300	600	1800	32	
			65	140	260	750	1800	40	
			65	130	260	620	1525	50	
			40	80	150	450	1000	64	
			27	60	125	305	630	100	

单位尺寸	size		PLFN 64	PLFN 90	PLFN 110	PLFN 140	PLFN 200	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁵⁾⁽⁷⁾	max. output torque ⁽³⁾⁽⁵⁾⁽⁷⁾	Nm	96	224	480	960	2080	4	1
			104	224	416	1200	2560	5	
			72	144	288	848	2080	7	
			64	128	240	720	1600	8	
			43	96	200	488	1008	10	
			123	240	480	1600	2880	16	2
			123	240	480	1600	2880	20	
			104	224	416	1440	2880	25	
			123	240	480	960	2880	32	
			104	224	416	1200	2880	40	
			104	208	416	992	2440	50	
			64	128	240	720	1600	64	
			43	96	200	488	1008	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及S1连续工作制下,温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转; 见110页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft ; see page 110

单位尺寸	size		PLFN 64	PLFN 90	PLFN 110	PLFN 140	PLFN 200	Z ⁽²⁾
回程间隙	backlash	arcmin	< 3	< 3	< 3	< 3	< 3	1
			< 5	< 5	< 5	< 5	< 5	2
			<2	<1	<1	<1	<1	
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr _{max.} for 20.000 h ⁽³⁾⁽⁴⁾	N	2400	4400	5500	12000	33000	
Fa 于 20.000 h ⁽³⁾⁽⁴⁾	Fa _{max.} for 20.000 h ⁽³⁾⁽⁴⁾		4300	8200	9500	8500	25000 Druck/push 15000 Zug/pull	
Fr 于 30.000 h ⁽³⁾⁽⁴⁾	Fr _{max.} for 30.000 h ⁽³⁾⁽⁴⁾		2100	3900	4800	11000	29500	
Fa 于 30.000 h ⁽³⁾⁽⁴⁾	Fa _{max.} for 30.000 h ⁽³⁾⁽⁴⁾		3800	7200	8400	7500	22500 Druck/push 13500 Zug/pull	
抗扭刚性	torsional stiffness	Nm / arcmin	16	35	90	200	650	1
			14	30	80	180	550	2
重量	weight	kg	1,5	3	6,5	13	35,5	1
			2,2	4	8	16	42,5	2
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	60	62	65	70	74	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	14000	10000	8500	6500	6000	

单位尺寸	size		PLFN 64	PLFN 90	PLFN 110	PLFN 140	PLFN 200	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	120	280	650	1300	2700	4	1
			130	280	650	1500	3200	5	
			90	175	336	1300	2600	7	
			90	200	384	1000	2600	8	
			90	200	480	750	1350	10	
			150	300	650	2000	3600	16	2
			150	300	650	2000	3600	20	
			150	300	650	1800	3600	25	
			150	300	650	1500	3600	32	
			150	300	650	1500	3600	40	
			80	200	384	1000	2600	64	
			80	200	480	750	1350	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n₂=100min⁻¹,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 参考法兰输出轴的表面⁽⁵⁾ 噪音检测标准: 距离1m; 在输入转速 n₁=3000min⁻¹; i=5⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽⁸⁾ 订购代码和OP选项请见95页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle K_A=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ referring to the face of the flange output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of n₁=3000min⁻¹; i=5⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times⁽⁸⁾ ordering code and options see page 95

单位尺寸	size		PLFN 64	PLFN 90	PLFN 110	PLFN 140	PLFN 200	$i^{(1)}$
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,290	0,920	2,940	11,780	56,660	4
			0,260	0,770	2,510	9,700	43,670	5
			0,240	0,700	2,290	8,700	36,400	7
			0,220	0,630	2,080	7,710	29,100	8
			0,210	0,590	2,000	7,400	25,800	10
			0,320	0,580	1,730	6,730	42,550	16
			0,300	0,560	1,650	6,510	40,780	20
			0,270	0,450	1,300	5,000	29,700	25
			0,290	0,540	1,600	6,310	39,800	32
			0,260	0,430	1,240	4,820	28,490	40
			0,220	0,280	0,800	3,080	28,270	50
			0,230	0,300	0,850	3,110	15,890	64
			0,220	0,260	0,750	2,670	12,120	100

单位尺寸	size		PLFN 64	PLFN 90	PLFN 110	PLFN 140	PLFN 200	$i^{(1)}$
最大输入速度在50% T_{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 50% T_{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	2000	1650	1250	800	500	4
			2250	2000	1550	950	550	5
			3250	2800	2200	1350	800	7
			3250	3100	2500	1550	950	8
			3800	3750	2950	1900	1250	10
			3450	3600	3000	1700	1050	16
			3850	4150	3600	2050	1300	20
			4200	4500	4000	2450	1500	25
			4500	4500	4000	3300	1900	32
			4500	4500	4000	3500	2150	40
			4500	4500	4000	3500	2600	50
			4500	4500	4000	3500	2950	64
			4500	4500	4000	3500	3000	100

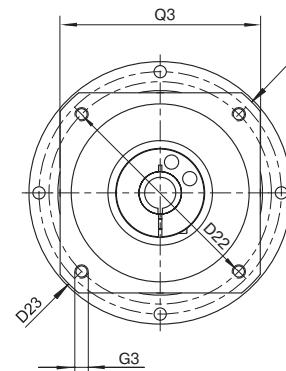
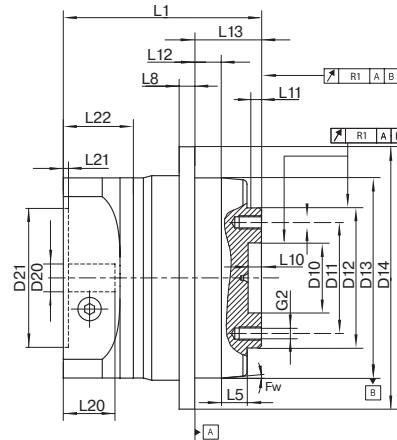
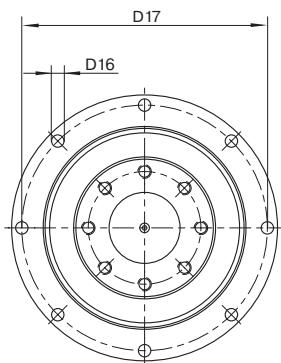
单位尺寸	size		PLFN 64	PLFN 90	PLFN 110	PLFN 140	PLFN 200	$i^{(1)}$
最大输入速度在100% T_{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 100% T_{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	1650	1300	950	650	400	4
			1900	1550	1250	700	400	5
			2600	2400	1850	1050	600	7
			2900	2700	2150	1250	750	8
			3500	3350	2600	1650	1050	10
			2850	2800	2250	1150	750	16
			3250	3250	2700	1400	950	20
			3700	3800	3300	1750	1100	25
			4100	4350	3800	2400	1350	32
			4500	4500	4000	2750	1600	40
			4500	4500	4000	3500	2000	50
			4500	4500	4000	3500	2550	64
			4500	4500	4000	3500	3000	100

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111

PLFN - 系列 机械参数

PLFN - line dimensions

Flansch nach EN ISO 9409
mit zusätzlichen Gewindebohrungen
flange per EN ISO 9409
with additional threads



单位尺寸	size		PLFN 64	PLFN 90	PLFN 110	PLFN 140	PLFN 200	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm							
D10 定位凸台	D10 centering	H7	20	31,5	40	50	80	
D11 安装孔分布圆尺寸	D11 hole circle diameter		31,5	50	63	80	125	
D12 定位凸台	D12 centering	h7	40	63	80	100	160	
D13 定位凸台	D13 centering		64	90	110	140	200	
D14 外径	D14 outside diameter		86	118	145	179	247	
D16 小齿轮中心孔 (轴中心孔)	D16 pinion bore		Ø 4,5 8x45°	Ø 5,5 8x45°	Ø 5,5 8x22,5°	Ø 6,6 12x30°	Ø 9 12x30°	
D17 安装孔分布圆尺寸	D17 hole circle diameter		79	109	135	168	233	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		11	14	19	24	32	1
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		11	11	14	19	24	2
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		60	80	95	130	180	1
D23 对角尺寸 ⁽¹⁾	D23 diagonal dimension ⁽¹⁾		60	60	80	95	130	2
Fw 倒角	Fw bevel angle	°	3	5	5	5	3	
G2 螺纹x深度	G2 thread x depth		M5x7 8x45°	M6x10 8x45°	M6x12 12x	M8x15 12x30°	M10x20 12x30°	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x10	M6x12	M8x16	M10x20	M12x24	1
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		M5x10	M5x10	M6x12	M8x16	M10x20	2
L5 倒角长度	L5 bevel length		71	89	108	157	212,5	1
L8 法兰厚度	L8 flange thickness		99,5	111	130	187,5	264	2
L10 定位凸台厚度	L10 length of centering		6	11,5	10,5	17	24,5	
L11 定位凸台厚度	L11 spigot depth		4	7	8	10	12	
L12 定位凸台厚度	L12 spigot depth		4	6	6	6	8	
L13 输出法兰长度	L13 length of output flange		3	6	6	6	8	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		10	12	12	14	17,5	
L21 电机定位凸台深度	L21 motor location depth		19,5	30	29	38	50	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		23	30	40	50	60	1
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾	□	23	23	30	40	50	2
R1 循环	R1 runout		3	3,5	3,5	4	6	1
			3	3	3,5	3,5	4	2
			25,5	31,5	43,5	50,5	63,5	1
			30,5	30,5	39	51,5	74,5	2
			70	90	115	142	190	1
			70	70	90	115	190	2
			0,03	0,03	0,03	0,03	0,04	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第99页

⁽²⁾ 级数

⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

⁽⁴⁾ 轴配合公差 j6; k6

⁽¹⁾ dimensions refer to the mounted motor-type

⁽²⁾ number of stages

⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened

⁽⁴⁾ for shaft fit j6; k6



紧凑、大扭矩而且安静

效率更高，性能更佳，运行噪音更低：我们的新产品系列以其运行低噪音、紧凑的结构类型和更为简单易行的安装方式更具竞争力。

WPLN - 系列

WPLN - line

Compact, powerful,
yet quiet

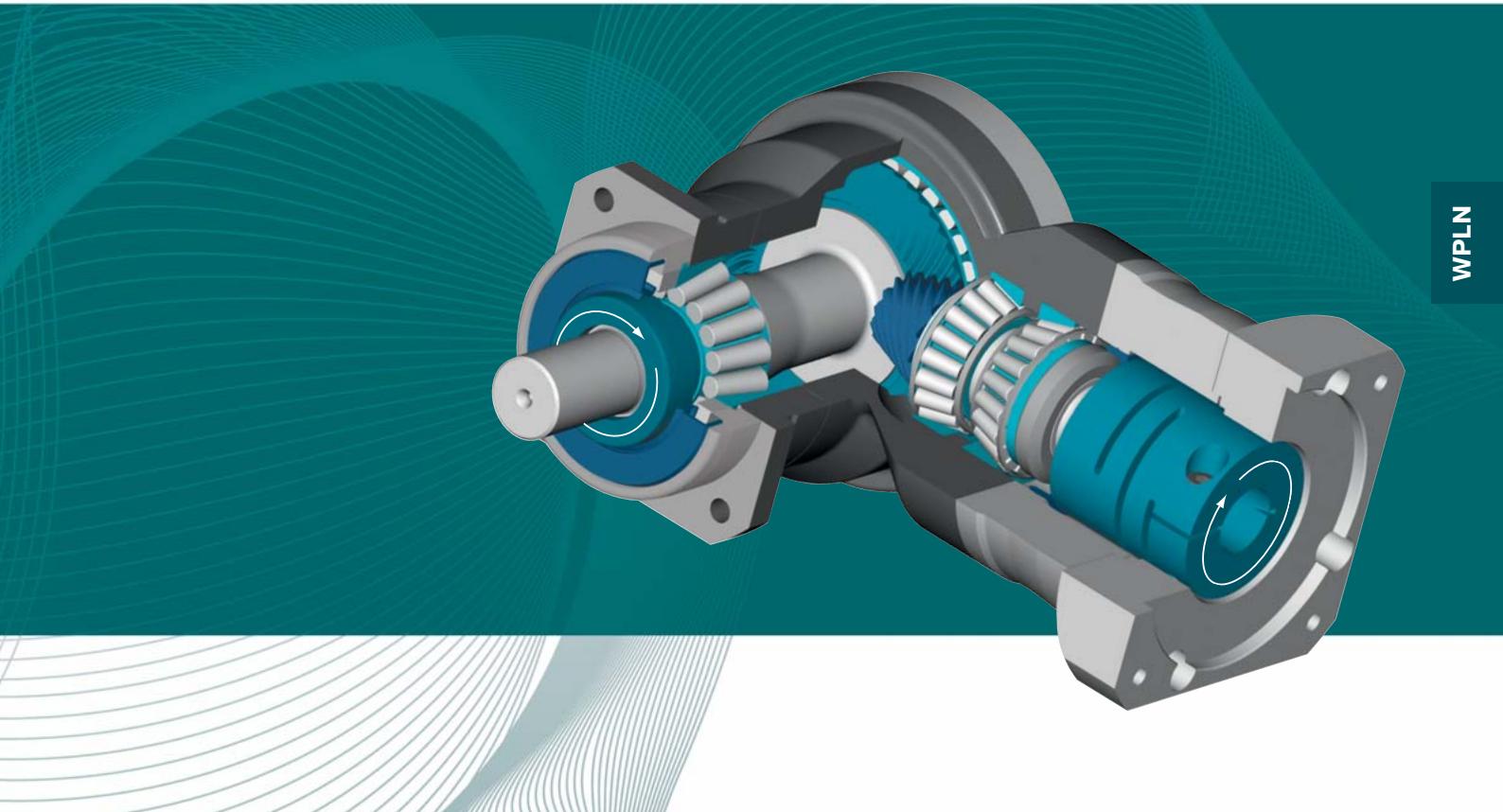
Higher efficiencies, better performance, quieter operation:
Our WPLN model series distinguishes itself with its reduced running noise, compact
design and its improved ease of assembly.

