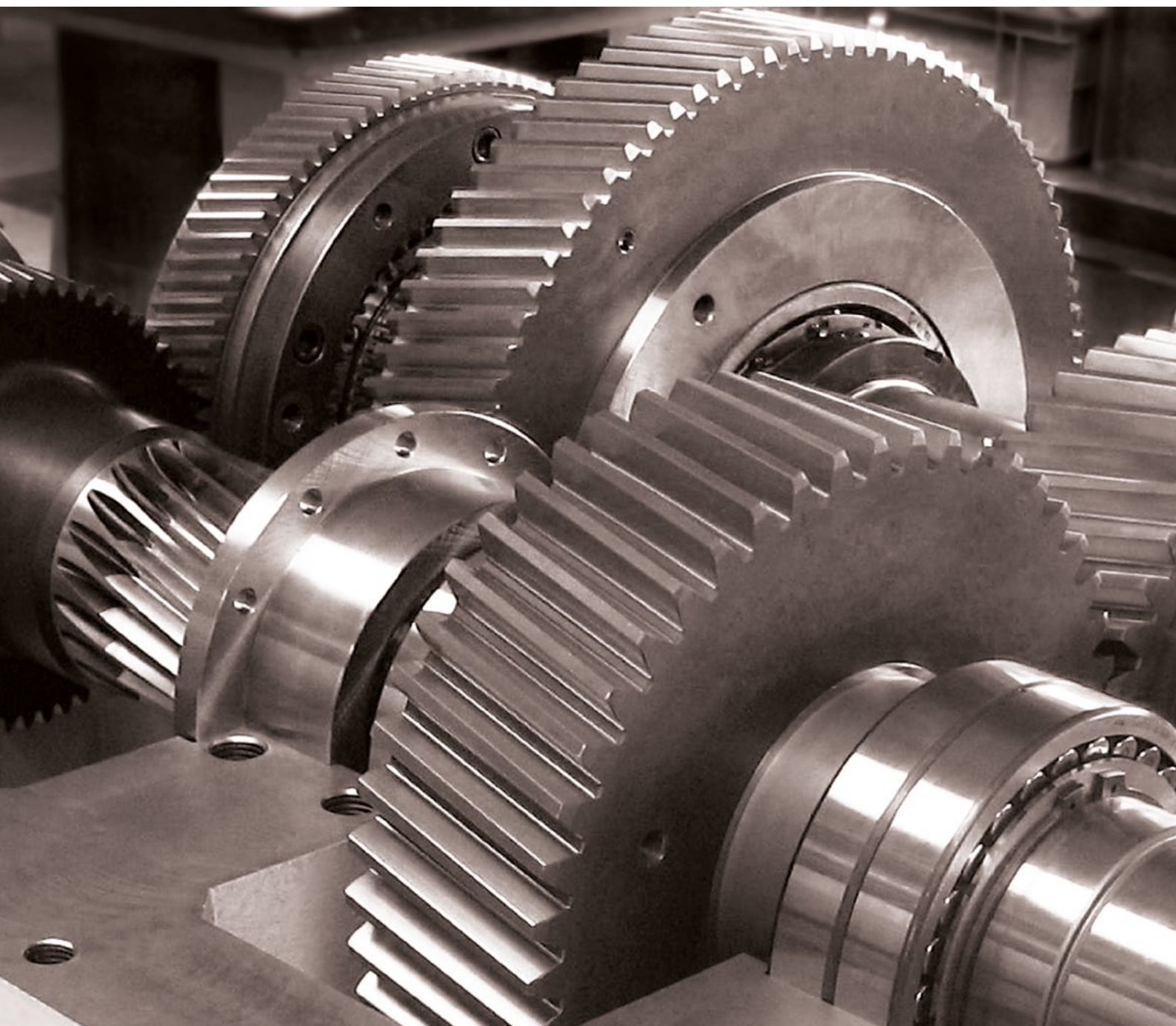


Your specialist for

Custom gearboxes
Control gears
Extruder gearboxes
Flat gearboxes
Flywheel masses
Gearing parts & drive elements
Heavy-duty gearboxes
Low-backlash planetary gearboxes
Spindle drives & drives for machine tools
Test bench gearboxes
Transfer cases
Turbo gearboxes



Scope of Supply – Customized Special Gearboxes for Every Requirement



Certified to
ISO 9001:2008

Zastoupení pro Českou republiku:



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převodovky pro obráběcí stroje

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Modern facility for producing customized drive solutions

RSGetriebe – The Customized Gearbox Specialist

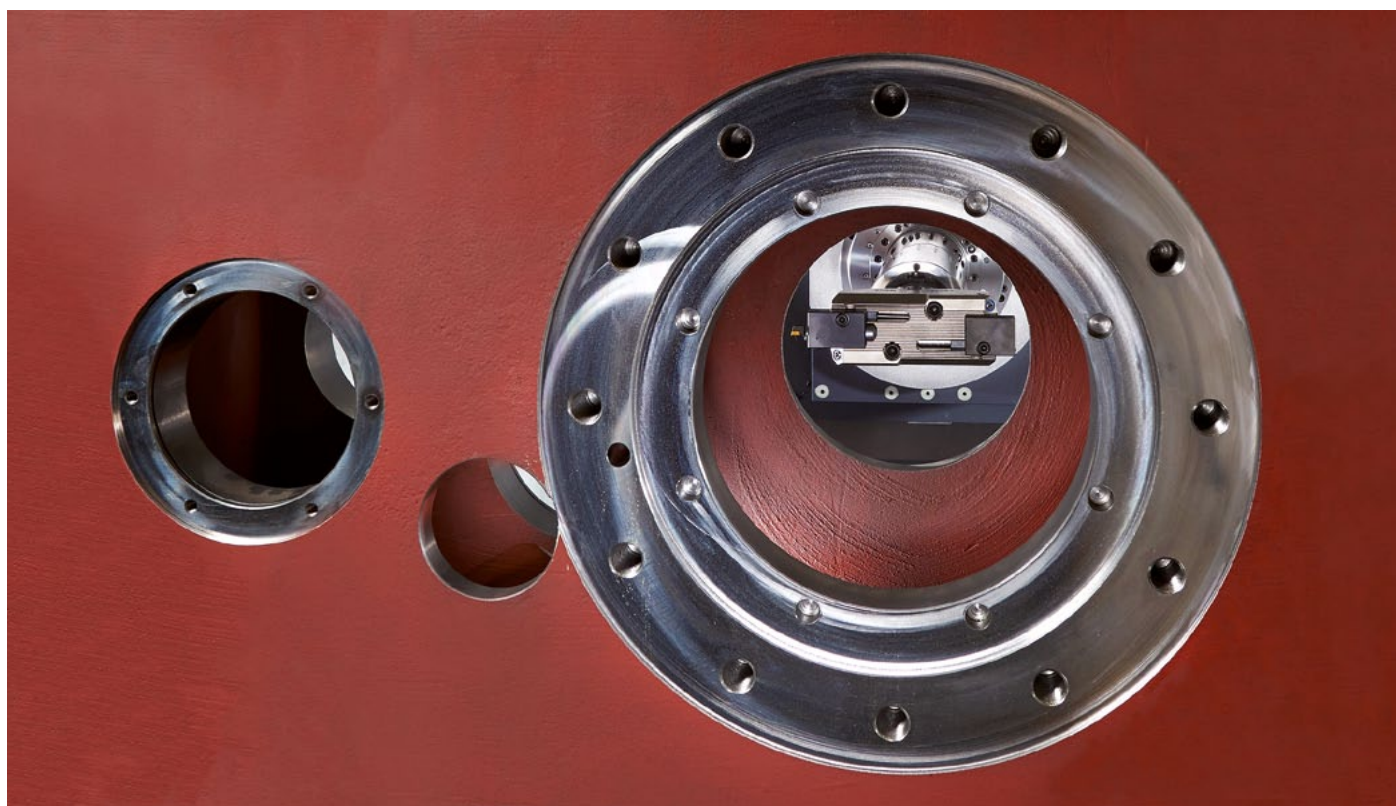
RSGetriebe thrives where standard solutions fail – the company has been developing and producing custom gearboxes for many different industries for over half a century. RSGetriebe's trademark: tailor-made drive solutions designed and manufactured to meet each customer's individual needs.

