

  
Springs

  
Gear and motor  
construction

  
Rollers

  
Rails

  
Foundries

  
Turbines

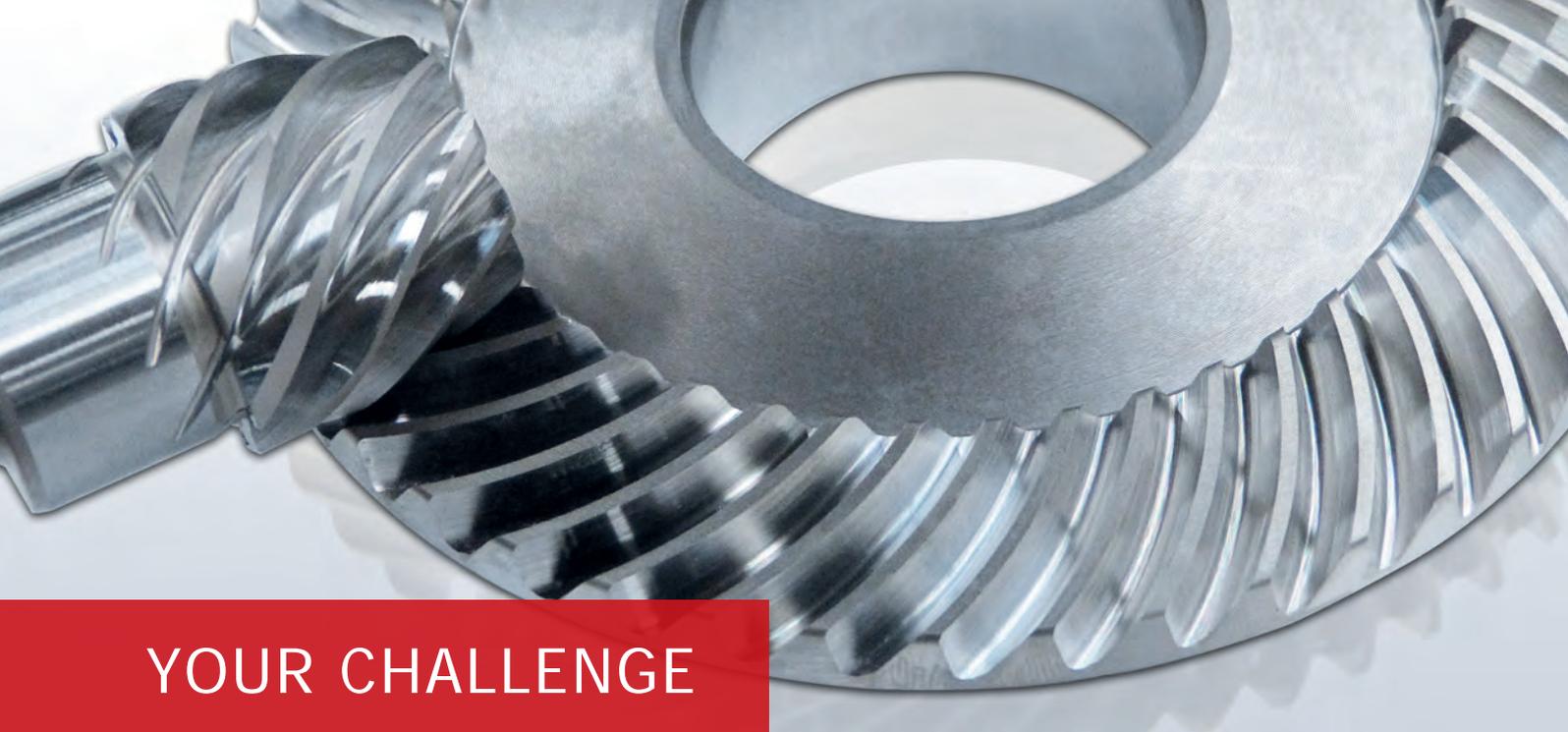
  
Machinery and  
tool construction

  
Skiing

**EXCELLENCE** 

IN GRINDING

**GEAR AND MOTOR  
MANUFACTURE**



## YOUR CHALLENGE

### EFFICIENT PROCESSES. CONSTANT PARAMETERS. CONSISTANT QUALITY.

The machining of gearing in gear and engine manufacture poses complex challenges for a grinding tool – the quality requirements are high and there are numerous influencing factors. The following factors have a decisive influence on the grinding result and the process costs involved. The interplay of all factors ultimately guarantees the optimal and central functioning of the end product: dimensional accuracy and contouring accuracy thanks to process-stable and reproducible production of the gear wheels. All of the following parameters are taken into account in the conception and production of THELEICO abrasive wheels:

#### **A sense of proportion** (precision)

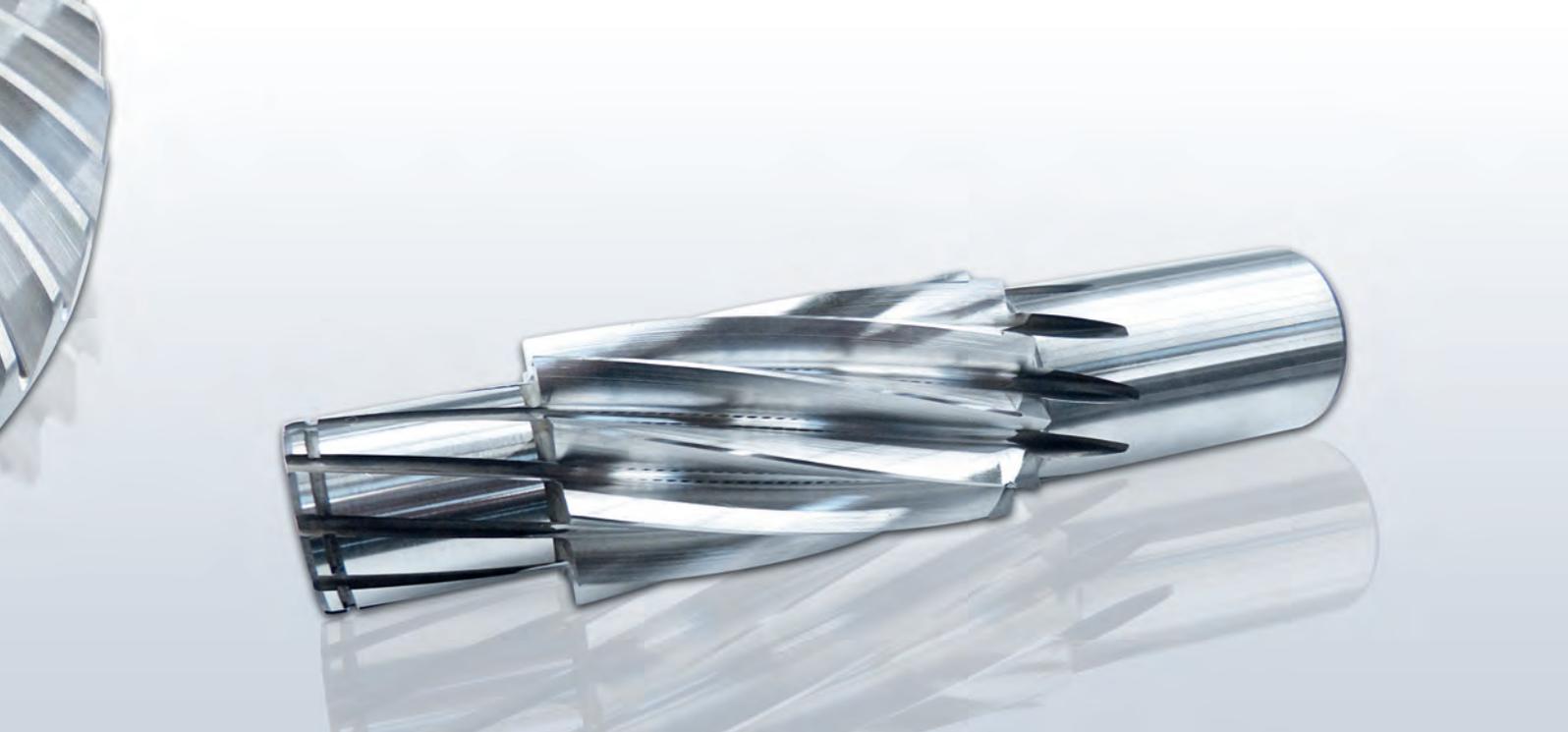
Adherence to size tolerances is extremely important. Incorrect machine parameters and the use of unsuitable abrasive wheels can lead to severe dimensional and contouring inaccuracies.