- 低回程间隙 (<5')
- 输出转矩高
- 安装空间小
- 效率高 (96%)
- 11种减速比 $i=4,\dots,100$
- 噪音低 (< 66 dB(A))
- 质量高 (ISO 9001)
- 安装位置随意
- 电机安装简便
- 终身润滑
- 更多的选配方式
- 同向运转

- minimal backlash (<5')
- high output torque
- small installation space
- high degree of efficiency (96%)
- 11 Transmission ratios $i=4,\dots,100$
- low noise (< 66 dB(A))
- high quality (ISO 9001)
- universal mounting positions
- simple motor mounting
- lifetime lubrication
- further options
- balanced motor connection

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7 CAD 图 , 参数表格 CAD drawings, dimension sheets	www.neugart.net.cn www.neugart.net.cn
8 尺寸/计算 dimensioning/calculation	NCP Software NCP Software

页
page 95 可选项
options



系列	line		WPLN		Z ⁽²⁾
寿命	lifetime	h	20.000		
寿命以 $T_{2N} \times 0,88$	lifetime at $T_{2N} \times 0,88$		30.000		
满载效率 ⁽⁶⁾	efficiency with full load ⁽⁶⁾	% ⁽²⁾	96		1
			94		2
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾	°C	-25		
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90		
防护等级	degree of protection		IP 65		
润滑	lubrication		终生润滑 /life lubrication		
装配方式	mounting position		任意 /any		
电机法兰精度	motor flange precision		DIN 42955-R		
旋转方向	Direction of rotation		驱动及输出侧反向 /Drive and output sides in opposite directions		

单位尺寸	size		WPLN 70	WPLN 90	WPLN 115	WPLN 142	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)}$	nominal output torque $T_{2N}^{(3)(5)}$	Nm	45	90	160	320	4	1
			42	75	140	280	5	
			27	50	90	180	8	
			22	40	75	160	10	
			77	150	300	640	16	2
			77	150	300	800	20	
			65	140	260	700	25	
			77	108	200	360	32	
			65	135	250	450	40	
			40	80	150	450	64	
			27	60	125	305	100	

单位尺寸	size		WPLN 70	WPLN 90	WPLN 115	WPLN 142	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁵⁾⁽⁷⁾	max. output torque ⁽³⁾⁽⁵⁾⁽⁷⁾	Nm	72	144	256	512	4	1
			67	120	224	448	5	
			43	80	144	288	8	
			35	64	120	256	10	
			123	240	480	1024	16	2
			123	240	480	1280	20	
			104	224	416	1120	25	
			123	172	320	576	32	
			104	216	400	720	40	
			64	128	240	720	64	
			43	96	200	488	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及S1连续工作制下,温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转;见110页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft; see page 110

单位尺寸	size		WPLN 70	WPLN 90	WPLN 115	WPLN 142	Z ⁽²⁾
回程间隙 ⁽⁸⁾	backlash ⁽⁸⁾	arcmin	< 5	< 5	< 5	< 5	1
			< 7	< 7	< 7	< 7	2
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr for 20.000 h ⁽³⁾⁽⁴⁾	N	3200	5200	6000	12500	1
			3200	5500	6000	12500	2
			4300	5900	7000	14500	1
			4400	6400	8000	15000	2
			3200	5200	6000	10900	1
			3200	4800	5400	11400	2
			3700	5200	6100	12000	1
			3900	5700	7000	13200	2
抗扭刚性	torsional stiffness	Nm / arcmin	2,4	6,6	14,3	35,2	1
			2,4	11	34	58	2
重量	weight	kg	3,0	5,0	10,5	25,0	1
			3,9	5,3	9,2	21,5	2
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	66	67	68	70	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	16000	14000	9500	8000	1
			16000	16000	14000	9500	2

单位尺寸	size		WPLN 70	WPLN 90	WPLN 115	WPLN 142	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	100	200	400	800	4	1
			100	200	400	800	5	
			75	150	300	700	8	
			75	150	300	700	10	
			150	300	650	1600	16	2
			150	300	650	1600	20	
			150	300	650	1600	25	
			150	300	600	1200	32	
			150	300	650	1500	40	
			80	200	384	1000	64	
			80	200	480	750	100	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速n2=100min⁻¹,电机在占空因数KA=1及S1连续工作制下,温度T=30°C⁽⁴⁾ 沿着输出轴长度方向上一半处⁽⁵⁾ 噪音检测标准: 距离1m; 在输入转速 n_i=3000min⁻¹; i=5⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁷⁾ 1000次以内⁽⁸⁾ 更低的回程间隙请联系确认⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of n₂=100min⁻¹ on duty cycle K_A=1 and S1-mode for electrical machines and T=30°C⁽⁴⁾ half way along the output shaft⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of n_i=3000min⁻¹; i=5⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁷⁾ allowed 1000 times⁽⁸⁾ lower backlash on inquiry

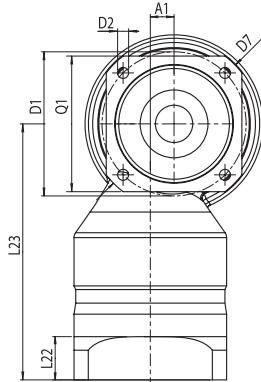
单位尺寸	size		WPLN 70	WPLN 90	WPLN 115	WPLN 142	$i^{(1)}$
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,654	1,331	5,924	22,520	4
			0,600	1,168	5,441	20,044	5
			0,532	1,004	4,989	17,715	8
			0,516	0,966	4,883	17,051	10
			0,639	0,642	1,366	6,082	16
			0,591	0,593	1,190	6,016	20
			0,590	0,591	1,186	5,500	25
			0,528	0,529	1,013	5,028	32
			0,528	0,528	1,011	5,012	40
			0,528	0,528	1,010	5,004	64
			0,514	0,514	0,970	4,892	100

单位尺寸	size		WPLN 70	WPLN 90	WPLN 115	WPLN 142	$i^{(1)}$
最大输入速度在50% T_{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 50% T_{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	1700	1550	1100	850	4
			1850	1800	1200	900	5
			2200	2150	1400	1000	8
			2350	2250	1450	1050	10
			1750	1700	1550	950	16
			1900	1950	1800	950	20
			2000	2100	2050	1100	25
			2150	2150	2050	1350	32
			2250	2150	2100	1350	40
			2400	2800	2700	1700	64
			2500	2950	2850	1800	100

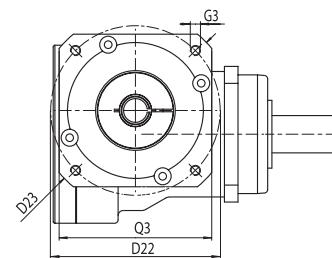
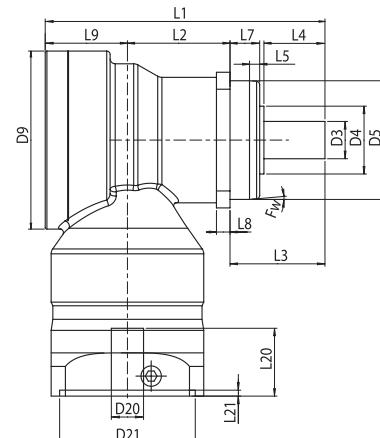
单位尺寸	size		WPLN 70	WPLN 90	WPLN 115	WPLN 142	$i^{(1)}$
最大输入速度在100% T_{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 100% T_{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	1400	1250	850	650	4
			1550	1450	950	700	5
			2000	1900	1250	850	8
			2150	2050	1300	900	10
			1450	1300	1150	700	16
			1600	1500	1350	700	20
			1800	1750	1600	850	25
			1900	1850	1800	1150	32
			2050	1900	1800	1200	40
			2300	2600	2500	1500	64
			2500	2850	2750	1750	100

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111

WPLN - 系列 机械参数



WPLN - line dimensions



单位尺寸	size		WPLN 70	WPLN 90	WPLN 115	WPLN 142	Z ⁽²⁾	
所有尺寸均以毫米为单位	all dimensions in mm							
A1 轴偏距	A1 axle offset		10	14	20	26	1	
			10	10	14	20	2	
			68-75	85	120	165		
D2 孔安装	D2 mounting bore	4x	5,5	6,5	8,5	11		
D3 轴径	D3 shaft diameter	k6	16	22	32	40		
D4 轴肩	D4 shaft root	-3	30	40	45	70	1	
			35	40	45	70	2	
D5 定位凸台	D5 centering	g7	60	70	90	130		
D7 对角尺寸	D7 diagonal dimension		92	100	140	185		
D9 最大直径	D9 max. diameter		86	105	120	170	1	
			86	86	105	120	2	
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		11	14	19	24	1	
			11	11	14	19	2	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		60	80	95	130	1	
			60	60	80	95	2	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		75	100	115	165	1	
			75	75	100	115	2	
D23 对角尺寸 ⁽¹⁾	D23 diagonal dimension ⁽¹⁾		90	115	145	185	1	
			90	90	115	145	2	
Fw 倒角	Fw bevel angle	°	5	5	5	5		
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x10	M6x12	M8x16	M10x20	1	
			M5x10	M5x10	M6x12	M8x16	2	
L1 总长	L1 overall length		137,5	165	218	273	1	
L2 箱体长度	L2 body length		185	207	248,5	342,5	2	
L3 输出轴长	L3 shaft length from output		46,5	60,5	73,5	76	1	
L4 轴长自定位凸台起	L4 shaft length from spigot		94	108	112	176	2	
L5 倒角长度	L5 bevel length		48	56	88	110		
L7 定位凸台厚度	L7 spigot depth		28	36	58	80		
L8 法兰厚度	L8 flange thickness		8	6	8	8		
L9 偏移长度	L9 offset length		19	17,5	28	28		
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		7	8	10	12		
L21 电机定位凸台深度 ⁽¹⁾	L21 motor location depth ⁽¹⁾		43	48,5	56,5	87	1	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		43	43	48,5	56,5	2	
L23 总高度 ⁽³⁾	L23 overall height ⁽³⁾		23	30	40	50	1	
Q1 法兰截面	Q1 flange section		23	23	30	40	2	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾		3	3,5	3,5	4	1	
			3	3	3,5	3,5	2	
			19	25,5	27,5	33	1	
			19	19	25,5	27,5	2	
			136	151	187,5	233	1	
			136	136	151	187,5	2	
			70	80	110	142		
			70	90	115	142	1	
			70	70	90	115	2	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第99页

⁽²⁾ 级数

⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

⁽⁴⁾ 轴配合公差 j6; k6

⁽¹⁾ dimensions refer to the mounted motor-type

⁽²⁾ number of stages

⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and axle height L23 will be lengthened

⁽⁴⁾ for shaft fit j6; k6



用途广泛

新型空心轴变速箱： 灵活、节省空间、结构紧凑。

由于应用了空心轴， 可以连接任何设备，例如主轴可直接通过变速箱连接。

WGN - 系列

WGN - line

For flexible
demands

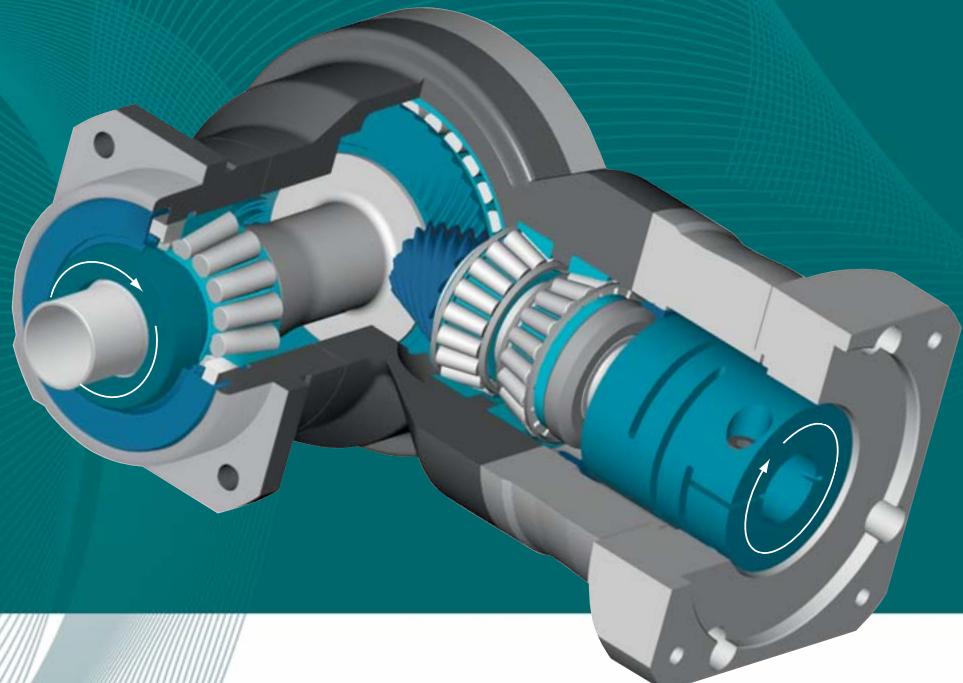
The new hollow shaft gearbox - flexible, space-saving and compact.
Thanks to the hollow shaft it is now possible to pass different appliances,
for instance a spindle, directly through the gearbox.