When standard gearboxes no longer meet your requirements, our design team will develop a custom drive con-

cept for you. The comprehensive, interdisciplinary know-how of our 75 employees is a major advantage.

The gearbox solutions are produced completely in-house in the 3,300 m² modern office and production facility – from the first draft to quality control. All gearbox components run through the certified manufacturing processes in accordance with ISO 9001:2008 and are machined with

state-of-the-art machine tools. The high level of in-house production guarantees the excellent product quality and short delivery times.



Manufacture of gearboxes according to highest quality standards

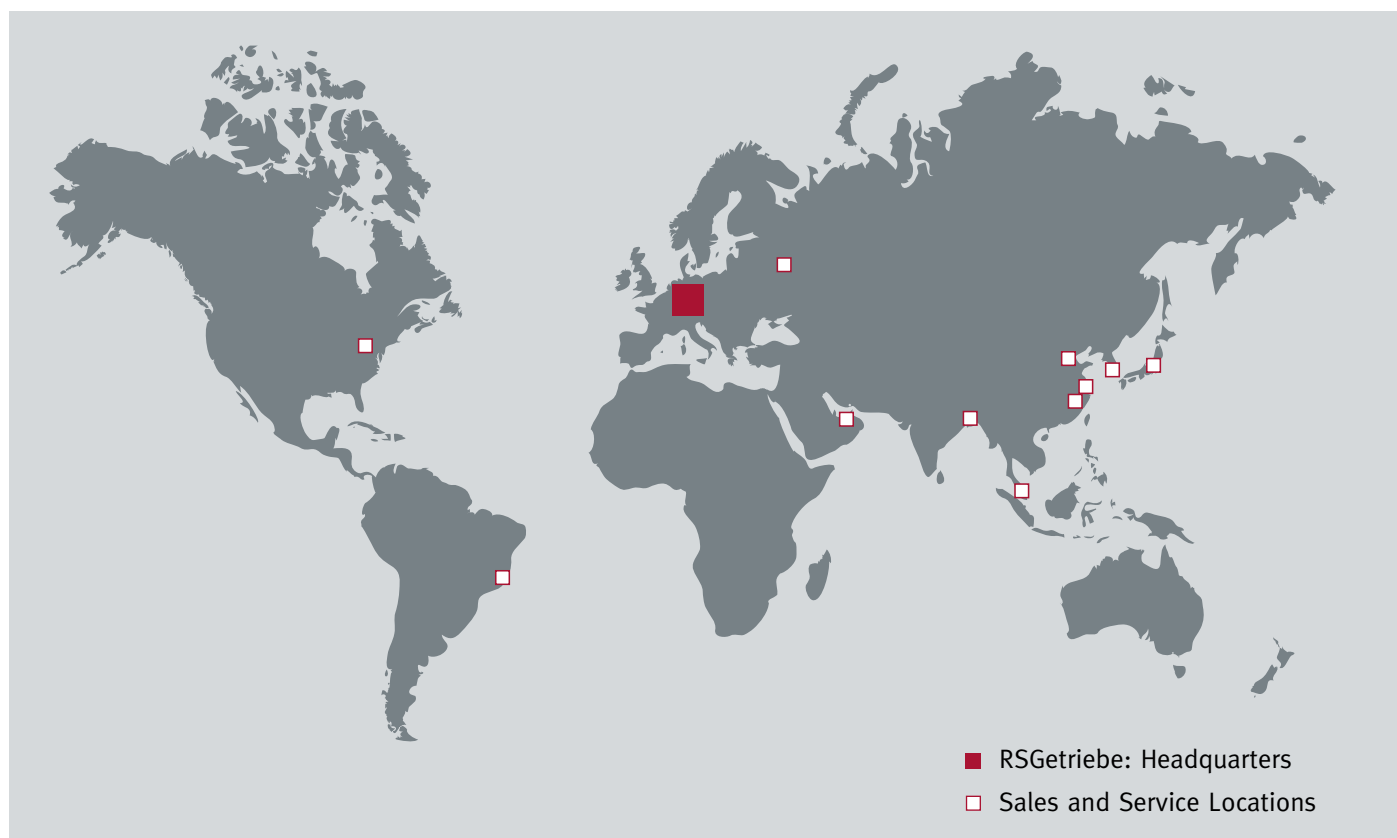
HerkulesGroup – Local Partners Worldwide

RSGetriebe is an important part of the internationally active HerkulesGroup. Some 1,600 employees of the group worldwide dedicate their expertise and passion to the development and production of innovative heavy-duty machine tools.

RSGetriebe benefits from the global HerkulesGroup sales and service network with locations in all the major markets. The advantage for all customers: uncomplicated and prompt service conducted by well-trained experts all over the world. Our employees in

the headquarters in Sonthofen/Germany process and coordinate all queries.

Furthermore, RSGetriebe cooperates with a select number of well-qualified sales representatives who will also answer your product-related questions.



HerkulesGroup locations worldwide

Individual and Economic Special Solutions

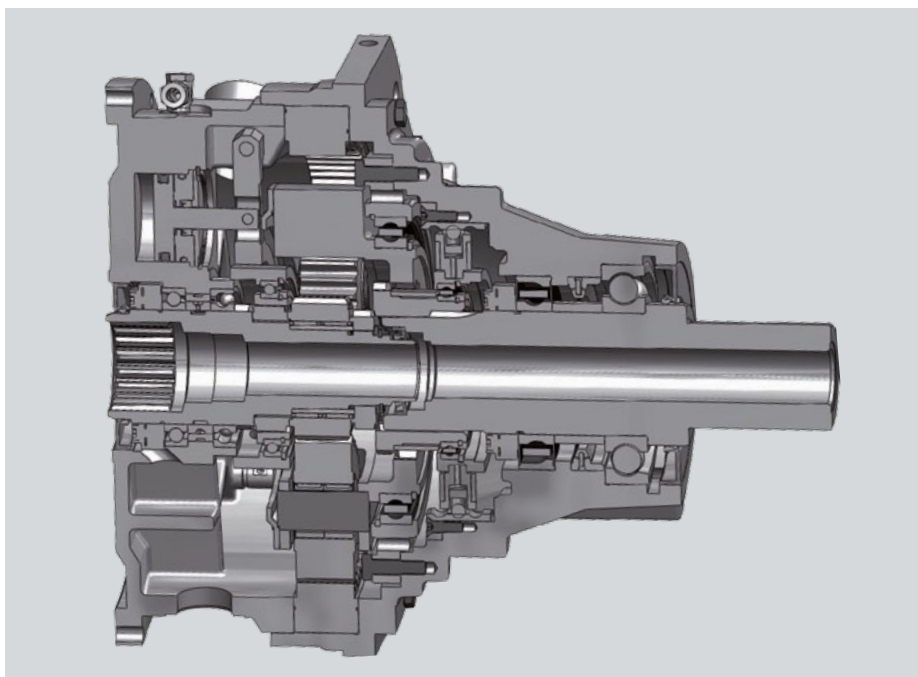
Every gearbox made by RSGetriebe is a tailor-made custom solution. Our own engineering department develops individual solutions to meet your requirements. Their vast experience and interdisciplinary know-how in the drive systems field comes into play when standard solutions are not adequate for your requirements.

With the help of selected programs and calculation methods, gearboxes and drive elements are designed and engineered individually and economically. Whether you need a custom product from our range of modular gearbox systems, or a completely customised gearbox with individual housing: RSGetriebe will find the best solution for you.