#### **Staying cool** (grinding temperature)

High material removal performance without structural damage is the aim when grinding tooth flanks. A low grinding temperature is decisive for the grinding result and the quality of the surfaces. An excessive thermal load can lead to thermic structural transformation and encourage crack formation.

#### **Dressing less** (dressing intervals)

In order for the aggressiveness, axial true run and radial runout to be retained, abrasive wheels must be dressed at particular intervals. However, each dressing process costs time and money. The aim is to prolong the dressing intervals and to keep the dressing material removal as slight as possible each time.



### **Grinding more quickly**

(material removal per period)

You would like to grind cost-effectively! For an efficient grinding process, it is necessary to achieve the maximum material removal performance. An efficient grinding process is only possible if the hardness, binding and abrasive grain of the grinding tools are optimally adapted to the machine and material.

### **Saving and ensuring quality** (reproducibility)

The grinding behaviour of the grinding tool should be reproducible over its whole service life and the quality, even through different batches, should remain constant. This saves you from constantly having to adjust the grinding parameters.





## OUR SOLUTIONS

THELEICO is one of Europe's leading manufacturers of abrasive wheels for the gear industry. Thanks to our application-oriented technical know-how, we have developed into the acknowledged specialist on the global market. As a specialist, we offer you our expertise... So that you not only perform your precision-grinding task well, but also economically.

### **Targeted advice – we take a good, close look**

In order to guarantee the selection or development of an optimal product for your specific application and/or the setting of the optimal grinding parameters for your process, it is essential to accurately evaluate all of the grinding process' defining parameters. Just as much emphasis is placed upon technical top performance here as upon cost-effectiveness and process reliability.

Rely on our specialists and on more than 90 years of experience in the manufacturing of abrasive wheels. We will also be happy to train your personnel regarding the basics of hard and fine machining and the selection and use of our products.

### **Custom-made abrasive wheels for your special requirements**

Whether it be a sintered corundum or friable corundum version, ceramic-bonded or artificial-resin-bonded, with or without grinding-active additives, geometrically defined pore space for roller or profile grinding – our extensive product portfolio also offers the solution for your applications.

### **Extensive range – short-notice custom production**

In addition to the extensive THELEICO range, with a multitude of dimensions and specifications, we have at our disposal all the means to provide versatile and short-notice production of custom-made special products. We guarantee the best possible selection – with alternative suggestions!

For this, we use raw materials from renowned suppliers with whom we have cooperated and collaborated in product development for years and decades.

### **Quality throughout – from the raw material to the finished product to the on-site service**

THELEICO stands for reliability and precision. This not only applies to our tools, but to all of our processes as well. High-quality raw materials, qualified and motivated employees and highly modern production and checking processes guarantee reliable reproducibility in the application. We will deliver your products to you flexibly and reliably!



# WHY PROCESS OPTIMISATION IS SO IMPORTANT

The “gear grinding” work process at the end of the process chain ultimately decides the quality of the gear wheel produced. Despite this, the cost of the abrasive wheel makes up only a small portion of the total costs. As such, it is necessary to improve the added value potential by using an abrasive wheel that has been optimised for the application. This can substantially reduce the overall process costs:

## Application examples of THELEICO gear grinding discs:

### REISHAUER RZ150

Module	1.5	Number of Teeth	39
Pressure Angle	17.5°	Wheel Width	17.0

### GLEASON TWG300

Module	3.5	Number of Teeth	22
Pressure Angle	20°	Wheel Width	43.0

	Competitor	THELEICO
Product	XXX	44A 100-9 J11VM3250
Grinding Time	01:22 min	00:39 min
Dressing Cycle	45 parts	113 parts

	Competitor	THELEICO
Product	XXX	44A 100-9 J11VM3250
Grinding Time	01:35 min	00:58 min
Dressing Cycle	23 parts	30 parts

Values dependent on the respective specific application parameters.