- 低回程间隙 (<5')
- 输出转矩高
- 安装空间小
- 效率高 (96%)
- 4种减速比 i=4,...,10
- 噪音低 (< 66 dB(A))
- 质量高 (ISO 9001)
- 安装位置随意
- 电机安装简便
- 终身润滑
- 更多的选配方式
- 同向运转

- minimal backlash (<5')
- high output torque
- small installation space
- high degree of efficiency (96%)
- 4 transmission ratios i=4,...,10
- low noise (< 66 dB(A))
- high quality (ISO 9001)
- universal mounting positions
- simple motor mounting
- lifetime lubrication
- further options
- balanced motor connection

1 技术资料 technical data	页 90 page 90
2 机械参数 dimensions	页 93 page 93
3 可能的电机装配方式 possible motor mounting	页 99 page 99
4 定货代码/可选项 ordering code/options	页 95 page 95
5 转换表格 conversion table	页 106 page 106
6 减速机关键尺寸/选型 gearhead sizing/selection	页 108 page 109
7 CAD 图 , 参数表格 CAD drawings, dimension sheets	www.neugart.net.cn www.neugart.net.cn
8 尺寸/计算 dimensioning/calculation	NCP Software NCP Software

页
page 95 可选项
options



系列	line		WGN			Z ⁽²⁾	
寿命	lifetime	⁽¹⁾ h ⁽²⁾ °C	20.000			1	
寿命 以 $T_{2N} \times 0,88$	lifetime at $T_{2N} \times 0,88$		30.000				
满载效率 ⁽⁸⁾⁽⁶⁾	efficiency with full load ⁽⁶⁾		96				
最低工作温度 ⁽⁴⁾	min. operating temp. ⁽⁴⁾		-25				
最高工作温度 ⁽⁴⁾	max. operating temp. ⁽⁴⁾		90				
防护等级	degree of protection		IP 65				
润滑	lubrication		终生润滑 /life lubrication				
装配方式	mounting position		任意 /any				
电机法兰精度	motor flange precision		DIN 42955-R				
旋转方向	Direction of rotation		驱动及输出侧反向 / Drive and output sides in opposite directions				

单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142	i ⁽¹⁾	Z ⁽²⁾
额定输出扭矩 $T_{2N}^{(3)(5)}$	nominal output torque $T_{2N}^{(3)(5)}$	Nm	45	70	140	320	4	1
			42	70	140	280	5	
			27	50	90	180	8	
			22	40	75	160	10	

单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142	i ⁽¹⁾	Z ⁽²⁾
最大输出扭矩 ⁽³⁾⁽⁵⁾⁽⁷⁾	max. output torque ⁽³⁾⁽⁵⁾⁽⁷⁾	Nm	72	112	224	512	4	1
			67	112	224	448	5	
			43	80	144	288	8	
			35	64	120	256	10	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 级数⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及S1连续工作制下,温度 $T=30^\circ\text{C}$ ⁽⁴⁾ 参考体表面的中部⁽⁵⁾ 取决于电机轴的直径⁽⁶⁾ 取决于减速比, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ 输出轴最大允许30000转; 见110页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ number of stages⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$ ⁽⁴⁾ referring to the middle of the body surface⁽⁵⁾ depends on the motor shaft diameter⁽⁶⁾ depends on ratio, $n_2=100\text{min}^{-1}$ ⁽⁷⁾ allowable for 30.000 revolutions at the output shaft; see page 110

WGN - 系列 技术资料

WGN - line technical data

单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142	Z ⁽²⁾
回程间隙 ⁽⁸⁾	backlash ⁽⁸⁾	arcmin	< 5	< 5	< 5	< 5	
Fr 于 20.000 h ⁽³⁾⁽⁴⁾	Fr for 20.000 h ⁽³⁾⁽⁴⁾	N	2700	4000	6500	10000	
Fa 于 20.000 h ⁽³⁾⁽⁴⁾	Fa for 20.000 h ⁽³⁾⁽⁴⁾		4300	5900	7000	14500	
Fr 于 30.000 h ⁽³⁾⁽⁴⁾	Fr for 30.000 h ⁽³⁾⁽⁴⁾		2700	4000	6500	10000	
Fa 于 30.000 h ⁽³⁾⁽⁴⁾	Fa for 30.000 h ⁽³⁾⁽⁴⁾		3700	5200	6100	12000	1
抗扭刚性	torsional stiffness	Nm / arcmin	2,4	6	12	33	
重量	weight	kg	3,0	5,0	9,2	25,0	
运转噪音 ⁽⁵⁾	running noise ⁽⁵⁾	dB(A)	66	67	68	70	
最大输入速度 ⁽⁶⁾	max. input speed ⁽⁶⁾	min ⁻¹	16000	14000	9500	8000	

单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142	i ⁽¹⁾	Z ⁽²⁾
急停扭矩 ⁽⁷⁾	emergency stop torque ⁽⁷⁾	Nm	100	200	400	800	4	
			100	200	400	800	5	
			75	150	300	700	8	1
			75	150	300	700	10	

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)

⁽²⁾ 级数

⁽³⁾ 这些数据在下列条件下测得:输出转速 $n_2=100\text{min}^{-1}$,电机在占空因数 $K_A=1$ 及S1连续工作制下,温度 $T=30^\circ\text{C}$

⁽⁴⁾ 沿着输出轴长度方向上一半处

⁽⁵⁾ 噪音检测标准; 距离1m; 在输入转速 $n_1=3000\text{min}^{-1}$; $i=5$

⁽⁶⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认

⁽⁷⁾ 1000次以内

⁽⁸⁾ 更低的回程间隙请联系确认

⁽¹⁾ ratios ($i=n_{in}/n_{out}$)

⁽²⁾ number of stages

⁽³⁾ these values refer to a speed of the output shaft of $n_2=100\text{min}^{-1}$ on duty cycle $K_A=1$ and S1-mode for electrical machines and $T=30^\circ\text{C}$

⁽⁴⁾ half way along the output shaft

⁽⁵⁾ sound pressure level; distance 1m; measured on idle running with an input speed of $n_1=3000\text{min}^{-1}$; $i=5$

⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry

⁽⁷⁾ allowed 1000 times

⁽⁸⁾ lower backlash on inquiry

单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142	$i^{(1)}$
惯量 ⁽²⁾	inertia ⁽²⁾	kgcm ²	0,654	1,331	5,924	22,302	4
			0,600	1,168	5,441	19,904	5
			0,532	1,004	4,989	17,660	8
			0,516	0,966	4,883	17,016	10

单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142	$i^{(1)}$
最大输入速度在50% T_{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 50% T_{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	1650	1500	1050	850	4
			1800	1700	1150	850	5
			2150	2100	1350	950	8
			2300	2200	1400	1000	10

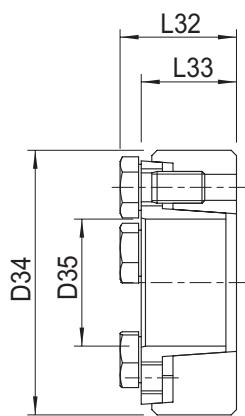
单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142	$i^{(1)}$
最大输入速度在100% T_{2N} 和 S1情况 ⁽³⁾⁽⁴⁾	max. middle input speed at 100% T_{2N} and S1 ⁽³⁾⁽⁴⁾	min ⁻¹	1300	1200	800	650	4
			1500	1400	950	700	5
			1950	1850	1200	800	8
			2100	2050	1300	850	10

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 转动惯量与传动轴和标准发动机轴直径D20有关。⁽³⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽⁴⁾ 定义见111页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽²⁾ the moment of inertia relates to the input shaft and to standard motor shaft diameter D20⁽³⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽⁴⁾ definition see page 111

附件 / accessories

冷缩垫圈

shrink disk

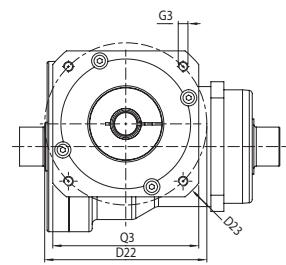
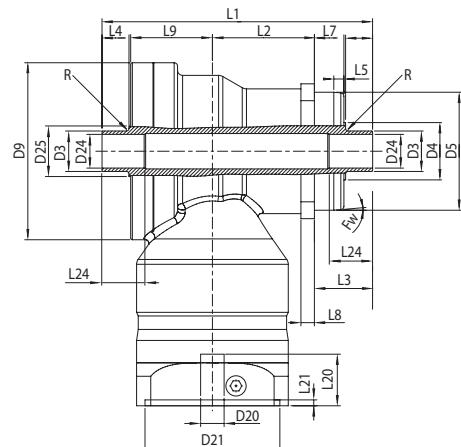
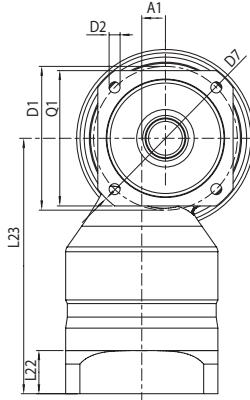


单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142
所有尺寸均以毫米为单位	all dimensions in mm					
D34 外径	D34 outside diameter		44	50	72	90
D35 内径	D35 inner diameter		18	24	36	50
L32 总长 ⁽¹⁾	L32 overall length ⁽¹⁾		19	22	27,3	31,3
L33 夹紧长度 ⁽¹⁾	L33 span length ⁽¹⁾		15	18	22	26

⁽¹⁾ 未夹紧状态下的尺寸⁽²⁾ 建议承载轴公差为 h6 , 表面粗糙度 Ra < 3,2 μm⁽¹⁾ dimensions in unclamped state⁽²⁾ For the load shaft, we recommend a tolerance of h6 and a surface roughness Ra < 3.2 μm

WGN - 系列 机械参数

WGN - line dimensions



单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142
所有尺寸均以毫米为单位	all dimensions in mm					
A1 轴偏距	A1 axle offset		10	14	20	26
D1 法兰定位孔圆直径	D1 flange hole circle		68-75	85	120	165
D2 孔安装	D2 mounting bore	4x	5,5	6,5	8,5	11
D3 轴径	D3 shaft diameter	h8	18	24	36	50
D4 轴肩	D4 shaft root	-3	24	34	45	70
D5 定位凸台	D5 centering	g7	60	70	90	130
D7 对角尺寸	D7 diagonal dimension		92	116	140	185
D9 最大直径	D9 max. diameter		86	105	120	170
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		11	14	19	24
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		60	80	95	130
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		75	100	115	165
D23 对角尺寸	D23 diagonal dimension		90	116	145	185
D24 内径	D24 inner diameter	H6	15	20	30	40
D25 轴肩	D25 shaft root	-3	25	30	42	58
Fw 倒角	Fw bevel angle	°	5	5	5	5
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x10	M6x12	M8x16	M10x20
L1 总长	L1 overall length		137,5	160,5	199	243
L2 箱体长度	L2 body length		46,5	60,5	73,5	76
L3 输出轴长	L3 shaft length from output		33	34,5	48	54
L4 轴长自定位凸台起	L4 shaft length from spigot		14	16	20	25
L5 倒角长度	L5 bevel length		6	6	8	8
L7 定位凸台厚度	L7 spigot depth		18	17,5	27	28
L8 法兰厚度	L8 flange thickness		7	8	10	12
L9 偏移长度	L9 offset length		43	48,5	56,5	87
L20 电机轴长度 ⁽²⁾	L20 motor shaft length ⁽²⁾		23	30	40	50
L21 电机定位凸台深度	L21 motor location depth		3	3,5	3,5	4
L22 输入法兰厚度 ⁽²⁾	L22 motor flange length ⁽²⁾		19	25,5	27,5	33
L23 总高度 ⁽³⁾	L23 overall height ⁽³⁾		136	151	187,5	233
L24 最小配合长度	L24 min. fitting length		20	25	30	35
Q1 法兰截面	Q1 flange section	□	70	80	110	142
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾		70	90	115	142
最大半径 R	R max. radius		1,5	1,5	1,5	1,5