RSGetriebe is a member of the German Research Association for Drive Technology (FVA) and has vast knowledge regarding innovative production methods, materials and calculations.

Range of services:

- Gearing and bearing calculations
- Design (3D)
- Simulations (modal analyses)
- Torsional vibration simulation
- FEM calculations
- FMEA
- Production optimization / advice on third-party designs
- Damage analysis / appraisal



Production to the Highest Quality Standards

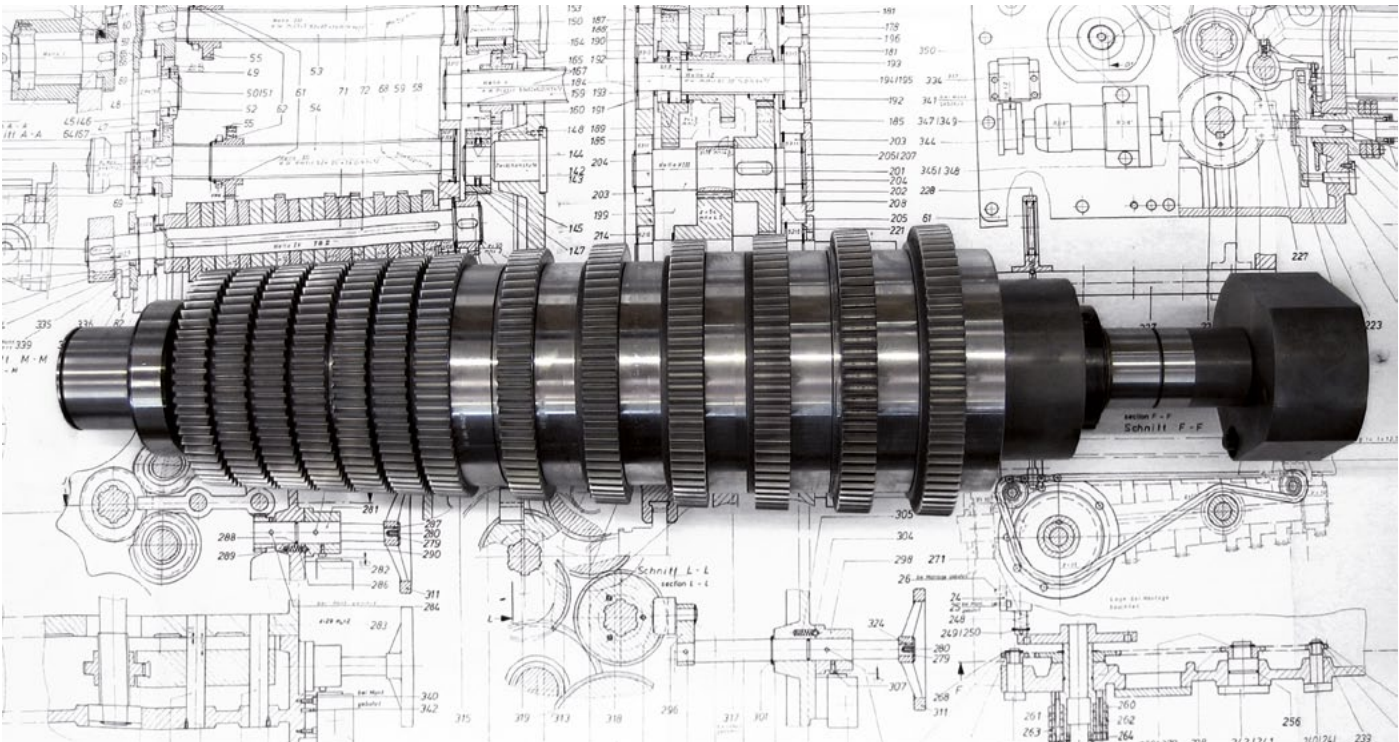
Quality in every detail – to ensure the high quality of the gearboxes, they are manufactured solely to the highest quality standards. From the cutting of the material to the gear, all

components are produced in-house in our ISO 9001:2008 certified facilities. The high level of in-house production guarantees the excellent product quality and short delivery times. Almost all

production steps are carried out at the modern production facility in Sonthofen.

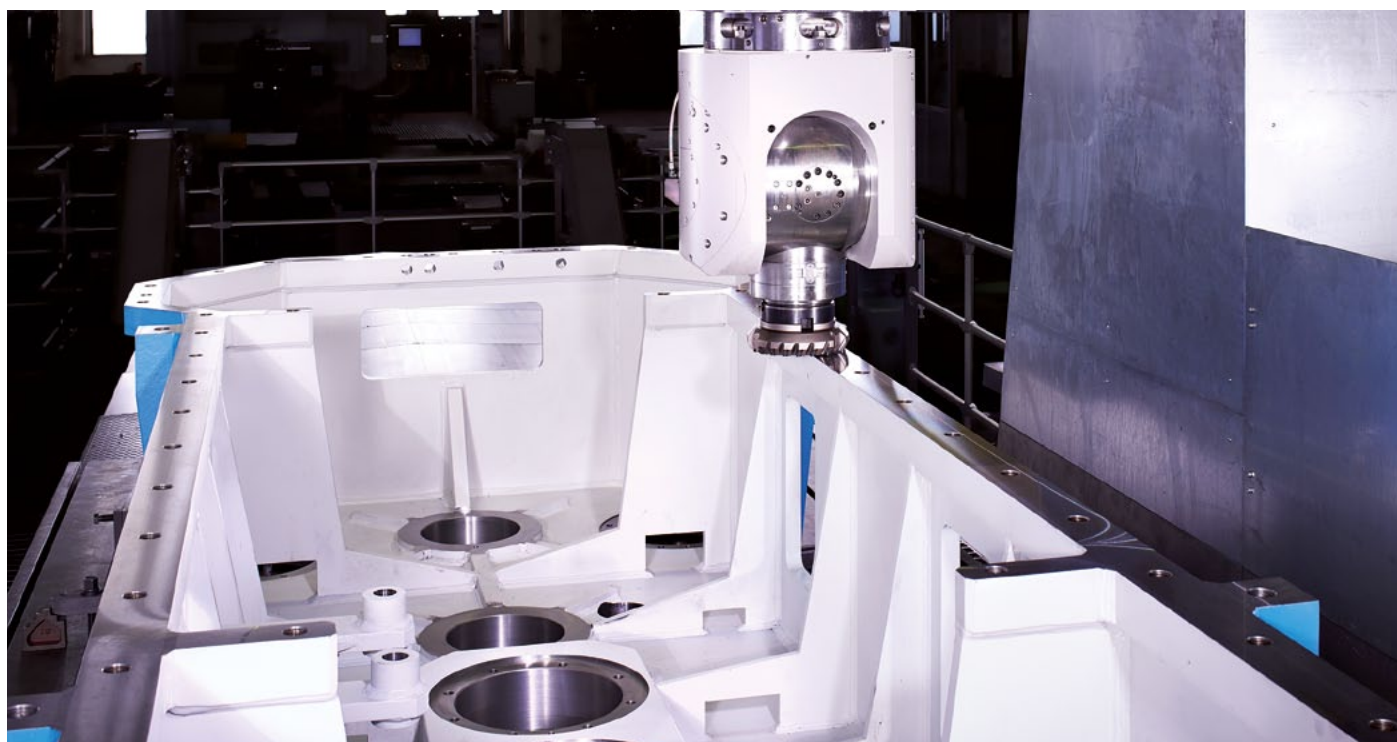
Gear tooth options and quality

Reference profile	Method	Module	Gear tooth quality	Diameter, max.	Gear tooth length, max.
DIN 3972 / 5480	Hobbing, straight and helical external tooth system	0.8 to 12.0	Q6	Ø 450 mm	300 mm
DIN 3972 / 5480	Gear shaping, straight external tooth system	0.8 to 12.0	Q6	Ø 600 mm	95 mm
DIN 3972 / 5480	Generative and profile grinding, straight and helical external tooth system	0.8 to 15.0	Q4	Ø 800 mm	250 mm
DIN 3972 / 5480	Gear shaping, straight internal tooth system	0.8 to 12.0	Q6	Ø 500 mm	95 mm
DIN 5472	Bevel and worm gears				