If, as a precondition, grinding results of consistent quality are being achieved, the grinding process can be optimised by shortening the machining time and/or processing time, reducing the set-up times and lengthening the dressing intervals. These three points interact with each other and cannot be considered separately. **This will enable you to reduce your process costs.**



## A RANGE FOR SUCCESS

### ABRASIVE QUALITIES, AREAS OF APPLICATION AND MODELS.

Module	Abrasive Wheel Model/Type *				Product Example
	Grain Type and Size	Hardness	Structure	Bonding	Wheel Name

Cont. generating grinding on Reishauer, Liebherr, Gleason, Kapp

Generating Grinding	< 1.0	High-grade corundum comb., 150	H-K	12-15	Ceramic	46A 150-9 J 12 VM3...
		High-grade corundum comb., 150	H-K	6-7	Ceramic	40A 150-0 K 6 V9...
	1.0-2.5	High-grade corundum comb., 120	H-K	10-11	Ceramic	44A 120-0 J 11 VM4...
		High-grade corundum comb., 150	H-K	6-7	Ceramic	40A 120-0 K 6 VM3...
	2.0-3.5	Sintered corundum, 100	H-K	12-15	Ceramic	124A 120-0 J 12 VM4...
		High-grade corundum comb., 100	H-K	10-11	Ceramic	44A 100-0 J 11 VM4...
		High-grade corundum comb., 100	H-K	10-11	Ceramic	44A 100-9 J 11 VM3...
	3.5-8.0	Sintered corundum, 100	H-K	10-11	Ceramic	124A 100-9 J 11 VM4...
		High-grade corundum comb., 80	H-K	10-11	Ceramic	46A 80-0 I 11 V7...
		High-grade corundum comb., 80	H-K	10-11	Ceramic	44A 80-0 J 11 VM4...
		Sintered corundum, 80	D-G	10-11	Ceramic	24A 80-0 G 11 VM4...

**Profile grinding on Liebherr, Kapp, Niles, Gleason-Pfauter and Höfler machines.**  
**When profile grinding gearing, the grain size is not always determined according to the module. In most cases, the Ra values are decisive.**

Profile Grinding	8.0-14.0	High-grade corundum comb., 80	D-G	12-15	Ceramic	44A 80-9 F 13 VM3...
		Sintered corundum, 80	H-K	10-11	Ceramic	24A 80-9 I 11 VM4...
		Sintered corundum, 60	D-G	12-15	Ceramic	122A 60-9 F 13 VM3...
		Sintered corundum, 54	D-G	10-11	Ceramic	128A 54-9 E 11 VM4...
		Sintered corundum, 54	D-G	10-11	Ceramic	324A 54-9 G 11 VM3...

\*Explanations of the abrasive wheel types can be found on the website at [www.theleico.de/en](http://www.theleico.de/en)



# THELEICO EXCELLENCE

As a specialist for grinding technology, THELEICO stands for safety, expertise and reliability. Our daily actions and our services are shaped by our promise to customers: "EXCELLENCE IN GRINDING".

## EXCELLENT SAFETY

## EXCELLENT COMPETENCE

## EXCELLENT PROCESS

**Excellent safety –  
for greater safety while fulfilling  
the highest requirements**

To meet the highest requirements in your grinding processes, we guarantee you product safety and consistent quality in the use of our products and services.

**Excellent competence –  
for custom-made solutions to fulfil  
your grinding requirements**

Every day we make use of our great experience in grinding technology to develop innovative solutions for today, with the latest technology, and to develop and manufacture adapted products for your application.

**Excellent process –  
for the greatest reliability, to ensure  
reproducible product quality**

We guarantee detailed acceptance of your grinding process data to develop a custom-made grinding tool, in order to thus optimise your processing with our individual solutions and to reduce your process costs.

**Benefit from our excellence!**





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