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第99页⁽²⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长⁽³⁾ 轴配合公差 j6; k6⁽¹⁾ dimensions refer to the mounted motor-type⁽²⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and axle height L23 will be lengthened⁽³⁾ for shaft fit j6; k6

定货代码 可选项 / ordering code and options

PLE 60 - 3 / Motor - OP 6

系列 <i>line</i>	型号 <i>size</i>	减速比 i <i>ratio i</i>	电机详述 <i>motor designation</i>	选择 <i>options</i>	页 <i>page</i>
PLE	40, 60, 60/70, 80, 80/90, 120, 120/115, 160	3 bis 512	(制造商-型号) (manufacturer-type)	OP 1 OP 2 OP 6 OP 12 OP 16 OP 17	96 98 100 101 106 106
PLHE	60, 80, 120	3 bis 100	(制造商-型号) (manufacturer-type)	OP 2 OP 7 OP 16 OP 17	98 100 106 106
PLPE	50, 70, 90, 120, 155	3 bis 100	(制造商-型号) (manufacturer-type)	OP 2 OP 16 OP 17	98 106 106
PLFE	64, 90, 110	3 bis 64	(制造商-型号) (manufacturer-type)	OP 2 OP 12 OP 16 OP 17	98 101 106 106
WPLE	40, 60, 60/70, 80, 80/90, 120, 120/115	3 bis 512	(制造商-型号) (manufacturer-type)	OP 2 OP 6 OP 12 OP 16 OP 17	98 100 101 106 106
WPLPE	50, 70, 90, 120	4 bis 10	(制造商-型号) (manufacturer-type)	OP 2 OP 16 OP 17	98 106 106

OP 1: 任意输入轴 ⁽¹⁾

OP 1: free input shaft ⁽¹⁾

OP 2: 电机装配

OP 2: motor adjustment

OP 6: 光轴

无螺纹孔，无键，无键槽的型号

OP 6: smooth output shaft

Version without threaded bore, without parallel key, and without parallel key groove

OP 7: 带键的输出轴DIN 6885 T1 ⁽¹⁾

OP 7: output shaft with key DIN 6885 T1 ⁽¹⁾

OP 12: ATEX ⁽¹⁾

认证由ATEX 94/9 EG II的

2G/3G

温度等级: T4 X

性能数据有所变化。请索要单独的尺寸图！

OP 12: ATEX ⁽¹⁾

qualified after ATEX 94/9 EG for group II

category 2G/3G

temperature class: T4 X

power data will change ask for separate data sheet!

OP 16: 食品润滑

用于有特殊卫生规定的润滑

OP 16: Food-grade lubrication

special lubrication for application with special hygiene regulations

OP 17: 低温润滑

用于极度低温时的润滑，注意特殊条件

OP 17: Low temperature lubrication

special lubrication for application at extremely low temperatures; observe special conditions

其他选项请联系确认

other options on inquiry

⁽¹⁾ 请联系确认

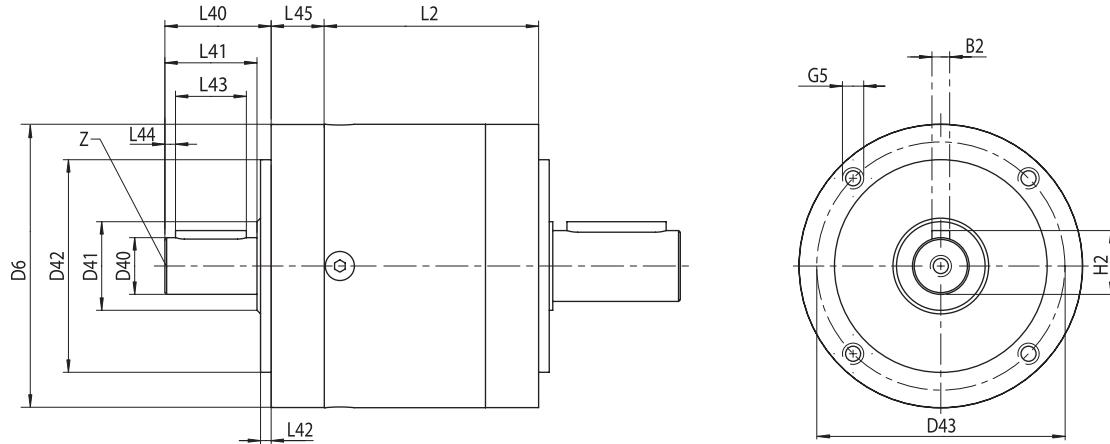
⁽¹⁾ on inquiry

定货代码 可选项 / ordering code and options

PLN 70 - 3 / Motor - OP 7 + 14

系列 line PSN	型号 size	减速比 i ratio i	电机详述 motor designation	选择 options	页 page
	70, 90, 115	3 bis 100	(制造商-型号) (manufacturer-type)	OP 2 OP 7 OP 8 OP 16 OP 17 OP 16 OP 26	99 100 101 106 106 106 107
PSFN	64, 90, 110	4 bis 100	(制造商-型号) (manufacturer-type)	OP 2 OP 16 OP 17 OP 16	99 106 106 106
PLN	70 , 90, 115, 142, 190	3 bis 100	(制造商-型号) (manufacturer-type)	OP 2 OP 7 OP 8 OP 14 OP 16 OP 17 OP 18 OP 26	99 100 100 102 106 106 106 107
PLFN	64, 90, 110, 140, 200	4 bis 100	(制造商-型号) (manufacturer-type)	OP 2 OP 16 OP 17 OP 18	94 106 106 106
WPLN	70 , 90, 115, 142	4 bis 100	(制造商-型号) (manufacturer-type)	OP 2 OP 7 OP 8 OP 14 OP 16 OP 17 OP 25	102 100 100 104 106 106 107
WGN	70, 90, 115, 142	4 bis 10	(制造商-型号) (manufacturer-type)	OP 2 OP 8 OP 16 OP 17 OP 24 OP 25	114 100 106 106 107 107

OP 2: 电机装配**OP 2:** motor adjustment**OP 7:** 带键的输出轴DIN 6885 T1 ⁽¹⁾**OP 7:** output shaft with key DIN 6885 T1 ⁽¹⁾**OP 8:** 特殊输出轴 ⁽¹⁾**OP 8:** special shaft ⁽¹⁾**OP 14:** (W) PLS系列减速机输出轴尺寸**OP 14:** dimensions for the (W)PLS output**OP 18:** 降低的回程间隙**OP 18:** reduced backlash**OP 24:** 带简易式空心轴的WGN**OP 24:** WGN with single hollow shaft**OP 25:** 波纹管联轴器**OP 25:** Bellows coupling**OP 26:** 轴中心连接符合DIN 5480标准**OP 26:** Shaft hub connection acc. to DIN 5480

选择 1 任意输入轴⁽¹⁾options 1 free input shaft⁽¹⁾

单位尺寸	size		PLE 40	PLE 60-60/70	PLE 80-80/90	PLE 120-120/115	PLE 160
B2 键 DIN 6885 T1	B2 key DIN 6885 T1	mm	2	3	5	6	10
D6 法兰直径	D6 flange diameter		40	60	80	115	160
D40 轴径	D40 shaft diameter	h7	8	10	16	20	35
D41 轴肩	D41 shaft root	mm	12	17	25	35	55
D42 定位凸台	D42 centering	h7	26	40	60	80	110
D43 法兰定位孔圆直径	D43 flange hole circle	mm	34	52	70	100	130
G5 螺纹安装x螺纹深度	G5 mounting thread x depth	4x	M4x6	M5x8	M6x10	M10x16	M10x25
H2 键 DIN 6885 T1	H2 key DIN 6885 T1	mm	8,8	11,2	18	22,5	38
L2 箱体长度	L2 body length		页/page 22	页/page 22-23	页/page 22-23	页/page 22-23	页/page 22
L40 输入轴长	L40 shaft length from input		20	28	30	45	65
L41 轴长自定位凸台起	L41 shaft length from spigot		17	23	26	40	58
L42 定位凸台厚度	L42 spigot depth length		2	3	3	4	5
L43 键长	L43 key length		12	18	20	32	45
L44 至轴末端的距离	L44 distance from shaft end		2,5	2,5	3	4	7
L45 输入法兰长度	L45 input flange length		10,5	13	15,5	31,5	58
Z 定心孔 DIN 332 , DR表格	Z centre bore DIN 332, form DR	4x	M3x9	M3x9	M5x12	M6x16	M12x28
最大输入速度 ⁽⁴⁾	max. input speed ⁽⁴⁾	min ⁻¹	18000	13000	7000	6500	4500
建议输入速度 ⁽⁴⁾	max. middle input speed ⁽⁴⁾		页/page 20	页/page 20-21	页/page 20-21	页/page 20-21	页/page 20
输入轴向负载 ⁽³⁾	input shaft load axial ⁽³⁾	N	120	300	500	1300	1600
输入径向负载 ⁽³⁾	input shaft load radial ⁽³⁾		100	250	450	1000	1400

⁽¹⁾ 这种减速机必须在输入端和输出端都配有法兰⁽²⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽³⁾ 沿着轴心且最小转数n1=1000 转/分, 寿命为 10000 h⁽¹⁾ the gearboxes have to be flanged on input and output flange⁽²⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽³⁾ half way along shaft at n₁=1000 min⁻¹ referred to 10.000 h lifetime

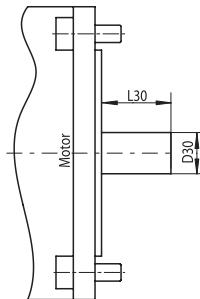
选择 1 任意输入轴⁽¹⁾options 1 free input shaft⁽¹⁾

单位尺寸	size		PLE 40	PLE 60-60/70	PLE 80-80/90	PLE 120-120/115	PLE 160	$i^{(3)}$	Z ⁽²⁾
惯量 ⁽⁴⁾	inertia ⁽⁴⁾	kgcm ²	0,018	0,08	0,73	2,3	17	3	1
			0,01	0,048	0,35	1,85	12,5	4	
			0,006	0,037	0,24	1,42	11	5	
			0,004	0,034	0,21	1,49	-	7	
			0,005	0,027	0,18	1,4	9,5	8	
			0,006	0,026	0,18	1,38	-	10	
			0,017	0,087	0,73	2,5	-	9	2
			0,016	0,085	0,36	2,4	17	12	
			0,015	0,039	0,72	2,4	17	15	
			0,009	0,049	0,35	1,65	12,3	16	
			0,007	0,039	0,25	1,6	11,7	20	
			0,007	0,038	0,25	1,4	10,8	25	
			0,005	0,027	0,18	1,4	11,4	32	3
			0,005	0,027	0,18	1,3	10,3	40	
			0,005	0,025	0,16	1,3	-	64	
			0,015	0,039	0,35	2,2	-	60	
			0,007	0,039	0,28	1,6	-	80	
			0,007	0,039	0,25	1,4	-	100	
			0,013	0,016	0,7	2,2	-	120	
			0,005	0,016	0,18	1,5	-	160	
			0,005	0,016	0,18	1,3	-	200	
			0,005	0,016	0,18	1,3	-	256	
			0,005	0,016	0,18	1,2	-	320	
			0,005	0,016	0,18	1,2	-	512	

⁽¹⁾ 这种减速机必须在输入端和输出端都配有法兰⁽²⁾ 级数⁽³⁾ 减速比($i=n_{in}/n_{ab}$)⁽⁴⁾ 转动惯量参考输入轴⁽¹⁾ the gearboxes have to be flanged on input and output flange⁽²⁾ number of stages⁽³⁾ ratios($i=n_{in}/n_{out}$)⁽⁴⁾ the moment of inertia refers to input shaft