Our Machining Options

Turning		max. Ø max. length	650 mm 1,500 mm
Milling		max. X	2,000 mm
		max. Y	1,600 mm
		max. Z	1,500 mm
Gear cutting and broaching	Module 0.5 to 12	max. Ø	600 mm
		max. length	95 mm
	Module 0.8 to 12	max. Ø	450 mm
		max. length	250 mm
Grinding (external and internal)		max. Ø	600 mm
		max. length	1,500 mm
		centre height	300 mm
Gear tooth grinding	Module 0.8 to 15	max. Ø	800 mm
		max. length	1,055 mm
Spline shaft grinding		max. Ø	90 mm
		max. length	700 mm
Face grinding		X width	375 mm
		Y length	800 mm
		Z height	375 mm
Keywaying		width	70 mm



Tailore-made Gearboxes for Every Application

Every field of industry has its own requirements and legitimacies – including the drive technology area. The

RSGetriebe team therefore uses its decades of know-how to develop individual solutions for every industry,

thus supporting the success of your products.

The Scope of Supply

Industries

Chemical industry

Construction and building material machinery

Compressor, compressed air and vacuum technology

Drive technology

Extruders, plastics and rubber machinery

Food and packaging machinery

Machine tools and manufacturing systems

Power systems

Printing and paper production machinery

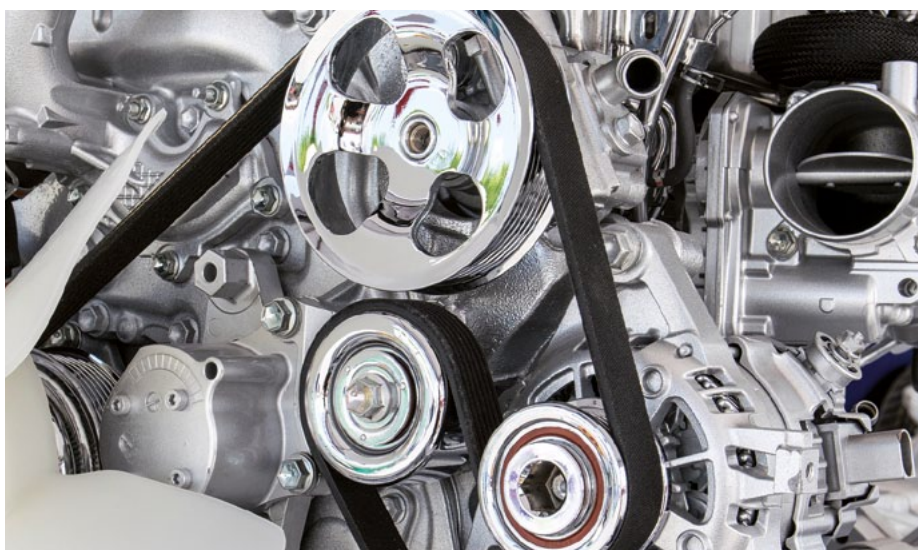
Process plant and equipment

Steels works and rolling mills

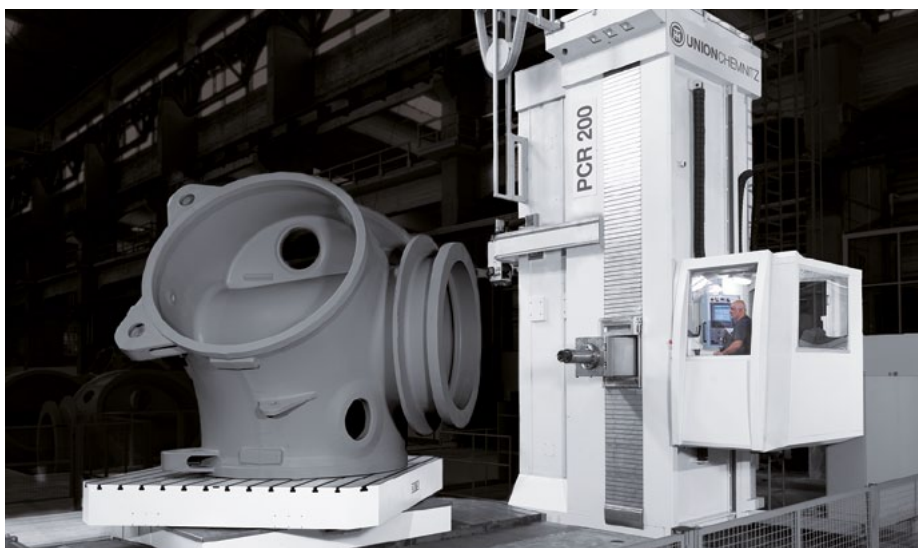
Testing machinery and test bench construction

Textile machinery

Woodworking machinery



Custom drive solutions for test benches...



... or the machine tool industry.

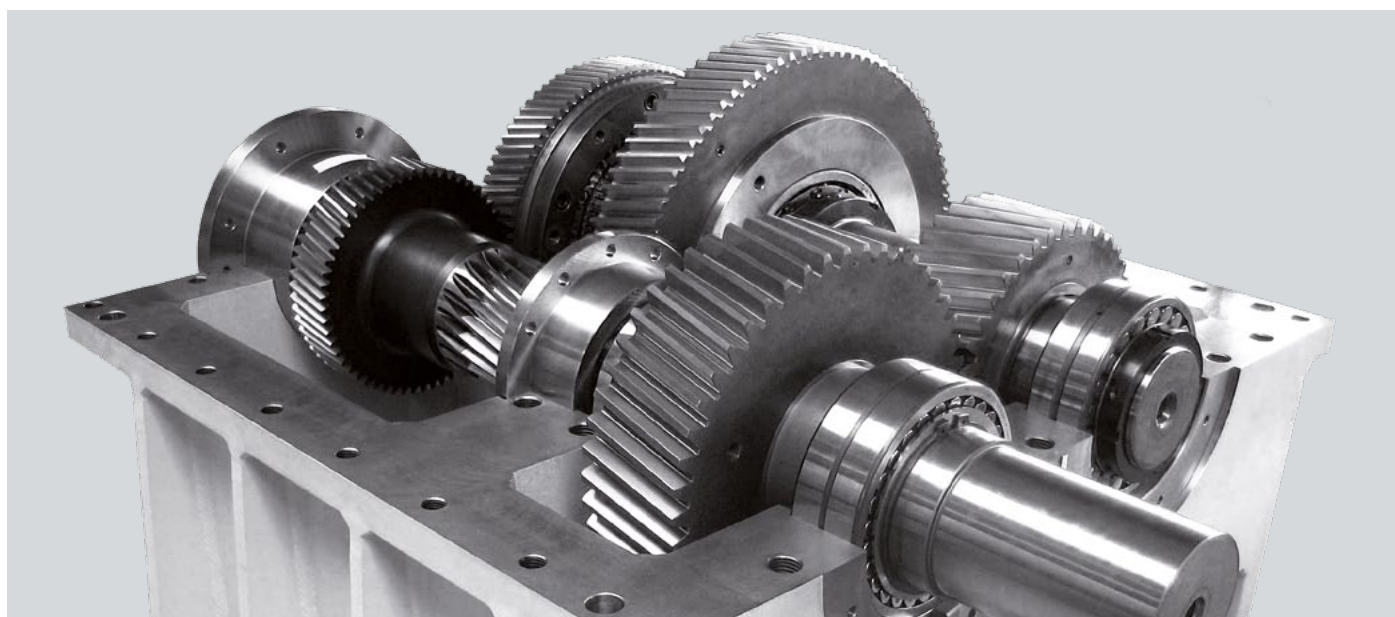
Product Range – High Performance Drive Solutions

RSGetriebe can provide solutions with the following technical data:

Power	P	MW	up to approx. 10
Speed	n_2	rpm	up to 120,000
Torque	T_2	Nm	up to 250,000
Ratio	i		from approx. 0.1 to 1,500
Gear speeds			1 to 75
Efficiency	η_{ges}		$\geq 98\%$
Noise level		dB	< 70
Gear backlash		arcmin	< 1
Axial runout		1/100	< 1

Equipment

Housing	Steel or cast iron
Bearings	Rolling or sliding bearings
Gearshift	Manual, hydraulic, pneumatic, electromechanical
Lubrication	Grease lubrication, oil splash lubrication, oil circulation lubrication with pump or separate oil supply unit
Cooling	Oil/water cooler, internal and external, oil/air cooler



FEX Extruder Gearboxes – Single-screw Extruders

The flat extruder gearbox of the FEX Series has been specially developed for the extrusion process in the plastics industry and for recycling plants with a view to the axial loads that occur. The gearboxes – available in Z or U shape – are characterized by their high power density and compact de-

sign. Precise, modular housings, available in eleven sizes, cover a complete range of models. Special sizes are built on request.

The sizes range from a centre distance of 125 to 630 mm and have been dimensioned based on the respective screw

diameters. The torques of these models lie in a range of up to 200,000 Nm with freely selectable gear ratios.

Technical data

Power	P	kW	8 to 510
Ratio	i		5 to 100 (1 to 3-speed models)
Speed	$n_{1 \max}$	rpm	up to 3,000
Torque	$T_{2 \max}$	Nm	up to 200,000
Centre distance	mm		125 to 630
Form			Z or U
Housing	Cast iron		
Lubrication	Oil splash lubrication, oil circulation lubrication with pump or separate oil supply unit		
Cooling	Oil/water cooler, internal and external, oil/air cooler		

The inputs and outputs are implemented in accordance with the customer's specifications.



FEX Extruder gearboxes in different sizes

Test Bench Gearboxes – for Highest Speeds

Test bench gearboxes for highly dynamic endurance tests must safely and consistently transmit high powers at speeds of rotation up to 120,000 rpm. Test stand gearboxes from RSGetriebe therefore meet the highest construction requirements. The gearing in particular is optimized to achieve a high efficiency with a minimum of noise emission.

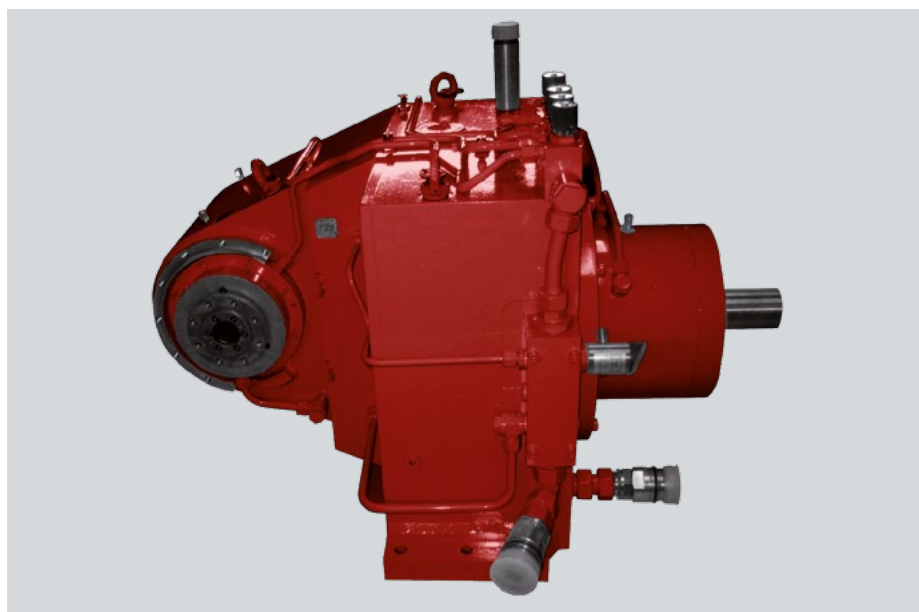
This is achieved with precision helical and straight gearing and profile and flank corrections.

The highly accurate housings are machined in-house and guarantee high-precision shaft bearing. The extremely rigid construction of the gearbox ensures exceptionally smooth and quiet running.

The high-performance gearboxes from RSGetriebe are customized to the customer's requirements and are used, among other things, for testing hybrid engines, turbine starter motors, electric motors, motor sports components, drivetrains, exhaust systems and vehicle gearboxes (cars, lorries).

Technical data

Speed	n_2	rpm	up to 120,000
Torque	T_2	Nm	up to 250,000
Power	P	kW	up to 7,400



Test bench gearboxes for hybrid engines

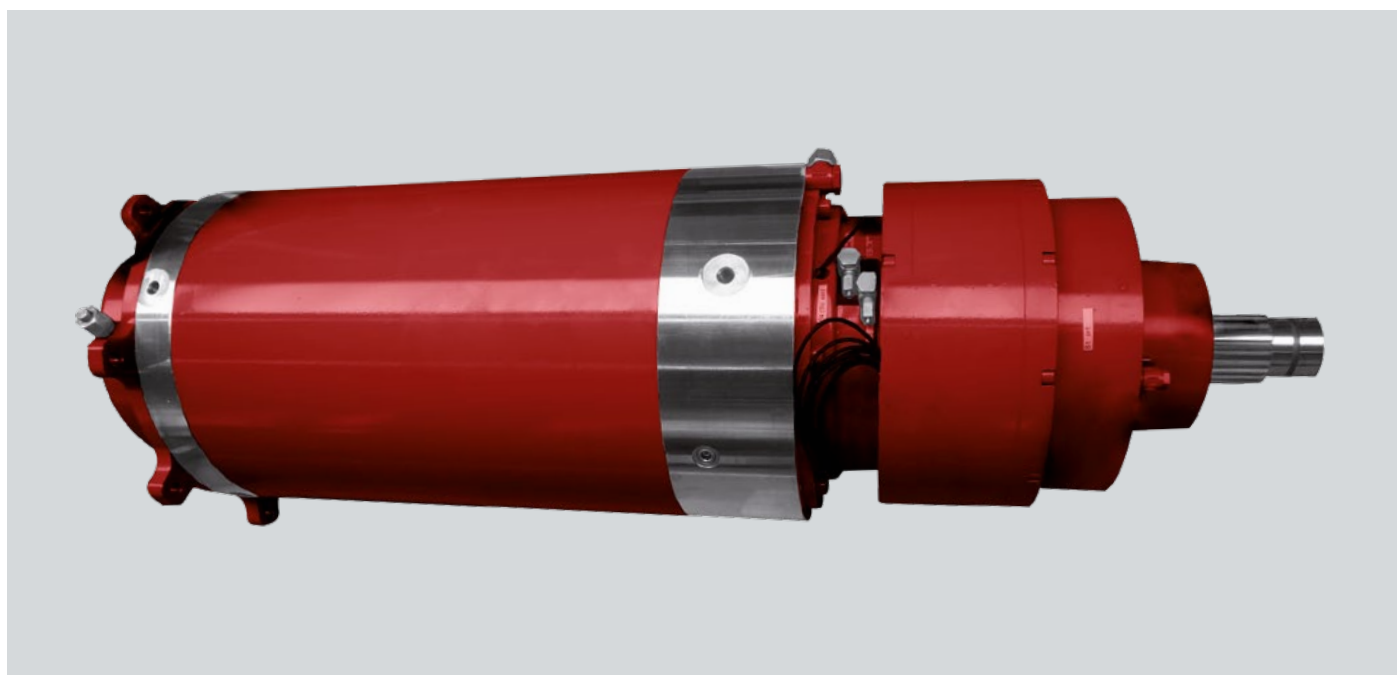
Planetary Gearbox PSD ES for Machine Tools – Compact, Strong, Efficient

Developed especially for heavy-duty machine tools and for milling machines, lathes and boring mills in particular, the planetary gearbox series never fails to impress with a power range of 30-142 kW and numerous other advantages:

- Compact series
- Modular design
- Flexible machine connection
- High power density
- Complex arrangement
- High efficiency
- Low noise level
- Low temperature level
- Disengagement of the planetary gears

The planetary gearboxes PSD ES are available with the following data:

Power	P	kW	30 to 142
Ratio	i		Depends on customer's requirements and technical feasibility
Speed	n_2	rpm	up to 12,500
Torque	T_2	Nm	up to 12,000



Spindle drive PSD30 with motor unit

Transfer Cases – Know-how for Your Application

Transfer cases distribute the input torque to multiple outputs. Based on the direction of rotation, the number of output shafts and the shaft arrangement, RSGetriebe can develop the perfect drive concept for you – individually and economically.