选择 2 可能的电机装配方式

options 2 possible motor mounting



PLE	单位尺寸	size		PLE 40	PLE 60-60/70	PLE 80-80/90	PLE 120-120/115	PLE 160
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	4/5/6/6,35/8/9/11	6/6,35/8/9,525/10/11/12/14/16/19	9,525/10/11/12/14/16/19/22/24	11/12,7/14/15,87/16/22/24/28/32/35	19/24/28/32/35	
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾	mm	11 (13 ⁽⁴⁾)	13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	24	
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	2	3,5	9	16,5	40	

PLHE	单位尺寸	size		PLHE 60	PLHE 80	PLHE 120
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	6/6,35/8/9,525/10/11/12/14/16/19	9,525/10/11/12/14/16/19/24	11/12,7/14/15,87/16/19/22/24/28/32/35	19/24/28/32/35
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾	mm	13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	24
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	3,5	9	16	40

PLPE	单位尺寸	size		PLPE 50	PLPE 70	PLPE 90	PLPE 120	PLPE 155
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	4/5/6/6,35/8/9/11	6/6,35/8/9/525/10/11/12/14/16/19	9,525/10/11/12/14/16/19/24	11/12,7/14/15,87/16/22/24/28/32/35	19/24/28/32/35	
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾	mm	11 (13 ⁽⁴⁾)	13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	24	
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	2	3,5	9	16	40	

PLFE	单位尺寸	size		PLFE 64	PLFE 90	PLFE 110
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	6/6,35/8/9,525/11/12/14/16/19	9,525/10/11/12/14/16/19/22/24	11/12,7/14/15,875/16/19/22/24/28/32/35	19/24/28/32/35
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾	mm	13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	24
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	3,5	9	16,5	40

WPLE	单位尺寸	size		WPLE 40	WPLE 60-60/70	WPLE 80-80/90	WPLE 120-120/115
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	4/5/6/6,35/8/9	6/6,35/8/9/9,525/11/12/14	9,525/10/11/12/14/16/19	11/12,7/14/15,875/16/19/22/24	
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾	mm	11	13	16	18	24
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	2	3,5	9	16	40

WPLPE	单位尺寸	size		WPLPE 50	WPLPE 70	WPLPE 90	WPLPE 120
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	4/5/6/6,35/8/9	6/6,35/8/9/9,525/11/12/14	9,525/10/11/12/14/16/19	11/12,7/14/15,875/16/19/22/24	
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾	mm	11	13	16	18	24
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	2	3,5	9	16	40

(1) 其它尺寸请联系确认

(2) 与电机装配的水平度和稳定性有关

(3) 与电机轴配合精度: j6; k6

(4) D30 > 9 mm

(5) D30 > 14 mm

(6) D30 > 19 mm

(7) D30 > 24 mm

(8) D30 > 35 mm

(1) other dimensions on inquiry

(2) referred to horizontal and stationary mounting

(6) shaft fit: j6; k6

(4) D30 > 9 mm

(5) D30 > 14 mm

(6) D30 > 19 mm

(7) D30 > 24 mm

(8) D30 > 35 mm

选择 2 可能的电机装配方式

options 2 possible motor mounting

单位尺寸	size		PSN 70	PSN 90	PSN 115	Z (2)	PSN
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	8/9/9,525/10/ 11/12/14/16/19	9,525/10/11/12/12,7/ 14/16/19/22/24	11/12,7/14/15,87/16/ 19/22/24/28/32/35	1	
			8/9/9,525/10/ 11/12/14/16/19	8/9/9,525/10/11/ 12/14/16/19	9,525/10/11/12/12,7/ 14/16/19/22/24	2	
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾		13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	1	
			13 (16 ⁽⁵⁾)	13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	2	
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	10	15	34	1	
			10	10	15	2	

单位尺寸	size		PSFN 64	PSFN 90	PSFN 110	Z (2)	PSFN
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	6/6,35/8/9/9,525/10/ 11/12/14/16/19	9,525/10/11/12/12,7/14/ 16/19/22/24	11/12,7/14/15,87/16/19/ 22/24/28/32/35	1	
			6/6,35/8/9/9,525/10/ 11/12/14/16/19	8/9/9,525/10/11/1 2/14/16/19	9,525/10/11/12/12,7/ 14/16/19/22/24	2	
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾		13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	1	
			13 (16 ⁽⁵⁾)	13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	2	
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	10	15	34	1	
			10	10	15	2	

单位尺寸	size		PLN 70	PLN 90	PLN 115	PLN 142	PLN 190	Z (2)	PLN
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	8/9/9,525/ 10/11/12/ 14/16/19	9,525/10/11/ 12/12,7/14/ 16/19/22/24	11/12,7/14/ 15,87/16/19/22/ 24 28/ 32/35	19/22/24/28/ 32/35/38/42	24/28/32/35/ 38/42/48	1	
			13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	24 (26 ⁽⁸⁾)	26		
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾		10	15	34	50	75	1	
			10	10	15	34	50		

单位尺寸	size		PLFN 64	PLFN 90	PLFN 110	PLFN 140	PLFN 200	Z (2)	PLFN
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	8/9/9,525/ 10/11/12/ 14/16/19	9,525/10/11/ 12/12,7/14/ 16/19/22/24	11/12,7/14/ 16/19/22/24/28/ 28/32/35	19/22/24/28/ 32/35/38/42	24/28/32/ 35/38/42/48	1	
			8/9/9,525/ 10/11/12/ 14/16/19	8/9/9,525/ 10/11/12/ 14/16/19	9,525/10/11/ 12/12,7/14/ 16/19/22/24	11/12,7/14/15,87/ 16/19/22/24/28/ 32/35	19/22/24/28/ 32/35/38/42	2	
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾		13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	24(26 ⁽⁸⁾)	26	1	
			13 (16 ⁽⁵⁾)	13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18(24 ⁽⁷⁾)	24(26 ⁽⁸⁾)	2	
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	10	15	34	50	75	1	
			10	10	15	34	50	2	

单位尺寸	size		WPLN 70	WPLN 90	WPLN 115	WPLN 142	Z (2)	WPLN
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	8/9/9,525/10/11/ 12/14/16/19	9,525/10/11/12/ 12,7/14/16/19/ 22/24	11/12,7/14/15,87/ 16/19/22/24/28/ 32/35	19/22/24/28/ 32/35/38/42	1	
			8/9/9,525/10/ 11/12/14/16/19	8/9/9,525/10/11/ 12/12,7/14/16/19	9,525/10/11/12,7/ 14/15,87/16/19/ 22/24	11/12,7/14/15,87/ 16/19/22/24/28/ 32/35	2	
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾		13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	24 (26 ⁽⁸⁾)	1	
			13 (16 ⁽⁵⁾)	13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)	2	
最大电机重量 ⁽²⁾	max. motor weight ⁽²⁾	kg	10	15	34	50	1	
			10	10	15	34	50	2

单位尺寸	size		WGN 70	WGN 90	WGN 115	WGN 142	Z (2)	WGN
D30 电机轴直径 ⁽¹⁾⁽³⁾	D30 motor shaft diameter ⁽¹⁾⁽³⁾	mm	8/9/9,525/10/11/ 12/14/16/19	9,525/10/11/12/ 12,7/14/16/19/ 22/24	11/12,7/14/15,87/ 16/19/22/24/28/ 32/35	19/22/24/28/ 32/35/38/42	1	
			8/9/9,525/10/ 11/12/14/16/19	13 (16 ⁽⁵⁾)	16 (18 ⁽⁶⁾)	18 (24 ⁽⁷⁾)		
L30 最短马达轴长度 ⁽¹⁾	L30 min. motor shaft length ⁽¹⁾		10	15	34	50	1	
			10	10	15	34	50	2

选择 6 光轴

无螺纹孔，无键，无键槽的型号

options 6 smooth output shaft

Version without threaded bore, without parallel key, and without parallel key groove

选择 7 带键的输出轴DIN 6885 T1⁽¹⁾

options 7 output shaft with key DIN 6885 T1⁽¹⁾

PLHE	单位尺寸	size		PLHE 60	PLHE 80	PLHE 120
定货代码	title			A5 x 5 x 25	A6 x 6 x 28	A10 x 8 x 50
D3 [k6] 轴径	D3 [k6] shaft diameter		mm	16	22	32
L4 轴长自定位凸台起	L4 shaft length from spigot			28	36	58
L5 键长	L5 key length			25	28	50
L6 至轴末端的距离	L6 distance from shaft end			2	4	4
Z 定心孔	Z centre bore			M5 x 12,5	M8 x 19	M12 x 28
最大输出扭矩 ⁽⁵⁾	max. output torque ⁽⁵⁾	Nm		44	130	260

PSN	单位尺寸	size		PSN 70	PSN 90	PSN 115
定货代码	title			A5 x 5 x 25	A6 x 6 x 28	A10 x 8 x 50
D3 [k6] 轴径	D3 [k6] shaft diameter		mm	16	22	32
L4 轴长自定位凸台起	L4 shaft length from spigot			28	36	58
L5 键长	L5 key length			25	28	50
L6 至轴末端的距离	L6 distance from shaft end			2	4	4
Z 定心孔	Z centre bore			M5 x 12,5	M8 x 19	M12 x 28
最大输出扭矩 ⁽⁵⁾	max. output torque ⁽⁵⁾	Nm		77	150	300

PLN	单位尺寸	size		PLN 70	PLN 70-OP14	PLN 90	PLN 115	PLN 142	PLN 190
定货代码	title			A5 x 5 x 25	A6 x 6 x 20	A6 x 6 x 28	A10 x 8 x 50	A12 x 8 x 65	A16 x 10 x 70
D3 [k6] 轴径	D3 [k6] shaft diameter		mm	16	19	22	32	40	55
L4 轴长自定位凸台起	L4 shaft length from spigot			28	28	36	58	80	82
L5 键长	L5 key length			25	20	28	50	65	70
L6 至轴末端的距离	L6 distance from shaft end			2	4	4	4	8	6
Z 定心孔	Z centre bore			M5 x 12,5	M6 x 16	M8 x 19	M12 x 28	M16 x 35	M20 x 42
最大输出扭矩 ⁽²⁾	max. output torque ⁽²⁾	Nm		77	77	150	300	1000	1800

⁽¹⁾ 请联系确认

⁽²⁾ 请联系确认

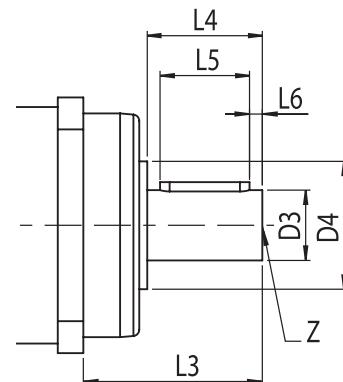
⁽¹⁾ on inquiry

⁽²⁾ on inquiry

选择 8 特殊输出轴⁽¹⁾⁽²⁾

options 8 special shaft⁽¹⁾⁽²⁾

轴径	shaft diameter	D3	
轴长自定位凸台起	shaft length from spigot	L4	
输出轴长	shaft length from output	L3	
键长	key length	L5	
至轴末端的距离	distance from shaft end	L6	
键宽	key width	B	
定心孔	centre bore	Z	



选择 12 ATEX⁽¹⁾

认证由ATEX 94/9 EG

II的 2G/3G

温度等级: T4 X

性能数据有所变化。

请索要单独的尺寸图!

options 12 ATEX⁽¹⁾

qualified after ATEX 94/9 EG

for group II

category 2G/3G

temperature class: T4 X

power data will change

ask for separate data sheet!