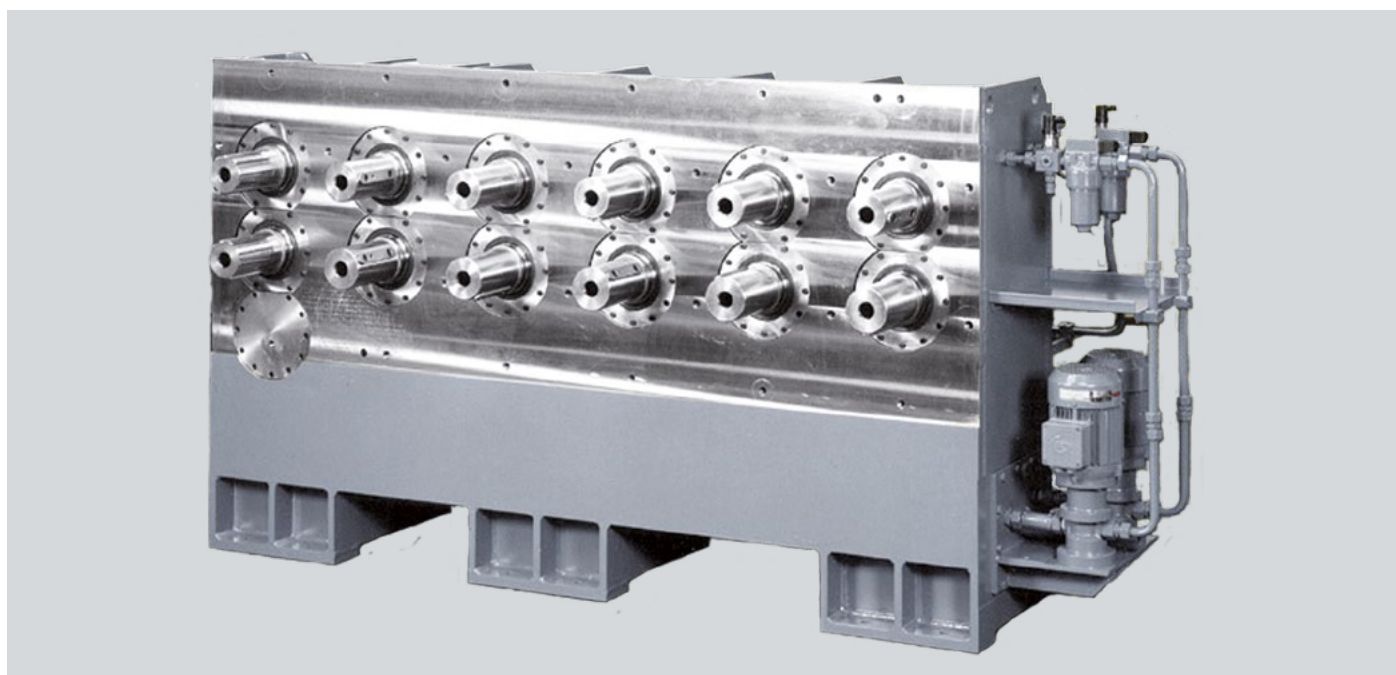
Transfer cases are used particularly often in straightening machinery and in the metal-forming industry. RSGetriebe can draw on extensive know-how when it comes to torques and straightening process loads and customizes the transfer case design to meet your spe-

cific requirements. The up to 21 shafts are designed for steady and quiet running of the straightening rolls.

The transfer cases by RSGetriebe are available with the following data:

Power	P	kW	5 to 1,200
Ratio	i		Depends on the customer's requirements and technical feasibility
Speed	$n_{1 \max}$	rpm	up to 4,000
Torque	$T_{2 \max}$	Nm	up to 25,000
Housing	Steel, cast iron		
Lubrication	Oil splash lubrication, oil circulation lubrication with pump or separate oil supply unit		
Cooling	Oil/water cooler, internal and external, oil/air cooler		

The inputs and outputs are implemented in accordance with the customer's specifications.



Transfer case for a mixing plant

Control Gears – High Speeds of Rotation and Torques

In many industries, both high speeds of rotation and high torques are needed. To achieve these, RSGetriebe offers custom control gearboxes. The main areas of use of the gearboxes – with two or more speeds – are, among others, machine tool drives, winder drives, rolling mills or test benches.

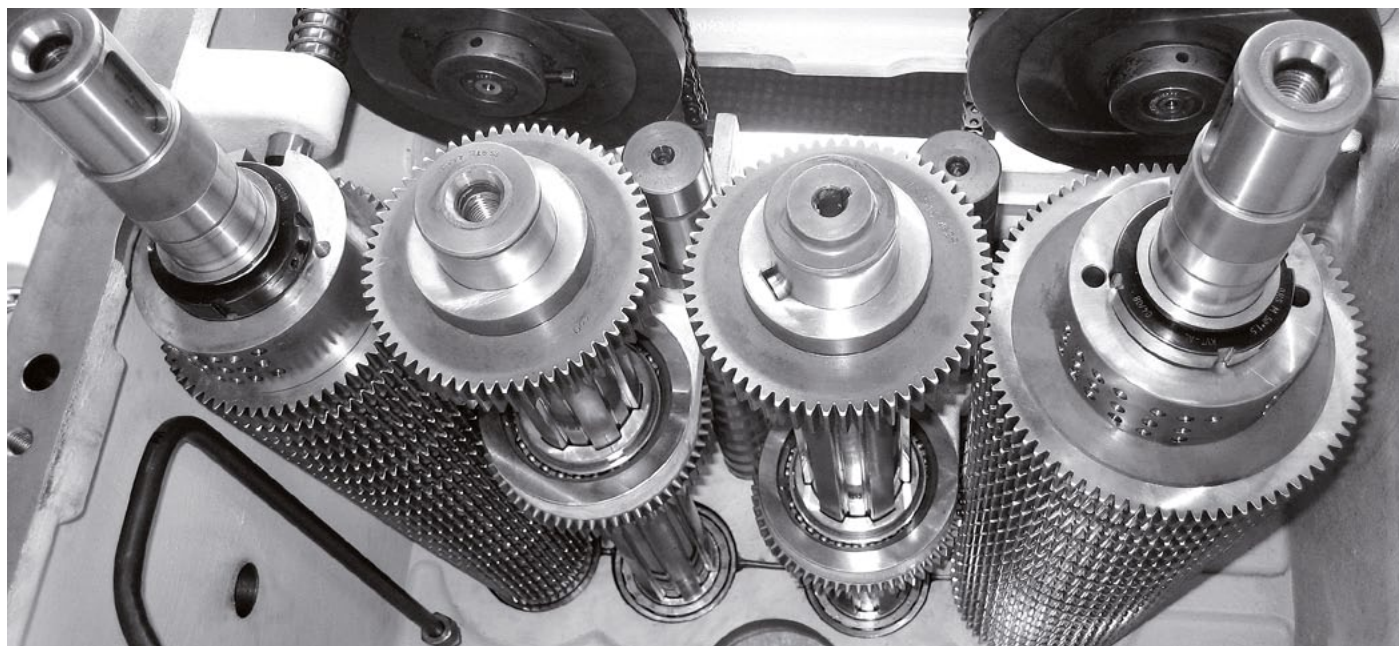
Depending on the application, shifting of the 2 to 75 speeds takes place manually, hydraulically, pneumatically or electromechanically. In order to still be able to operate economically, gear shifts can also be integrated into the standard housings from RSGetriebe's product portfolio. The result is a com-

pact gearbox that combines reduction with high speeds of rotation.

The control gearboxes from RSGetriebe are available with the following data:

Power	P	kW	up to 7,400
Speed	n_2	rpm	up to 25,000
Torque	T_2	Nm	up to 250,000
Gear speeds			2 to 75
Shifting	Manual, hydraulic, pneumatic, electro-mechanic		
Housing	Steel, cast iron		
Lubrication	Grease lubrication, oil splash lubrication, oil circulation lubrication with pump or separate oil supply unit		
Cooling	Oil/water cooler, internal and external, oil/air cooler		

The inputs and outputs are implemented in accordance with the customer's specifications.



Customized control gearbox

Low-backlash Planetary Gearboxes – Surpassing Industry Standards

Low-backlash planetary gearboxes made by RSGetriebe are used in highly demanding applications in which standard gearboxes can no longer meet the requirements. The gearboxes are individually developed according to the customer's needs and, thanks to the

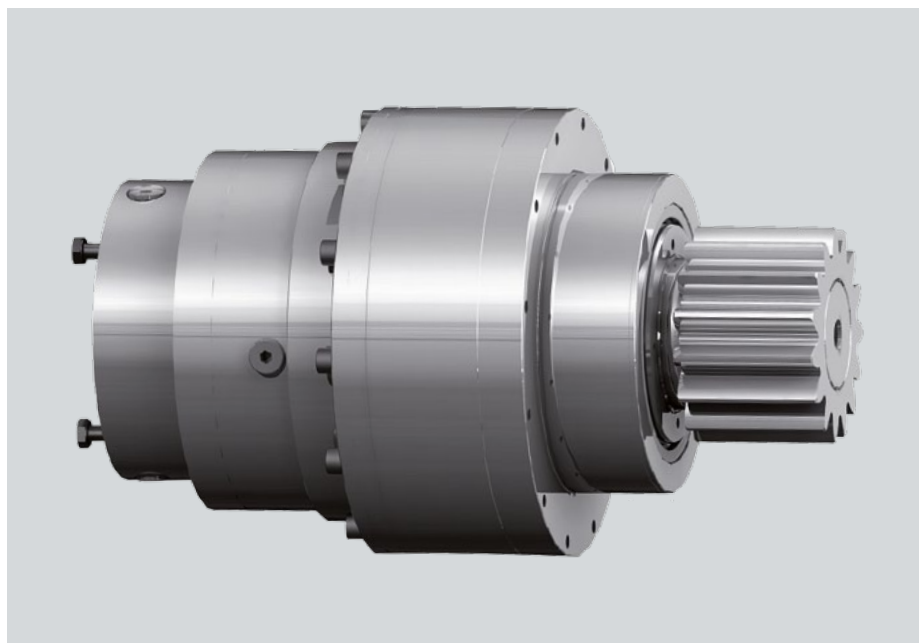
precision with which they are manufactured, guarantee a very high power density with a minimum of running noise.

The planetary gearboxes provide immense rigidity with minimum backlash even in multi-speed models, thus guar-

anteeing the highest possible dynamics and precision. These gearboxes are used, among other areas, in machine tools, in printing or packaging machinery and, on request, can also be paired with a dynamic servomotor of your choice.

The low-backlash planetary gearboxes are available with the following data:

Power	P	kW	up to 60
Ratio	i		1 to 100
Speed	n_2	rpm	up to 3,500
Torque	T_2	Nm	up to 5,000
Torsional backlash	α	arcmin	< 1



Low-backlash planetary gearbox, master/slave drive

Turbo Gearboxes: Highest Outputs – Minimum Loss

Turbo gearboxes from RSGetriebe are the right choice for all applications that demand high outputs and very low loss. Customers in the power generation, feedwater pump or compression fields have been successfully relying on RSGetriebe for many years. The turbo

gearboxes are characterized by the use of virtually wear-free components. The result: An extremely long service life and low-maintenance operation.

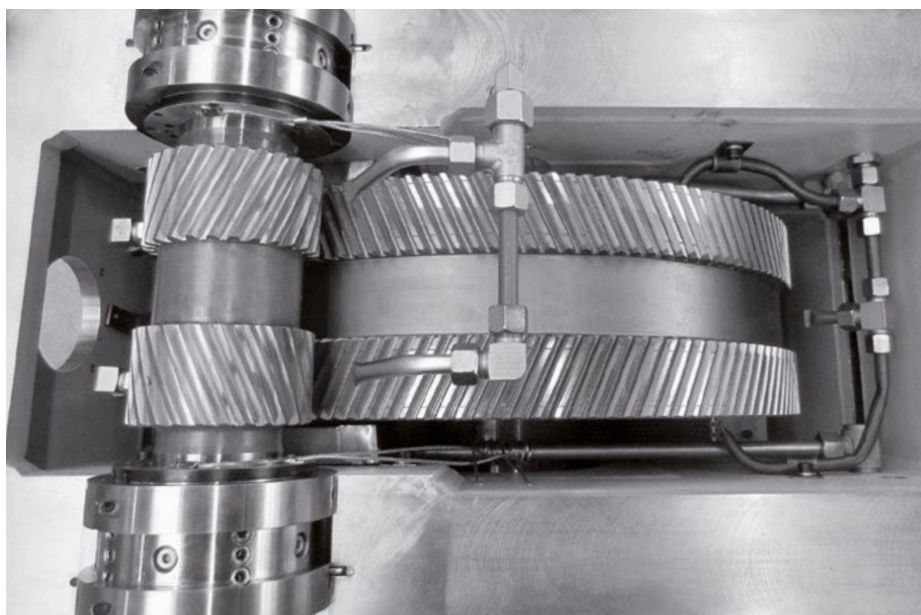
RSGetriebe develops turbo parallel shaft gear units and turbo planetary

gearboxes, which are custom-designed based on the requirements.

The turbo gearboxes by RSGetriebe are available with the following data:

Ratio	i	Depends on the customer's requirements and technical feasibility
Speed	$n_{2 \max}$	Up to 24,000 (with anti-friction bearings) Up to 120,000 (with sliding bearings)
Housing	Steel, cast iron	
Lubrication	Oil splash lubrication, oil circulation lubrication with pump or separate oil supply unit	
Cooling	Oil/water cooler, internal and external, oil/air cooler	

The inputs and outputs are implemented in accordance with the customer's specifications.



Turbo gearbox

Heavy-duty Gearboxes – Designed for the Highest Torques

Multi-speed spur or helical bevel gearboxes – also referred to as heavy-duty gearboxes – are often used in the heavy industry to transmit very high torques. RSGetriebe provides you with heavy-duty gearboxes that are adapted to the respective application and can be equipped with a shifting stage, if

required. The experts at RSGetriebe customize the gear geometry and the lubrication system to the respective application to guarantee optimum service life and operational reliability.