⁽¹⁾ 请联系确认

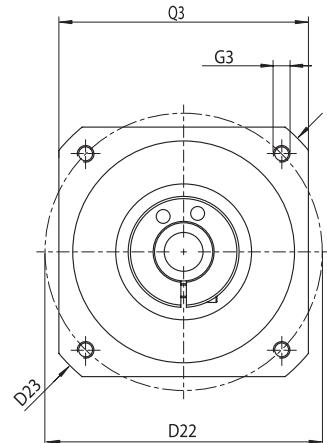
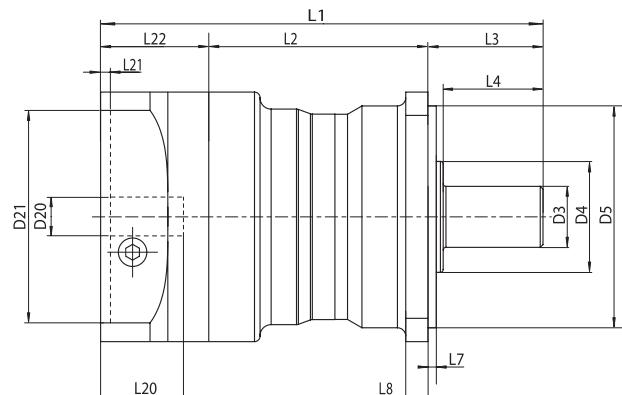
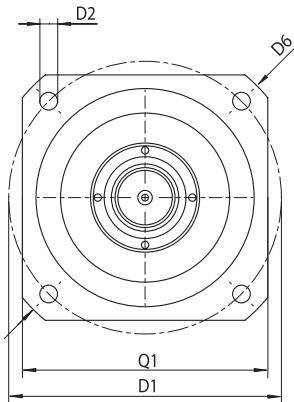
⁽²⁾ 根据您的需要将数据页或草图传真或发送给您

⁽¹⁾ on inquiry

⁽²⁾ fax page with data or send sketch with your inquiry

选择 14 PLS系列减速机输出轴尺寸

options 14 dimensions PLS output



单位尺寸	size		PLN 70 OP 14	PLN 90 OP 14	PLN 115 OP 14	PLN 142 OP 14	PLN 190 OP 14	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm							
D1 法兰定位孔圆直径	D1 flange hole circle		75	100	130	165	215	
D2 孔安装	D2 mounting bore	4x	5,5	6,5	8,5	11	13,5	
D3 轴径	D3 shaft diameter	k6	19	22	32	40	55	
D4 轴肩	D4 shaft root	-3	35	40	45	70	80	
D5 定位凸台	D5 centering	h7	60	80	110	130	160	
D6 对角尺寸	D6 diagonal dimension		92	116	145	185	240	
D20 孔个数 ⁽¹⁾⁽⁴⁾	D20 bore ⁽¹⁾⁽⁴⁾		11	14	19	24	32	
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		60	80	95	130	180	
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		75	100	115	165	215	
D23 对角尺寸 ⁽¹⁾	D23 diagonal dimension ⁽¹⁾		90	115	145	185	240	
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x10	M6x12	M8x16	M10x20	M12x24	
L1 总长 ⁽³⁾	L1 overall length ⁽³⁾		137,5	159,5	201	276	310,5	1
L2 箱体长度	L2 body length		166,5	191,5	241	335	382,5	2
L3 输出轴长	L3 shaft length from output		75	79	85	114,5	138	1
L4 轴长自定位凸台起	L4 shaft length from spigot		104	111	125	173,5	210	2
L7 定位凸台厚度	L7 spigot depth		32	41,5	64,5	87	90	
L8 法兰厚度	L8 flange thickness		28	36	58	80	82	
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		3	3	4,5	5	6	
L21 电机定位凸台深度	L21 motor location depth		7	8	10	20	20	
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		23	30	40	50	60	
Q1 法兰截面	Q1 flange section	□	3	3,5	3,5	4	5	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾		30,5	39	51,5	74,5	82,5	
			70	90	115	142	190	
			70	90	115	142	190	

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第99页

⁽²⁾ 级数

⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

⁽⁴⁾ 轴配合公差 j6; k6

⁽¹⁾ dimensions refer to the mounted motor-type, see page 99

⁽²⁾ number of stages

⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and overall length L1 will be lengthened

⁽⁴⁾ for shaft fit j6; k6

选择 14 PLS系列减速器输出轴尺寸

options 14 dimensions PLS output

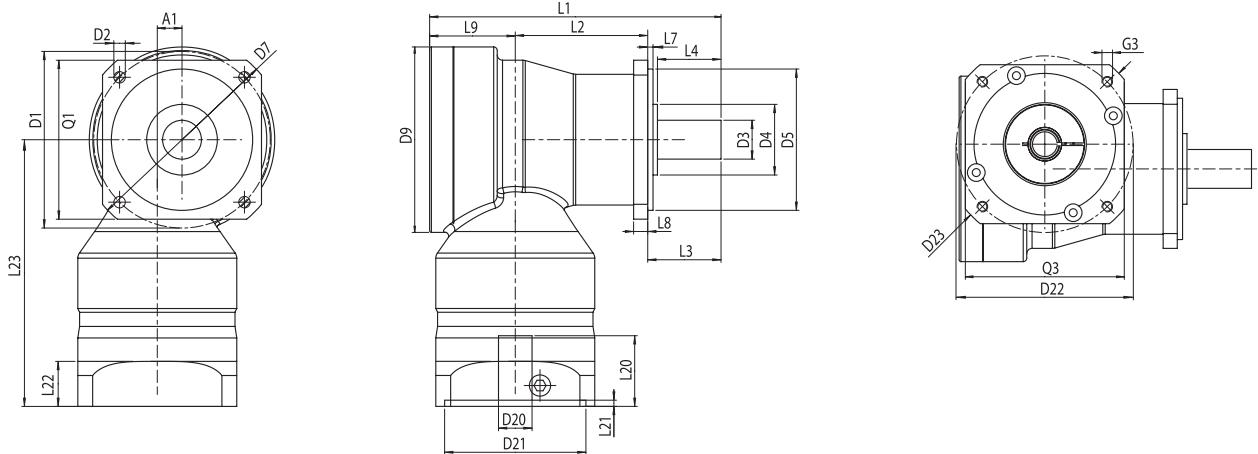
单位尺寸	size		PLN 70 OP 14	PLN 90 OP 14	PLN 115 OP 14	PLN 142 OP 14	PLN 190 OP 14	i ⁽¹⁾
最大输入速度在50% T_{2N} 和 S1情况 ⁽²⁾⁽³⁾	max. middle input speed at 50% T_{2N} and S1 ⁽²⁾⁽³⁾	min ⁻¹	1750	1750	1350	750	600	3
			2000	1900	1400	850	650	4
			2300	2200	1800	950	750	5
			2950	3150	2500	1350	1050	7
			3200	3500	2850	1550	1250	8
			3700	4000	3300	1950	1650	10
			3100	3050	2250	1150	900	12
			3500	3600	2650	1400	1100	15
			3300	3200	2300	1200	950	16
			3700	3700	2750	1450	1150	20
			4000	4000	3000	1600	1250	25
			4400	4000	3500	2000	1700	32
			4500	4000	3500	2200	1800	40
			4500	4000	3500	2750	2300	64
			4500	4000	3500	3000	2500	100

单位尺寸	size		PLN 70 OP 14	PLN 90 OP 14	PLN 115 OP 14	PLN 142 OP 14	PLN 190 OP 14	i ⁽¹⁾
最大输入速度在100% T_{2N} 和 S1情况 ⁽²⁾⁽³⁾	max. middle input speed at 100% T_{2N} and S1 ⁽²⁾⁽³⁾	min ⁻¹	1500	1400	1050	600	450	3
			1650	1450	1050	650	450	4
			1850	1700	1300	650	500	5
			2550	2600	2000	1050	750	7
			2800	2950	2350	1200	950	8
			3400	3650	2850	1650	1350	10
			2500	2450	1750	850	700	12
			2900	2900	2100	1050	850	15
			2700	2550	1850	900	700	16
			3100	3000	2200	1050	850	20
			3500	3400	2550	1250	950	25
			3850	4000	3000	1500	1250	32
			4300	4000	3400	1750	1400	40
			4500	4000	3500	2500	2050	64
			4500	4000	3500	3000	2500	100

⁽¹⁾ 减速比($i=n_{in}/n_{ab}$)⁽²⁾ 必须保证允许的工作温度; 特殊的输入转速请联系确认⁽³⁾ 定义见111页⁽¹⁾ ratios ($i=n_{in}/n_{out}$)⁽⁶⁾ allowed operating temperature must be kept; other input speeds on inquiry⁽³⁾ definition see page 111

选择 14 WPLS 系列减速机输出轴尺寸

options 14 dimensions WPLS output



单位尺寸	size		WPLN 70 OP14	WPLN 90 OP14	WPLN 115 OP14	WPLN 142 OP14	Z ⁽²⁾
所有尺寸均以毫米为单位	all dimensions in mm						
A1 轴偏距	A1 axle offset		10	14	20	26	1
			10	10	14	20	2
			75	100	130	165	
D2 孔安装	D2 mounting bore	4x	5,5	6,5	8,5	11	
D3 轴径	D3 shaft diameter	k6	19	22	32	40	
D4 轴肩	D4 shaft root	-3	30	40	45	70	1
			35	40	45	70	2
D5 定位凸台	D5 centering	h7	60	80	110	130	
D7 对角尺寸	D7 diagonal dimension		92	116	145	185	
			86	105	120	170	1
D9 最大直径	D9 max. diameter		86	86	105	120	2
			11	14	19	24	1
D20 小齿轮中心孔 (轴中心孔) ⁽¹⁾⁽⁴⁾	D20 pinion bore ⁽¹⁾⁽⁴⁾		11	11	14	19	2
			60	80	95	130	1
D21 电机中心孔 ⁽¹⁾	D21 center bore for motor ⁽¹⁾		60	60	80	95	2
			75	100	115	165	1
D22 安装孔分布圆尺寸 ⁽¹⁾	D22 hole circle diameter ⁽¹⁾		75	75	100	115	2
			90	115	145	185	1
D23 对角尺寸 ⁽¹⁾	D23 diagonal dimension ⁽¹⁾		90	90	115	145	2
			M5x10	M6x12	M8x16	M10x20	1
G3 螺纹安装x螺纹深度 ⁽¹⁾	G3 mounting thread x depth ⁽¹⁾	4x	M5x10	M5x10	M6x12	M8x16	2
			137,5	165	218	273	1
L1 总长	L1 overall length		185	207	248,5	342,5	2
			62,5	75	97	99	1
L2 箱体长度	L2 body length		110	122,5	135,5	199	2
			32	41,5	64,5	87	
L3 输出轴长	L3 shaft length from output		28	36	58	80	
			3	3	4,5	5	
L4 轴长自定位凸台起	L4 shaft length from spigot		7	8	10	20	
			43	48,5	56,5	87	1
L7 定位凸台厚度	L7 spigot depth		43	43	48,5	56,5	2
			23	30	40	50	1
L8 法兰厚度	L8 flange thickness		23	23	30	40	2
			3	3,5	3,5	4	1
L9 偏移长度	L9 offset length		3	3	3,5	3,5	2
			43	48,5	56,5	87	1
L20 电机轴长度 ⁽³⁾	L20 motor shaft length ⁽³⁾		23	30	40	50	1
			23	23	30	40	2
L21 电机定位凸台深度	L21 motor location depth		3	3,5	3,5	4	1
			3	3	3,5	3,5	2
L22 输入法兰厚度 ⁽³⁾	L22 motor flange length ⁽³⁾		19	25,5	27,5	33	1
			19	19	25,5	27,5	2
L23 总高度 ⁽³⁾	L23 overall height ⁽³⁾		136	151	187,5	233	1
			136	136	151	187,5	2
Q1 减速机截面	Q1 gearbox section	□	70	90	115	142	
Q3 法兰截面 ⁽¹⁾	Q3 flange section ⁽¹⁾		70	90	115	142	1
			70	70	90	115	2

⁽¹⁾ 这些参数与所配套的电机型号有关，详见第99页

⁽²⁾ 级数

⁽³⁾ 如果所配的电机轴 L20 比表中所给尺寸更长，那么L22和L1应根据所配电机轴长度适当加长

⁽⁴⁾ 轴配合公差 j6; k6

⁽¹⁾ dimensions refer to the mounted motor-type, see page 99

⁽²⁾ number of stages

⁽³⁾ for longer motor shafts L20 applies: The measured motor flange length L22 and axle height L23 will be lengthened

⁽⁴⁾ for shaft fit j6; k6

选择 14 WPLS系列减速机输出轴尺寸

options 14 dimensions WPLS output

单位尺寸	size		WPLN 70 OP14	WPLN 90 OP14	WPLN 115 OP14	WPLN 142 OP14	i ⁽¹⁾
最大输入速度在 50% T _{2N} 和 S1情况 ⁽²⁾⁽³⁾	max. middle input speed at 50% T _{2N} and S1 ⁽²⁾⁽³⁾	min ⁻¹	1550	1450	1000	800	4
			1750	1650	1100	850	5
			2050	2000	1300	900	8
			2200	2100	1350	950	10
			1600	1550	1450	850	16
			1750	1800	1650	900	20
			1850	1950	1900	1000	25
			2000	2000	1950	1250	32
			2100	2000	1950	1250	40
			2250	2600	2550	1550	64
			2350	2750	2700	1700	100

单位尺寸	size		WPLN 70 OP14	WPLN 90 OP14	WPLN 115 OP14	WPLN 142 OP14	i ⁽¹⁾
最大输入速度在 100% T _{2N} 和 S1情况 ⁽²⁾⁽³⁾	max. middle input speed at 100% T _{2N} and S1 ⁽²⁾⁽³⁾	min ⁻¹	1250	1100	800	600	4
			1450	1350	900	650	5
			1850	1750	1150	750	8
			2000	1900	1250	850	10
			1300	1200	1050	650	16
			1450	1400	1250	650	20
			1650	1600	1500	800	25
			1700	1700	1650	1100	32
			1900	1700	1650	1100	40
			2150	2400	2350	1400	64
			2300	2650	2550	1600	100