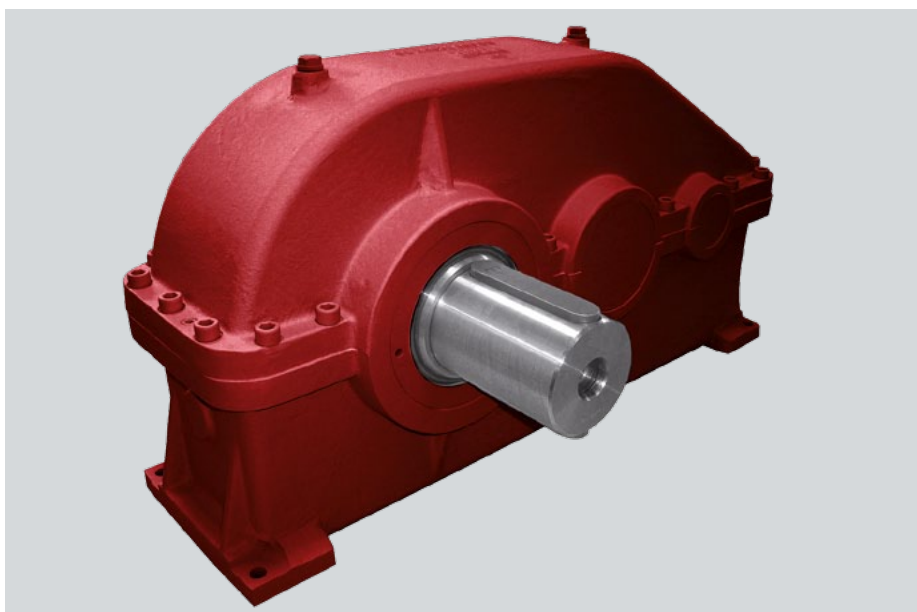
Heavy-duty gearboxes are used in drives for large mixers, bucket wheels, cranes

and cable winches. They are designed for highest performance under extreme conditions.

Heavy-duty gearboxes made by RSGetriebe are available with the following data:

Ratio	i	Up to approx. 3,000	
Speed	$n_{2 \text{ min}}$	rpm	0.5
Torque	$T_{2 \text{ max}}$	Nm	Up to 250,000
Housing	Steel		
Lubrication	Oil splash lubrication, oil circulation lubrication with pump or separate oil supply unit		
Cooling	Oil/water cooler, internal and external, oil/air cooler		

The inputs and outputs are implemented in accordance with the customer's specifications.



Heavy-duty gearbox

Flat Gearboxes – Customized Economic Solution

Flat gearboxes by RSGetriebe are tried and tested solutions in many different branches of industry. They are used, for example, in the mixing and stirring technology, in the steel industry and in the materials handling industry. The gearboxes are available in eleven sizes and cover a range of applications.

Thanks to the standardized modular system, the flat gearboxes can be individually and economically tailored to your plant.

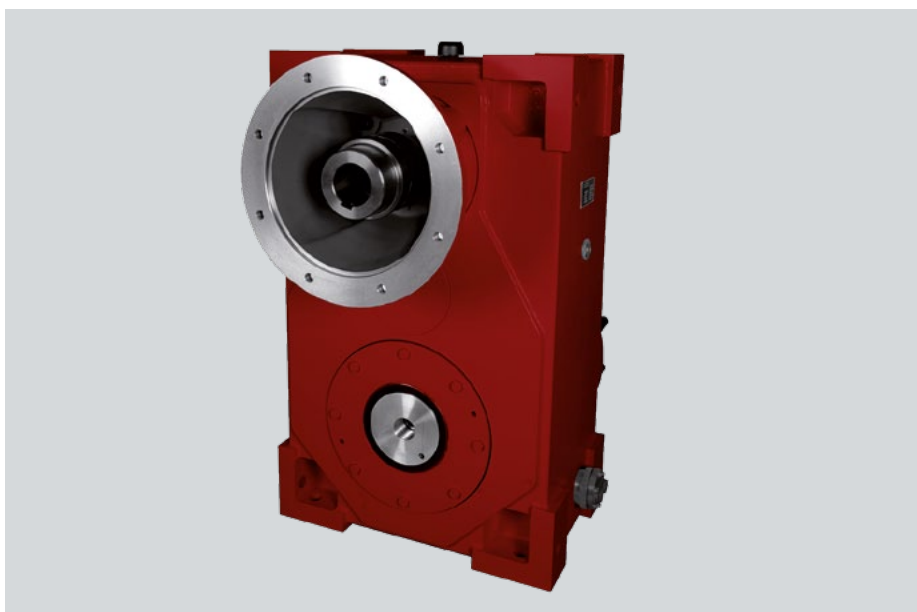
The flat gearboxes are characterized by a high power density and compact design. The gearboxes are standardly

available in Z or U form. They can, however, be equipped with a bevel gear stage on request.

Technical data:

Power	P	kW	8 to 510
Ratio	i		5 to 100 (1 to 3-speed models)
Speed	$n_{1 \max}$	rpm	Up to 3,000
Torque	$T_{2 \max}$	Nm	Up to 200,000
Centre distance		mm	125 to 630
Form			Z or U
Housing	Cast iron		
Lubrication	Oil splash lubrication, oil circulation lubrication with pump or separate oil supply unit		
Cooling	Oil/water cooler, internal and external, oil-air cooler		

The inputs and outputs are implemented in accordance with the customer's specifications.



Flat gearbox

Toothed Parts & Drive Elements

RSGetriebe is your competent partner for contract machining of toothed components. Whether you need a single part or a small series, RSGetriebe will manufacture cubic or rotationally symmetric toothed parts and drive elements

for you – flexibly, on time, reliably and to the highest quality standards.

Our comprehensive machine inventory, in which investments are always being made, and our qualified employees

guarantee the best machining results. At RSGetriebe, you get everything from one source: turning, milling, gear cutting, grinding, gear grinding, balancing, aligning and assembly.

Flywheel masses according to individual requirements

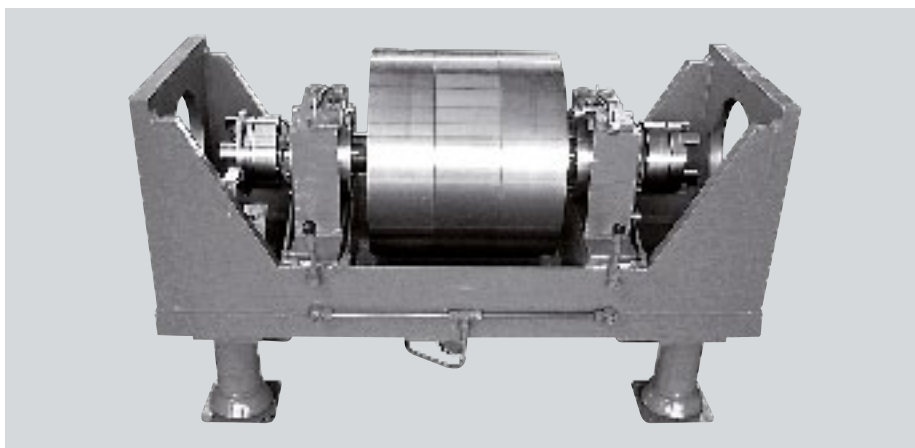
RSGetriebe supplies flywheel masses for many different areas and branches of industry. As energy accumulators, for stabilization, or for mass simulations – RSGetriebe develops and

produces custom flywheel masses to meet your requirements. Thanks to innovative, state-of-the-art bearing concepts and material machining to strict tolerances, minimum friction losses

and extremely low vibration are guaranteed – even at up to 16,000 revolutions per minute.

Flywheel masses are available with the following data:

Speed	n_2	rpm	Up to 16,000
Torque	T_2	Nm	Up to 10,000
Mass moment of inertia	I	Kgm ²	Up to 70
Housing	Steel, cast iron		
Lubrication	Grease lubrication, oil lubrication		



Engageable flywheel for testing hydraulic motors

Quality and precision – certified to ISO 9001:2008, RSGetriebe guarantees that all special gearboxes and drive elements represent the highest level of quality at all times.

In Sonthofen/Germany, we develop and produce gearbox solutions for various industries.

Our customers include manufacturers of machine tools, plastic and rolling machines as well as producers of food and packing machines, test benches and textile machines. Our high-quality

drives can also be used in building, printing and paper machinery as well as in the chemical industry.

A high-quality, state-of-the-art machine park and absolute diligence in assembly form the best foundation for your and our success.

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