(1) 减速比($i=n_{in}/n_{ab}$)

(2) 必须保证允许的工作温度; 特殊的输入转速请联系确认

(3) 定义见111页

(1) ratios ($i=n_{in}/n_{out}$)

(2) allowed operating temperature must be kept; other input speeds on inquiry

(3) definition see page 111

选择 16 食品润滑

用于有特殊卫生规定的润滑

options 16 Food-grade lubrication

*special lubrication for application with
special hygiene regulations*

选择 17 低温润滑

用于极度低温时的润滑，注意特殊条件

options 17 Low temperature lubrication

*special lubrication for application at
extremely low temperatures; observe
special conditions*

选择 18 降低的回程间隙

options 18 reduced backlash

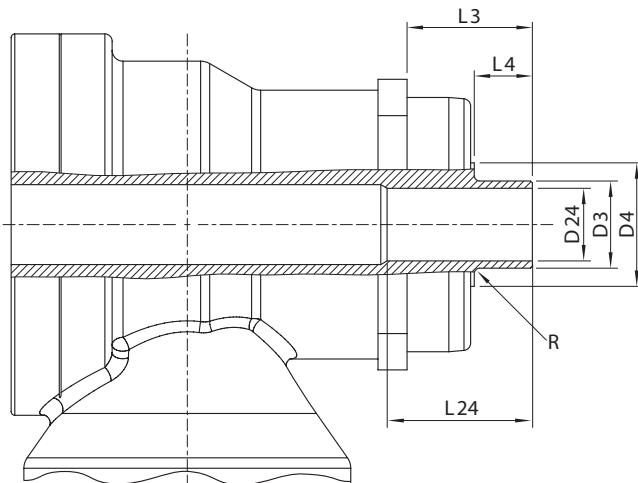
转换表格 / conversion table

转换表格	1 mm	0.0394 in
	1 N	0.225 lb _f
	1 kg	2.205 lb
	1 Nm	8.85 in lb
	1 kgcm ²	8.85×10^{-4} in lb s ²

conversion table	1 mm	0.0394 in
	1 N	0.225 lb _f
	1 kg	2.205 lb
	1 Nm	8.85 in lb
	1 kgcm ²	8.85×10^{-4} in lb s ²

选择 24 带简易式空心轴的WGN

options 24 WGN with single hollow shaft



单位尺寸 size		WGN 70	WGN 90	WGN 115	WGN 142	WGN
所有尺寸均以毫米为单位 all dimensions in mm						
D3 轴外径 D3 shaft outside diameter	h8	18	24	36	50	
D4 轴肩 D4 shaft root	-3	24	34	45	70	
D24 内径 D24 inner diameter	H6	15	20	30	40	
L3 输出轴长 L3 shaft length from output		33	34,5	48	54	
L4 轴长自定位凸台起 L4 shaft length from spigot		14	16	20	25	
L24 最小配合长度 L24 min. fitting length		20	25	30	35	
最大半径 R R max. radius		1,5	1,5	1,5	1,5	

选择 25 波纹管联轴器

options 25 Bellows coupling

选择 26 轮轴连接

轮轴连接 , 符合DIN 5480⁽¹⁾⁽²⁾

options 26 Shaft hub connection

acc. to DIN 5480⁽¹⁾⁽²⁾

单位尺寸 size	花键轴 spline shaft	花键或键槽的长度 tooth width	Z 中心孔 Z centre bore	L4 轴长自定位凸台起 L4 shaft length from spigot	PLN
PLN 70	DIN 5480 - W 16 x 0,8 x 30 x 18 x 6 m	15	DIN 332 DR M5x12,5	26	
PLN 90	DIN 5480 - W 22 x 1,25 x 30 x 16 x 6 m	15	DIN 332 DR M8x19	26	
PLN 115	DIN 5480 - W 32 x 1,25 x 30 x 24 x 6 m	15	DIN 332 DR M12x28	26	
PLN 142	DIN 5480 - W 40 x 2,0 x 30 x 18 x 6 m	20	DIN 332 DR M16x35	40	
PLN 190	DIN 5480 - W 55 x 2 x 30 x 26 x 6 m	22	DIN 332 DR M20x42	41,5	

单位尺寸 size	花键轴 spline shaft	花键或键槽的长度 tooth width	Z 中心孔 Z centre bore	L4 轴长自定位凸台起 L4 shaft length from spigot	PSN
PSN 70	DIN 5480 - W 16 x 0,8 x 30 x 18 x 6 m	15	DIN 332 DR M5x12,5	26	
PSN 90	DIN 5480 - W 22 x 1,25 x 30 x 16 x 6 m	15	DIN 332 DR M8x19	26	
PSN 115	DIN 5480 - W 32 x 1,25 x 30 x 24 x 6 m	15	DIN 332 DR M12x28	26	

(1) 请联系确认

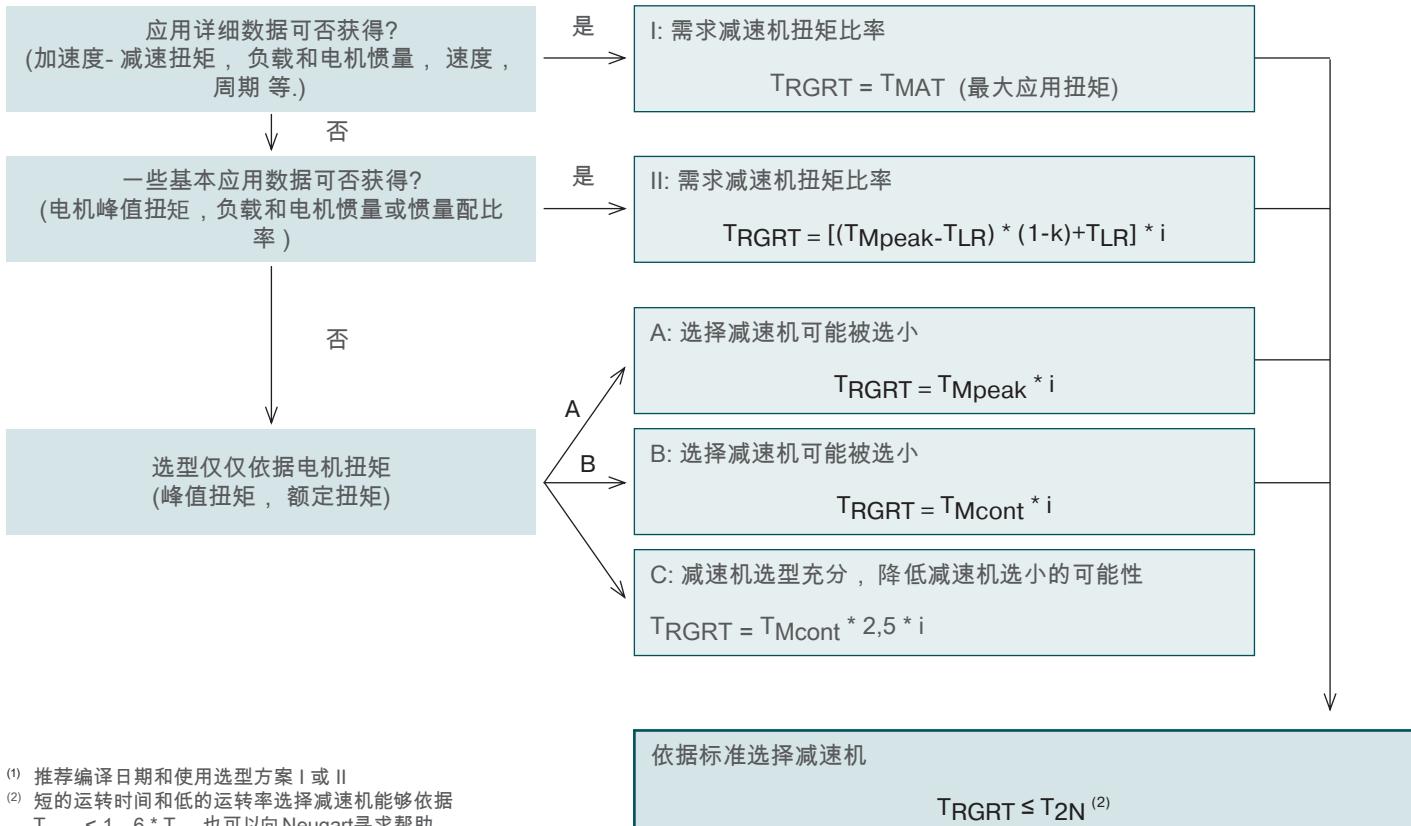
(2) 其它草图请见 OP 8

(1) on inquiry

(2) sketch for variables see OP 8

减速机关键尺寸/选型

1) 需求减速机扭矩比率



T_{RGRT} - 减速机需求扭矩评估

T_{MAT} - 峰值应用扭矩

T_{Mpeak} - 电机峰值扭矩

T_{Mcont} - 电机额定扭矩

T_{2N} - 减速机评估扭矩

i - 减速比

T_L - 摩擦力负载 (不含动态负载)

T_{LR} - $T_{LR} = T_L / i$ 输入负载扭矩

J_M - 电机惯量

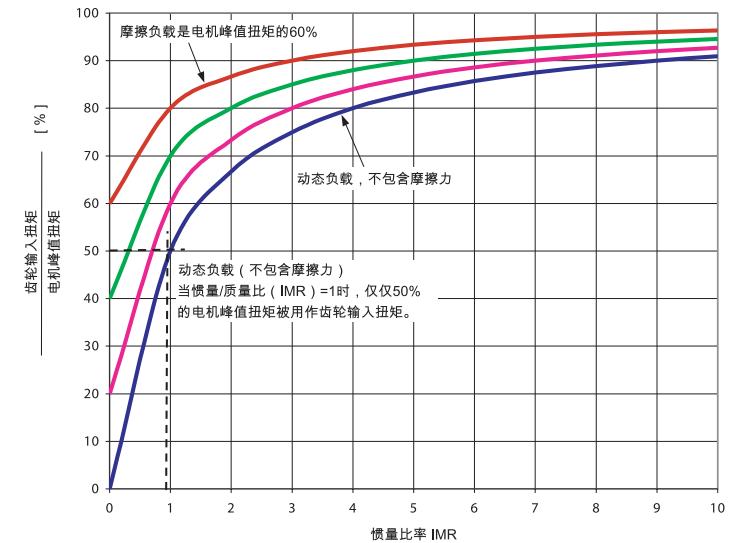
J_L - 负载惯量

J_{LR} - $J_{LR} = J_L / i^2$ 负载惯量参考输入

k - $k = J_M / (J_{LR} + J_M)$ 惯量参数

IMR - $IMR = J_{LR} / J_M$ 惯量匹配率；与惯性参量紧密地相关 ($k = 1 / (IMR+1)$)

齿轮输入扭矩



2) 检查电机 / 选择减速机可能安装尺寸

- 电机轴径 \leq 最大可能输入轴径 (太阳轮) 孔?
- 允许电机重量 / 支撑需求?

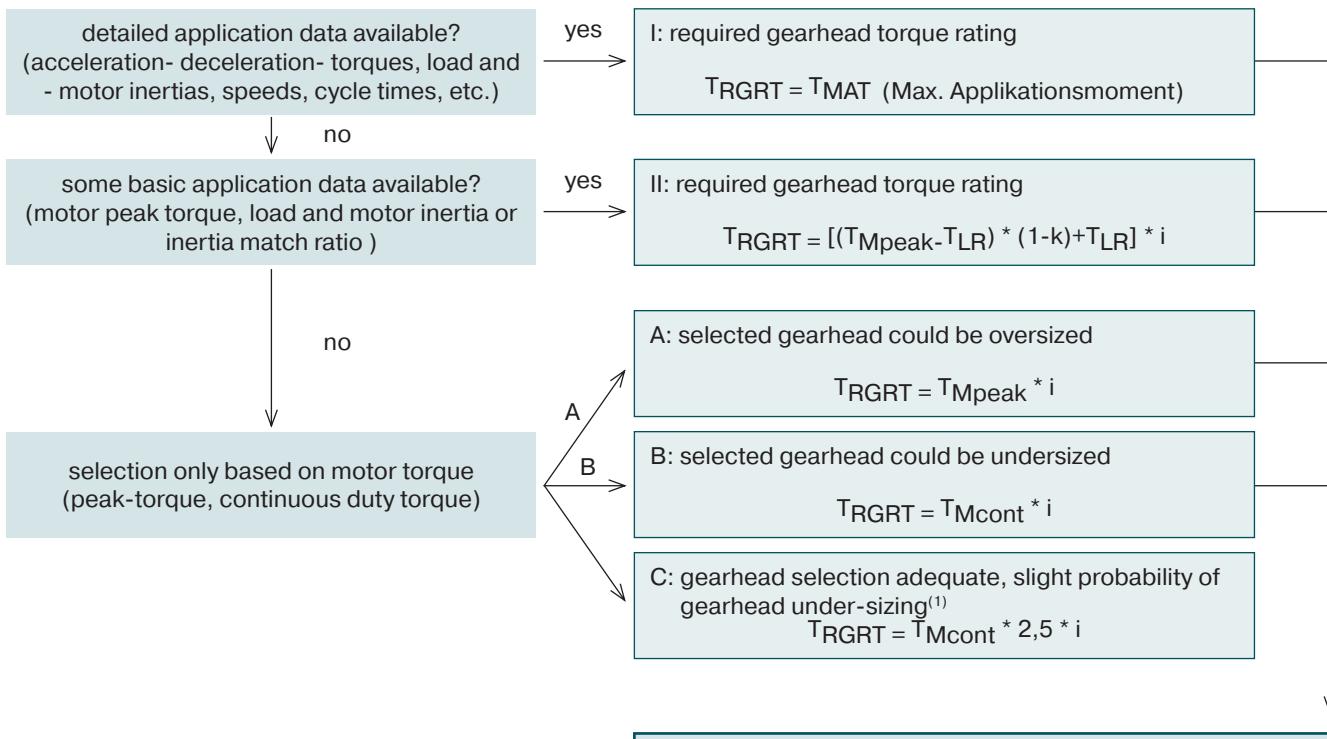
3) 检查输出轴径向力和轴向力的负载能力 / 输出轴承寿命 (如果可能)

4) 检查应用 / 周围的环境 - 不用质疑的联系Neugart寻求帮助

- IP等级是否适当?
- 是否意味输入速度比推荐值更高?
- 检查工作温度是否比推荐值更高?

gearhead sizing/selection

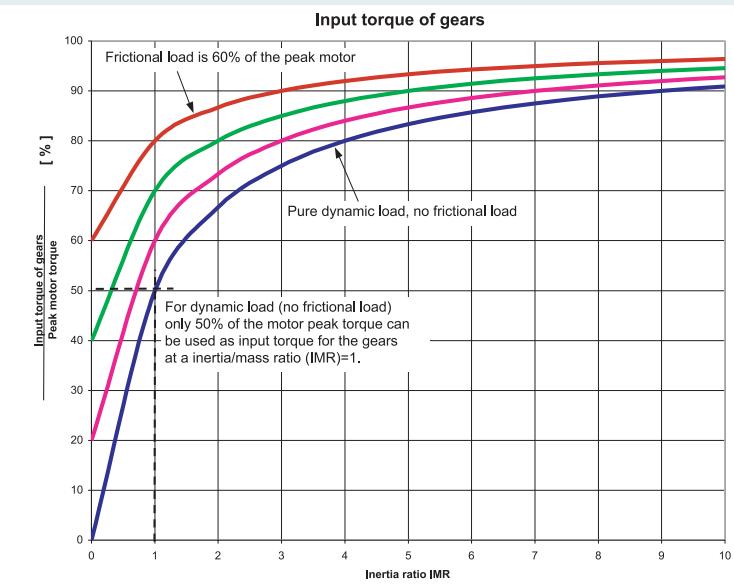
1) required gearhead torque rating



(1) it is recommended to compile date and use selection method I or II

(2) short cycle times and low cycle rates application gearhead can be perhaps selected based on $T_{RGRT} < 1,6 * T_{2N}$. Contact Neugart for assistance.

- T_{RGRT} - required gearhead torque rating
- T_{MAT} - peak application torque
- T_{Mpeak} - peak motor torque
- T_{Mcont} - continuous duty motor torque
- T_{2N} - gearhead rated torque
- i - ratio
- T_L - friction load (non-dynamic load)
- T_{LR} - $T_{LR} = T_L / i$ load torque at the input
- J_M - motor inertia
- J_L - load inertia
- J_{LR} - $J_{LR} = J_L / i^2$ reflected load inertia to the input
- k - $k = J_M / (J_{LR} + J_M)$ inertia parameter
- IMR - $IMR = J_{LR} / J_M$ inertia match ratio; is closely related to inertia parameter ($k = 1 / (IMR+1)$)



2) check motor / selected gearhead geometrical compatibility

- motor shaft diameter \leq max possible input pinion (sun-gear) bore?
- motor weight permissible / support required?

3) check output shaft radial and axial load ability / output shaft bearing life (if applicable)

4) check application / ambient conditions – In doubt please contact Neugart for assistance

- Is IP class adequate?
- Is mean input speed higher than the recommended?
- Is operating temperature higher than recommended?

最大可传递输出转矩 / Max. transferable output torque

Neugart 行星减速机针对标称转矩 (T_{2N}) 设计，具备性能稳定的特点。只要应用转矩不超过标称转矩，就无需重新进行计算调整。但在出现短暂转矩峰值或在长时间断续运转过程中，仍可能产生更高的应用转矩。通过图1可以进行大致估算。

At T_{2N} (nominal torque), Neugart's planetary gearboxes are designed for high-cycle operation, in other words if the application torques are always less than the nominal torque, no recalculation is necessary.

However, it is possible to transfer higher application torques in the case of short torque peaks or long periods of intermittent duty.

Figure 1 serves as guideline.

放大系数与输出轴转速之间的关系

**Increase factor
depending on the number of output shaft rotations**

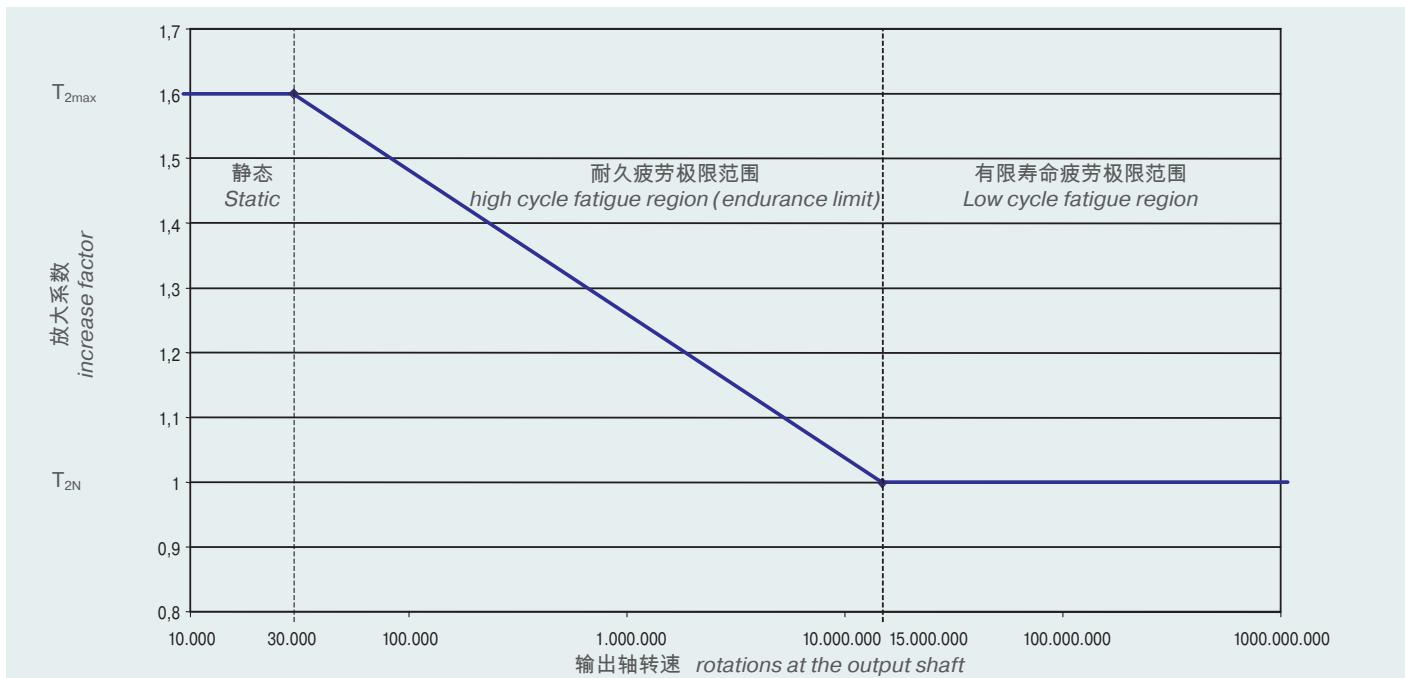


图 1

最大应用转矩不得超过 $1.6 \times T_{2N}$ 。
输出轴在最大应用转矩下的转速可以通过计算得出。
如果转速 (no.) 大于 15000000，
减速机只能承受标称转矩。
如果转速小于 15000000，
可以用下面的公式计算出放大系数：

figure 1

The max. application torque must not exceed $1.6 \times T_{2N}$. The number of rotations of the output shaft at the max. torque has to be calculated. If the number of rotations (no.) is larger than 15,000,000, the gearbox may only be subjected to the nominal torque of the gearbox. If the number of rotations is smaller than 15,000,000, the increase factor can be calculated by means of the following formula:

$$f = -0,1039 \times \ln\left(\frac{10^5}{30000} \times \text{No.}\right) + 2,79$$

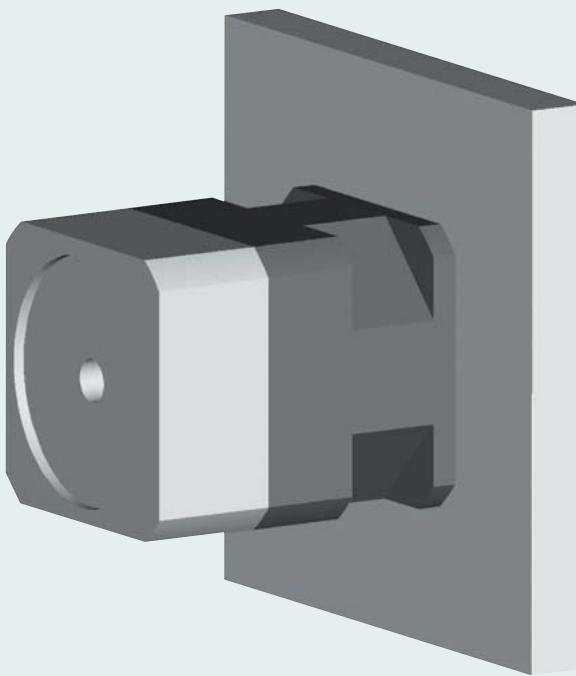
$$f = -0,1039 \times \ln\left(\frac{10^5}{30000} \times \text{No.}\right) + 2,79$$

如果 $f > 1.6$ ，则应将 f 设为 1.6。
如果 $f < 1.0$ ，则应将 f 设为 1.0。

减速机最大可传递转矩 (T_{2max}) 的计算方法为：
 $T_{2max} = f \times T_{2N}$
最大应用转矩不得超过计算得出的减速机最大输出转矩。 $T_{2max} \leq T_{2application}$

The max. transferable torque T_{2max} of the gearbox is then calculated by means of: $T_{2max} = f \times T_{2N}$
The max. application torque must not exceed the calculated max. output torque of the gearbox:
 $T_{2max} \leq T_{2application}$

热容技术符合S1模式 / thermal specifications for S1 operation



计算平均速度

$$n_m = \frac{n_1 \cdot t_1 + \dots + n_x \cdot t_x}{t_1 + \dots + t_x}$$

calculation of average speed:

$$n_m = \frac{n_1 \cdot t_1 + \dots + n_x \cdot t_x}{t_1 + \dots + t_x}$$

假设周围环境:

- 电机不会使减速机升温
- 安装面尺寸 (方形) = 2*减速机尺寸
- 安装面材质: 钢
- 传导不受损失 (无减速机直接散热)
- 环境温度: 30°C
- 安装面直接与机床连接: 机床温度 (30°C)

Assumed surrounding conditions:

- Motor does not heat up the gearbox
- Plate size (square) = 2*gearbox size
- Plate material: steel
- Convection is not impaired (no housing in the direct proximity of the gearbox)
- Surrounding temperature: 30°C
- Plate connection on machine bed: one-sided (30°C)

当实际需要100%的输出扭力:

如果热量产生小于平均100%扭力输出时的热容量, 减速机的温度上升是可接受的。

当实际需要50%的输出扭力: 如果热量产生小于平均50%扭力输出时的热容量, 减速机的温度上升是可接受的。

如果条件不适宜, 请降低速度或联系Neugart。

*In the case of a required output torque of 100%:
If n_m is less than the average thermal speed at 100% load, the gearbox is thermally suitable.*

*In the case of a required output torque of 50%:
If n_m is less than the average thermal speed at 50% load, the gearbox is thermally suitable.*

If conditions are unfavourable, please reduce the speeds or consult Neugart.

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